# RESILIENT BIODIVERSITY AND INDIGENOUS KNOWLEDGE SYSTEM: THE CASE OF RAMOGI HILL, KENYA

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#### Abstract

The study investigates how indigenous populations contribute to environmental conservation and sustainability by invoking cultural norms and values.

Descriptive survey research design was adopted for this study. The target population was 7,239 Community Forest Association (C.F.A), youth leaders and Luo elders and elites. A sample of 400 was drawn using random, snowball and purposive sampling techniques, respectively. A questionnaire was used to collect data that was analyzed qualitatively. The response rate was 80% which was considered reasonable enough for external validity of results.

The findings of the study reveal that the Luo population of Ramogi Hill and its environ use their environment for their spirituality in various forms. Therefore, taboos, religious beliefs, sacred sites, rites and totems provide a framework for defining acceptable use of the hill. In addition the study reveals various ways of regulating environment which include: taboos that forbid carrying sharp objects to the forest; protect pregnant animals from hunters; classify creeping animals as sacred; promote preservation of medicinal trees.

The study suggests that the indigenous knowledge system on environmental conservation should be integrated into interdisciplinary projects dealing with links between culture, the environment and development.

Keywords: Resilience, biodiversity conservation, Ramogi Hill, Kenya

### 1.1 Background

According to the teachings of major world religions and faiths God created the universe, the sun, the earth and therefore the solar system. The earth was created by God who designed and ordered it to be a home for man.

When God created Adam and Eve, He (God) gave them a very special garden or paradise (a veritable garden of pleasure) called Garden of Eden. God provided them with every necessary physical thing of life. All around Adam were peaceful animals of every kind. And God had a covenant with Adam and Eve.

And God blessed Adam and Eve, and God said to them 'Be fruitful and multiply, and replenish the earth, and subdue it, and have dominion over fish of the sea and over the fowl of the air, and over all living things that move upon the earth. <sup>1</sup>

God gave them roles and responsibilities. They were to take care of the whole garden. It is in this garden that we find this primal couple's environment, ecology, nature and landscape. Thus during the Age of the Garden, which extended thousands of years, humans are known to have lived in relative harmony with each other and with the rest of creation. This was also the age of hunters and gatherers. Adam and Eve developed a culture, based on and perpetuated through *Indigenous Knowledge System* that explains how and why man is in harmony with nature. They communicated with creation, with fauna and flora and in them they saw God in His Majesty. Nature was sacred. Norms and values were institutionalized. But they lived in small communities governed by God's *environmental guidelines as to what humanity was to do with nature*.

Amidst various strategies for conservation of natural resources in Kenya, there has been an increase in environmental degradation. The Government has developed various strategies for the management and conservation, but neglected the approach of using traditional/indigenous knowledge systems in championing environmental conservation. Kenya faces adversity of environmental challenges which need to be mitigated through appropriate and timely interventions by integrating the indigenous knowledge systems into the environmental management. Ramogi Hill (Got Ramogi) Forest is a good example where this type of environmental management has been applied effectively.

# 1.1.1 Ramogi Hill Forest and its Environs

Ramogi Hill Forest is located in Yimbo Location, Bondo District, Siaya County on eastern shores of Lake Victoria in Western Kenya. The hill lies at an altitude of 1,240m above sea level and comprises two peaks, namely Minyenjara (200ha) and Nyaidi (83ha). The hill is at the edge of Lake Victoria and the confluence of two rivers, Yala and Nzoia, before the two reach the lake. It is surrounded by lakes Victoria, Sare, Nyamboyo and Kanyambole. There exists the Yala Swamp which separates Ramogi Forest from the Samia Hills further

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<sup>&</sup>lt;sup>1</sup> Genesis 1:28 (Revised Standard Version - Bible)

to the north-west. The sacred forest covers an area of about 283 hectares (Sigu, *et al*). The map of the area is attached as Appendix 4. A view of Ramogi Hill is given in Appendix 1.

Ramogi Hill Forest is surrounded by Usigu, Oraro and Jusa settlements. From the top of the hill, one has an excellent view of Lake Victoria across to Uganda, the reason why it was chosen for settlements to enable the residents spot the enemies from far (Mhando, 2003). There are about eleven clans living around the hill comprising of about 600 households having over 3000 individuals. Most of them rely on subsistence agriculture for their livelihood.

Ramogi's original name is LAMOGI, LAMO means prayer, MOGI means worship; LAMOGI means a place of prayer and worship. Therefore, Ramogi Hill is a cultural and vital residence of the Luo people. Ramogi Hill is considered not only as a symbol of cultural and heritage centre of the Luo people but also as a spiritual and religious centre with several sacred sites (Appendix, Table 1).

Got Ramogi Forest was classified as a county council forest in the 1950s under the Alder/Swynerton Plan. In 1968, the Siaya District Council ceded the forest's management to the central government under a formal council resolution, to be a national forest reserve. The forest was declared a government land during adjudication using Division in the late 1960s and early 1970s. The forest has not been gazetted despite past attempts to do so and currently stands as a community forest (Odhiambo and Odede, 2012).

Over the last two decades, forest management has shifted from state driven timber and user based focus to management for multiple goals and services orientation to meet local livelihoods. Following a general decline in forest management to stem resource use pressure through "police" style enforcement, a local community based organization has, together with the Kenya Forestry Research Institute (KEFRI) gradually assumed forest management role of the forest of Got Ramogi.

The biodiversity components and systems of Got Ramogi are influenced by the vast Yala swamp. The swamp is an important cess pit that buffers the littoral and Lake Victoria aquatic biodiversity (LVEMP, 2005; Republic of Kenya 2006). The forest supports a complex of *Guinea – Congolian – Sudanian – Somali – Maasai* and the *Afro-Montane* vegetation types. The vegetation of Got Ramogi is characterized by dry upland vegetation, dominated by species of dry pees; *haplocoelum, manankio taxis, strychnos, and Teclea.* 

Got Ramogi supports a diversity of fauna and flora according to rapid assessment of Ramogi hill biodiversity carried out in July 1993 and June 1994 recorded a total of over 100 species of plants, 12 species of mammals, 4 species of reptiles, 3 species of amphibians, 64 species of birds (AAS,1996). Additional 22 orders of invertebrates (including a large number of insect species) were recorded (Sigu, et al). This unique forest

holds immense opportunities for a deeper understanding the plant geography of East Africa's flora and fauna.

The zone experiences a modified equatorial type of climate characterized by very little rain and influenced by winds blowing west wards into Lake Victoria. The winds are usually dry carrying little rain, with few intervening prominent hills and forests to trap moisture. This biogeography is a manifestation of a semi-arid savannah climate that seems unusual for the littoral zone around Got Ramogi.

The area receives an annual rainfall of (400 mm), with mean annual temperature of 27degrees Celsius and contains small dry forest remnants of Lake Victoria basin vegetation.

### 1.1.2 Objective

The main objective of this research was to investigate how indigenous populations contribute to environmental conservation and sustainability by invoking cultural norms and values. Ramogi Hill was selected for this research not as a mere physical feature, but as a pre-historic site, a sacred site of the Luo community, quite telling of people's cultural values, teachings, beliefs and practices that surrounded the various sacred sites within the Hill and their implication among the members of the community.

# 1.2 Methodology

Descriptive survey research design was adopted for this study. The target population was 7,239 Community Forest Association (C.F.A), youth leaders and Luo elders and elites. A sample of 400 was drawn using random, snowball and purposive sampling techniques, respectively. A questionnaire was used to collect data that was analyzed qualitatively using SPSS. The response rate was 80% which was considered reasonable enough for statistical generalizations. Secondary data was obtained from existing literature, reports and journals based on the study area.

Focus group of five to seven individuals were conducted and the researcher was the moderator. This technique was useful because it enabled us to gather in-depth information on beliefs, practices, ideas and teachings of the community.

Two theories were used to guide our endeavour to obtain the stated objectives. First, Richard (1979), social cultural theory which argues that **among the indigenous people's teachings**, **beliefs and practices are a special knowledge that is used by the concerned community in environmental conservation**. This theory propels our study into looking at specific indigenous religious knowledge, beliefs and practices that have influence on the environment.

The second theory known as systems theory which was advanced by Taylor (2015), states that "in a particular system which involves animals, human beings; flora and fauna in any particular ecological setting have an intimate relationship on how it relates to one another so as to maintain equilibrium." He postulates that people's teachings, beliefs and practices in a particular eco-system are meant for preservation of the ecological organisms in that bio-system. Whenever one of the relationships is interfered with, the whole system suffers.

The indigenous knowledge system was necessary for environmental conservation and preservation, the richness of cultural diversity in Ramogi was undeniable. For generations indigenous people have lived in natural ecosystem in which they have developed and practiced life-styles and belief systems that draw upon their deep knowledge about local plants, wildlife and ecology. Nevertheless, the local people with their knowledge are often unable to use it in modern world in which state policy overrides. Local management increasingly, however, scientists and development planners are recognizing the importance of indigenous knowledge to biological resource management and the maintenance of biodiversity.

We define culture as the different ways in which people interact among themselves and with nature to generate original livelihoods such as hunter – gatherer, shifting cultivators /fishermen. This variability in life-style encompasses their worldviews, religious beliefs, knowledge, customary organizations, norms and rules. Thompson *et al* (1990) succinctly defined culture as the human process of the national transformation of nature as well as the collective creation of meaning about reality.

## 1.3 Findings

#### 3.1.1 Factors Contributing to Resilient Biodiversity on Ramogi Hill

We found that the Luo teaching, beliefs and culture were behind the excellent biodiversity of Ramogi Hill and its environs in Siaya County.

The Luo are a people whose creative and instrumental power was embedded in the institution that directed and sanctioned them, namely, the institution of *Ker* whose installation entailed seating the candidate on *Kom Duong'* (Traditional leadership stool or throne); chanting prayers invoking the ancestors to bless the land and the people, the crops, the livestock and the fields where mining was done. This practice calls for proper conservation efforts opened to more social approaches in integrating local control over natural resources and benefit to local communities.

The elders of Luo people, for example, have an innermost sanction for the place where the community elders are buried and only married men of status are allowed to access it. This is where sacrifices to ancestors are made and other traditional rules have conserved these

forests for many years and preserved them as home for various plant species. More than half of Kenya's rare plants occur in the Ramogi forest, most of which are within (Nyamweri, 1996).

Communities living in the Lake region have respect for Ramogi Hill Forest because of its historical significance. It is the most important cultural site of the Luo and is largely considered to be holy/sacred ground.

It was believed that ancestral spirits within the forest provided strength and security for the community members. The sacred sites within the forests were highly revered by community members as it was believed that the sites were under the keen watch of the angels (Herbich, 2002; Miruka, 1994). No major activity could succeed if the spirits in the forest were against it. Major hunting expeditions or aggressions during war were sanctioned after consulting ancestral spirits and conducting special animal sacrifice. Those beliefs were taught to and practiced by young people so that they could have a strong orientation towards the values. Women married into the community were taught by elderly local women in order to observe specific codes of conduct. These practices have perpetuated conformity to and within the society up to modern times. The traditional beliefs, sacred shrines and norms associated with Got Ramogi are still verbally expressed through the elders for each sacred site and object. Thus Got Ramogi has cultural, religious and ecological significance (Adhiambo and Odede, 2012).

Ramogi Hill is a hill of multiple uses.. For archeologists, it is a historical site rich in traditional artifacts which tell of a people's early life. The geologist will be struck by diverse rock structures found in the region. The historians will be fascinated by the historical monuments that define a people's history. For the literally artist, however, the Hill is a testimony to a people's culture and the socialization process that characterizes it. The name Ramogi is not only equated with the hill, as a physical feature, but is the name of the forefather of the Luo community. The hill is overgrown with a forest considered sacred and is thus respected and protected by communities living in the Lake Region.

#### 3.1.2 World views

The study found out that different world views do not only have significant political and social-economic repercussions, but they also determine the way in which people perceive and interact with nature, thus forming their specific culture. Natural ecosystems cannot be understood, conserved and managed without recognizing the human cultures that shape them, since biological and cultural diversities are mutually reinforcing and interdependent. Together, cultural diversity and biological diversity hold the key to ensuring resilience in both social and ecological systems.

This explains the involvement of the Luo people of Ramogi Hill and its environs, through its environmental and cultural activities, in promoting awareness and understanding of the relationships between biological and cultural diversity as a key basis for sustainable development. One of these activities involves improving the understanding of the importance of sacred natural sites for biodiversity conservation. In the Luo community,

traditional sacred areas fulfil functions similar to those of legally protected areas in the west. Due to access restrictions, these areas, including mountains, groves, and rivers, are often near-natural ecosystems in otherwise degraded environments. These sites have survived environmental degradation as they are well embedded in local cultures and traditional belief systems. They often provide sanctuaries to rare or endangered species and therefore play an important role as potential gene pools that can be used to restore degraded environments. In many cases, sacred natural sites have also important complimentary role to legally protected areas such as national parks strict nature, or forest reserves.

We found that the indigenous knowledge systems of the Luo people on resource utilization and environmental protection was spiritually based. They believed that environmental conservation was a command from the supernatural. Failure to conserve certain natural resources could lead to curses from the spiritual world in the form of disasters, such as drought, epidemics or famine. They perceived that nature and humanity were interdependent and that they should not tamper with what they do not understand in terms of origin. Destruction of the environment meant destroying fertile grounds for communicating African spirituality. The Luo people worshiped and venerated everything below the earth, on the earth, between the earth and heaven and in the heavens. They believed that the environment was the abode of the spirits, the living dead and ancestors. The natural environment has spirits which defined the relationship between humanity and nature. Therefore, taboos, religious beliefs, sacred rites, sacred places, and totems provide a framework for defining acceptable use. Ramogi Hill is regarded as sacred because it stands in relationship with God. The reverence to sacred sites on Ramogi Hill played a key role in the conservation of the biodiversity, (refer to appendix). Invoking cultural norms and values was at the centre of a rich ecosystem with equilibrium on the Ramogi. The Luo belief systems involves deeper human values, attitudes, teachings and practices which were passed from one generation to another.

#### 3.1.2 Conclusions

We conclude that the Luo knowledge and belief systems on environmental sustainability could be revitalized and used in environmental conservation.

The concept of sacredness extends to plants, animals, birds and snakes. Some specific flora and fauna species are regarded sacred by the Luo people and a majority of African communities. These plants and animals are conserved for religious functions. The sacredness of a phenomenon in the Luo is passed on from generation to generation. It is believed to be a command from ancestors. Failure to give sacrifices and offerings from the community is believed to influence disasters. If community members allow the destruction of sacred spaces, it is believed that ancestors would curse the living. Therefore the belief that specific sites in the forest are sacred promotes sustainable ecological conservation.

The Luo people fear coming into conduct with evil spirits. This gives reason why they feared any phenomenon believed to belong to evil spirits. Ancestral spirits are regarded as

guardians of natural environmental resources. If one destroys what is portended as sacred, ancestors punish him or her with death or misfortunes.

Some environmental resources are dreaded because they are portended to be artifacts of people; hence, no one destroys them. If one interferes with them it is believed that he or she will die or be affected negatively by mystic forces concerned. By fearing getting in touch with certain plants or animals, they are not disturbed by humans hence, left as natural as possible leading to maximum ecological biodiversity. Varied sites were protected through various beliefs, although there has been a radical change in regard to the way African spirituality is currently being practiced. Mystic forces are still feared by those practicing African spirituality and enculturation.

There is need to build a sustainable society. Sustainable development must promote real improvements in the quality of human life and, at the same time, maintain the life support systems on which our lives and the lives of all other species are based to guard ecological capital for future.

Here is also a need to change personal attitudes and practices. Any long term improvement in the condition of the world must start with individuals – our values, attitudes and practices. If each human being acts as a person, in a personal relationship with creation, then we not only lift creation up to the level of the human but also see creation as a totality, not a collection of unrelated things. Human beings have an awesome responsibility for survival of God's creation. By acting together, people become a strong and effective force, regardless of whether their community is wealthy or poor.

## 1.4 Policies

There a need to improve living conditions for all people while maintaining a healthy environment in which natural resources are not overused and excessive pollution is not generated in the process of earning a livelihood from the forest and the wider environment. This should be done by meeting the needs of the world's poor, because unless their needs are met, there can be no overall sustainability. The world does not contain nearly enough resources to sustain everyone at the level of consumption without concurrently reducing the real quality of life.

From a spiritual point of view, it is recommended that environmental diversity should be conserved through sustainable development where every person from grassroots level is involved in protecting and maintaining God's creation.

A forest management paradigm should be established to promote participatory forest ownership by local community, their participation in management, to ensure equitable flow of benefits to them. The community must also maintain the vitality of its local ecosystem.

Development of community-based enterprise based on promising alternative sources of livelihood wealth generation and developing methodologies and technologies for sustainable natural resource management, through research and development.

The National Environment Management Authority should demystify the relationship between environmental law, policy and science by facilitating dialogue among the specializations and thus promoting efficacy in environmental governance and preparing resource managers for informed interventions or other forms of avoidance and/or how to settle disputes on environmental matters.

There is a need to conduct research on typologies that may be found in modern solemn declarations such as world charter of nature, Stockholm declaration, Agenda 21, Rio Declaration and World Heritage Initiative, that is, cultural and ethical factors in settlement of disputes with regard to good environmental governance for sustainable development.

There is also a need to look at causes of decline in forest development and failures in legislation, socio–economic weaknesses and related policy failures in Ramogi Hill Forest and establish why the forest has not been gazetted despite past attempts to do so.

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Table 1: SACRED SITES ON GOT RAMOGI FOREST.

SITE	ASSOCIATED OBJECTS	
Ramogi Hill	The home of the Luo community, the Luo cultural heritage, the dispersal point of the Luo people, the centre of the emergence of the Luo clans, it determines the leadership and the politics of the Luo people, sanctuary for rare and threatened species, fresh water source, a place of high biological diversity, a shelter and safety ground for the Luo people. Important for the restoration and rehabilitation of degraded ecosystem.	
Mufure (Mvule tree with a double stem)	Mvule tree (Hundhwe Jaliel – Ndwili)	
Asumbi baba, Asumbi mama	Rocks with holes that contain living water/medicinal water that never dries.	
Altar on <i>Asumbi</i> Rock.	Legion Maria sect members pray and fast day and night.	
Luanda Agulu with a lid	When you strike a rock with the lid water comes out like the case of Moses in the Bible.	
Rapogi (Sharpening stone)	With four pots (Ramogi's homestead) the pots signify the four wives of Ramogi. The rock shakes indicating a heavy down pour.	
Kom Rachier	The seat of a totem nyangidia (snake) where political leaders go before elections to appease ancestors.	
Lakes Sare, Nyamboyo, Kanyaboli & Victoria	The four lakes surrounding Ramogi Hill. Comprising indigenous special fish species, water bucks and a home of totemic animals.	
Tiend Yesu	Foot prints of Jesus.	
Luanda Laure	Ramogi relation point under this rock, it's believed to have a flowing water spring.	
Adodi	Whistling stone on Got Ramogi (It's believed, it whistles to pass a message from ancestors).	
Umba	Special source of clay for pottery.	
Luanda Alego	Rock like plateau, a meeting and relaxation point at the summit, where the totems too come to relax and be fed by community. Sacrificial point/offerings, prayers and fasting.	
Dhiang gi Nyathine	The petrified cow.	
Pong	Grinding stone where clannism amongst Luo people emerged.	
Muchia	A stone that bleeds when struck.	
Loch ndwili	The tethering plant that grew into a big tree.	
Omuonyo le	A tree that swallowed an axe.	
Hundhwe Jaliel	A tree that produces very bright light.	
Oyusi	Papyrus swamps that habitats totemic animals and medicinal plants – where all indigenous fish species are believed to breed from.	

Nam – Togo	Mythical Lake that is rich in indigenous fish species, it appears to special people.	
Traditional Luo homesteads/Typical homesteads.	They were traditionally managed, no interference with the vegetation, therefore no fences.	
Rapogi	The homestead of Ramogi the ancestor. It has four pots representing the four wives of Ramogi.	

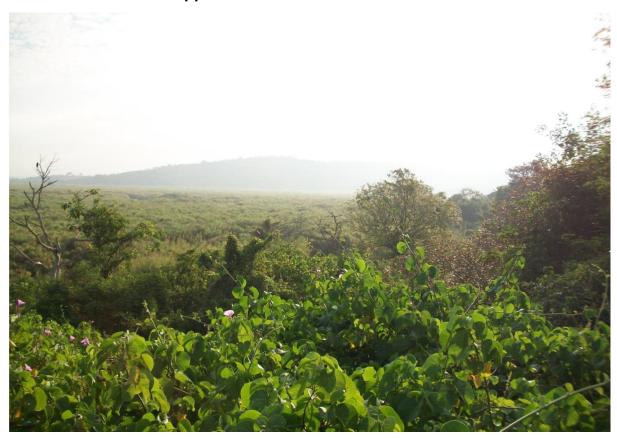
Table 2: Names of the Herbs Found on the Ramogi Hill Forest.

Name of disease	Curative herb
Chira (HIV/AIDS)	The living water from Asumbi Mama/Moringa leaves.
Sore throat and cough.	Nala
Difficulties in stool/excretion/enlarged spleen and arthritis	Dhiriake
Skin ointment(used as lip glass)	Akado, Olemo
Malaria/Mosquito repellent and killer	Ayila
Cough	Nyabende
Wide spectrum herb	Ofwangafa
Stomachache and diarrhea for children	Okuog
Snake bite for animals	Pon
Favour for case win	Ufungonyallo
Treatment of bones, enhancement of memory	Mkwanga
Stomach ache/ulcers/constipation/prostate cancer	Aringo and Lulusia
For furniture and hard wood	Siala
Skin disease and lip gloss	Akado





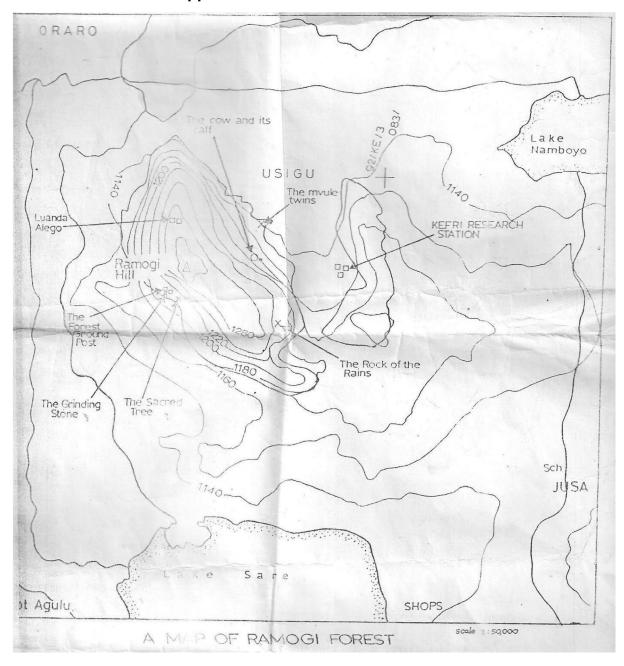
Appendix 1: VIEW OF RAMOGI HILL



Appendix 2: A VIEW OF YALA SWAMP



Appendix 3: OYUSI (PAPYRUS) AT THE CONFLUENCE OF RIVER YALA



**Appendix 4: MAP OF RAMOGI FOREST**