



Forest Management Plan for Implementation of a Pilot REDD+ Project for Masito Community Forest Reserve, Kigoma, Tanzania for 2012-2017: General Description

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

Article Information

DOI: 10.9734/AJEE/2021/15i130218

Editor(s):

(1) Dr. Wen-Cheng Liu, National United University, Taiwan.

Reviewers:

(1) Awé Djongmo Victor, University of Ngaoundere, Cameroon.

(2) Salami Kaseem D., Federal University Dutse, Nigeria.

(3) Ing. Jose Antonio Valles Romero, Mexican Institute for Logistics and Supply Chain, Mexico.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/68955>

Received 20 March 2021

Accepted 25 May 2021

Published 28 May 2021

Original Research Article

ABSTRACT

A forest management plan is a document that guides management of a formally managed forest. The general description is a component of a forest management plan, which describes the target forest and the focal landscape in socioeconomic and ecological terms. This paper gives a general description as part of a forest management plan for implementation of a pilot REDD+ project for Masito Community Forest Reserve, Kigoma, Tanzania for 2012-2017. The methodology used to obtain the data and information for the description was literature review. The general description is given under six main sections, namely: (1) legal status, ownership and administration; (2) location, size and boundaries; (3) physical features; (4) biological aspects; (5) buffer zones and corridors, and; (6) socio-economic aspects of adjacent communities. The forest was not yet gazetted. The vegetation type was predominantly miombo woodlands. The main land use of the forest adjacent communities was agriculture. The general description formed the basis for development of the other components of the management plan.

Keywords: Community based organization; east African rift; ethnicity; flora and fauna; lake Tanganyika.

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1. INTRODUCTION

A forest management plan is a document that guides management of a formally managed forest [1-8]. A forest management plan has four main parts: general description, review of the previous management plan, management directives and management prescriptions. The numbering and naming of the parts of the plan may vary from document to document, depending on the writing style of the authors of the plan but the main issues covered remain the same. The general description describes the target forest and the focal landscape in socioeconomic and ecological terms. The review of the previous management plan describes the management that has been applied to the forest prior to the forest management plan being written. The management directives describe the policy directives that guide the prescriptions of the forest management plan. The management prescriptions describe activities to be implemented as part of the management of the forest and the resources, localities and timing for the activities. This paper gives a general description as part of a forest management plan for implementation of a pilot REDD+ project for Masito Community Forest Reserve, Kigoma, Tanzania for 2012-2017. The general description is given under six main sections, namely: (1) legal status, ownership and administration; (2) location, size and boundaries; (3) physical features; (4) biological aspects; (5) buffer zones and corridors, and; (6) socio-economic aspects of adjacent communities.

2. METHODOLOGY

The data and information were obtained from literature that were prepared as part of the REDD+ project managing the forest or before the project. This paper is an excerpt from a forest management plan report that was submitted to the Jane Goodall Institute (JGI) in 2012 [9,10].

3. RESULTS AND DISCUSSION

3.1 Legal Status, Ownership and Administration

Masito Community Forest Reserve (MCFR) was in the process of preparation of requirements for its gazettement as "Masito Community Forest Reserve". The gazettement would transform the legal status of MCFR from the general land forest. So far, MCFR was being managed by

JUWAMMA (Jumuiya ya Watunza Msitu wa Masito), which was a Community Based Organisation. JUWAMMA was facilitated by the JGI (Jane Goodall Institute) REDD+ (Reduced Emissions from Deforestation and forest Degradation Plus) project and KDC (Kigoma District Council). Before the REDD+ project, MCFR was managed as part of the MUE (Masito-Ugalla Ecosystem) under JGI conservation projects. The boundary of MCFR has already been surveyed and the boundary map was being processed by the Surveys and Mapping Section of the Forestry and Beekeeping Division.

3.2 Location, Size and Boundaries

MCFR was part of the Masito-Ugalla Ecosystem [11,12]. MCFR was located in Kigoma District, south of Malagarasi river. The Malagarasi river is a part of the boundary and Uvinza territorial forest reserve. The reserve follows regional administrative boundary between Kigoma and Rukwa in its southern part towards the part of Songambe Village boundary (towards the easterly north of the village) joining Mkanga river hence to Malagarasi river [13]. This project lies within zones 35 and 36. It can be accessed via the Kigoma-Mpanda road, travelling south from Kigoma or north from Mpanda. The forest is located to the south of Uvinza salt mines. The forest can also be accessed from Lake Tanganyika since it is located about 7 km to the east of Kirando port.

The total area of MCFR that was surveyed and demarcated by the JGI was about 90,977 ha, of which 486 ha was covered by water bodies. The MCFR has been surveyed for the purpose of gazettement. The survey report was yet to be published.

3.3 Physical Features

3.3.1 Topography and hydrology

The Masito-Ugalla landscape is located near the western edge of the east African Rift and Lake Tanganyika [13]. It is characterized by gently dipping to flat plateaus with sandstones dissected by shallow, well vegetated canyons and some steeper-walled valleys. Canyon walls generally do not exceed a few hundred meters in elevation above the valleys.

Most of the MCFR landscape is drained by the Malagarasi River, which flows to the confluence

with Lake Tanganyika [12,13]. The Lugufu is another river in the area which also drains into Lake Tanganyika. The Ugalla is a major tributary to the Malagarasi River to the east of MCFR. High flows occur in the rainy season from December to March. Surface flow sources in the dry season from late May to November is limited to main stem tributaries fed by shallow ground water seeps and springs. Many perennial tributaries drain to the Malagarasi and Ugalla Rivers, contributing to high base flows maintained in the dry season. Spring-fed channels were found associated with a limestone formation encountered near the mouth of the Mkanga River, and other spring-fed channels probably exist associated with this formation.

Groundwater wells were commonly used as community water wells, and may reach water reserves between 7.5 and 9.5 metres below the surface [13]. Groundwater resources were generally more plentiful in floodplain or terrace areas. The wet season significantly expands the quantity and extent of surface water as flood plains and intermittent water bodies store and convey rains for about four months between December and March. Seasonal inundation is indicated by several landscape features including broad floodplain areas with plant species adapted to wetter soil conditions (riparian species), especially surrounding isolated pools; culverts and low water crossing structures intersecting roads; and lush crops occupying floodplains in the dry season. Water erosion of forest and floodplain or terrace soils occurs during the rainy season. Erosion of soil from farms, trails and roads, and burned areas all contribute fine sediment to the river at high flow periods. Bankfull or greater flows occur on the Malagarasi and tributaries every 2-3 years, and very large floods occurred every 5-10 years.

In much of the upper part of the watershed, most of the channels were lower in gradient and highly sinuous with slight to moderate entrenchment [13]. Sediment supply and/or mobilization are moderate to high in the Malagarasi and Ugalla River drainages with suspended particles responsible for low transparency. High flows during the rainy season erode farm plots adjacent to the channel and other bare ground such as burned over areas. Burning causes extensive upland erosion and soil loss, and runoff from these areas is likely to enter streams. Grazing pressure may be one source of sediment. As an example, long term grazing pressure on the Shangwa River, a tributary to the

upper Ugalla River, has led to local channel instability, vegetation loss, and increased supply of fine sediment to the channel. Grazing is technically prohibited in this area, but cattle were illegally brought to the area to graze.

Channel size and lateral movement in most stream and river systems were strongly regulated by bed and bank vegetation as well as direct disturbance by land use activities and large wildlife use. The Malagarasi downstream of Uvinza and the lower Lugufu had higher gradient sections as these rivers run west to Lake Tanganyika. Stream banks in unpopulated areas upstream were generally stable with intact floodplains. Some upper banks and floodplains had been eroded naturally as streams meander through valleys, and in other areas by native wildlife accessing water points. Developed areas had altered the drainage system by creating undersized crossings for roads, compacting riparian soils, using floodplains for agriculture, livestock watering areas, and diverting flows. Channel beds and banks in these areas may be significantly less stable than those in undeveloped reaches and thus experience greater movement, erosion/sedimentation, and altered flow volume and flood magnitudes.

Beneficial uses of water in the drainage include drinking water, fisheries, wildlife habitat, bee keeping, irrigation, and ecosystem health [13]. While most of the beneficial uses appear to be supported adequately at this time, overfishing, high fine sediment amounts during the rainy season, and reduction of stream shade and an associated increase in water temperature, or other effects from the reduction of streamside trees, especially along the lower river pose as threats to long term sustainability of the uses.

3.3.2 Geology and soils

The MCFR landscape is located near the western edge of the east African Rift and Lake Tanganyika. It is characterized by sedimentary or low-grade meta-sedimentary rocks [13]. The cemented sandstones of the uppermost geologic formation are apparently very resistant to weathering. Other common rock includes limestone, shale, siltstone, quartzites and volcanic rock.

The plateau areas were forested and relatively flat, except where erosion has formed canyons, and much of the plateau landscape contains numerous poorly drained “mbugas” – grasslands

and savannahs – ranging from less than a hectare to sometimes several hectares in size [13]. True mbugas had a clay-rich surface soils from transported soils and sediments and do not resemble the underlying rock. Much of the valley floor landscape contains actively flowing small streams, minerotrophic wetlands, and relatively flat forested areas. Along major rivers like the Malagarasi, nearly level alluvial plains were encountered. Other areas along the Malagarasi includes valley floors that were much narrower bounded by hills or canyons. The valley floors were sometimes interrupted by isolated hills or buttes that were erosional remnants of the plateaus.

Ustults were the soil taxonomic sub-order that dominates the MCFR landscape [13]. An intense weathering environment over a very old geomorphic surface prevalent in the region produced these soils. Ustults had an ustic moisture regime and a relatively low organic carbon content. Most Ustults, including those in the MCFR landscape, had an ochric epipedon that rests over an argillic or kandic horizon, which may or may not contain plinthite. A petroferic contact is common where plinthite occurs. Ustults do not generally contain Carbonates. Areas where there were limestones, carbonatic shales, and other rocks such as volcanics were likely developing into other soils classes.

Due to the abundance of nearly level surfaces, sandy soils and rapid infiltration rates, soil erosion potential within the MCFR landscape is very low under potential natural vegetation and ground cover [13]. Under the common conditions of frequent burning and cropping, and sometimes livestock grazing, the protective role of soil cover is much reduced. Steep to very steep areas (greater than about 20 percent slope) with burning and/or cropping had obvious and severe erosion.

3.3.3 Climate

The Tanzanian Meteorological Agency operates 2 rainfall stations near Uvinza (5°06' S, 30°23' E), at the northwest edge of the Ugalla area [14]. From 1973–2005, mean annual rainfall is 980 mm (range: 750–1350 mm); for 16 of the years no rain fell during June–August. Defining a dry month as one with an average rain-fall ≤ 60 mm, average total rainfall during the May–September dry season is 60 ± 40 mm ($n=26$ complete years) and the average of Q, a seasonality index, is 108.3 ± 35.9 ($n=26$; $Q = [(number\ of\ dry$

months/number of wet months) $\times 100$). Most streams in the area dry up during the dry season because of this long dry season and geographical and geological features

3.3.4 Special sites and features

There were no reports of special sites and features within the MCFR.

3.4 Biological Aspects

3.4.1 Natural forest cover and flora

Miombo woodlands were the characteristic vegetation of the MCFR landscape [13]. Miombo woodlands form a belt across south-central Africa, running from Angola in the west to Tanzania in the east. The woodland is dominated by trees of the closely related genera *Brachystegia*, *Julbernardia* and *Isoberlinia* (subfamily Caesalpinioideae, family Fabaceae). These large, continuous woodlands were interspersed with seasonally inundated grasslands (“mbugas”) dominated by *Hyparrhenia* grass (Poaceae; about fifty five species, also taxonomic synonyms *Andropogon pubescens* Vis (\equiv) *Cymbopogon hirtus* (L.) Thomson (\equiv) *Heteropogon pubescens*). Some of these species were increasing, some were decreasing and their tolerance for wetness varies from wet to drought tolerant. One of the most important and widespread is *Hyparrhenia hirta*. A tufted perennial, it is one of the most popular thatching grasses and is used for livestock grazing during early growth. It can germinate in varying light, over a range of temperatures, pH, and under water stress. It forms dense stands in disturbed areas where it outcompetes other plants in infertile areas, but less so in fertile areas. It is not easily controlled and can prevent other species re-establishing. It responds well to burning. On the positive side, it stabilizes hard, gravelly, and eroded soil. Other species that were likely more common generally, and were still observed in minimally disturbed areas include *Lonchocarpus capassa* (Fabaceae); *Terminalia kaiserana* (Combretaceae); *Sclerocarya birrea* ssp. *caffra* (Anacardiaceae); *Stereospermum kunthianum* and *Markhamia obtusifolia* (Bignoniaceae).

Miombo forests were a fire disclimax, but some dominant species of *Brachystegia* and *Julbernardia* were considered fire sensitive, at least at a young age, while *Pterocarpus angolensis*, *Pericopsis angolensis*,

Diplorhynchus condylocarpon, and *Strychnos innocua* were fire tolerant [15]. The distribution of miombo forest depends on various soil attributes including the extent of weathering and organic matter content. For example, *Brachystegia spiciformis* and *Combretum zeyheri* were dominant on red plateau soils, while *Julbernardia globiflora* and *B. bussei* were found in younger grey soils.

Streambank soils generally show good coverage in most parts of the landscape with the exception of those where grazing has been going on for some time (e.g. Shangwa Creek) [13]. However, the streambank vegetation commonly comprises early to mid seral species and/or non-native species. These community types provide less inherent streambank stability and had less resilience to any further disturbance, particularly grazing, cultivation, and large floods.

According to Uvinza elders who were born in the area, very large trees dominated the banks of the area rivers up to 1950s [13]. Large floods, particularly the one in 1964 caused long-term standing-water whereby some of the trees died. Furthermore, fire was infrequent and population density was low until the 1970s in the area. Permanently or seasonally inundated mbugas can be found along the Lugufu and Malagarasi Rivers and other perennial water sources. Riverine forest species can be found along rivers and smaller streams and along other perennially wet areas. These types of habitat represent a relatively small area of forest, but were extremely valuable for a variety of species.

3.4.2 Areas supporting production forest, protection forest and other natural vegetation

The whole of MCFR was for protection. Areas that support production for consumption by local communities were Village Land Forest Reserves (VLFR) outside MCFR. These were characteristically the same vegetation types as those that form MCFR [9,10]. However, specific inventory would be needed to understand their structure and dynamics.

3.4.3 Fauna

MCFR landscape is rich in fauna. Species found include chimpanzee, red colobus monkey, bush-baby, elephant, eland, hartebeest, and duiker. Most of these species were threatened or locally

endangered due to human pressure [9,10]. There were also many species of fish and other water life in the rivers and streams, in addition to those from Lake Tanganyika.

3.4.4 Plant and animal species of special concern

As already noted, most of the animals were either endangered or threatened due to human pressure. However, the landscape is of particular importance to conservation of chimpanzee [12], [16–18].

3.4.5 Species posing management challenges

No species had been reported to pose management challenge for MCFR.

3.5 Buffer Zones and Corridors

The MCFR is to a large extent surrounded by miombo woodlands on all its sides: east, west, north and south. In particular, the area between the seven villages involved in the REDD+ project for MCFR and the forest intended for REDD+ is mostly miombo woodland. All the villages had prepared land use plans as a way of ensuring sustainability of land and forest resources in the landscape. The connection of MCFR to miombo woodlands on all sides potentially serves as structural corridors for ecological processes [18]. However, to ascertain the extent to which the corridors were ecologically functional may need further investigation.

3.6 Socio-economic Aspects of Adjacent Communities

3.6.1 Forest adjacent communities

Communities adjacent to MCFR were of mixed ethnic groups and each one has its own features, traditions and customs [19]. Since the 1970s, the population increased significantly mainly due to the refugee influx from neighbouring Burundi and the Democratic Republic of Congo (DRC). This migration phenomenon has not only increased the population in the area, but also resulted in a mix of ethnic groups (Table 1). Despite the reported influx of people from different ethnic origins within and outside Tanzania, still the most predominant ethnic group is the Ha who were indigenous to the area. The Manyema and Bembe originating from the DRC also form a significant part of the population.

Table 1. Ethnic groups of communities adjacent to masito community forest reserve source: [19]

Ethnic Group	Total population (%)
Ha	74.6
Nyamwezi	0.3
Sukuma	0.3
Manyema	12.1
Fipa	0.6
Bembe	5.3
Jita	0.3
Sindi	0.3
Tongwe	3.2
Goma	2.9
Total	100

The percentage composition given in Table 1 should only be taken tentative because most people from Burundi and Congo pretend to be Ha for security reasons [19]. Furthermore, it is not easy to distinguish the Ha from people of Burundian origin due to lack of transparency on ethnic origins and similarity of dialect and other traditions and customs. Most of the households in Mahanga sub-village in Ilagala village and in Msihezi sub-village in Kirando village were of either Burundian or Congolese origin. These had migrated to the areas over 20 years. They had settled in the peripheries of the villages which border the forest reserves.

The high socio-cultural diversity of communities surrounding MCFR may negatively or positively influence the management of MCFR [19]. It was noted that people from the same ethnic grouping had strong social cohesion due to their socio-cultural dictates inherent in their social systems. In other words, each ethnic grouping had its socio-cultural norms which play an important part in shaping the attitudes and practices of the members. This implies that there exists a natural bond among them. Any deviation results into social sanctions.

3.6.2 Local economy

According to a recent socio-economic study, nearly all respondents (91.7%) were engaged in small scale farming of both food and cash crops [19]. Other activities included small-scale businesses (9.4%), fishing (3.5%), livestock keeping (1.8%), and beekeeping (1.2%) [19]. An insignificant number of the respondents were engaged in casual labour (0.9%), charcoal burning (0.3%), and the rest (0.3%) were involved in craftsmanship, masonry, carpentry

and bicycle repairing. Thus agriculture is the main and important source of livelihood security in the project area followed by small scale business enterprises. Common crops grown in the area were either perennial or seasonal with cassava and maize being the main food crops grown respectively by 87.6% and 81.4% of the respondents. Other supplements for food crops include sweet potatoes/yams (39.8%), beans (22.1%), groundnuts (17.1%), bananas (13.6%) and millet/sorghum (3.2%). Rice and vegetables account for an insignificant 0.9% and 0.3% respectively. Palms, beans, coffee and citrus fruits were mentioned as the main cash crops grown in the area. Livestock keeping does not surface as a significant livelihood activity in the project area. However, village land use maps show that there is land set aside for grazing in each study village.

3.6.3 Local Land Use

As already mentioned, land is mainly used for agriculture in the areas around MCFR. There is land use plan for each of the seven villages. Among the land uses were settlement, areas for farming, grazing and forests for supply of needed forest products like firewood and charcoal. Forest products needed by people in the seven villages may to a large extent be satisfied by the forests within the villages. An estimate of the significance of the forests for supply of goods and services may be obtained by examination of the responses of people in a survey on the activities conducted in and around forest reserves (Table 2; [19]).

3.6.4 Historical Events

The main historical events (Appendix 1) can be grouped into natural calamities (droughts, floods,

Table 2. Frequency of mention of activities conducted in and around forest reserves in the Masito Community Forest Reserve landscape (n = 339). Source: [19].

Activity	Frequency of mention (%)
Timber/pole harvesting/logging	83.5
Cultivation	82
Firewood collection	65.5
Beekeeping/honey collection	63.7
Grazing	55.8
Charcoal burning	54.6
Water collection	54.6
Medicinal herbs collection	53.7
Forest fruits collection	49.3
Timber/poles extraction	47.8
Hunting	39.5
Distilling of local spirit	27.4
Conducting rituals	20.9
Tourism/picnicking/camping	36.3

famine, crop and human diseases), socio-economic (armed robbery) and political and administrative (registration of villages and conflicts between villagers and Masito-Ugalla forest monitors). These events had affected the communities in different ways, the notable ones being that they gave them windows to exercise learning (e.g. to use boiled drinking water; moving to uplands to avoid floods), reorganisation (e.g. formation of new settlements and villages) and collective action, which were important aspects for conservation activities.

3.6.5 Socio-cultural rights and privileges

The forest was under the general land category where there was free access and uncontrolled exploitation of forest and other resources. However, there were no formally recognized socio-cultural rights and privileges and thus during the negotiations to make the forest a reserve, none surfaced. Thus there were no potential future conflicts with regards to socio-cultural rights and privileges of local individuals and/or communities.

3.6.6 Other activities that could impact on forest reserve management

The currently on-going construction of the Kigoma-Mpanda road to tarmac level may increase access to the MCFR landscape. This in turn may increase pressure on forest utilization. Furthermore, the access to the area may make salt business at Uvinza more lucrative. This may increase production and resultant need for wood for fuel. Needless to state, these factors may

also increase population pressure in the area in the future.

4. CONCLUSION

Masito Community Forest Reserve (MCFR) was in the process of preparation of requirements for its gazettelement as "Masito Community Forest Reserve". There were no reports of special sites and features within the MCFR. Miombo woodlands were the characteristic vegetation of the MCFR landscape. According to Uvinza elders who were born in the area, very large trees dominated the banks of the area rivers up to 1950s. The whole of MCFR was for protection. Areas that support production for consumption by local communities were Village Land Forest Reserves (VLFR) outside MCFR. These were characteristically the same vegetation types as those that form MCFR. Animal species found include chimpanzee, red colobus monkey, bush-baby, elephant, eland, hartebeest, and duiker. Most of these species were threatened or locally endangered due to human pressure. There were also many species of fish and other water life in the rivers and streams, in addition to those from Lake Tanganyika. No species had been reported to pose management challenge for MCFR. All the seven villages involved in forest management project had prepared land use plans as a way of ensuring sustainability of land and forest resources in the landscape. Communities adjacent to MCFR were of mixed ethnic groups and each one had its own features, traditions and customs. Most of the inhabitants of the MCFR landscape were engaged in small scale farming of both food and cash crops. Other activities

included small-scale businesses, fishing, livestock keeping and beekeeping. An insignificant number of the inhabitants were engaged in casual labour, charcoal burning, craftsmanship, masonry, carpentry and bicycle repairing. Among the land uses were settlement, areas for farming, grazing and forests for supply of needed forest products like firewood and charcoal. This general description set the background upon which the forest management plan for MCFR for 2012-2017 was based. It is recommended that the information given in here be used for evaluation of the pilot REDD+ project for which the forest management plan was written.

ACKNOWLEDGEMENTS

The author thanks the Jane Goodall Institute for financing the forest management planning exercise.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Appendix 1. Historical events for some villages within the masito community forest reserve landscape

Village	Date	Event	Community response to the event
Ilagala	1997/98	El-Nino floods eroded farms but did not affect homes; famine was aftermath of the floods	Victims bought food from villagers with surplus/stored crops. Traditional crops like maize were grown and helped to rescue the situation.
	1968	Floods engulfed the area. The houses were not destroyed but the farms were eroded. Famine followed the floods.	People learned to cultivate on uplands instead of on flood plains and steep slopes. Food was bought from nearby villages and Kigoma town. Fishing helped as a source of income.
	1964	Floods led to loss of homes and farms. The floods were followed by famine.	Received government relief food (flour and beans) and blankets. Villagers shifted from flood plains to uplands where the houses were not eroded.
	1914	Ilagala village was officially named Ilagala following the impact of floods. Floods caused loss of homes, property and erosion of farms. As a result people slept on the ground with neither beds nor mats to lie on. The saying "balikulala mwilagala", which means people who sleep on the ground is the origin of the name Ilagala.	Villagers shifted from flood plains to uplands where the houses were not swept by floods. Food was brought from Mkanga sub-village and Kigoma town. The community depended on fishing to sustain their lives. There was no government aid.
	1910	The settlement existed as a traditional village	
Songambebe	2010	Masito Ugalla forest monitors burnt people's farms, houses and herds. They also bartered villagers to the extent of being admitted to hospital.	Conflicts between villagers and Masito Ugalla forest monitors resulted in negative attitude towards forest conservation.
	2004	Eruption of cholera, seven people died.	The government sent food and medicine aid.
	2004	Official village registration.	Waha tribe resided and changed the village name from Tongwe word Subankhala to Songambebe. This was due to population increase and increased production of beans and maize. The day to day progress justified the name Songambebe.
	2001	Eruption of cholera, 19 people died.	Temporary nurses sent in by the government.
	1998	Diarrhoea and vomiting of blackish things erupted at Gambazi sub-village, nine people died.	Karago government helped by providing medicine.
	1988	Subankhala sub-village became part of Karago village. Few people were given pieces of land and settled in.	Economic activities began.
	2010	Invasion by armed robbers from DRC, fishermen's properties like boat engines were robbed and shipped to Congo	Tanzania People's Defence Force could not catch the armed robbers, on the way their boat engine failed and villagers had to organise and rescue the soldiers.
Kirando	2010	Drought followed by famine as it caused drying up of food crops except cassava	Traders from nearby villages like Ilagala and Karago brought food to the village. Food was sourced from Rukwa.
	2009/10	Acute fever to children. Five children were dying per day; about 41 childgred died in a week at Msihezi sub-village	Doctors detected impurities in drinking wat and treated the water. Households tarted using boiled drinking water. There was vaccination against the fever.
	1997/98	El-Nino floods caused loss of farms and houses along the valleys.	People shifted from valleys to uplands. Fishermen and traders provided food in

Village	Date	Event	Community response to the event
	1989	A strange disease named batobato attacked cassava plants; this disease was caused by insects called Maria Kunangwa with human like face. Cassava plants dried up leading to food shortage.	the village. Maize was brought in from Rukwa to rescue people from the famine.
	1987	Outbreak of measles which caused death to many children. It was normal that two children could die on the same day in a family	Government helicopters brought medicine aid. There was vaccination against the disease.
	1978	Outbreak of cholera that disturbed peace in the village	Government helicopters brought medicine aid. There was vaccination against the disease.
	1974	Official village registration as Ujamaa village. The village has no indigenous residents, everyone shifted to the area from other places, mostly after tragedy at the original residence.	Villagers voted for the village name among the sub-village names, Kirando sub-village won and became the name of the village.
	1963	Congo war: refugees were sent to Pangale Tabora later to Lubengela and Lusagala refugee camps. They later shifted to Kirando village.	A large number of Congolese reside at Lubengela mtaa in Msihezi sub-village; it was named after their former refugee camp.
	1962	Floods named " <i>mvua ya uhuru</i> " engulfed Kigalu and Luguvu rivers. People's properties, homes and farms were destroyed. People shifted to the new settlement named after a famous gentleman called Babu Mpango. It was therefore called "Kirando kwa Mpango"	People shifted to Kirando and fishing became their main and sole activity.

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Peer-review history:
The peer review history for this paper can be accessed here:
<http://www.sdiarticle4.com/review-history/68955>