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management of forest, water and soil: A case study of Mount Elgon  
ecosystem, Uganda'.**

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## Summary

This review paper is on the role played by community based institutions in the sustainable management of forest, soil and water in the last two decades at Mount Elgon, Uganda.

The paper explores how the state can create good conditions for community based institutions to participate in natural resource management without itself taking a much active role. The case of Mount Elgon, Uganda is where NGOs and CBOs by default, 'mushroomed' to fill in the gap created by the central government, which had failed to manage the mountain natural resources since 1970. In the early 1990s, the government realized its weakness and put in place good policies and legislation, which made community based institutions to blossom, and without even proper coordination mechanism, yielded a significant positive impact towards the sustainable management of Mount Elgon ecosystem.

The paper evaluates some key indicators used to determine the successes and failures of CBIs. Among them are, the contribution of CBIs to policy and legislative reforms and adherence to good sustainable management principles. The level of capacity building especially in the areas of strengthening of local peoples' rights, negotiation power and self-governance is discussed. Another indicator analyzed is the level of promotion of management of livelihood assets. Also review is level of strengthening financial availability and [mechanism](#) towards (un) sustainability. The level of reduction to vulnerability is considered. Promotion of environmental benefits and the contribution by CBIs towards reduction of threats on biodiversity was evaluated

The analysis compared the rich experience of mount Elgon case with related national resource management practices elsewhere. The paper then ends by making some recommendations on the way forward for the management of the ecosystem, which offers good lesson learning for the region and the entire global community.

## Acronyms

CBI	Community Based Institution
CBO	Community Based Organisation
CFR	Central Forest Reserve
DLG	District Local Government
Face	Forest absorbing carbondioxide emission
FAO	Food and Agricultural Organisation
FHI	Food for the Hungry International
GEF	Global Environmental Facility
GoU	Government of Uganda
IRDI	Integrated Rural Development Initiative
INRM	Integrated Natural Resource Management
IUCN	The World Conservation Union
LC	Local Council
LoG	Local Government
MECDP	Mount Elgon Conservation and Development Project
MENP	Mount Elgon National Park
MoLG	Ministry of Local Government
MoU	Memorandum of Understanding
MTTI	Ministry of Tourism, Trade and Industry
MWLE	Ministry of Water, Land and Environment
NEMA	National Environment Management Authority
NFA	National Forest Authority
NGO	Non Governmental Organisation
NORAD	Norwegian Agency for International Development
USAID	United State Agency for International Development
UWA	Uganda Wildlife Authority
WB	World Bank

## **1.0 Introduction**

Mt. Elgon is an extremely valuable ecosystem spanning the border between Kenya and Uganda. It has unique biodiversity, a set of precious component ecosystems and habitats including 180,000 ha of forest and supports thousands of people-directly and indirectly. It is also catchment for important water systems contributing to the Turkwell River and Lake Turkana, to the Lake Victoria basin and to the Nile River basin via Lake Kyoga. Mount Elgon ecosystem faces a number of threats, which include the following; agricultural encroachment and settlement in forested protected areas, unregulated use of forest products and hunting of wildlife, soil erosion, riverbank cultivation and landslide.

The people on Mt. Elgon on Ugandan side are of two tribal groups, the Sebei (or Sabiny) of Nilo-Cushtic origin were originally pastoralists living in the forest between about 2,500 and 3,000 m. They were grazing cattle, sheep and goats on pastures within the forest and on the high moorland but are gradually turning to subsistence agriculture. The other tribal group is the Bagisu of Bantu origin, living also further up the lower slopes of Mount Elgon, are basically subsistence agriculturists. There has been a long history of forest utilization by the local community of Mount Elgon and natural resources still provide the very means of livelihood of the people. The most commonly collected forest products are firewood, ropes, pole wood, vegetables (including mushrooms), bamboo shoots, bamboo stems, crop stakes, fibers, resins, latex, fruits and traditional medicines and grazing (Scott, 1994). The forest provides religious and cultural values to the local communities who often use it for circumcision ceremonies and spiritual gatherings (Ransom, 1998).

Community based institutions (CBIs) are those institutions that work with the community, empowering them to utilize the rich natural resource base for strengthening conservation, promoting livelihoods and ensuring sustainable development. On Mount Elgon, the major natural resource management institutions include UWA, NFA, LoG, NEMA, NGOs, CBOs and traditional institutions. Although government institutions such as UWA, NFA and NEMA have other non-community-related functions, they actually have departments that are community based, thus herein, they have been considered as CBIs.

In 1988, there were a few active government agencies and less than 10 NGOs and CBOs operating with the communities on Mt. Elgon in Mbale, Kapchorwa and Sironko districts. To date, there are over 250 of them involved in a wide range of activities including agriculture, health care, literacy, appropriate technology, construction, micro-financial activities, environmental conservation, cultural and religious activities. Of the above, over 100 are environmental and natural resource conservation related CBIs with activities directly aimed at sustainable management of forest and trees, water and soil. A few of the CBOs and NGOs are international and national while the majority is locally based (Mbale LoG, 2004; Sironko LoG, 2005; Kapchorwa LoG, 2004)

The following are examples of the conservation related CBIs, which have played a significant role on Mount Elgon:

### **1.1 Government agencies**

(i) Local government through its elected local councils I-V and departments: - Have administrative authority over local area and program implementation.

(ii) Uganda Wildlife Authority -Mount Elgon National Park management: - Manages the Park together with local community and other stakeholders.

(iii) National Forest Authority: - manages central forest reserves with communities and promotes good silvicultural practices.

### **1.2 Non Governmental Organizations (NGOs)**

(i) Mount Elgon Conservation and Development Project (MECDP): - from 1988-2002, was involved in supporting park management, agro forestry, apiary, soil conservation, animal production, environmental planning, and promotion of energy saving stove.

(ii) Mount Elgon Regional Ecosystem Conservation Program (MERECP) from 2005 to 2009, is strengthening institutional capacities, and building mechanisms for collaboration between and among partner conservation and development organizations including NGOs and private sector.

(iii) UWA-Face (a project under UWA): -from 1994-to date- is involved in replanting degraded areas of the park, fire protection and carbon offset.

(iv) Integrated Rural Development Initiative (IRDI): - from 1994-to date, is involve in ensuring improved food security, promotion of renewable energy technologies, soil and water conservation, tree planting, bio-gas production, provision of information on sustainable development activities, networking with partner organizations and institutional capacity building.

(v) Food for the Hungry International (FHI): -Soil, water conservation and health issues.

(vi) Actionaid: - Water, soil conservation and promoting land rights awareness

### **1.3 Community Based Organizations**

(i) Sironko Valley Integrated Project –Tree planting, riverbank management and environmental education.



(ii) Shunya Yetana for Rural Development: -Pasture planting, agro forestry, bunds construction, tree planting, soil conservation.

(iii) Mutushet, Kapkwai, Ngasire and Tangwen parishes forest resource users' groups, first group was formed in 1996, and they are involved in sustainable collection of resources from Mt. Elgon National Park (MENP), under collaborative management arrangements with MENP.

(iv) Kapchorwa Community Development Association (KACODA)-river bank management, soil and water conservation.

(v) Life Project (Sebei diocese)- Soil, water conservation and food nutrition.

#### **1.4 Traditional institutions**

(i) Sebei Elders Association: -Conflict resolution, land rights and cultural knowledge and tradition promotion.

(ii) Tuikat water shed project: - Soil and water conservation in *Benet* area.

For over a decade now, the contribution of the CBIs operating on Mt. Elgon has reversed the trend of degradation and the facts behind the success story have here in been evaluated. However, what still remain as problem of Mt. Elgon ecosystem today is to institute a coordination mechanism for CBIs and enhance further their capacities in sustainably meeting the conservation and livelihoods needs of the people.

## **2.0 Background information**

### **2.1 Area of Mount Elgon ecosystem, Uganda.**

Mount Elgon is a large mountain massif situated around 1° N latitude and 34°30'E longitude, in eastern Uganda on the border between Kenya and Uganda. The mountain extends 80km north -south and 50km east west covering an area of about 4000 square km. The rocks of the Elgon massif are entirely volcanic in origin and the volcanic activity is believed to have occurred in the early Miocene times, 10-25 million years ago. Following a major eruption at some time in the past, the summit of Mt. Elgon collapsed into a chamber from which volcanic material had been expelled. This resulted into an eight-km wide caldera, one of the largest in the world. The caldera is a flat-bottom depression on top of the mountain at about 3500 meters, 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.

The general outline of Mt. Elgon is that typical of a shield volcano, with very gentle slopes in the order of 3°-4°. In detail, however, the lower part of the mountain is made up of series of benches separated by prominent cliffs. This characteristic terrain is the product of differential weathering of the various volcanic materials. At a micro-scale, therefore, the result is a very broken, rugged

landscape of cliffs. Mt. Elgon has no active glaciers, however, there are extensive signs of glaciating on the upper reaches, with the last glaciers having disappeared perhaps 10,000 years ago. Moraines are present both within and on the upper slopes of the mountain. The effects of past glaciating on distribution of parent material continue to have a very important influence on the distribution of Mt. Elgon's plant communities above 3500 meters.

The main influences on the amount of rainfall in Mt. Elgon ecosystem are the orthographic effect of the mountain massif itself and the proximity to Lake Victoria. The mean annual rainfall ranges from 1,500 mm on the eastern and northern slopes to 2,000 mm in the south and west. Mid-slope locations at elevations between 2,000 and 3,000 meters tend to receive more rainfall than either the lower slopes or the summit. Generally, rain falls on the mountain during all months of the year. Temperatures range from  $<0^{\circ}\text{C}$  to  $27^{\circ}\text{C}$ .

The soils on Mt. Elgon are primarily volcanic in origin. They are relatively young and fertile. These soils support a varied tropical forest. If cleared of forest cover, these same soils support a highly productive agriculture and a high human population density, although landslides are a hazard on steeper cleared slopes during rainy periods. Mt. Elgon soils are brown to red-brown clay-loam. They are up to a meter or more deep. Above 3,000 meters, however, shallow black humus soils predominate.

On the Uganda side, the protected areas of Mount Elgon covers approximately 2,045 sq. km, with 1,145 sq. km of these comprising Mount Elgon National Park (see map 1), dominated by natural forest and Namatale Central Forest Reserve, situated in Sironko district has 663 ha of natural high forest. There are a few other small forest protected areas located on and close to Mt. Elgon in Manafwa, Mbale, Sironko and Kapchorwa districts, many of which are degraded.

Mount Elgon provides the single most important drainage system for the districts of Manafa, Mbale, Sironko, Kapchorwa and Bukwa. The drainage pattern of the mountain is radial with several rivers and numerous streams and brooks flowing out in all directions through narrow valleys and series of rapids and waterfalls (see figure 1). Mt. Elgon forms an important hydrological system to the Kyoga and Nile basins.

Three major vegetation zones were distinguished on Elgon. The Alpine and Ericaceous Zone (mainly above 3200 m) that occurs above the trees 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 2500m (Penny Scott, 1998).

On Uganda side, Mt. Elgon is in five districts: Manafwa, Mbale, Sironko, Kapchorwa and Bukwa districts. Manafwa and Bukwa districts were carved out of Mbale and Kapchorwa in 2005. The districts are divided into administrative units

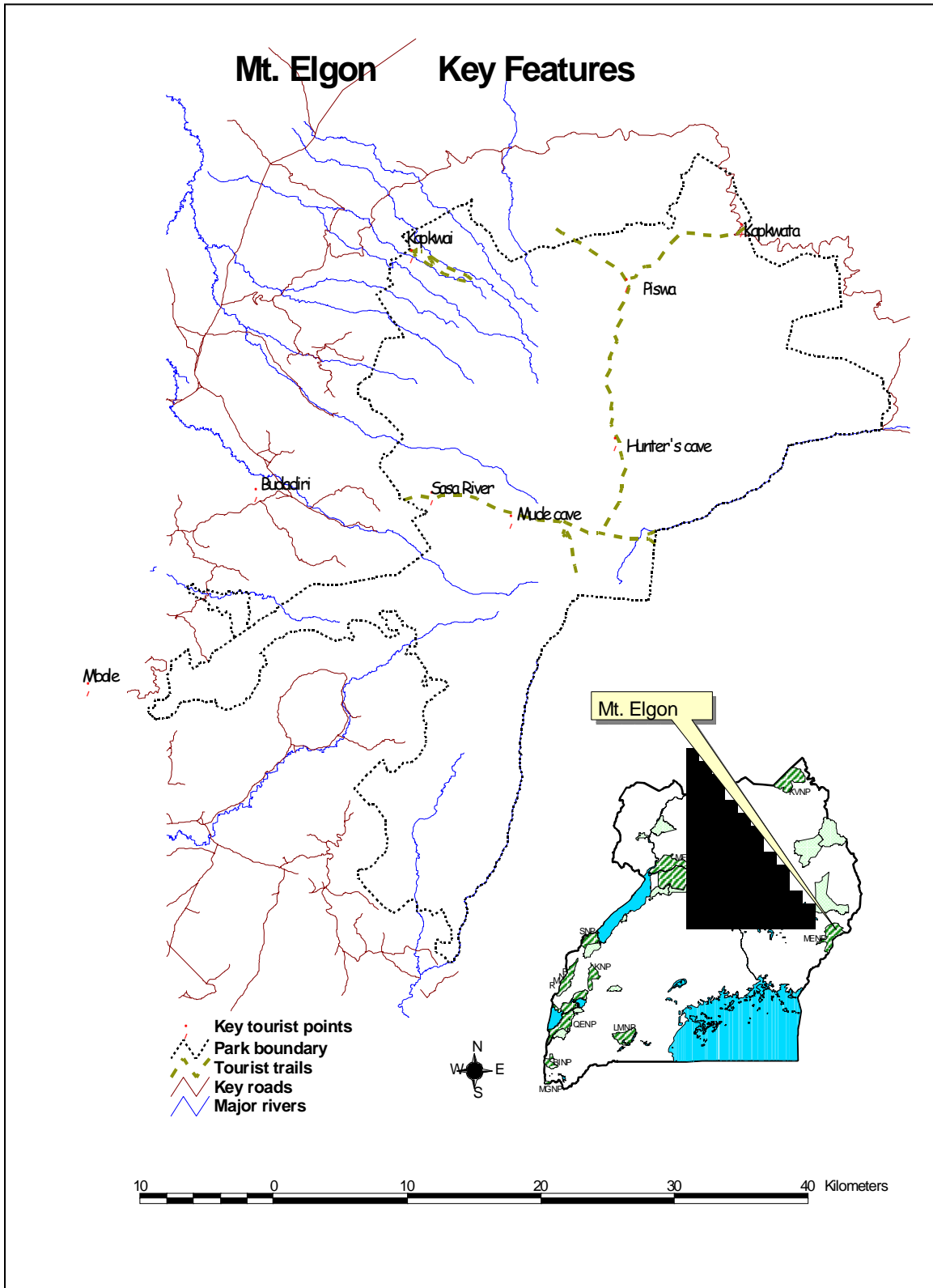
of county, sub-county, parish and village in descending order of size. There are 8 counties, 30 subcounties, 65 parishes and over 800 villages surrounding the protected areas on the mountain (see map 2).

The park begins a considerable distance up the mountain (from 2000m). Most of its 211km boundary is adjacent to land that is almost completely under agricultural production and high population density ranging from 350-over 600 people per sq. km, among the highest human population density in the country (IUCN, 2005).

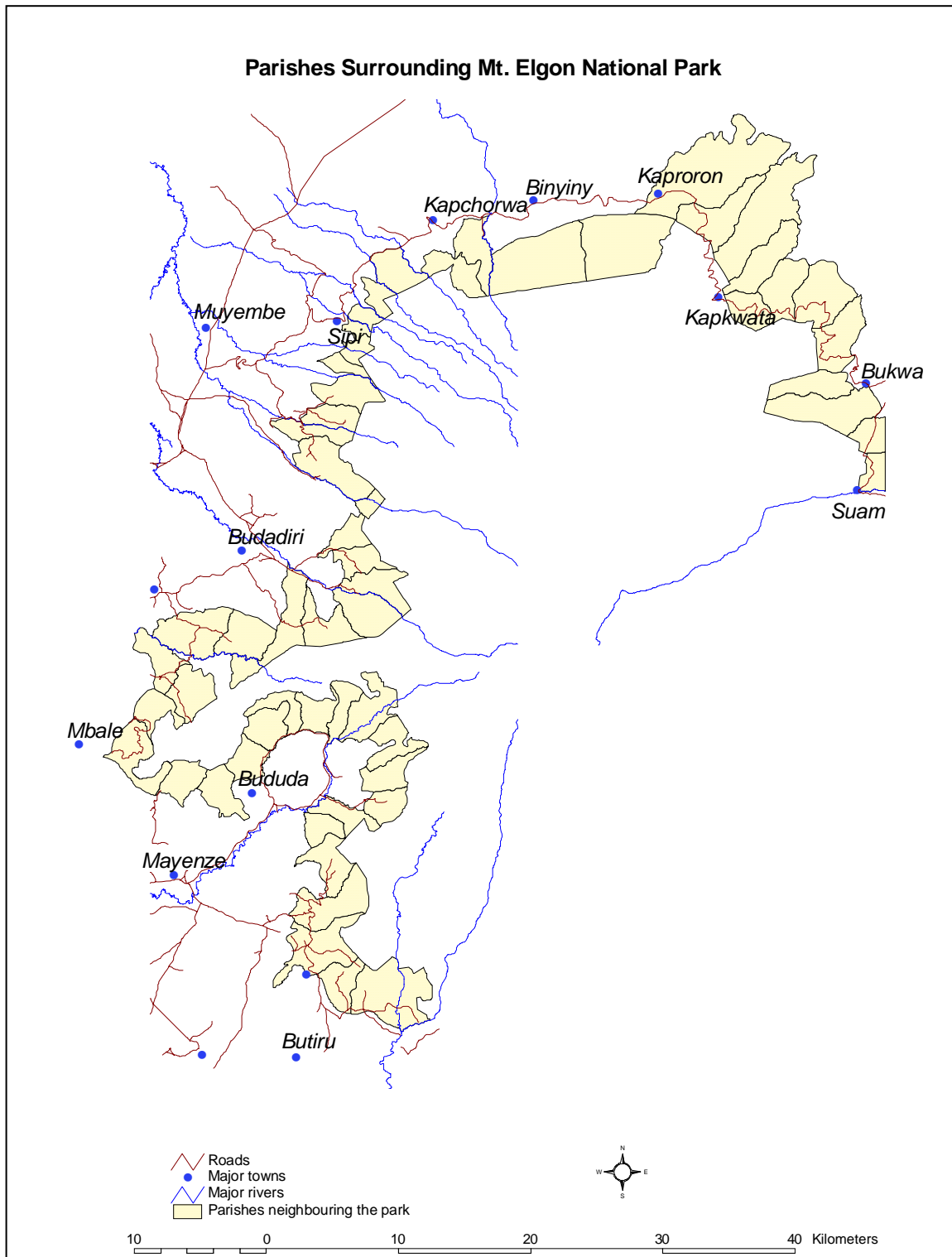
Over 80% of community land on Mount Elgon, Ugandan side is held under customary tenure. The typical condition is that land is held in trust by a clan. Clan members may occupy parcels of that land based on inheritance through their families. Under customary tenure, land is not normally made available to persons who are not clan members. Such customary land, which is legally recognized, usually has no title. However, the number of people acquiring land under other recognized land tenure such as freehold, leasehold and milo arrangements is increasing especially in the urban areas. The average farm holding on the mountain is estimated to be 1/2 acre with a few owning up to five acres and over.

Mt. Elgon ecosystem has been declared Man and Biosphere area, where conservation and human activities are recognized. It is also an area where trans-boundary conservation efforts have started operating under the auspices of East African Community (IUCN, 2005).

Map 1. Map of Mt. Elgon ecosystem area, Uganda.



**Map 2. Map of parishes on Mt. Elgon surrounding the National Park.**



### **3.0 Policy, legal and Institutional framework**

#### **3.1 Policy and Legislative framework**

In the last two decades, government of Uganda (GoU) made a number of legal reforms and restructuring to provide for enabling environment for management of natural resources. This was done in accordance with various international legal obligations and good sustainable principles. At international and regional levels, some of the main multilateral environmental agreements that has provided the fundamental principles to forest, soil and water conservation in relation to mount Elgon include the following:

1) African Convention on the Conservation of Nature and Natural Resources (1968); Uganda signed it on 15<sup>th</sup> September 1968 and ratified it on 30<sup>th</sup> November 1977. It has broad coverage but with specific provisions on ecosystems, habitats and species. This convention is essentially an in-situ conservation instrument for flora and fauna.

2) Convention for the Protection of the World Cultural and Natural Heritage (1972); Uganda ratified the convention on the 20<sup>th</sup> November 1987. It is the first global instrument to address the conservation of a particular habitat and focuses on natural heritage that provides the habitat for biological diversity. It also deals with the cultural setting that embodies crucial knowledge and experience founded upon the natural heritage.

3) Convention on Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR) 1971; Uganda signed the convention on the 4<sup>th</sup> March 1988 and ratified it on the 4<sup>th</sup> July 1988. The aim behind this convention is to halt the worldwide loss of wetlands and to conserve those that remain through wise use and management. It targets activities with negative effect on wetlands, ensuring that they do not lead to loss of biodiversity or diminish the many ecological, hydrological, cultural or social values of wetlands.

4) Convention on Biological Diversity (CBD) (1992); Uganda signed the convention on the 12<sup>th</sup> June 1992 and ratified it on the 8<sup>th</sup> September 1993. CBD seek to conserve biological diversity, to promote the sustainable use of its components, and to encourage equitable sharing of benefits arising from the utilization of genetic resource.

5) Lusaka Agreement on Cooperative Enforcement Operations Directed at illegal Trade in Wild Flora and Fauna (1994); Uganda signed the agreement on 8<sup>th</sup> September 1994 and ratified on 12<sup>th</sup> April 1996. Its objective is to reduce and eventually eliminate illegal access for trade in wild fauna and flora and set up a permanent Task Force for this intention.

6) United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification Particularly in Africa (1994);

Uganda signed the agreement on 21st November 1994 and ratified on 25th June 1997. This convention seeks to achieve sustainable development through better land and water resource management. It is primarily concerned with management of ecosystems and habitats.

7) The International Treaty on Plant Genetic Resource for Food and Agriculture (ITPGRFA), (2001); The treaty was adopted by consensus on 3<sup>rd</sup> November 2001 at the 31st Session of the Conference of the FAO. Uganda ratified the treaty in March 2003. It establishes principles for facilitating access to plant genetic resources and mechanisms for fair and equitable sharing of benefits. It emphasizes on sustainable use, research, breeding, education and funding.

8) East African Community (EAC); concern with cross-boarder natural resource conservation on Mount Elgon.

9) Intergovernmental Authority on Development (IGAD) of 1986; deals with issues of drought, desertification, regional security and political dialogue. Its objective is "to achieve regional cooperation and economic integration through promotion of food security, sustainable environmental management, peace and security, intra-regional trade and development of communication infrastructure".

10) The Nile Basin Initiative (NBI); Uganda is a member of this regional body, which targets achieving sustainable socio-economic development through equitable utilization and benefits from the common resources of the Nile Basin.

Uganda in response to the above policy and legislative obligations put in place a number of policies and legal instruments to enable sustainable management of natural resource and environment. Notably are the following national laws and policies:

**1) The Uganda constitution of 1995:** Clauses 4 and 39 guarantees every person a right to a healthy environment and gave responsibilities to every one to enforce the maintenance of, and enhancement of the environment.

**2) The National Environment Act, 2000:** Is an act that provides for sustainable management of the environment and established National Environment Management Authority (NEMA) as a coordinating, monitoring and supervisory body of environmental matters in Uganda. NEMA's main functions are: to coordinate the implementation of government policy and the decision of the policy committee, and to ensure the integration of environmental concerns in overall national planning through coordination with the relevant ministries, departments and agencies of government.

The National Environment Management Policy of 1994 set the overall goal, objectives and key principles for environment management for Uganda. It

provides the basis for the harmonization of sectoral policies, a multisectoral approach to resource planning and management (through the creation of NEMA), a comprehensive environmental legal framework, and the development of a new sustainable development culture. The overall policy goal is 'sustainable social and economic development which maintains or enhances environmental quality and resource productivity on a long-term basis that meets the needs of the present generation without compromising the ability of future generations to meet their own needs'. Part VI of the Act provides for the establishment of environmental standards.

**3) The Uganda Wildlife Authority Act 2000:** Provides for the sustainable management of wildlife and consolidates the law relating to wildlife management. It also established a coordinating, monitoring and supervisory body for that proposes and other matters related to wildlife. The act and wildlife policy of 1994 provides for the sustainable management of conservation areas such as mount Elgon National Park. They also regulate conservation of wildlife (flora and fauna) through out Uganda so that the species abundance and diversity are maintained at optimal levels commensurate with other forms of land use in order to support sustainable utilization of wildlife for the benefit of the people of Uganda.

**4) The Land Act 1998:** Vests the ownership of all land in the hands of the people except for protected areas, lakes, rivers and land under public utility use, where government holds in trust on behalf of the citizens. In fact, this law empowers the people to own natural resources such as forest and trees on their private land but requires them to manage their land in accordance to National Forestry and Tree Planting Act, National Environment Act, Water Act and any other law.

**5) The National Gender Policy of 1997 and the National Action Plan on Women of 1999:** recognizes that women are poor and vulnerable to environmental degradation. They provide for integration of gender policy in environmental programs at all levels in order to improve the economic, social, legal and cultural conditions of women.

**6) The Forest and Tree Planting Act, 2003:** established the National Forest Authority (NFA) and mandated it to sustainably manage the country's more than 500 central forest reserves, which are above 200ha leaving those below 200ha to the district local governments. The act also provided an enabling legal framework for the Forest Policy of 2001, the National Forest Plan and harmonized other relevant sectoral laws.

**7) The water Act 2000:** chapter 152 provides for a number of activities, which should be implemented in order to protect, manage and sustain water resources and developments as guided by the objectives. The policy direction for water quality management is therefore guided towards protection of public health, ecosystem integrity and enhanced human resources and socio-economic



development. This can only be practical by ensuring compliance with guidelines and standards and preventing degradation of water resources.

**8) The National Environment (Wetlands, River Banks and Lake Shores Management) Regulations, 2000:** Its provision herein includes the requirement for use and protection of wetlands (section 11), use permit (section 12) and Part II, management of riverbanks and Lake Shores, thus protecting them from unsustainable land use practices (section 23).

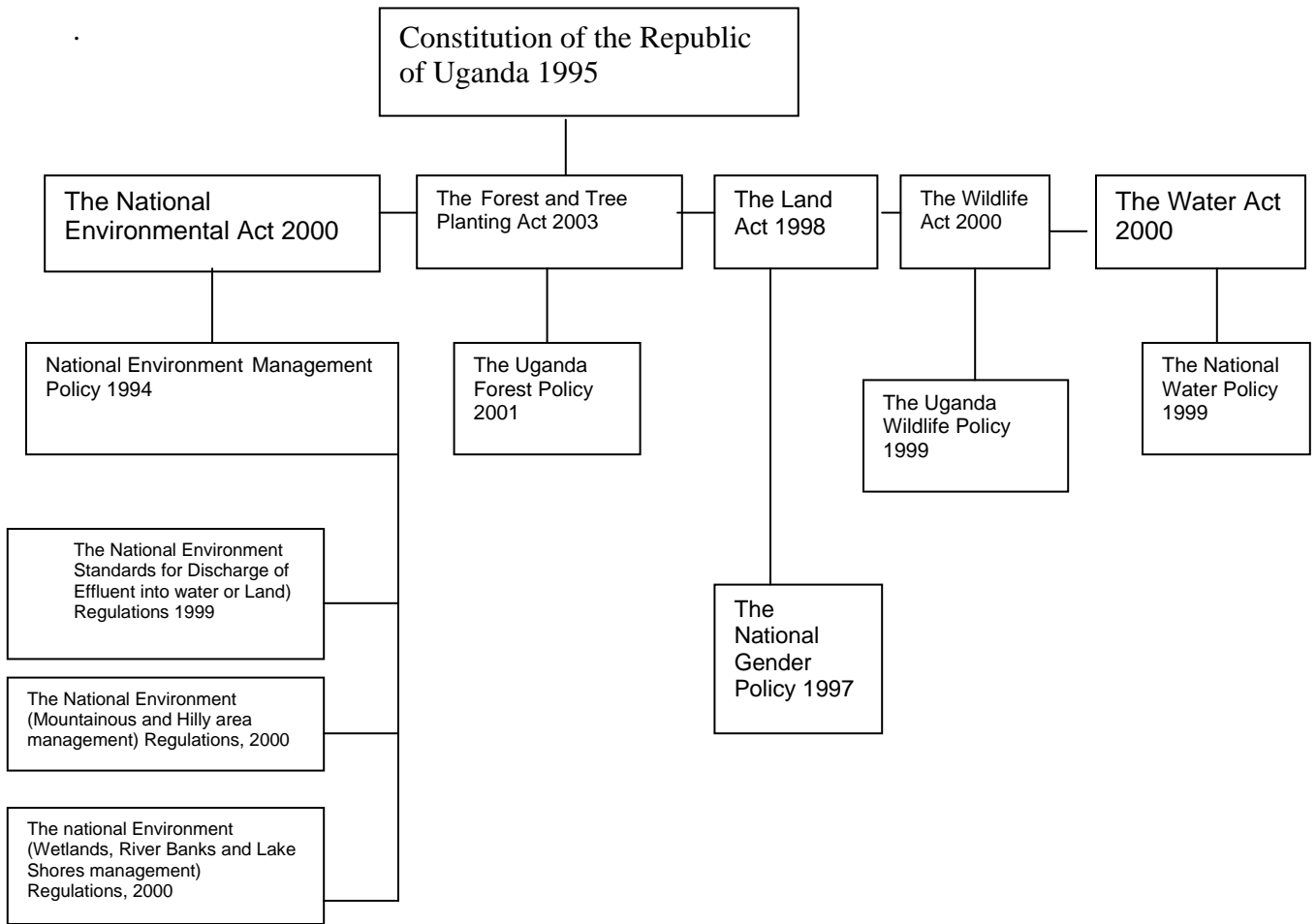
**9) The Local Government Act, 1997:** The Local Government Act allocates responsibility for service delivery of a number of functions to the local government councils. Included in these functions is the responsibility to manage the environment. The decentralization process involves substantial transfers of political, financial and planning responsibilities from the Central Government to the Local Governments

**10) The National Environment (Mountainous and Hilly area management) Regulations, 2000:** It provides for protection of mountain and hill ecosystems from unsustainable land use practices.

In addition to the above, the government made a number of public sector reforms, which divested several central government departments. Civil and political administration has been decentralized to district councils, including some aspects of forest management. Sectors wide planning approaches have been developed. The Poverty Eradication Action Programme (PEAP, 1997) sets out a broad strategy for poverty eradication in Uganda, and within this the plan for the Modernization of Agriculture (PMA, 2000) provides a holistic framework for eradicating poverty through multi-sectoral interventions that enable people to improve their livelihood in a sustainable manner. The plan includes forestry as one of the main sectors that contribute to the livelihoods of the poor people, along with agriculture, fisheries and livestock.

The relevant policy and legislative framework put in place is adequate enough to promote integrated natural resource management (INRM) of mount Elgon ecosystem. INRM supports both conservation and development arms of the ecosystem and the surrounding areas. For instance, Mt. Elgon's water catchment values and other benefits spread far beyond the immediate environs. This therefore needs increased integrated planning actions by the relevant institutions to promote information sharing and lesson learning. However, what still remain as big challenges are transformation of the policies and legislation into action, building implementation capacity and getting the necessary resources for implementation.

**Figure 1. Below represents a matrix of the laws relevant to natural resources conservation in Mt. Elgon ecosystem**



### **3.2 Institutional set up**

Government of Uganda has put in place institutions that support sustainable conservation of natural resources. On mount Elgon, the following institutions are the major players in the management of forest, soil and water:

Ministry of Tourism, Trade and Industry through Uganda Wildlife Authority:

Is charged with wildlife conservation and thus mount Elgon National Park, Uganda (1121 sq. km) covering 50% land area of the mountain on Uganda side. It comprises of 76% different vegetation communities leaving only 24% as moorland.

Ministry of Water, Lands and Environment through National Forest Authority and National Environment Management Authority:

is mandated for the sustainable management of Central Forest Reserves to optimize their economic, environmental and social functions and contribute towards poverty reduction. On mount Elgon it manages the peri-urban Kapchorwa Town Council softwood plantation (5 ha), Namatale Forest Reserve, 663 ha of natural high forest. The key issues being addressed by NFA on the mountain is to restore the deteriorated state of CFRs to enhance ecological services, increase forest products and generally reduces pressure on forestland. NFA is also addressing the interest s of its various stakeholders including the following: forest resource producers (farmers, commercial tree growers and forest owners). Other areas it is addressed are forest resource users (both commercial consumers, and the majority of urban and rural poor who depend on firewood and other forest products for subsistence). In addition to that, are forest resource processors (charcoal makers, pitsawers, sawmillers, artisans and traders); also being addressed is the concern of the general public e.g. supporting agroforestry. NFA also liase with other government, non governmental organizations and individuals involved in providing services of management, training, research and support.

NEMA's role is to coordinate, monitor and supervise environmental management at all levels in the country.

Ministry of Local Government through District Forest Services: the local forest reserves that are less than 200ha are held in trust by local governments. On Mount Elgon, the local forest reserves are Bukigai forest reserve, an 18 ha eucalyptus forest located in Bukigai Sub-county in Mbale district. Binyiny forest reserve is a 3 ha eucalyptus forest located in Binyiny Sub-county in Kapchorwa district. Kwirot forest reserve- is also a 3 ha natural forest located in Suam Sub-county in Kapchorwa.

District local councils (I-V) have authority over some few natural forests and scattered trees on community land. Local council also controls use of common property such as rivers and streams, water points and other related environmental issues. Other local government departments such as Environment, Agriculture, Land and Survey implement their work programme through local councils.

Some traditional institutions such as elders' associations are also actively involved in conservation activities.

All the three old districts have NGO forum, which coordinate activities of NGOs and CBOs and 80% of the NGOs and CBOs in the three districts are registered with their respective district authorities. However, there are still strong customary natural resource management institutions at the local level, many of which inherited from the times when natural resource management was the basis for livelihood security. On Mt. Elgon, local, national and international NGOs and CBOs capitalized on the existing strong natural resource culture to improve on the management of forests and surrounding agricultural land. This does not mean that there are no problems with the CBIs. Problems such as difference in agendas or agenda may be confusing or overlapping between and within CBI or some CBI prefer working on their own while others may tend to 'take over' an area.

As noted above, the management of forest, soil and water involves a range of government institutions with different affiliations and primary objectives ranging from exploitation (forestry) to preservation (wildlife Authority) and sustainable use (Agriculture). All these institutions have no formal coordination mechanisms. From mid 1990s, there has been a number of realignment of government departments, for instance, the biggest portion of forest on Mt. Elgon is now under the management of UWA, which took over from Forest Department due to mismanagement. Forest Department was transformed to National Forest Authority in 2003. This did not completely eliminate institutional overlap, for instance both NFA and UWA still engaged in supporting agroforestry in the same adjacent forest communities without joint planning.

One major institutional division is between production and conservation sectors. Those with a primary focus on production such as agriculture and forestry have exploitation as their primary driver to help secure livelihoods and create income. While conservation agencies such as UWA are concern with conservation of the ecosystem, not the level of exploitation. This then creates confusion and competition between and within institutional mandates. At lower community levels, confusion and competition leads to sending different messages from different institutions about the same or similar resources creating further uncertainty resulting to degradation of resources such as forest for cultivation land. For instance, water catchment areas are being destroyed for agriculture and swamp forests are being allocated for rice growing. As resources are degraded, institutions concerned with natural resource management, conservation and sustainable use often become weaker in government institutional hierarchy as the main driver is exploitation. This is compounded by the recent frequent changes in the institutional arrangements, where government ministries or departments may be merged or disbanded, or new ones created.

The government has created NEMA to solve the cross cutting nature of environment management but unfortunately has given it no stature and importance required to implement their often wide ranging mandates, for instance it is one of the least funded authorities. One of the notable examples is the degazettment of a large natural forest area of Ssesse Island located in Lake Victoria in Uganda for palm oil plantations. To save the situation, policy research should be intensified to help in lobbying and advocacy to strengthen conservation. Strategic environmental assessment should be strengthened to help mitigate the impacts of the numerous projects.

Despite all the above challenges, significant achievements have been made by the CBIs due to the recent more clarity on each others roles and responsibilities at all levels as well as increased political will to conserve the mountain. However, to improve on coordination of all the CBIs on the mountain, a fully functional 'clearing house', which coordinates issues such as joint planning, information management and dissemination and other net working issues is urgently needed under the mandate of government. On a positive note, it is this 'clearing house' concept that the recent MERECP-IUCN is based. It is anticipated that at the end of its 4-year project (2005-2009), it will have been achieved.

#### **4.0 Achievements and challenges of community based institutions**

##### **4.1 Capacity development**

Through designing appropriate programs and intense community mobilization to support the program implementation, the community based institutions have strengthened local peoples' rights, capabilities, governance, support the poor to make their own decisions and improve their negotiation power on Mount Elgon. Indeed, the emergence of many CBIs itself has shown that communities have interest and commitment to promote the conservation values. The CBIs have also strengthened the communities' capacity especially by empowering the poor to get rights to, access and use, own and control forest, land and water resources. The people now have elected representatives and they have autonomy to act, modify, and enforce local rules in accordance to the decentralization policy. For instance, the local environmental committees have power to regulate environmental management by enacting byelaw. Significant progress has also been made in human skill development through training e.g. Park staff and community resource collection committee members conduct participatory and scientific (using Monitoring Information System-MIST) monitoring on the levels of off-take of minor forest products and illegal activities in the National Park.

Local government in partnership with NGOs, CBOs and others have also carried out other technical training to enable people carry out activities such as tree planting, soil conservation and riverbank management. Generally there is increasing capacity among the communities on the mountain to make plans, policies, strategies, programs and implement them (Mbale LoGt, 2004; Sironko LoG, 2005; Kapchorwa LoG, 2004).

## 4.2 Livelihood assets

On mount Elgon, forests on both private and gazetted land are a key component of many rural livelihoods, for both subsistence and commerce. Forest products such fire wood, timber, medicines, poles for building, rope, bush meat, fodder, mushrooms, honey, edible leaves, bamboo, roots and fruits are extracted by the local residents. Bamboo shoots is an exceptional local delicacy harvested from the mountain and supplied to meet demands in and outside the mountain region. Mt. Elgon NP includes two softwood plantations totaling 1500ha in Kapkwata and Suam, an important wood resource for both local people and for meeting Uganda's timber need. A significant portion of the timber revenue is ploughed back into the management of the Park.

The forests also have indirect benefits to the Bagisu and Sabinu communities by providing cultural, historical and spiritual sites. The numerous caves on the mountain are of unique interest to people. Mountain climbing, plants, animals and good scenery also have great aesthetic and educational values, and thus constitute important resources that are the basis of a small but growing tourism industry.

Restoration of 1/5 (25,000ha) of MENP that was degraded in the 1980s and early 1990s started in 1994 under a project called *UWA-Face* (Uganda Wildlife Authority-Forest absorbing carbondioxide emission). UWA-Face receives financial support from the Netherlands government. By the year 2006, 8119 ha of degraded area of the park has been planted with indigenous tree species, namely: *Newbotania mycroclyx*, *Ecabagia spp.*, *Spathodia camparuglata*, *Ficus natalensis*, *Cordia mellenai*, *Measa laciolata*, *Syzygium guineanse* and *Allophlus africana*. The planted areas were assessed in 2005 to have sequestered 419,947 [Mg CO<sub>2</sub>] (Million Giga tones of carbon) and is legible for Carbon Offset arrangements. This kind of Carbon Offset arrangements is planned to extend to on-farm forests of the neighbouring communities (Igino, 2005).

Over 96% of human population (2 million) on the mountain depend on subsistence agriculture as a way of living (IUCN 2005). Crops grown on the mountain include maize, banana, bean, potato, peas, carrot, wheat, fruits, coffee and horticultural crops. Both local and exotic cattle breed are kept. The good climate and its fertile soils that are constantly being drained by numerous rivers and streams offer enormous capacity for livelihood needs on the mountain and beyond. Mt. Elgon acts as a catchment for the Turkwell and Lake Turkana system, the Lake Victoria basin, and for Lake Kyoga and the Nile River Basin.

The raw water quality on the mountain inside the Park is safe as regards both physio-chemical and bacteriological properties and meets the Uganda national standards (NW&SC, 2005) for rural drinking water supplies even without further treatment. This implies that there are no significant sources of pollution inside the Park. Over 100 villages and nearby towns such as Tororo, Mbale, and Kapchorwa receive piped water by gravity from the mountain.

### **4.3 Financing availability and mechanism**

The CBIs on mount Elgon do not have adequate funding yet. Currently most funds they operate on are mainly from multilateral donors who include World Bank, Global Environmental Facility, USAID and NORAD. However, internal mechanism to generate funds and therefore stop relying on external funding sources is being built. Local government has increased funding for the management of forest, soil and water in the last five-year to support the CBIs. This is part of the 65% of locally generated revenue, which is retained at subcounty level as per decentralization policy (Mbale District Local government, 2004), (Sironko District Local Government, 2005), (Kapchorwa District Local Government, 2004). Analysis of membership contribution for various groups on the mountains has also increased possibly due to more commitment to manage natural resources, an important requirement to their livelihoods.

The number of visitors to Mount Elgon has gradually increased e.g. from 491 in 1995 to 3605 in 2004, thus bringing in a significant amount of revenue for the Park. UWA remits 20% of its revenue from gate entrance fees to the Parks' adjacent communities to support environmentally related projects (UWA, 2004). MENP has remitted over 35 million shillings (about \$20,000) from 2002-2004 and has accumulated another 30 million shillings to be shared with the communities (MENP, 2006). Local communities groups also offer guiding, porter and other ecotourism services to the predominantly mountaineering tourists and these have grown to an important income source to them. Some community members raise and sell nursery products.

### **4.4 Reduction to vulnerability**

Mt. Elgon is vulnerable to landslides. Some of the mountain areas have experienced landslides for over 40 years now and in the last 8 years, over 200 people have been killed, 30,000 people displaced, household property destroyed and farmlands have been washed off the soils (Kitutu, 2001). Landslides occur during heavy rains in areas lacking vegetation cover and areas of steep gradients. Most of the areas outside the Park on the mountain are prone to landslides. Floods too are common occurrence on the mountain especially along rivers and valleys. Like landslides, floods also occur due to lost of vegetation cover, which reduces infiltration. Poor farming methods promote flood and landslides. The mountain is also vulnerable to hailstorm, strong winds, thunderstorm and hanging boulders (Mbale Local government, 2004).

Apart from landslide, there are no quantifiable indicators illustrating the scale of the above disasters. However, considerable efforts have been made by CBIs to reduce the above disasters. The CBIs have encouraged tree planting, made people aware, enforced regulations of non cultivation along river banks and steep slopes and promoted tree planting along river banks, helped farmers site contours and plant them with grass or shrubs or tress and some have donated emergency materials to affected people. Some dangerously hanging boulders

have physically been removed. But a lot is yet to be done to reduce vulnerability of these kinds.

Loss of land productivity is severe on steep slopes on Mt. Elgon in the agroecological zone known as Mt. Elgon High Farmlands. Poor farming methods, removal of tree cover on hillsides and riverbanks, over grazing, inadequate soil conservation measures and cultivation on steep slopes are causing severe soil erosion. Public perception is that soil erosion is still increasing and fertility declining. The situation is increased with high human population, some of whom are forced to cultivate on marginal lands. There is reduced crop yields e.g. maize and beans. Currently farmers are being trained to reduce soil erosion, diversify crop variety, soil conservation techniques, using simple appropriate agricultural technologies and are being assisted to link them to available markets. They are mobilized to form cooperative unions (Mbale, Sironko and Kapchorwa Local governments, 2004, 2005 and 2005).

#### **4.5 Environmental benefits**

The CBIs on Mt. Elgon are promoting environmental benefits. The National Park and other small forests and wood lots on private land provide a range of ecological services and biodiversity values. Although these services and values are difficult to quantify, they are recognized as integral to its high agricultural productivity, cool and wet climate regulation, soil and water conservation and nutrient recycling. It is also important to note that the forest and its cool microclimate have made Mt. Elgon an island devoid of mosquitoes that carries malaria. The mountain is also reservoirs of biodiversity including biodiversity below ground with its unique genetic resources and diverse ecosystem. At the Alpine and Ericaceous zone (23% of the Park area) comprises exclusive moorland and heathland area rich in endemic shrubs and herbs). 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 the caldera the grass species *Helichrysum* dominates followed by *Lobelia elgonensis* and *Lobelia telekii*. Oliniaceae family is practically endemic to this Afromontane Forest zone, the tree genera of *Afrocrania*, *Hagenia*, *Kiggelaria*, *Leucosidea* and *Xymalos* dominates. On the wetter southern and western slopes, the Afromontane forest community comprises tree genera of *Prunus*, *Aningeria* and *Olea*, while *Podocarpus*, *Juniperous* and *Ekebergia* are found on the drier northern slopes.

Over the past couples of decades, 1980s to early 1990s, wildlife population on the Ugandan side of Mount Elgon has been severely reduced, primarily due to hunting and cattle rustling. Most of the elephants (*Loxodonta africana*) and buffaloes (*Syncerus caffer*) moved to Kenya side. In the recent years, however, they have started coming back. Other animal species such as leopard, hyenas, Giant forest hog, potto, lesser galago and monkeys (Black and with colobus, red



tailed, blue) are commonly encountered on Mount Elgon. Smaller animals found on the mountain 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, Hartlaub's Turaco, and Tacazze Sunbird are restricted to Elgon and a few other eastern Uganda mountains (Penny Scott, 1998). The above flora and fauna species have high tourism value or benefit.

#### **4.6 Threat reduction on biodiversity**

By 1990, 20% of Mt. Elgon Forest Reserve (now national park) was under agricultural encroachment and domestic animal grazing, but today encroachment has been reduced to few pockets estimated to be less than 2% of the park (MENP, 2006). Over 8000ha out the 25,000ha degraded natural forest were rehabilitated by rearing indigenous tree species such as *Newbotania mycrocalx*, *Ficus natalensis*, *Cordia mellenai*, *Measa laciolata*, *Syzygium guineanse* and *Allophylus africana*. Further still, the boundaries of Mt. Elgon National Park and Namatala Forest Reserves have been retraced and marked with the involvement of the local communities. Efforts have been made to provide alternative resources outside protected areas e.g. provision of fodder and tree planting. Over 30 collaborative management memorandum of understanding (MoUs) were signed between UWA and Resource Use Groups around the park and 1 MoU was signed with NFA with communities around Namatala Forest Reserve. These granted access to vital forest products and put in place control measures for the harvest.

#### **4.7 General Impact of the CBIs:**

The numerous NGOs and CBOs, which mushroomed within the last two decades has provided opportunities for experience and lesson learning. For instance, more women are now involved in conservation activities with increased access, rights and control over resources e.g. the number of women who own land has increase from 1% in 1995 to 8% in 2004 (Mbale Local Government, 2004). Many community members are now aware of the values of sustainable conservation, this is proved by the rate of adoption of new technologies and interventions, which has increased by 50% in the last 10 years (Mbale Local Government, 2004). It is now easier to mobilize local people to take part in conservation. There is increased participation of local communities following the implementation of decentralization policy. Many people on the mountain have been trained and are skillful in natural resource conservation. The underprivileged have got forum so as to be incorporated into the national development process e.g. an area has been identified for the resettlement of the Benet forest dwellers in Kapchorwa district in 2002 after they petition parliament (Government of Uganda, 2002). Communities have started sharing of proceeds from conservation as exemplified by revenue sharing of UWA. All in all CBIs is having positive role on management and conservation of natural resources on Mt. Elgon by supporting

the civil society in many ways, and achieving sustainable conservation appears to be near.

## **5.0 Conclusions**

The Mount Elgon lesson is a strong indication that community based natural resource management is an important step in ensuring resource sustainability, socio-economic equity as well as traditional and scientific knowledge integration. This is in line with one of the principles of Rio Declaration on Environment and Development during the Earth Summit in Rio de Janeiro, Brazil in 1992. It recognizes the vital role community plays in the sustainable management of their local environments e.g. managing natural resources such as soil, water and biodiversity for the benefit of local people (UNCED, 1992).

This evaluation study result on mount Elgon will help governments and agencies to improve on the planning for conservation and development of mountain ecosystems. Policy makers will improve on policies and formulate strategies, which are appropriate for sustainable management of forest, soil and water and as well improve on the local people livelihoods. It is an example of a positive adaptive management, where CBIs have helped the people to adapt and improve through a learning process by reviewing the results of actions taken and assessing whether this actions have produced the desired results. At individual institution/project level, managers learnt from own and other's successes and failures and has helped them keep track of changes. The study result also indicates promoting accountability, because governments funding bodies and communities all require information on management effectiveness that will allow them to assess whether results are being achieved that are commensurate with the effort and resources being expended and in line with policy and management objectives. Accountability also promotes support and trust for the institutions/projects.

This is an example of increased pluralism and strengthening of civil society. Showing that CBIs, being close to local population can be more responsive to local development needs than the central government.

## **6.0 Recommendations**

1. The CBIs should build capacity to be self-sustaining for sustainable management of the ecosystem.
2. There is need to establish and support the mechanisms for institutional collaboration. A suggestion in the form of a 'clearing house' (for joint planning, information acquisition, storage and dissemination) for all players on mount Elgon has to be instituted as one of the ways of improving communication and sustainable practices.
3. Harmonize the relevant institutions' information and their means of deliverance to send unified-desired messages to the population.

4. Promote the understanding of the relationship between environment and natural resources and quality of life through collaboration of different institutions that deal with each field.
5. Intensify advocacy and lobbying government to adequately support conservation of Mt. Elgon ecosystem and surrounding natural resources.
6. Promote research, which enhances sustainable management of Mt. Elgon ecosystem.
7. Sensitize politicians to stop uttering political directives that contradict government policies.

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