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Change in Legal Status and Impacts on Livelihoods and Biodiversity Resources, Mt. Elgon, Uganda

By Gosalamang Ditiro, Paul Vedeld and
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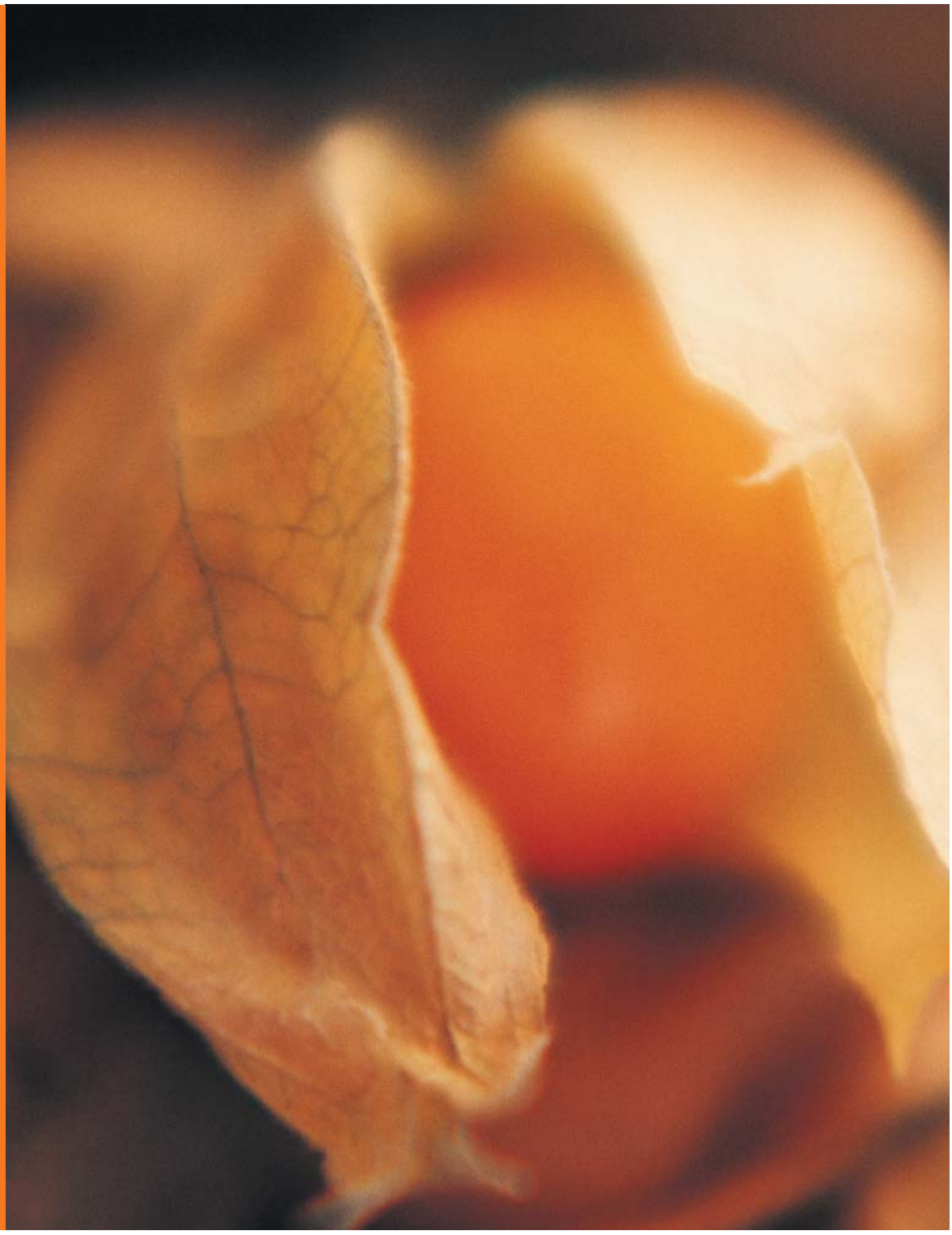

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LIST OF ACRONYMS

ACODE	Advocates Coalition for Development and Environment, Uganda (NGO)
CARE	Cooperative for Assistance and Relief Everywhere (NGO)
CBD	Convention on Biological Diversity
CFM	Community Forest Management
CFR	Central Forest Reserves
CCT	Community Conservation Team
CPI	Community Park Institute
EARO	Eastern African Regional Office
EU	European Union
FACE	Forests Absorbing Carbon Emissions project
FAO	Food and Agricultural Organization
FD	Forest Department
IIED	International Institute of Environment and Development
IUCN	International Union for the Conservation of Nature
LC	Local Council
LFR	Local Forest Reserves
MECDP	Mount Elgon Conservation and Development Project
MENP	Mount Elgon National Park
MERECP	Mount Elgon Regional Ecosystem Conservation Programme
MoWLE	Ministry of Water, Lands and Environment
NES	National Environment Statute
NARO	National Agricultural Research Organisation
NEMA	National Environment Management Authority
NFA	National Forest Authority
NP	National Park
NGO	Non-Governmental Organisation
NRM	National Resistance Movement
NORAD	Norwegian Agency for Development Assistance
PEAP	Poverty Eradication Action Plan
PMU	Project Management Unit
RUA	Resource Use Agreement
RUC	Resource Use Committee
SIDA	Swedish International Development Authority
THF	Tropical High Forests
UFRIC	Uganda Forest Resources and Institutions Centre
UNP	Uganda National Parks
USAID	United States Agency for International Development
UWA	Uganda Wildlife Authority

ABSTRACT

Mount Elgon forest was gazetted under the Forest Department from 1938. The status was changed to a National Park in 1993. Its management was transferred to the wildlife authorities. We assess impacts of the change in legal status on people's livelihood by means of a modified household economic model. Key informant interviews and household surveys were used for data collection.

The legal status change led to a redistribution of rights of access and control over natural resources. The change had negative effects on local people's livelihood. 72% of the households used to collect various resources from the forest reserve, while only 30% collect similar resources from the park. 14% of the households used to generate cash incomes from the forest reserve compared to only 2% reporting to generate cash incomes from the national park.

When collaborative management agreements were established after the change in legal status we found a substantial difference in resource access. We found that 40% of the households in Mutushet village with an agreement, access forest products compared to 13% in Kortek who only illegally access forest products. The collaborative agreements have thus reduced the adverse livelihood effects of the legal status change.

Even if the biodiversity conditions are reported to improve after the transition, significant decreases are still observed in stem tree counts per hectare, indicating that tree-harvesting activities continue in two studied forest patches even after the transition to a National Park.

A revised model for collaborative management is recommended where more resources crucial to people's livelihoods are included in resource use agreements. One should also facilitate increased cooperation between the Uganda Wildlife Authority and the National Forest Authority in the management of forest resources from the park and in outreach activities with local people.

***Keywords**: Mt.Elgon, Legal Status, Impacts, Rights, Endowments, Livelihoods, Biodiversity, Collaborative Resource Use Agreements.*

1. BACKGROUND

1.1 INTRODUCTION

Uganda is well endowed with natural resources and some 24% is at present under forest cover (20.4 million ha). Uganda's forests are, as in most African countries, on the decline. From an estimated 52% of Uganda's surface in 1890, now only 24% remains, deforesting at a rate of 55, 000 ha/year basically due to land clearing for agriculture (FAO, 2002). In addition to deforestation, there is also degradation of existing forests. The Uganda National Forest Policy (2000) estimates that 280, 000 ha of tropical high forests are severely degraded, most woodlands are heavily degraded, and most of forest land losses also occur here. In the CFRs, some 35% of the forest cover is now lost, and the situation for the plantations is also severe, with less than 30% currently standing.

The major driving forces behind deforestation is mainly clearing for agriculture, fuel wood and charcoal production, over-harvesting (4 times more than re-growth) and ill-planned, -monitored and -controlled forest management, encroachment in the CFRs from the 1970s and 1980s and unclear boundaries, urbanization pressures on urban and semi-urban reserves.

70% of forest land is found on private land, while some 15% is National Parks and Reserves managed by the Uganda Wildlife Authority (UWA), and some 12% is managed by the National Forestry Authority (NFA) as central forest reserves (CFRs). A small share of forest land (5,000 ha) is held by local governments as local forest reserves (LFRs) (National Biomass Study, 1999). The management responsibility is thus divided between various government and semi-autonomous organizations. A modern legal framework of policies, acts, statutes, and regulations has been developed and implemented to protect and regulate the use of natural resources in the National Forest Plan, 2002, and the National Forest Act, 2002.

Local people have traditionally depended on forest resources for a broad range of goods and services such as energy (firewood), building materials, medicines, food security, cash

income generation, and also environmental services such as clean water retention, soil erosion prevention, and cultural practices (FAO, 1992). There were locally functioning traditional social institutions with particular rules, values and norms regulating forest use, and local organizational structures were in place to plan and monitor the use. Indigenous knowledge safeguarded in many ways natural resources.

In the colonial period, forest reserves, national parks and policies that guided the utilization of natural resources were established, as there was a concern of overexploitation of natural resources by local people. These were also related to broader schemes in order to differentiate the use of various particular areas for crop production, for livestock grazing, for hunting and for biodiversity conservation, designed to settle the needs of colonial authorities and settlers in particular (Kamugisha, et al., 1997, Gibson 2000).

Over the years, different types of protected areas (national parks, wildlife reserves, sanctuaries and controlled hunting areas and forest reserves) have been established in Uganda to conserve wildlife and other biodiversity resources.

There are traditionally two different policy styles or approaches to conservation management; the Fortress Approach separating people and resources and on the other hand various variants of community involved approaches. During colonial times, natural resources and conservation were controlled by the central government. The "Fortress Conservation Approach" or "Traditional Protectionism" implied the creation of protected areas where people were excluded (Kiss 1999; Vedeld 2002; Brouchington 2000; Adams and Murphree 2001; Hutton 2005). Pristine nature was an ideal.

Uganda has had a long history of civil conflicts after independence that also led to depredation and degradation of many protected areas and forests (Republic of Uganda 1999). President Amin encouraged local people to resettle in forest reserves and national parks. A policy was also introduced where many local forest reserves were put under central control as central forest reserves (Sjaastad et al 2007). A number of local forest

reserves were also gradually being converted for other purposes. The forests' legal status was also used in politics to generate support, and the National Resistance Movement (NRM) re-introduced local forest reserves through decentralization policies.

A major and continuous historical process in Uganda has been a governmental (both colonial and postcolonial) alienation of people from forests and from land within the forests. There are substantial legal disputes over conservation in Uganda, and almost all protected areas and their boundaries are contested by local people and their supporters. The protected areas are conflict-ridden with disagreements related to encroachment, a trail of failed re-settlement schemes and policies, a conspicuous lack of compensatory measures, lack of transparency and many legal trials of boundary demarcation, disputed evictions and a general land and forest resource deprivation. These conflicts are not helped by high population growth and increasing landlessness, and by weak protected area and local government institutions in charge of area management (White 2002, Acode 2005). It is estimated that several hundred thousand people are affected by actual eviction or being in eviction processes (Acode, 2005, NFA, 2005).

The ratification of the Convention on Biological Diversity (CBD) by Uganda in 1993 brought integration of biodiversity objectives within national policies, including conservation of biological diversity, sustainable use of its components and fair and equitable sharing of benefits from the utilization of resources (NEMA 1998; Republic of Uganda 1999; NEMA 2001).

Current policy trends in Uganda now follow a decentralized "community conservation" approach as an alternative, where local people to some extent are invited into decision-making (IIED 1994). Since the Ugandan Constitution (Republic of Uganda 1995) which urges the State "to promote rational management of natural resources as a measure to safeguard and protect biodiversity", a number of regulations have been imposed to protect the Ugandan environment, including the conservation and sustainable use of biodiversity. Parallel with the implementation of the decentralization process in Uganda, several state forests (Mt. Elgon, Rwenzori, Semliki, Mgahinga, Kibale and Bwindi) were

transferred from the Forest Department (FD) to the Uganda Wildlife Authority (UWA) between 1991 and 1993 (Scott, 1994). The management of forest reserves was thus transferred from the FD to Uganda National Parks (UNP). The need for increased protection of these resources was the formal reason for change, as the reserves had been severely affected by encroachment taking place during the periods of breakdown of law and order (Scott, 1994). In 1996, the Game Department (GD) was merged with UNP to form UWA.

With the establishment of forest reserves, game reserves and national parks in Uganda, mandates for forest area management was given to the Forest Department, while UNP was responsible for wildlife management in national parks, and GD for wildlife outside national parks.

The transition of Mt. Elgon has gone through two separate stages: first the transition from a forest reserve to a national park (1993) with substantial changes in legal frameworks, in distribution of powers, authority, resources and executing agencies and in field personnel and competence working with local people. The transition implied substantial changes in the relationships between people and the State and between people and the forest both in terms of land access and rights, and also in terms of what they were allowed to access and utilize. The second stage (from 1995) came with a policy change within UWA, moving in a more collaborative direction, also gradually establishing Resource Use Agreements with neighboring villages. This was also started around Mt. Elgon National Park.

Not only the change in legal status, but also in management authority and in the type of officials operating in the field, has had important impacts on local people's ability to access and manage forest resources for their survival and livelihood.

1.2 RESEARCH OBJECTIVES

This paper seeks to address the following objectives:

1. What was the nature and history of the change in legal status of Mt.Elgon?
2. What is the present livelihood situation of local people?
3. What was the impact of the change upon local people's livelihoods?
4. What are differences in adaptations in local communities with and without resource use agreements?
5. How has the change impacted forest conditions?

1.3 JUSTIFICATION

Studying the change in legal status and management system in the Mt. Elgon Forest Reserve is crucial for providing insights into impacts for local people.

Transforming forest reserves into national parks is a global trend readily observed in other parts of Africa and throughout the world. This change is normally implemented to pursue goals of conservation or preservation of natural resources i.e. providing natural resources a higher status of protection to ensure their sustainability. In some cases the conversion is carried out under substantial pressure from international organizations (Mehta *et al*., 1999). One concern is that in most cases, the governments are not seen to take traditional rights nor the needs of local communities that depend on such natural resources for their day-to-day survival into account when effectuating the changes. This study thus has broad relevance, both to other forest areas converted in Uganda, but also to countries contemplating to transform forest reserves, game reserves or catchment forest reserves into national parks or in general imposing stricter conservation regimes in already protected areas.

2. THEORETICAL FRAMEWORK

2.1 THEORETICAL APPROACH

One theoretical approach used in this paper is a modified household economic model (Vedeld, 2002) presented in Figure 1. It is used to assess impacts of the change in management system on livelihoods of local people depending on natural resources from the Mt. Elgon Forest Reserve. From a modified household economic approach, it is assumed that households control endowments, including land, labour and capital (Sen, 1981). For land, forest resources are also included (Nabanoga and Gombya-Ssembajjwe, 2001, Vedeld 2007).

Sen and Dreze (1990) define endowments as a person's original bundle of ownership. The bundle can be limited or extensive, but what an individual has access to will directly depend on what these bundles are. Entitlements constitute what the person is able to generate through various transformation processes of the endowments into a set of commodities that a person can utilize. Such transformation of endowments into entitlements includes processes of production, exchange and reciprocal gifts and bartering. The transformation ability is not only dependent upon the individual but also depends upon external factors and the person’s access to social and cultural capital.

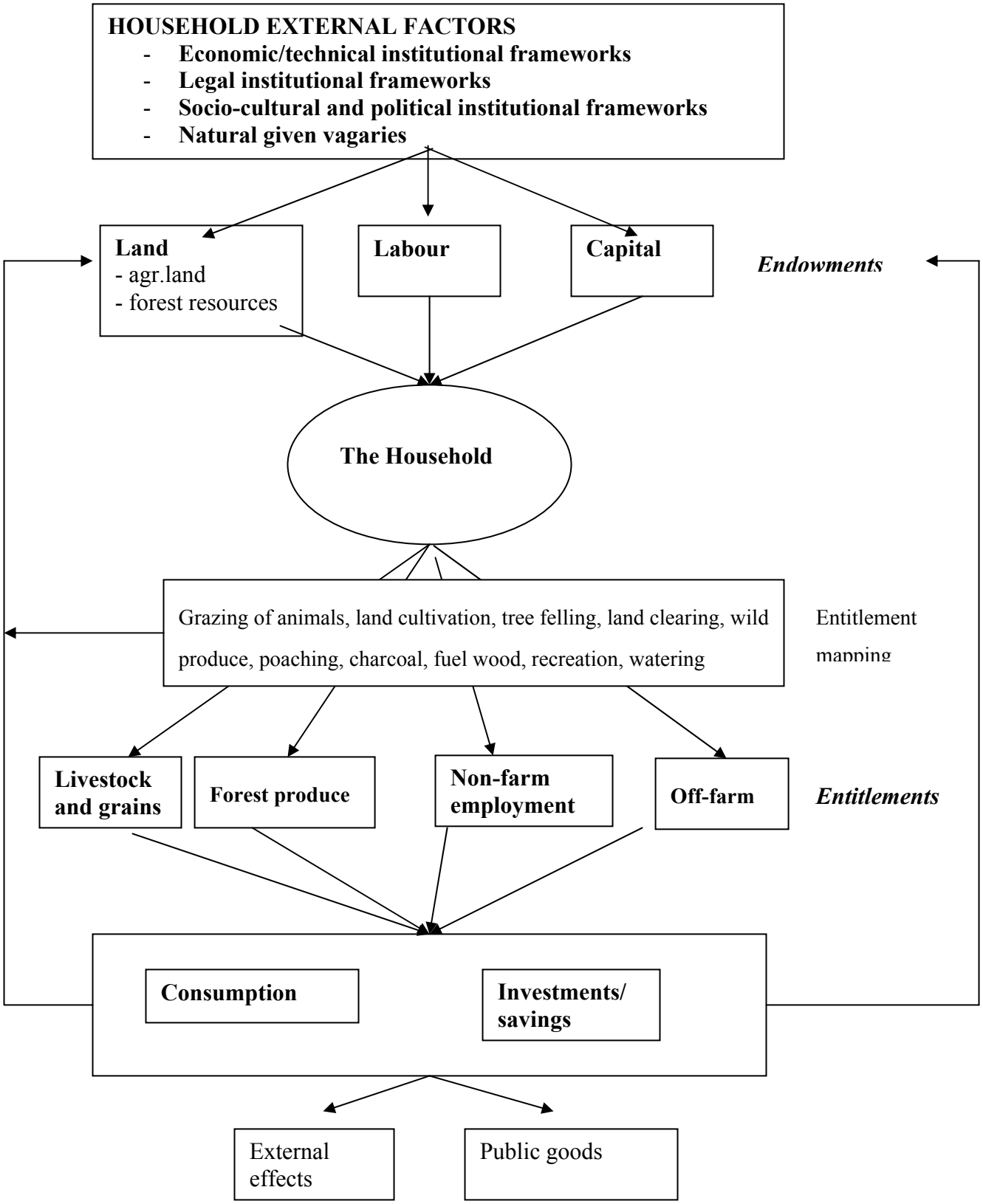


Figure 1. A modified household economic model (from Vedeld, 2002)

2.2 EXISTING STUDIES FROM THE AREA

Mt.Elgon, being among the less flamboyant parks in Uganda, is not as much studied as some other parks. However, over the last years some research has been undertaken, including by Makerere University in co-operation with the Norwegian University of Life Sciences in Aas, Norway (Jankulovska, 2003, Gosamalang, 2003, Katto, 2004, Namugwanya, 2004, Sletten 2004, Myhren 2007, Kawuki, 2007).

A study of the Kapkwai settlement, one of the parishes bordering Mt. Elgon National Park in Kapchorwa District in 2001, revealed extensive forest use by local people in adjacent settlements (Gombya-Ssembajjwe et al., 2001). Over 80% of the sampled plots revealed evidence of consumptive use of the forest. The forest is a source of fuel wood, food, building materials, medicine and water. The forest was also used for grazing livestock up to 1995. However, grazing in the forest is now prohibited and this also makes salt licks found in the park rather unavailable to livestock (salt lick harvesting is actually allowed under the new collaborative agreements). There are no alternative sources of forest produce in the area besides the park as most of the land in the area is used for agricultural purposes, and land being scarce, there are few woodlots on the farms.

Stenrød and Tveit (1993) conducted a study in Mbale and Kapchorwa Districts to explore the collection and utilization of bamboo in parishes bordering the Mt. Elgon National Park. The study revealed that bamboo is used for basket and mat weaving, food (vegetable), building of granaries and houses, furniture, crop staking and ceremonial purposes e.g. circumcision. In addition, bamboo is sold for money and can be exchanged for crops like maize. People travel long distances to collect bamboo shoots and stems, which are also sold over great distances.

Scott (1998) investigated people/forest relationships, and documented the importance of the forest to the local resident population. She found that the Mt. Elgon forest supports many families in the form of health, food security, income generation, house construction

and cultural requirements. Even though the dependence is high for resources such as bamboo and honey, she states that the current uses are well below the maximum sustainable yield.

In two separate studies undertaken in 2004, Katto (2004) and Namugwanya, 2004, one investigated the dependence around Mt. Elgon National Park in more detail and found, among others, that the overall environmental incomes constitute approx. 16-21% of total income from the household, including off-farm incomes and remittances. The main sources of income are fuel wood, fodder, wild foods, medicine, poles for construction and sticks for agricultural production. Poor people have a much higher dependence on such resources, even if the absolute incomes from the forest are higher for the more well-to do households. They also estimate that the costs for households living close to the park to be in the range of 20% of total income.

Similar dependence on forests by local people has been noted in other forests that have been converted to national parks. Howard (1991) reported exploitation of forest products such as bamboo, firewood, honey and poles in Rwenzori. These resources are not exploited for commercial purposes. In Semliki, the study showed that 14% of households collect firewood, 12% building poles, 8% medicinal compounds, 1 % oil palm nuts, and about 30% fish in Semliki River within the reserve (Howard, 1991). The same uses were also identified in Bwindi. Butynski, cited in Cunnington (1996), estimated that 10 to 20 people enter the forest every day for beekeeping or to hunt for wild hives, whilst 25 to 50 people a day collect fuel wood, bamboo and building material. The dependence is also found in other needs such as medicines, food supplements, and income. This indicates that there is a high dependency on forest products by local people living around protected areas. A change in management structure will therefore affect not only the people living around Mt. Elgon but also other people living around other forest reserves that were converted to national parks in Uganda.

Several studies have over the last years looked at the conflicts between local people and the national park, emphasizing rights-based development and how lack of compensation

for lost land and the non-legitimate management of encroachers and local people have created situations with substantial tension and violence (Himmelfarb, 2006), Beck 2000, Norgrove and Hulme 2006, Soini, 2007, Lang et al, 2006).

Other studies have looked in more detail at the collaborative agreements and how or to what extent the agreements and also the quality of the implementation processes function in reducing conflict levels and promoting participation (Sletten, 2004; Kawuki, 2007). They find that conflict levels are reduced to some degree and Kawuki finds that 58% feel they "are now part of management of the park", but that underlying causes of conflicts relating to land deprivation, eviction, denied resource access and problem animals still form strong reasons for resentment against the present situation. As stated by a local citizen, "We do not want the whole national park. We just want our land back" (Lang et al 2006). Kawuki (2007) also points to the difference in resentment between dwellers on the northern and southern part of Mt. Elgon, where only 5% of people in the land-scarce southern part see the relationship to the park authorities as "good" while almost 70% in the north do the same (the agreements in the south were partly implemented by UWA, while IUCN implemented the northern agreements). The main suggestions for improvement were to involve people more, give people back their land lost by demarcation, improve UWA staff performance and behaviour towards local people, and work more consistently with sensitization of local people. Sletten, 2004, and Kawuki, 2007, both used Ostrom's design principle to assess the agreements as "long enduring social institutions". Both rank the outcomes as medium/low in relation to how well the system functions. Apart from the initial processes and implementation, it is particularly the lack of agreement over boundaries, the lack of involvement of local people in collective decision-making processes, and the lack of a legitimate and transparent system for monitoring and sanctioning that need improvement. In addition comes an asymmetric power relationship between the parties that is also reflected in the agreements.

3. METHODOLOGY

In 2003, Mt Elgon National Park was situated in three different districts in eastern Uganda, namely Mbale, Sironko and Kapchhorwa. It is now in six districts, as Bukwa, Manafwa and Bududa have been established since that time (see Figure 2). The study was conducted in Mutushet and Kortek Parishes, Kabei Subcounty, Kongasi County, Kapchorwa District (Figure 2). Mutushet had collaborative management with the Uganda Wildlife Authority while Kortek had not finalized the process.

Primary data were obtained through household and key informant interviews and informal discussions with different people. We selected one parish with an agreement and one without an agreement, with a sample of 45 households from each. We further selected villages within the two parishes with different distances to the forest. Households were drawn at random from village register lists.

Secondary data were sourced from various documents such as policies for both FD and UWA, Acts of Parliament, institutional and district reports and other relevant documents for the two departments. To assess the impact of change of legal status on the people's livelihoods key persons were involved. They included: (a) politicians who were in power when the change was implemented as well as those who are in office today (e.g. cabinet members, members of parliament and local counselors); (b) bureaucrats from both the FD and UWA, which also encompass former and current office bearers; local and international non-governmental organizations; (c) lLocal authorities e.g. members of the Local Councils (LCs), Resource Use Committee (RUC), Community Park Institute (CPI).

A computer package Microsoft Excel was employed to get descriptive statistics. A paired t-test in Minitab was used to statistically test differences in households' resource use before and after the change.

IGURE 1 The Mount Elgon region. (Map by Andreas Brodbeck, based on maps by authors)

Figure 2. Mt. Elgon study area (Mutushet and Kortek), Uganda (from Soini, 2007)

4. RESULTS AND DISCUSSION

We first discuss the background and the process of a change in legal status for Mt. Elgon, and we then look into local people's livelihoods as a starting point for assessing the impacts of the change in legal status. We then analyze the effects of the introduced resource use agreements with a final section from a separate research monitoring effects on the forest conditions.

4.1 BACKGROUND FOR THE CHANGE IN LEGAL STATUS

4.1.1 A brief historical account

The Permanent Forest Estate in Uganda (forest reserves and protected areas) was managed from the 1930s to the early 1970s by the Forest Department (established in 1930) through "carefully prepared forest management plans" in a system characterized as one of the "best forest management practices in tropical forestry" (Uganda, RoU 2000).

Until 1967, forests were managed by a local forest service, typically under kingdoms with local, strong and coherent government systems (Nsita, 2005). In 1967, all forest management was centralized under the republican constitution.

In the period 1970-1986, the forest resources and conservation areas became a political arena battlefield and a contested resource between different groups of people, involving politicians, the army, armed bandits and local people. President Amin issued a decree where he opened up both forest reserves and national parks for various groups of encroachers in a bid to increase his popularity. These encroachers, in many cases, now have more than 30 years of residency and represent a highly politically sensitive issue in the forest reform process. In this period, one also experienced massive reductions in forest cover and a major erosion in the FD's effectiveness (Acode, 2005).

Uganda gradually returned to peace and quiet after the civil unrest and wars. After 1986, the general public management system gradually was reformed and altered. The forest sector was, however, in a bad shape and the performance of the Forest Department was under attack from several actors. The new Government established a Ministry of Environmental Protection to "coordinate and enhance natural resource management". The Forest Department, however, still lacked resources and personnel to efficiently manage

the diverse forest estate and encroachment and illegal activities were pervasive problems (ACODE, 2005).

The World Bank Forest rehabilitation program injected substantial funds into the forest sector (35 mill. USD), but did not have any particular sector building policy approach and did not produce any lasting sector effects. The 1988 Forest Department Support programme (EU funded) was linked to the World Bank and started activities to improve forest management, rehabilitate reserves and evict encroachers (Sjaastad et al, 2007).

In 1993, forest management was again decentralized through the local government Statute, but again centralized (all FR >100ha) through an Amendment in 1995 upon the perception that the district level was not ready for the responsibility and that a rapid depletion of forest resources to secure incomes had started (Nsita, 2005). These changes created substantial conflicts and people started to encroach upon the forest reserves locally, and over time also local FD staff were involved in activities such as illegal timber trade, charcoal production and also direct encroachment and settlements.

4.1.2 The process of change in legal status

The process of changing the legal status of the Mt. Elgon Forest Reserve did not take place in isolation from other political processes within the country. Several other programs geared at rehabilitating the environment were planned and or implemented at the same time. The legal change process may be traced to start from 1983 and ended in 1993 with a major reclassification of the FD forest estate into National Parks.

This process and its outcome can be interpreted as the first step in dismantling the FD regime over Ugandan forests and can, in retrospect, also be seen as preparing the ground for the emerging comprehensive Forest Sector reform (Box 1.)

Box 1. Chronology of the change of legal status from Forest Reserve to National Park, Mt. Elgon

1983 The Ugandan government proposed to convert some forest reserves to national parks. This was followed by a series of intra-governmental consultations. FD started a process of cleaning up forest areas, clarifying boundaries and evicting encroachers.

1986 Strengthening of public institutions by the government; FD made a policy decision to create forest parks to be managed under the UNESCO Man and Biosphere principles. FD invested and prepared six forest reserves, also suggesting a re-name to "forest parks".

1987 The government secured a multi-donor loan to sponsor the rehabilitation of the forestry sector under World Bank auspices. Its mandates were: Rehabilitation of FD and coniferous industrial plantations; Natural forest management and conservation; Peri-urban plantations; Training; Farm forestry. FD still continued eviction of forest encroachers while implementing rehabilitation projects

1988 A decision to implement a government proposal of turning forest reserves into national parks was taken. It was agreed that for Mt. Elgon and Rwenzori, the areas above the tree line would remain forest reserves. Bwindi was also to remain a forest reserve as FD was regaining its capacity to effectively manage this particular reserve. The Ministry of Environment Protection and IUCN started the Mt. Elgon Conservation Development Project through NORAD funding. FD recognized the need for collaborative management and started pilot projects in Semliki, Bwindi, Mt. Elgon, Kibale, and Rwenzori. This was done with the funding help from the European Union (EU) and international NGOs such as The World Conservation Union (IUCN) and Cooperative for Assistance and Relief Everywhere (CARE).

1989 UNP insisted on a cabinet endorsement of the transfer of the forest reserves to UNP.

1990 FD completed the exercise of removing encroachers and started enrichment planting.

1991 The UNP board of trustees, cabinet and parliament debated and endorsed the decision of converting the forest reserves into national parks. FD carried out biodiversity inventories in 66 Tropical High Forests (THF) with an aim to determine what percentage should be set aside as strict nature reserves. The inventory also led to a Nature Conservation Master Plan (NCMP). The President instructed his prime minister to direct parliament to turn the remaining parks of Mt. Elgon, Rwenzori and Bwindi into national parks. The National Environmental Action Plan (NEAP) process was launched.

1992 The establishment of the National Agricultural Research Organisation (NARO) implied transfer of all forestry research activities from FD. Budongo Forest Reserve was earmarked for the change, but remained as a forest reserve after substantial internal struggle.

1993 Mt Elgon, Semliki and Kibale were converted to national parks.

1994 The National Environmental Action Plan resolved to have an integrated national policy framework and legislation for sustainable exploitation and management of natural resources.

1995 A constitutional amendment was made to provide for sustainable environmental management (National Environmental Statute (NES). This statute established the National Environmental Management Authority (NEMA) to coordinate, monitor and supervise all activities in the field of environment. NEMA was also to provide the framework for integrating environmental issues to the overall national social economic development plan.

1996 The Uganda Wildlife Statute (1996) established UWA as a new organization with a merge of the Game Department (GD) and the Uganda National Parks (UNP). CFM pilot schemes were started at Ulukusi and Mutushet, with assistance from the Mount Elgon Community Development Programme (MECDP).

This was a highly controversial process in Uganda. Inside the government, there were strong tensions between FD and UWA relating to general differences over power, authority and resource control, as well as elements of competing competences and management perspectives such as conservation versus the use of natural resources. The process created heavy political discussions in Parliament and at the district level.

This conversion process can also be seen partly as a battleground between donors, where USAID supported UWA/MoWLE and where the EU and other donors (Norad) supported FD and its attempt to direct the process by maintaining a revamped FD, by trying to improve public governance and developing clearer plans for a forest sector to provide for broader sets of public goods (USAID 2003, Gosamalang, 2003). In the end, it must be said that FD lost this battle, even if a few forest reserves were maintained under FD, including Bundongo and Mabira Forest reserves.

USAID openly claim to have "spearheaded" this conversion process (USAID 2003). Under pressure from donors, in particular USAID/The World Bank and some international NGOs (IUCN), some 50% of the CFRs were converted to national parks. USAID (2003) offered Uganda USD 30 mill. to finance this conversion and park establishment.

4.1.3 Some reflections on the process

More thorough research is needed on these processes to uncover the most likely reasons for Uganda to convert a substantial part of their public forest estate into national parks. This is a task beyond the frame of this study. Most likely, there is a mix of reasons, including the lack of performance by FD to protect its forest estate; the priority by important national actors to increase emphasis on national parks, on biodiversity conservation and not least promote tourism; and the role of donors and substantial influx of funding which cannot be ignored in this process.

Looking back, and to a broader political canvas, it seems likely, when viewed in the general wake of public sector reform policy trends in Uganda, that the transition actually paved the way for a less controversial process of divesting the whole FD to an

autonomous authority and generating a much leaner public forest sector in Uganda. A long "battle" started on this issue in 1993 (Sjaastad et al 2007).

By the beginning of the major sector reform in 1997, substantial elements of the forest estate had been shifted to UWA as national parks. Substantial parts of the remaining public forest estate were under central control and not local control. FD was shifted to MoWLE.

The main focus of this paper is to analyze the nature and scale of impacts that this change in legal status and in responsible executing agencies has had on local people's livelihoods and access to forest related resources. The legal framework of a National Park has a much stricter conservation focus than a Forest Reserve, implying reduced or denied access to forest resources for local people. The national parks were also allocated more resources to monitor and control natural resources. In addition, the park establishment and the substantial funds allocated also paved way for large investments in measures to demarcate national park boundaries and evict encroachers.

4.2 LOCAL PEOPLE'S LIVELIHOODS

Crop production, livestock, forest resources and various off-farm and non-farm activities constitute the main sources of livelihood. In the following, we present households' access to resources, their main entitlements and we discuss the main constraints to improved livelihoods in the area.

4.2.1 Household endowments

Labour. The average household size was 6 persons. 41% of the household members worked permanently on the farms while 35 % worked part time. 24% were under-age and did not take much part in farm production. Children between 7-17 years usually worked part-time on the farm while the under-age (7 years and less) did not.

There is a sexual division of labour within the household, where men carry out tasks related to land clearing, crop harvesting, house building, cash crop production, livestock

trading etc. The wife will, in addition to domestic chores, also carry out land preparing, weeding, harvesting, water and fuel wood collection.

69% of the household heads had primary school as the highest educational level, while 14% had no education at all.

The demographic distribution reflects a high number of children and a low share of elders of productive age. Labour access is therefore often a constraint in the area and 30% of the households reported to hire labour in farm production. Hired labour was paid for in cash or in kind e.g. brewed traditional beer, prepared food and sometimes either maize or beans if they were hired for harvesting. In addition, 63% of the respondents indicated that they got additional incomes from other sources such as serving in Local Council Committees where they were given sitting allowances, maintaining roads, working as local policemen etc. and acquiring cash incomes from these activities.

Land. Almost all households own land for cultivation; the average size was reported to be 0.5 hectares. The most common means of land acquisition was inheritance (67%) under customary ownership, while 13% acquired land through purchase under freehold tenure. Almost 20% of the households did not own land at all, and reported to lease land. Also due to small land holdings, some households (16%) rented/leased additional land to increase their production. Land shortage is a major constraint in the area.

Forest resources. Local people harvest wood and non-wood forest products from the park for both commercial and subsistence purposes. This change in management presented an important new constraint for households as both resource access and other services from the forests were now substantially constrained.

Capital. Households reported no access to formal credit and would depend on their relatives, neighbors and friends to borrow money when the need arose. Their sources of cash income included sales of surplus food crops, mainly maize. A majority of households also kept livestock such as cattle (66%) and goats (58%). Cattle are reported to be kept as a form of security savings and sold if the need arises. Livestock is also used

for dowry purposes.

4.2.2 Household entitlement mapping

The main entitlement processes of converting endowments include crop and livestock production, harvesting non-timber forest products from the park, and off-farm employment activities. Crops grown in the two parishes included maize, beans, millet, Irish potatoes and sweet potatoes. Maize was used for both cash and subsistence needs, while the other crops were mainly for subsistence. On average, a household produced 11 bags of maize and reported to sell 4 of these for cash last year. Livestock reared included goats, cattle, donkeys, pigs and poultry, sold in times of dire straits to get income. The average household had 3 goats and 3 heads of cattle and sold one of each last year. 27 (30%) households were involved in the collection of resources from the park such as bamboo shoots and stems, poles, fruits, vegetables, medicinal plants, crop stakes, honey, thatch grass, circumcision clay, firewood, mushrooms, rafters and ropes. Out of these, 23 (26%) households were collecting for subsistence purposes while 2 (2%) also reported to generate cash income. The most commonly used resources include firewood, mushrooms, vegetables, bamboo shoots, stems and medicinal plants.

Table 1 presents various activities from which households derive their agricultural incomes. Cattle contribute most (49%) towards the household's total income in this area, followed by maize (40%) and goats (10%).

Table 1. Total agricultural and forest income sources, Mt Elgon, Uganda, 2002

Activity	Sample income	Household Income	Percentage Contribution
Maize	6 200 666	68 896	40
Cattle	7 645 866	84 954	49
Goats	1 514667	16 830	10
Bamboo shoots (cash)	2 0000	222	0.1
Bamboo stems (cash)	11 2000	1 244	0.4
Firewood (cash)	48 000	533	0.2
Vegetables	57 000	633	0.3
Sum	15 598 199	173 313	100

1 USD=1820 UGS N=90

These are agricultural incomes. In Katto, 2004, and Namugwanya, 2004, it is found that the non-farm and off-farm income not registered in this study constitutes 27.4 % and 16% in the two other studies.

Measuring *all* environmental incomes, they further find that *total* environmental incomes are 19% and 14% of total household incomes. There are reasons to assume that similar findings would be relevant for this case and that some 15-20% of present incomes would be derived from forest related resources. Such reasons relate to similar land and labour access, villages found both on the northern and southern side of the mountain and not very different market, infrastructure or climate conditions.

Using Katto's figures for income shares, assuming that the agricultural income is 53.6% of all incomes, the total household income for the sample in this study would be Ush 323 345, and the environmental income Ush 61436.

4.2.3 Household internal and external constraints

The main internal constraints relate to land, labour and capital accessed by the household. We have seen the dominant role of agricultural crop incomes for household livelihoods. All households depend on land for crop and livestock production. Land is a crucial endowment and with an average holding of 0.5 ha. As much as 20% of the sample does not own land and land is thus a major constraint for increased household production. Most households have substantial access to labour - but at the same time more members of the household implies higher consumption needs. Most households do not access capital in terms of credit or loans and no farmers report to access formal credit sources. Households thus crucially depend on land and labour as the major inputs to their livelihoods. Livestock production faces constraints in terms of shortage of fodder and the challenge of various reoccurring diseases.

Concerning external factors and infrastructure, the road network in Kapchorwa District was in poor condition, and transport was reported to be scarce and expensive. This seriously constrains market outlets of production and results in low cash prices for crops.

Products from the villages in the districts are usually sold in Kapchorwa or Mbale towns.

As discussed earlier, both Katto (2004) and Namagwanya (2004) find that off- and non-farm incomes are important in people's livelihood portfolios (25-30%). While we did not map incomes in this study, we believe that for our sample, these sources of income would most likely be in the same relative magnitude as for the two other studies. In the context of this study we do not believe that off-farm and non-farm incomes depend upon the legal status of the forest area and as such are not crucial to our livelihood analysis and effect of change analysis, but they are obviously important for people's livelihoods and dependence on forest environmental incomes. We return to this.

4.3 WHAT ARE THE IMPACTS OF THE CHANGE IN FOREST RESOURCE ACCESS ON LIVELIHOODS?

The change in legal status from a Forest Reserve to a National Park implies stricter conservation and less access to forest resources for local people in addition to loss of land and loss of access rights. Based on the household survey, we analyze direct effects of change on access to forest resources, on incomes, livestock production, socio-cultural aspects and on access changes for other communities.

4.3.1 Impacts of the change on access to resources for subsistence and cash incomes

Before 1993, under the Forest Reserve regime, local people could harvest various non-timber forest products (Scott, 1994). Even if the Forest Act allowed them only to collect resources in 'reasonable' quantities for subsistence use, many local people reported to sell natural resources for cash incomes. When the Uganda Wildlife Authority took over as the Mt. Elgon National Park manager in 1993, resource access became much more restricted.

Respondents were asked about their resource collection under the two regimes (Table 2). There are obvious uncertainties around these figures as they involve recalling back almost 10 years, but we felt that respondents were able to recollect past practices at the general level rather well. The figures indicate a general, substantial decline in resource

collection from the park. The overall share of households reporting to be involved in resource use collection had gone down from 72% (FD) to 30% (UWA).

In addition to the share of households involved, the number and frequency of activities have also gone. This is in part due to households no longer being allowed to graze their animals inside the park, nor hunt, cut timber, fetch poles or thatch grass. Key economic activities of the forest such as pole collection (84% reduction) and grazing (79% reduction), that used to involve a high number of households, are no longer reported. We do, however, see that some people still report collecting some of these resources.

"During the FD management period, we had the liberty to collect as much resources as we wanted, but under UWA this is not the case. We were free to go into the reserve even more than once a day for the same resource and nobody bothered us. We were controlled by what we were able to carry".

Respondent, Kortek Parish. 2002

Table 2. Changes in local resource collection for total sample*, Mt. Elgon, 2002

Resources	Households involved in collection of resource		
	Before the change (FD)	After the change (UWA)	Difference before and after change
Vegetables	86 (96%)	50 (56%)	36 (40%)
Fruits	78 (87%)	37 (41%)	41 (46%)
Bamboo shoots	77 (86%)	42 (47%)	35 (39%)
Poles	76 (84%)	1 (1%)	75 (83%)
Firewood	76 (84%)	64 (71%)	12 (13%
Crop stakes	73 (81%)	37 (41%)	36 (40%)
Grazing	71 (79%)	0 (0%)	71(79%)
Mushrooms	71 (79%)	45 (50%)	26 (29%)
Bamboo stem	68 (76%)	26 (29%)	42 (47%)
Honey	65 (72%)	24 (27%)	41 (46%)
Rafters	64 (71%)	64 (71%)	0 (0%)
Ropes	61 (68%)	23 (26%)	38 (42)%
Medicine	58 (64%)	33 (37%)	25 (28%)
Thatch grass	56 (62%)	1 (1%)	55 (6 %)
Saltlick	49 (54%)	15 (17%)	34 (38%)
Circumcision Clay	48 (53%)	17 (19%)	31(34)
Timber	48 (53%)	0 (0%)	48 (53%)
Hunting	39 (43%)	0 (0%)	39 (43%)
Total Average	**65 (72%)**	**27 (30%)**	**38 (42%)**

(N=90)* 50% of sample with and 50% without resource use agreement.

Under the new management system, formal access rights were restricted to villages with resource use agreements introduced in 1995 in Mutushet (White 2002). The agreements specify certain days and quantities to be collected of particular resources. We see that the decline in harvest is less pronounced for resources such as firewood, vegetables, rafters, mushrooms and bamboo shoots as people are still allowed to gather these under the new agreements, which applies to 50% of the sample. (We return to the effects of the agreements in section 4.4).

A paired t test was carried out to test the differences in resource collection before and after the transition. The mean number of households collecting resources before the legal status change was 72% and it went down to 30%. The change in management thus significantly reduced local people's access to natural resources in the park, particularly for fodder, grazing, poles and timber. This implied significant economic deprivation for local people.

Respondents were asked to state the main ***purpose*** for collection of the different natural resources from the forest (Table 3). We see a considerable general decline (58% to 26%) in households using natural resources for *subsistence* purposes. (The change is statistically significant ($p > 0.0001$)). Before the transition, a majority of households collected resources for subsistence purposes e.g. firewood (71 %), mushrooms (67%), vegetables (70%) and grazing their animals (71%). Many households reported that they still collect some resources today (e.g. firewood, 69 %) for subsistence purposes.

Collection of resources for ***cash generation purposes*** in the forest reserve was quite substantial and we observe a substantial and statistically significant decline ($p < 0.0001$) from 14% to 2% of involved households implying that the forest is no longer a source of cash income for most households. Cash was previously obtained from the sale of resources such as bamboo shoots, vegetables, poles and timber, resources that are no longer allowed to be harvested.

We thus see that despite the restricted amounts and rates of collection, people still collect

some resources from the National Park, in particular for subsistence purposes. Forest resources are thus still important for people. (This also reflects that 50% of the sample have introduced agreements, see next section). This also indicates a lack of available alternatives as the collecting of many of the resources is illegal and people are subject to severe penalties if caught. The stronger decline in collection for cash purposes is due to UWA restricting the amount of resources that a particular household can harvest from the park both in terms of quantity and frequency of collection.

Table 3. Local people and purpose of resource collection, Mutushet and Kortek Parishes, Mt. Elgon, 2002*

Resource	HH and subsistence resource collection			HH and cash resource collection		
	Subsistence forest reserve	**Subsistence national park**	**Differences**	**Cash forest reserve**	**Cash national park**	**Differences**
Fruits	78 (87 %)	38 (42 %)	40 (44 %)	0 (0 %)	0 (0 %)	0 (0%)
Grazing	71 (79%)	0 (0 %)	71 (79 %)	0 (0 %)	0 (0 %)	0 (0 %)
Firewood	64 (71 %)	62 (69 %)	2 (2 %)	12 (13 %)	2 (2%)	10 (11%)
Vegetables	63 (70 %)	48 (53 %)	15 (17 %)	23 (26 %)	2 (2 %)	21 (23 %)
Mushrooms	60 (67 %)	43 (48 %)	17 (19 %)	11 (12 %)	2 (2 %)	9 (1 %)
Crop stakes	59 (66 %)	36 (40 %)	23 (26 %)	13 (14 %)	2 (2 %)	11 (12%)
Poles	53 (59 %)	1 (1 %)	52 (58 %)	23 (26 %)	0 (0 %)	23 (26 %)
Medicine	52 (58 %)	28 (31 %)	24 (27 %)	6 (7 %)	5 (6 %)	1 (1 %)
Rafters	52 (58 %)	27 (30 %)	25 (28 %)	11 (12 %)	0 (0 %)	11 (12 %)
Ropes	52 (58 %)	20 (22 %)	32 (36 %)	8 (9 %)	2 (2 %)	6 (7%)
Bamboo shoots	49 (54 %)	35 (39 %)	14 (16 %)	28 (31 %)	6 (7 %)	22 (24 %)
Honey	48 (53 %)	20 (22 %)	28 (31 %)	17 (19 %)	5 (6 %)	12 (13 %)
Circumcision clay	47 (52 %)	20 (22 %)	27 (30 %)	1 (1 %)	0 (0 %)	1 (1%)
Thatch grass	44 (49 %)	1 (1 %)	43 (48 %)	13 (14 %)	0 (0 %)	13 (14 %)
Saltlick	44 (49 %)	16 (18 %)	28 (31 %)	5 (6 %)	1 (1 %)	4 (4 %)
Bamboo stems	43 (48 %)	25 (28 %)	18 (20 %)	23 (26 %)	6 (7 %)	17 (19 %)
Hunting	34 (38 %)	0 (0 %)	34 (38 %)	5 (6 %)	0 (0 %)	5 (6 %)
Timber	21 (23 %)	0 (0 %)	21 (23 %)	28 (31 %)	0 (0 %)	28 (31%)
Totals	934	420	514	227	33	194
Averages	**52 (58%)**	**23 (26%)**	**29 (35%)**	**13 (14%)**	**2 (2%)**	**11 (12%)**

(N=90) * 50% of sample with and 50% without resource use agreement.

4.3.2 Effects of regime change on livestock production

Local people used to keep and graze livestock in the moorlands up in the mountains of the forest reserve. When UWA took over, people were forced to remove their livestock from the mountains and out of the new Park areas. This had important consequences.

- Shortage of fodder for the animals in the lowland is reported as a major problem since UWA does not allow grazing or even cutting and collecting fodder inside the Park. Fodder shortage is further constrained by the ban on thatch grass harvesting under the new management system. Fodder and thatch grass needs thus now compete for the grass in the lowlands outside the park.

"We took our cattle to the mountains because there are plenty of pastures there and our cattle were safe from cattle rustlers. Now they are dying because of the change in climate and the exposure to lowland diseases, which was not the case when they were up in the mountains"

Respondent from Kortek Parish, 2002

- A second challenge relates to the loss of cattle through raiding (9%) by neighbouring Pokots and other cattle rustlers.
- A complex loss relates to what people perceive as increased exposure to livestock diseases (43%) after moving cattle away from the mountains. The average household reported to have lost 3 heads of cattle each which people attributed to the change in climate and exposure to different diseases coming from the highlands. Farmers said that their livestock had lost resistance to diseases prevalent in the lowland and bringing them down to the plains subjected them to these diseases and to worms and ticks.

These problems lead to substantial cash and subsistence income loss. It also affects cultural activities such as marriage, since cattle are typically used as dowry. Reduction in stock sizes also affects the safety net functions in peoples' livelihoods, important in societies where a substantial majority of people is poor.

"My son got married last month and I still owe his in-laws the bride price as all my cattle have died because of lowland diseases"

Respondent from Mutushet Parish, 2002

4.3.3 Socio-cultural effects

Households reported that the change in management regime affected their access to resources from the Reserve for twin and circumcision ceremonies. For the twin ceremony, bamboo shoots and stems and a cave were needed. For the circumcision ceremonies, various herbs, skin and tails of the Colobus monkey, bamboo stems, logs, and circumcision clay were needed. The monkey skin was used for the candidate's headgear and the candidate tosses the monkey's tail during the dance. Logs were used to make fire, which could last all night.

Under the new management regime, respondents report that it is impossible, or at least difficult, to access e.g. monkey skins and tails as the Statutes prohibit hunting. Logs are not supposed to be collected as the regulation on firewood collection states that only dead branches can be collected and the use of tools such as pangas and axes are prohibited. People are now forced to improvise in conducting the ceremonies. Instead of the Colobus monkey headgear, they reported to use ordinary caps or caps made from tree leaves.

"It was so beautiful to watch the boys in the colobus monkey skin and all this has now disappeared. It is now a crime to kill even one monkey for the skin under the new management system"

Respondent from Mutushet Parish, 2003

65% of the respondents report that the change in management status of the Mt. Elgon Forest Reserve has affected their cultural life in a negative way.

4.3.4 Effects of regime on local people's ability to travel

The change in management regime constrains people's travels. People are denied the use of their traditional shortcuts through the park to other settlements, and are forced to take long detours along the park boundaries. The Statutes define entering the park without a permit as an offence. According to respondents, they now have to waste a lot of time on extended travels. One may obtain permissions for traveling, but it is not very practical to apply every time one travels.

4.3.5 Summary of effects of change in regime

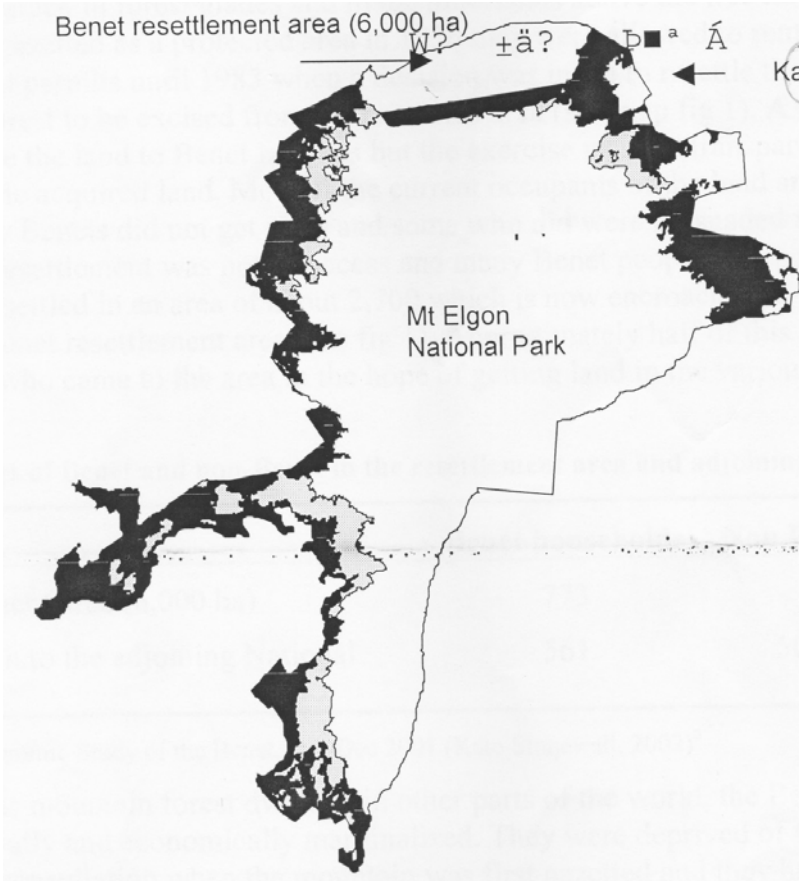
The change in legal status has thus led to loss of income both directly and indirectly through the loss of agricultural land and pastures, constraints on socio-cultural practices, less access to the forest, increased cost of local travel and a major cost increase for livestock keeping. Other research furthermore indicates a loss of approx. 20% of total income due to staying close to the park, in terms of predators, loss of yields and livestock etc., costs that paradoxically increase as the biodiversity resource conditions improve (Katto, 2004).

UWA has, after 1996, tried to reduce the effect of some of the problems faced by local people through the introduction of collaborative management and Resource Use Agreements.

4.4 STATUS CHANGE, RESOURCE ACCESS AND EFFECTS ON INCOME

4.4.1 Effects on land access and agricultural incomes

This study focuses on loss of access to environmental resources from the forests. It is, however, important to note that the most important economic loss of the transfer and increased boundary enforcement is most likely the loss of access to agricultural land. White, 2002, refers to the situation in the 1970s and 80's when people had more or less unregulated access to the forest. Most of the timber resources were exploited, wildlife was destroyed and there was substantial encroachment of an estimated 25, 000 ha land for agriculture with many settlements inside the boundaries.



(black shade >50% encroached, grey shade ~ 50% encroached)

Figure 3. Extent of agricultural encroachment in Mt. Elgon National Park, 1994 (White 2002)

White makes a rough 'back-of-the-envelope' estimate of the annual gross economic values produced through maize and bean yields to be in the range of Ush. 6.7 bill. (3.8 mill.USD) for this land. He estimates that an area of 25, 000 ha could feed some 84, 000 households or 420, 000-450, 000 people.

4.4.2 Effects on land access and environmental incomes

By comparison, Scott 1994, estimates that the total annual value of non-timber extractive resource use in Mt. Elgon was estimated to be between USD 1.5-2.7 mill. in 1994 (the total Mt.Elgon area is around 114, 500 ha). If we assume that the reduced frequency in reported harvest (58% remaining after the park's establishment) is proportional to the economic value of the reduction, we may calculate a rough annual economic loss for local people from reduced access in the range of 58% of 2.1 mill., or a loss of some 1.2 mill.USD.

However, based on our experiences and the registrations made in this study and by Katto, 2004, and Namugwanya, 2004, there are reasons to believe that Scott's economic valuations are much too low if they were meant to cover the full range of environmental incomes. If approx. 1-1.5 mill. people live around Mt.Elgon, Scott's findings would imply that the average environmental income/cap would be around 1-3 USD/**year**, and the total household income/cap around 5-15 USD/**year**, which is clearly not the case.

By comparison Katto, 2004, finds that the daily environmental income per capita from the Mt. Elgon forest is 15.2% of 0.72 USD, which would yield a considerably higher total annual value of some USD 59.9 million. Our assessment would therefore imply a much more substantial economic loss of the transition from reserve to park, in the range of 58% of 59.9 mill., or some 34.8 mill. USD.

Looking closer at Scott's assessments we see some possible reasons for the substantial difference in figures compared to our investigations:

1. She uses substantially lower values for "far-away" parishes and full values for adjacent parishes

2. She has partly deducted labour costs

3. She has based her figures on estimated consumption amounts and not "harvested amounts"

4. Her selected parishes display substantial local variations in income estimates.

5. Prices and quantities used in her calculations are not disclosed, constraining a closer comparison.

4.4.3 Resource access and income effects

These rather loose calculations must obviously be used with care. Still, some important points can be made.

- The loss of agricultural land (and grazing) is important because it implies a substantial loss of the main economic asset and thus a substantial loss in economic income possibilities.
- The loss of land is further concentrated to a few households around the mountain, creating groups of landless and or extremely low-land accessing households. According to Kawuki, 2007, for two parishes in south Mt. Elgon, the average land holding is less than 0.3 ha/hh and Sletten, 2004, finds the average size to be 0.5 ha in two northern parishes. In both cases land is unevenly distributed with 50% of people owning less than 20% of the land.
- The transition, with a combined loss of land and forest resource access, has h generated poverty and had negative impacts on poor households, particularly because they rely more on environmental incomes.

Both Scott's (1994) figure of USD 2 mill. in annual values derived from the forest, and the figure based on Katto's, 2004, work of USD 34.8 mill. underscore the economic importance of forest resources on scale. This deprivation of access has had substantial livelihood effects, not least due to restricted fuel wood access, as this is the only source of energy for most people.

4.5 COMMUNITIES WITH AND WITHOUT RESOURCE USE AGREEMENTS

In the following we look at the content of agreements and compare villages with and without agreements in order to analyze effects of the agreements.

4.5.1 What do the agreements imply?

Seeing that the change in legal status evoked considerable local resistance and conflicts, UWA and IUCN launched a programme for collaborative management including more local participation, among others by introducing resource use agreements between local communities and the Park, based on a new clause in the NP legislation (Table 4).

Table 4. Resource Use Agreement for Mutushet Parish, Mt. Elgon 2002

Resource list agreed upon	Access rights and amounts	When to collect resources	Harvesting methods
Firewood	One head load or backbundle/hh	Wednesday and Saturday	Only dead fallen trees
Bamboo shoots	One bundle per household	Seasonal Saturdays only	Emerging shoots
Bamboo stems	One bundle per household	Seasonal Saturdays only	Cutting stems
Rafters	One head load per household	Wednesday and Saturday	Cutting branches only
Honey	Naturally occurring honey	Seasonal Saturdays only	Only bee smokers to be used
Vegetables	One basket per household	Wednesday and Saturdays	Plucking the leaves
Mushrooms	Amount for a household meal	Seasonal Saturdays only	Mushrooms on ground/fallen tree trunks
Ropes	Only one bundle per household	Wednesday and Saturday	Selected climbers and shrub cutting fibres
Salt lick	One head load per household	Seasonal Saturdays only	Excavation and carrying outside the park
Clay	One head load per household	Wednesday and Saturday	Excavation, no deep holes
Crop stakes	One head load per household	Saturdays	Selection of some shrubs
Medicinal plants	One handful per household	Wednesday and Saturday	Pick leaves - no debarking, or root removal
Wild fruits	One head load per person per hh	Saturdays	Picking ripe or fallen fruits, no branch cut

Source: Collaborative management agreement – Mutushet- MENP (2001)

At the time of this study, only two parishes (Mutushet and Kapkwai) out of about 64 parishes surrounding Mt. Elgon had formally signed agreements. They regulated the use of resources within the National Park, and outlined which, how, when and how much resources should be collected. Participatory mechanisms of monitoring and control mechanisms were also established through resource use committees.

The change in legal status greatly reduced people's access to natural resources as we have seen. The collaborative management approach is an intervention aimed at mitigating some of the losses. The intervention also aimed at improving the relationships between local people and UWA and the State in a wider sense. One also hoped that the agreement would reduce illegal use of forest resources.

4.5.2 Effects on households without collaborative management

Let us look at the present day use by splitting up the sample and look first at local people without collaborative management and then compare with a parish that has collaborative management.

Table 5 shows that the majority of households (62%) in Kortek were involved in the collection of resources from the park before the status change. There is a sharp decline down to 13% in the number of households collecting resources. The parish has no resource use agreement that grants households the right to use natural resources from the park. Local people reported that they have greatly reduced collecting resources from the park in fear of being arrested or harassed by wildlife rangers.

As we see, the number of households collecting resources is still quite substantial for products such as firewood (58%) bamboo shoots (22%), mushrooms (24%) and vegetables (29%). Resources from the park are important for the people of Kortek as they are willing to trespass in order to access the resources even without formal user rights while obviously fearing the consequences of being caught. However, and in general, we do see that most households have given up collecting resources from the park today.

"Even though we are not supposed to collect resources from the park, many people still collect them, especially firewood, as there is nowhere else to collect firewood. In the lowlands, farm owners deny us the right to collect firewood from their properties so the only option is the park. Many people sneak into the park and just pray that the rangers do not catch them".

Respondent, Kortek Parish, 2002

Table 5. Resource collection and effect of transition in Kortek Parish, Mt. Elgon, 2002.

Resource	Households involved in resource collection		
	Before 1993	After 1993	Differences (before1993 – after 1993)
Vegetables	41 (91 %)	13 (29 %)	28 (62 %)
Fruits	36 (80 %)	7 (16 %)	29 (64 %)
Poles	35 (78 %)	1 (2 %)	34 (76 %)
Bamboo shoots	34 (76 %)	10 (22 %)	24 (53 %)
Firewood	34 (76 %)	26 (58 %)	8 (18 %)
Grazing	33 (73 %)	0 (0 %)	33 (73 %)
Bamboo stem	31 (69 %)	7 (16 %)	24 (53 %)
Crop stakes	31 (69 %)	8 (18 %)	23 (51 %)
Mushrooms	31 (69 %)	11 (24 %)	20 (44 %)
Rafters	27 (60 %)	8 (18 %)	19 (42 %)
Honey	26 (58 %)	3 (7 %)	23 (51 %)
Ropes	25 (56 %)	5 (11 %)	20 (44 %)
Medicine	22 (49 %)	8 (18 %)	14 (31 %)
Thatch grass	20 (44 %)	1 (2 %)	19 (42 %)
Circumcision Clay	19 (42 %)	3 (7 %)	16 (36 %)
Saltlick	18 (40 %)	3 (7 %)	15 (33 %)
Timber	13 (29 %)	0 (0 %)	13 (29 %)
Hunting	11 (24 %)	0 (%)	11 (24 %)
Totals	487	114	373
Average	**28 (62 %)**	**6 (13 %)**	**21 (47 %)**

* (N=45)

People from Kortek report they sometimes use the days set aside for the people from Mutushet (with agreement), so that the rangers think they are from Mutushet when they are found inside the park.

We are not free whenever we go into the park to collect resources. Every small movement you hear, you have to hide because the first thing that comes to your mind is the presence of the wildlife rangers." Respondent from Kortek Parish, 2002

On average, 28 Kortek households reported to collect resources from the park before the regime change, while only 6 reported to harvest after (statistical significant).

A majority of households (51%) in Kortek used resources collected from the forest reserve for ***subsistence purposes***. After the shift, there is a sharp decline (13%) in subsistence resource collection (Table 6). However, the collection for subsistence resources such as firewood, vegetables, and mushrooms is still quite substantial at present. This reflects both the importance people attach to these resources and the lack of alternative resources outside the park. Almost none of the households report to collect resources for ***cash income*** generation.

Table 6. Collection purpose and effect of transition in Kortek Parish, Mt. Elgon, 2002

Resource	Households involved in resource collection			Households involved in resource collection		
	Subsistence Before 1993	Subsistence After 1993	Differences	Cash Before 1993	Cash After 1993	Differences
Fruits	36 (80%)	7 (16%)	29 (65%)	0 (0%)	0 (0%)	0 (0%)
Grazing	33 (73%)	0 (0%)	33 (73%)	0 (0%)	0 (0%)	0 (0%)
Vegetables	31 (69%)	13 (29%)	18 (40%)	10 (22%)	0 (0%)	10 (22%)
Firewood	31 (69%)	25 (56%)	61 (13%)	3 (7%)	1 (2%)	2 (4%)
Mushrooms	29 (64%)	11 (24%)	18 (40%)	2 (4%)	0 (0%)	2 (4%)
Crop stakes	28 (62%)	8 (18%)	20 (44%)	3 (7%)	0 (0%)	3 (7%)
Poles	27 (60%)	1 (2%)	26 (58%)	8 (18%)	0 (0%)	8 (18%)
Rafters	24 (53%)	8 (18%)	16 (36%)	3 (7%)	0 (0%)	3 (7%)
Bamboo shoot	23 (51%)	8 (18%)	15 (33%)	11 (24%)	1 (2%)	10 (22%)
Thatch grass	21 (47%)	1 (2%)	20 (44%)	0 (0%)	0 (0%)	0 (0%)
Ropes	21 (47%)	3 (7%)	18 (40%)	3 (7%)	1 (2%)	2 (4%)
Honey	21 (47%)	3 (7%)	18 (40%)	5 (11%)	1 (2%)	4 (9%)
Medicine	20 (44%)	7 (16%)	13 (29%)	2 (4%)	1 (2%)	1 (2%)
Circumcision clay	19 (42%)	3 (7%)	16 (36%)	0 (0%)	0 (0%)	0 (0%)
Bamboo stem	18 (40%)	7 (16%)	11 (24%)	13 (29%)	2 (4%)	11 (24%)
Saltlick	17 (38%)	3 (7%)	14 (31%)	1 (2%)	0 (0%)	1 (2%)
Timber	7 (16%)	0 (0%)	7 (16%)	6 (13%)	0 (0%)	6 (13%)
Hunting	10 (22%)	0 (0%)	10 (22%)	1 (2%)	0 (0%)	1 (2%)
Totals	416	108	308	71	7	64
Averages	**23 (51 %)**	**6 (13 %)**	**17 (38 %)**	**4 (9 %)**	**0.4 (0.8 %)**	**4 (9%)**

**** (N= 45)***

The continued impact of the change in legal status for communities without an agreement is generally strong, particularly for cash oriented activities. Let us now look at the impact of changes for communities that do have an agreement.

4.5.3 Effects on households with collaborative management

A majority of households in Mutushet were involved in resource collection from the forest reserve. When the park was established this dropped considerably, creating substantial conflicts and the agreements established in 1996 were meant to reduce tensions and improve relations by allowing more access to park resources.

In this parish, the number of households involved in the collection of resources had gone down from 84% under the forest reserve and to 40% after the agreement intervention. Nevertheless, a substantial number of households is still collecting resources from the park, except for forbidden resources i.e. timber, poles, grazing, wild meat and thatch grass. Resources from the park thus still form an important component in people's livelihoods.

Table 7. Impact of Resource Use Agreements on collection, Mutushet Parish, Mt. Elgon, 2002

Resource	Households involved in resource collection		Difference in resource collection
	Before park	After agreement	Before - After
Bamboo stem	37 (82%)	19 (42%)	18 (40%)
Bamboo shoots	43 (9 %)	32 (71%)	11 (24%)
Poles	41 (91%)	0 (0%)	41 (91%)
Fruits	42 (93%)	30 (67%)	12 (27%)
Vegetables	45 (100%)	37 (82%)	8 (18%)
Medicine	36 (80%)	25 (56%)	11 (24%)
Crop stakes	42 (93%)	29 (64%)	13 (29%)
Honey	39 (87%)	21 (47%)	18 (40%
Thatch grass	36 (80%)	0 (0%)	36 (80%)
Grazing	38 (84%)	0 (0%)	38 (84%)
Hunting	28 (62%)	0 (0%)	28 (62%)
Circumcision Clay	29 (64%)	14 (3%)	15 (33%)
Timber	35 (78%)	0 (0%)	35 (78%)
Saltlick	31 (69%)	12 (27%)	19 (42%)
Mushrooms	40 (89%)	34 (76%)	6 (13%)
Rafters	37 (82%)	18 (40%)	19 (42%)
Ropes	36 (80%)	18 (40%)	18 (40%)
Firewood	42 (93%)	38 (84%)	4 (9%)
Totals	667	327	350
Averages	**38 (84%)**	**18 (40%)**	**19 (42%)**

If we compare this to the parish without agreement (Table 5), we see that the reported number of involved households here is only 13%, compared to the 40% in Mutushet where agreements are found (Table 7). This implies that the agreements still make park

environmental incomes an economic activity of some importance, and not a marginal phenomenon as is the case in Kortek parish. It is in particular fuel wood, wild foods (in particular bamboo) and medicine plants that seem to be important resources.

Respondents were also here asked about the purpose for collection of resources (Table 8). First of all, we see that cash income generation is no longer a motive for resource collection (down to 2% of households). This is probably related to the amount they are allowed to collect and the ban on important cash earners such as bushmeat, poles and timber.

Most of the collection is thus for subsistence needs and we see that there has been a slight increase in the number of households collecting firewood (8%), bamboo shoots (2%), vegetables (7%) and mushrooms (2%). The resource use agreement has resulted in people in Mutushet rather safely collecting specified resources in the park.

Table 8. Collection Purpose and Resource Use Agreements, Mutushet Parish, Mt. Elgon, 2002

Resource	Households' purpose for resource collection					
	Subsistence Before	Subsistence After	Difference Subsistence	Cash Before	Cash After	Differences Cash
Bamboo stem	27 (6%)	18 (40%)	9 (20%)	10 (22%)	4 (9%)	6 (13%)
Bamboo shoot	26 (58%)	27 (60%)	-1 (-2%)	17 (37%)	5 (11%)	12 (27%)
Poles	26 (58%)	0 (0%)	26 (57%)	15 (33%)	0 (0%)	15 (33%)
Fruits	42 (93%)	31 (69%)	11 (24%)	0 (0%)	0 (0%)	0 (0%)
Vegetables	32 (71%)	35 (78%)	-3 (-7%)	13 (29%)	2 (4%)	11 (24%)
Medicine	32 (7%)	21 (47%)	11 (24%)	4 (9%)	4 (9%)	0 (0%)
Crop stakes	31 (69%)	28 (62%)	3 (7%)	10 (22%)	2 (4%)	8 (18%)
Honey	27 (6 %)	17 (38%)	10 (22%)	12 (27%)	4 (9%)	8 (18%)
Thatch grass	23 (51%)	0 (0%)	23 (5%)	13 (29%)	0 (0%)	13 (29%)
Grazing	38 (84%)	0 (0%)	38 (84%)	0 (0%)	0 (0%)	0 (0%)
Hunting	24 (53%)	0 (0%)	24 (53%)	4 (9%)	0 (0%)	4 (9%)
Circumcision Clay	28 (62%)	17 (3%)	11 (24%)	1 (2%)	0 (0%)	1 (2%)
Timber	14 (31%)	0 (0%)	14 (31%)	22 (49%)	0 (0%)	22 (4%)
Saltlick	27 (60%)	13 (2%)	14 (3%)	4 (9%)	1 (2%)	3 (7%)
Mushrooms	31 (69%)	32 (71%)	-1 (-2%)	9 (20%)	2 (4%)	7 (16%)
Rafters	28 (62%)	19 (42%)	9 (20%)	8 (18%)	0 (0%)	8 (18%)
Ropes	31 (69%)	17 (38%)	14 (31%)	5 (11%)	1 (2%)	4 (9%)
Firewood	33 (73%)	37 (82 %)	-4 (-8%)	9 (20%)	1 (2%)	8 (18%)
Totals	520	312	208	156	26	130
Averages	29 (64%)	17 (38%)	12 (26%)	9 (20%)	1 (2%)	7 (16%)

* (N=45)

The collection of resources is restricted to certain days and quantities per household. Apart from the banned resources, we also believe that the quantities allowed to be collected are not sufficient to fulfil both subsistence and cash ambitions. Households seem to prioritize subsistence needs. This still has negative repercussions on household income generation**.**

4.5.4 Summary of differences

During the forest reserve period, people were allowed to use of the forest resources rather extensively. Some 72% reported to collect resources as the management structures gave them certain legal rights of access. The national park legal framework led to a sharp decline in households collecting resources, down to 30%. There was a decline for subsistence purposes and even more for cash purposes. The constrained access created substantial local conflicts and made park management difficult.

In 1996, UWA introduced a system of collaborative management by means of Resource Use Agreements to reduce the negative effects of the change in legal status. The comparison of resource use between Kortek (a parish without collaborative management) and Mutushet (a parish with collaborative management) reveals that only 13% of Kortek households are involved while 40% of the Mutushet households are involved. In Kortek, the main resource is firewood for subsistence use, and almost no households report any cash generation from the forest. In Mutushet, the main purpose is also subsistence, but with a much broader variety of resources, including a number of wild vegetables, fruits and crop stakes.

The economic scale of these differences (13% and 40% of households) in use may be difficult to assess from our present data, but if we again use Katto's findings of 19% of incomes from the environment for his sample (villages that had agreements), and with the annual income of Ush 323 345, the loss by villages without agreement would be Ush 19, 967. This is then also a rough estimate of the economic contribution or value of the agreement for Mutushet villagers. The economic loss of not having an agreement and improved resource access would be around 6% of total incomes

Using also the figures from section 4.4, we can very roughly assess that 6% of total income means around 10 dollar/year/household, and if we again crudely assume that there are 200, 000 households (1-1.5 million people) around the park, the annual value of the agreement could amount to something in the range of USD 1-2 million. Further research on this issue would be interesting and useful as it displays the scale of importance of direct access, not least in relation to other types of policy interventions such as outreach programmes, direct payments, benefit sharing community allocations etc. In addition, these values accrue poor people directly and it is more difficult for strategic and powerful actors to "cream off", or usurp such incomes.

4.6 HOW HAS THE CHANGE IMPACTED ON FOREST CONDITIONS?

A separate study was undertaken to investigate the effects of the change in legal status on forest conditions (IFRI). The forest condition was assessed during the IFRI studies conducted in two forest patches – Bufuma in Sironko district and Kapkwai in Kapchorwa district - first in 1997 and then in 2001. The first study was thus carried out some time after the forest was transferred to UWA, but before impacts of RUA would be visible.

The forest condition assessment was based on four variables, namely (a) total stem count from which projected stem count per hectare was computed; (b) species richness; (c) mean DBH from which mean basal area in square meters and volume per hectare in cubic meters were computed; (d) mean height in meters (Table 9).

Table 9. Comparison of forest quality, Bufuma and Kapkwai, 1997 and 2001, Mt. Elgon, Uganda

Details	Bufuma Forest				Kapkwai Forest			
	1st visit		2nd visit		1st visit		2nd visit	
	Saplings	Trees	*Saplings*	Trees	Saplings	Trees	Saplings	Trees
Total Stem Count	25	64	141	59	70	266	80	101
Projected Stem Count//ha	352	904	1784	873	830	3141	1131	1425
Species Richness	7	16	16	18	23	35	18	19
Mean DBH (cm)	5.7	44.0	5.4	26.1	5.8	26.6	4.8	22.8
Mean Height (m)	4.2	17.8	4.0	13.1	4.7	13.1	3.7	11.6
Mean basal area/ha (m^2)	0.2	11.0	0.3	4.1	0.1	7.5	0.1	4.5
Mean volume/ha (m^3)	0.8	274.6	1.5	99.9	0.5	190.0	0.5	100.7

Source: *UFRIC Mbale and Kapchorwa site reports, 1997 and 2001,* ***Note:*** *The increase in saplings in the two forests was recorded between the first and second visit. There was a marked decline in tree DBH, height, stem basal area and volume per hectare.*

An analysis of variance was performed at a 95% level of confidence on DBH, height, basal area, and volume to ascertain significant differences between first and second visits. The analysis indicates that the projected stem count per hectare for saplings, the mean DBH for trees and the mean volume per hectare for trees were all significantly different with p-value of 0.04, 0.02, and 0.03 respectively in the Bufuma forest. In Kapkwai forest, the significant difference was recorded in projected stem count per hectare and the p-

value was 0.05. We registered a distinct increase in saplings in Bufuma patch. The increment was possibly due to the UWA-FACE project that started replanting degraded and deforested patches within Mt Elgon forest in 2000, but may also reflect the reduced general use of forest resources by local people.

The significant decrease in stem tree count per hectare, however, was an indication that tree-harvesting activities were still continuing in these forest patches. It is an indication that (illegal) harvesting of trees is still taking place. But the general conclusion is that the forest resource quality seems to be improving, although more comprehensive inventories should be carried out.

5. CONCLUSION AND RECOMMENDATIONS

The change in legal status of 6 major forest reserves in Uganda to National Parks came after several years of discussions and tugs of war between wildlife and forest authorities, where also different donors and political actors played important roles. The change in Mt. Elgon implied a much stricter conservation policy than before, most likely improving the biodiversity resource to some degree, but also preventing people from accessing park resources, and demanding permits and agreements prior to accessing most resources. It also antagonized people as no compensation measures were introduced, creating substantial local protests and unrest.

People in the area are core poor and around 70% of the people subsist on incomes less than 1 USD/day. Forest environmental incomes constitute in the range of 15-20% of total incomes, and are thus important for rural livelihoods, in particular for poor households.

The change of legal status of Mt. Elgon Forest Reserve has negatively impacted the livelihood of the local people. Local people had a history of dependency upon resources from the forest for their day-to-day livelihood activities, but also for spiritual and cultural practices.

A majority of households (72%) reported to collect a substantial amount of resources during the forest reserve management regime as they had certain legal rights and *de facto* access to the natural resources. The introduction of UWA as the managing authority, with a different legal regime, was accompanied by a general decline in households collecting resources from the park (30%). The decline was observed both for subsistence purposes and even more so for cash purposes. A rough estimate of the economic scale of a 42% reduction in access would imply a loss in the range of 5-10% in total incomes caused by the reduced access to forest resources alone.

A majority of households reported that they also used to graze their livestock in the reserve during the FD regime. This activity is now abolished and has led to the loss of local people's livestock herds and reduced their livelihood substantially. 57% of the

households reported to have lost cattle after removing them from the Forest Reserve. On average, people assess that livestock numbers have been reduced by some 50%. This also constitutes a serious economic loss as reported by most households.

The change has also affected local people's socio-cultural life as it has changed people's access and thus relationship to nature. It has also changed the way local people conduct particular cultural activities. Some of the resources needed for ceremonies like circumcision and twin ceremonies are no longer accessible. People are also denied access and need written permission to travel between local communities through the forest. People see this as an unreasonable management rule as it constrains the maintenance of social bonds and relationships and increases their costs of travel.

The impacts for local people are different between communities with and without collaborative management. Forty percent of the households in Mutushet village can still subsist on forest products compared to only thirteen percent in Kortek who only illegally access forest products. The agreements thus have substantial positive effects on people's livelihoods and have to some, although minor, degree reduced the costs of the change in legal status. A rough estimate of additional income for households with agreements would be in the range of Ush. 20,000, or some 6% of total income.

This study has focused on access to forest environmental resources. In one sense it could be argued that these incomes alone do not constitute any main stay of total livelihoods as they did not compete with agricultural incomes even before the change in legal status and with off-farm and non-farm incomes in terms of economic importance. In a broader perspective and for involved households, the loss of land through evictions and loss of grazing access are economically important factors to take into account, as is the lack of compensatory measures for the losses.

Preliminary investigations may imply that the quality of forest biodiversity could be improving, even if there is substantial evidence of every-day forest resource harvesting activities.

Recommendations based on this study are that substantial uncompensated losses in both cash and subsistence incomes must be addressed in a comprehensive way. Compensation strategies must be long-term and should involve both use of forest resources and other, non-forest based measures linked to more general rural development policies.

Among important forest resource based interventions would be to allow utilization of more resources in the buffer zones such as fodder, either through direct grazing or through fodder harvesting. It should also include harvesting of more fuel wood resources. One could furthermore consider accepting controlled harvesting of bushmeat (there is at present substantial poaching in the area (Jankulovska et al, 2004). The issue of easier free travel between local communities through the forest must also be addressed.

The present policies seem unreasonably detailed and strict, and may threaten the future sustainability of a good relationship between the State, represented by UWA, and local people. Establishing local institutions and making them work requires competence, empathy and patience in order to rebuild battered relationships. A future retreat to the fortress approach as advocated in more recent times, will not do. It was abandoned, precisely because it did not deliver; neither a secured biodiversity base, nor good working relationships with local people.

At a global level, we observe increasing pressures for stricter conservation imposed on areas under lower degrees of conservation. This case describes problems inherent in such moves. It is especially the lack of a rights-based approach to compensation for local people, the lack of competent and wholehearted inclusion of local actors in planning, in design and policy implementation that are important causes for worry. There are also reasons to start questioning the "park concept" as a legal policy instrument and as an efficient and legitimate policy approach. But that is a topic beyond the scope of this paper.

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