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Assessment of the socio-economic status of five villages surrounding Mafwomero Forest Reserve in the Rubeho Mountains

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Front cover photograph: Participatory mapping in Mbuga Village. Photo by Kate Forrester Kibuga.

Executive summary

1. Introduction

There are three forests in the Rubeho Mountains – Mafwemela, Mang'alisa and Ukwiva, part of the Eastern Arc Mountains, and supporting a high concentration of endemic species. They have been identified as a priority region for the conservation of biodiversity, but until recently the Rubeho forests have not been a focus for conservation efforts. Forest management in the Rubehos has been neglected, for which reason the Rubeho Environmental Action Plan project (REAP), led by TFCG working with Mpwapwa District Council and funded by the Critical Ecosystem Partnership Fund, have initiated conservation planning and fund raising for Mafwemela. A socio-economic assessment was done of the five villages (Mbuga, Kizi, Galigali, Lufu and Lufusi), followed by the development of environmental action plans with each village.

2. Methodology

The methodology used was based on discussions and interviews in each of the five villages surrounding Mafwemela forest with village governments, VECs, and ordinary men and women in sub-villages near to the forest. We began by drawing a map and followed a checklist of basic questions. A simplified form of a KAP monitoring system was used and scored.

3. The socio-economic reports

3.1 Mbuga

Mbuga, with a population of 2507, is the ward centre and home to a RC mission. The people are of the Hehe tribe. There are two primary schools, a new secondary school and two dispensaries. The road to the village is very poor and transport is the biggest problem. Leadership in the village is weak.

Almost everyone relies on agriculture for their income. The main crops are maize for food and beans as a cash crop – these are cultivated up to 3 times a year. Families cultivate several acres, but with little knowledge of soil conservation, and fertility is declining. Dry season cultivation occurs round an area of wetlands. There is usually enough food to last the year. Transport to market is difficult and is usually done by donkey. There are few other means of generating income, although many farmers keep pigs, sold in the village for meat.

Most timber (mpodo) used in the village comes from the FR, but there is no commercial harvesting. Access to firewood is difficult since there are few trees near to the houses, but the FR is too distant for firewood collection. Hunting is an issue and there are fewer animals than there were. In general, people don't feel that there is much pressure on the FR. Fires occur but on the grasslands. But some water sources are drying up. There is uncertainty about who owns the FR, but people are clear that it's their responsibility to protect it.

3.2 Galigali

Galigali is a remote village with a population of 2349. Two subvillages, Kakwandali and Dilulilo, lie near to the FR and they have been told to move away since they are too close to the forest and water sources. There is one school, and one dispensary with a nurse. The road from Mbuga is very bad and impassable during the rains. There are major leadership problems in Galigali.

The main / only source of income is agriculture. The main crops are maize for food and beans as a cash crop, which are planted on the same shamba, as well as some garlic and potatoes. There are several areas of dry season cultivation. Buyers come in to buy the crops, or farmers take them down to the markets by donkey. There are many cattle, goats and pigs in the village, mostly kept to sell for meat.

People were aware of the benefits coming from the FR and some of the unique biodiversity. They are not clear about who the forest belongs to but know that they are not allowed in it. Timber is harvested from the FR but only for public buildings. The miombo woodlands are not referred to as 'forest' and are not valued in the way the FR is. Firewood is plentiful. There are many hunters in the village. There is a VEC but it hasn't received any training.

3.3 Kizi

Kizi does not have a boundary with the FR, but uses forest products as the other villages do. The population is 1043. There is one school and no dispensary. The village leadership is weak.

The main economic activity is agriculture and people farm maize, potatoes and cassava as food crops, and beans as a cash crop. They would like to move into onion production, but their irrigated area is not large enough. Land is becoming scarce, although most families cultivate several acres. Maize is planted in December, but beans not until March, between the rows of maize. Buyers come to Kizi to buy the beans, since the road is reasonable. Farmers complained that fertility is declining. There is not much livestock in Kizi, although many people keep a pig or two.

People understand the benefits that come from having a large forest close by, e.g. rain, water, cool weather. Timber (mpodo) is brought from the forest to Kizi. But they rely more on their own woodlands for firewood and other timber species. This woodland is under pressure from an increasing population and from frequent fires. People were not clear whether there was a VEC in Kizi – it seems there wasn't.

3.4 Lufusi

Lufusi has a population of 765. There is a primary school, but no dispensary. The leadership is weak.

Lufusi is different from the other villages since there is a large irrigated area with an intake and people cultivate a much wider range of crops, including maize, cassava, sorghum, onions, beans, groundnuts, sunflowers, cowpeas and sesame. Beans and onions are cultivated in the irrigated areas, the rest in rainfed shambas. Onions bring in a good income, and farmers are very businesslike about their agriculture, planting, tending and harvesting year round. Buyers come to Lufusi, or farmers take their onions to Dar. Other crops are taken to local markets. About half the people in Lufusi keep pigs too.

People were aware of benefits from the FR, and could list the animals found there. They harvest timber for public buildings, but not for sale. The village is close to Chugu Forest, whose official status is uncertain. There is a large area of woodland which meets most of the village needs. Fires and hunting affect the FR and woodland. There is a VEC who work mainly with tree planting so far.

3.5 Lufu

Lufu is a large village with a population of 4012, which has recently split into three separate villages. The road up to Lufu is very steep and rough. There is a primary school and KKKT fly in with health professionals. A dispensary has been built. Leaders have had no training in leadership or governance.



There are few activities other than agriculture. Maize and wheat are grown for food, beans and potatoes for cash. The beans and potatoes are taken down a steep path by donkey to market. Peas and garlic are also grown for sale. Land is plentiful but erosion has taken place and there are no soil conservation measures in place. There is no agricultural extension worker in the village. There are many people with livestock including cattle, pigs and donkeys. The donkeys do not thrive since they are worked so hard.

There are several types of forest in Lufu – the FR, Chugu FR, a village FR and miombo woodlands. The status of Chugu Forest Reserve is unclear – some say there are government beacons. The FR and VFR are closed and people are clear that they should protect their forest. People are aware of the benefits gained from the forests. Timber used in Lufu comes from the village FR or from a stand of Eucalyptus near the school. Firewood is increasingly difficult to access as the population increases. Fires are a problem, as is hunting in the FR. There is a VEC but it has had no training.

4. Conclusions

Several points apply to all villages:

- The FR has not been greatly exploited, except to a small extent for timber.

- People are very aware of why the FR is special and the benefits they get from it, and are very positive about protecting it.
- But the awareness is focused only on the FR and not on the woodlands, which are not valued.
- There is uncertainty about who owns the FR, but a readiness to protect it anyway.
- Communities are being moved by the government – this would not be TFCG's way to approach the problem.
- There is great enthusiasm for tree planting, even in villages with large areas of woodland.
- Agriculture is almost the only form of income generation and beans are almost the only cash crop. Transportation of crops is difficult with only donkeys.
- There is a lack of leadership capacity amongst village leaders.
- Few organisations have worked in this area before.

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List of abbreviations

| | |
|-------|--|
| CCM | Chama cha Mapinduzi |
| ECF | East Coast Fever |
| FR | Forest Reserve |
| KAP | Knowledge Attitudes and Practices |
| KKKT | Kanisa Kuu Kilutheran Tanzania (Lutheran Church) |
| MAF | Mission Aviation Fellowship |
| MCH | Mother and Child Health |
| PEMA | Participatory Environment Management Project |
| REAP | Rubeho Environmental Action Plan |
| TASAF | Tanzania Social Action Fund |
| TBA | Traditional Birth Attendant |
| TFCG | Tanzania Forest Conservation Group |
| TSh | Tanzanian Shilling |
| VEC | Village Environmental Committee |
| VEO | Village Executive Officer |

Swahili terms used

| | |
|------|--------------------|
| debe | 20 litre container |
|------|--------------------|

1. Introduction

The Rubeho Mountains, situated in Mpwapwa and Kilosa districts, are a large mountain block which makes up part of the Eastern Arc Mountains. In the Rubeho Mountains are three forests – Mafwemela, Mang'alisa and Ukwiva – found mainly along the ridges of the mountains. The Eastern Arc Mountains support a high concentration of endemic species, and it is for this reason that they have been identified as a priority region for the conservation of biodiversity. However, the Rubeho Mountains have not until recently been a focus for conservation efforts, due partly to their inaccessibility.

Forest management in the Rubeho Mountains has been chronically neglected. Annual government investment for natural resource management for the whole of Mpwapwa District is US\$1000. External investment has been minimal and primarily focused on research. As a result of under-investment in forest management, natural resource dependence by the forest adjacent communities, weak governance and low awareness of the forest's values, forest loss appears to be increasing.

The Rubeho Environmental Action Plan project (REAP), which is led by the Tanzania Forest Conservation Group working closely with the Mpwapwa District Council and funded by the Critical Ecosystem Partnership Fund, will initiate a process of conservation planning and fund raising for the most biologically unique of the three Rubeho forests, Mafwemela. As a first step, an assessment of the socio-economic status of five villages in the Rubeho Mountains surrounding the Mafwemela FR was carried out, followed by the development of environmental action plans with these villages. The socio-economic information will also constitute monitoring data for the project. The assessment covered the five villages selected for inclusion in the project: Mbuga, Kizi, Galigali, Lufu and Lufusi.

The survey was carried out by Kate Forrester Kibuga, Devis Mlowe, the project manager (TFCG-REAP), Hamisi Mwangi, a district forest officer, Shangweli Zakayo and Mopilio Mwachale, TFCG field assistants. The report consists of a description of the methodology used for the survey, a profile of each of the five villages, conclusions drawn from the survey and a list of recommendations, partly suggested by people who took part in the survey and partly derived from other similar projects.

2. Methodology

The methodology used was based on discussions and interviews. We visited each of the five villages surrounding Mafwemela forest. In the villages we generally started off with a discussion with the village government and village environment committee, where they existed. We often divided this group up into two sub-groups, men and women, in order to get information coming from different angles. Once we had talked to the village government, we then decided on a sub-village, usually one nearest to the forest or a forest reserve, and found people to interview there. A list of people interviewed can be found in Appendix 7.

A basic checklist of questions was drawn up for each type of discussion with space for following up new or unexpected issues. In the discussions with the village government, we always began with drawing a map of the village, in order to get an idea of the physical aspects of the village and to assist us in our decision of which sub-village to visit later. In most of the discussions, with both village government and with ordinary people, we also talked about their seasonal calendar, examining the times of year when they carry out their major activities. Some of the sub-village visits involved long walks, often through village forest land, which gave us the opportunity to observe our surroundings and talk informally with those accompanying us.

In order to gain an understanding of the level of awareness and knowledge about forests and forest issues, a simplified form of the KAP monitoring system designed for the PEMA project was used as a basis for discussion, and scored accordingly (see Appendix 3 for KAP criteria). Six questions were asked about people's knowledge about various issues, e.g. whether they know about the Forest Law, about threatened or endemic species in the forest, three questions were asked about their attitudes, e.g. what they felt about the condition of their forest resources, and one question was asked about practices, whether they had implemented a forest management plan (see Appendix 4 for KAP scores).

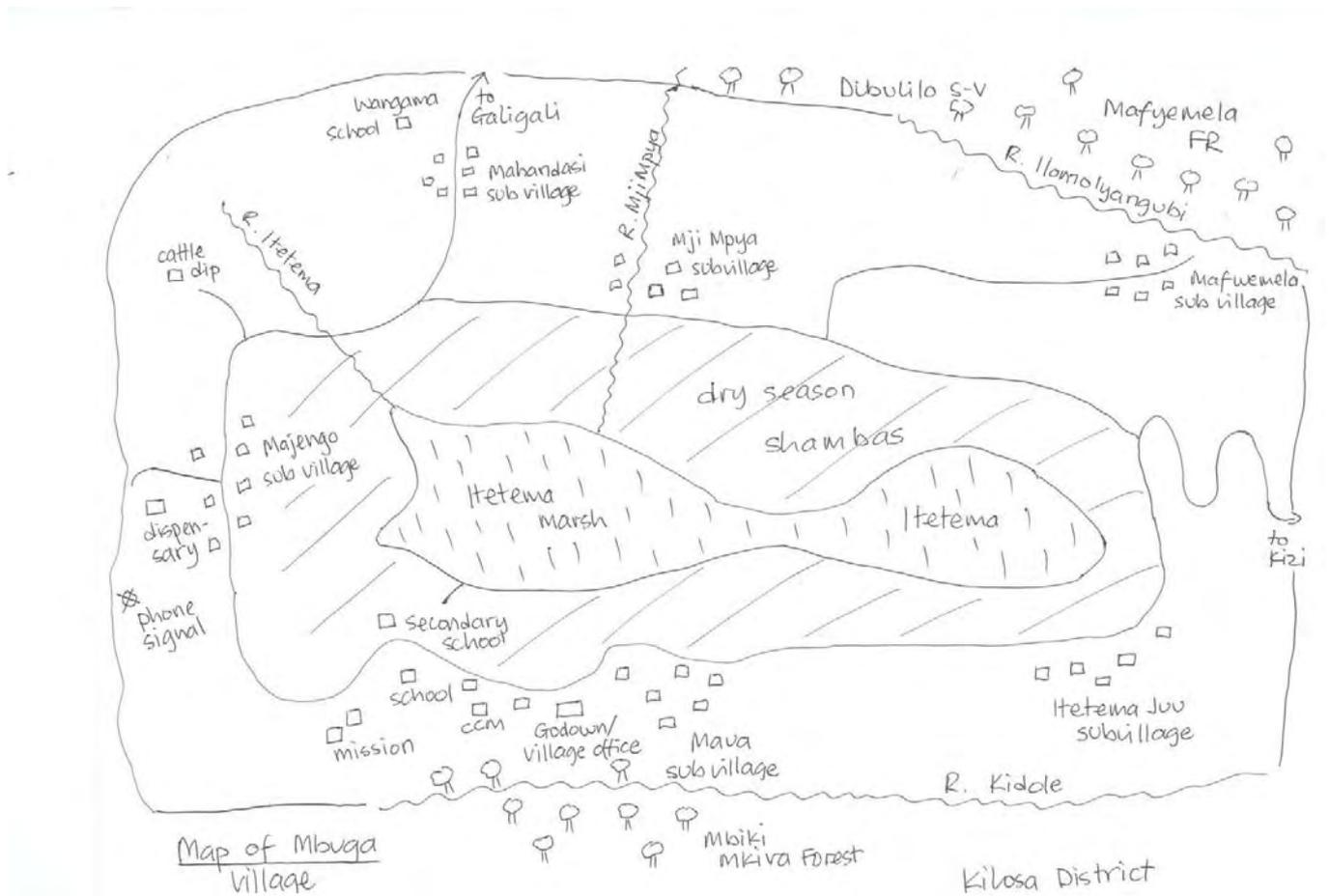
3. The socio-economic reports

3.1 Mbuga

Settlement and administration

Mbuga is situated close to Mafwemela forest reserve, on higher ground surrounding a large area of wetlands known as Itetema. Mbuga has six sub-villages - Itetema Juu, Maua, Majengo, Mafwemela, Mahandasi., Mji Mpya – and a total population of 2507, divided between 439 households. The neighbouring villages are Galigali and Kizi and to the east it is bounded by Kilosa district. The people in the village are almost exclusively from the Hehe tribe. The Hehe originally came from Iringa in the time of Chief Mkwawa (end of the 19th century), and are said to have fled from the ravages of the war against the Germans to the safe haven of the remote Rubeho mountains.

Mbuga is the ward centre. In Mbuga there is also an active mission which is helping with social services, running a dispensary, a nursery, building the secondary school and assisting with repairs to the road. CCM is the only party represented in Mbuga. There is an office in the village.



Map 1 Sketch map of Mbuga Village

Agriculture

Apart from a few people who own small businesses such as milling machines or cafés, almost everyone relies entirely on agriculture for their income.

Most households farm between 4 - 7 acres of land. The shambas are scattered between the houses – there is not one particular area of the village where shambas are situated. A family will generally have

several small shambas in different parts of the village. Land availability is becoming difficult and it is not easy to get a new shamba. In Mafwemela sub-village, however, there is still plenty of land. Some cultivation is done on steep land. There is no expertise about cultivating on steep slopes – although some people may have put contours across their shambas, most have not. Farmers cultivate the same shamba every year, and there is no tradition of shifting cultivation, but the people claim that they are still fertile, and there is no need to use fertiliser. However this issue was explored more in the planning meeting, and the participants admitted that there was a problem, since they have been cultivating the same shambas for generations. In the past, they would put manure on some of the shambas, but then a cattle disease ravaged the village herd in the 1950s/60s and now there are too few cattle for this to be practical. Some say they dig the grass into their shambas at the beginning of the season, but we observed many fires on shambas, where farmers were burning off the grasses.

Dry season shambas are ranged around the area of wetlands, Itetema, in the centre of the village. The centre of the wetland is too marshy for cultivation, but the edges are used, mostly for growing beans during the dry season. In the wet season it is too wet to cultivate there. Most people in the village have a dry season shamba in Itetema. There are springs in the middle of Itetema which feed the wetlands. However, some people mentioned that Itetema appears to be shrinking, which they attribute to less rain than in previous years and the intensive dry season farming around the margins.

The main crops cultivated are maize and beans. Maize is for food, beans is the cash crop. Some wheat is also grown, which flourishes but doesn't have a market, so is also used mainly for food. Small quantities of garlic and peas are also farmed as cash crops. On new shambas farmers plant maize on its own, or beans on their own. In older shambas, they may alternate rows of maize and beans, or two rows of maize with three rows of beans in between, because there are more weeds in an old shamba and it's easier to weed if the maize is further apart. Beans are harvested early, the process of which simultaneously weeds the maize, then beans are planted again. Some farmers say that they rotate maize and beans on a yearly basis, explaining that beans fertilise the soil or make it softer. They say this is common practice, from generations back, and they don't remember being taught to do it. A typical household might plant three acres of maize and two acres of beans. They say they don't put much effort into cultivating the maize, since it is only a food crop – the main attention is bestowed on the beans. People also cultivate bananas, but are reluctant to admit they eat them – it is a sign of poverty to be seen to be eating bananas. Farming households cultivate their shambas together, but if there is more than one wife, then each wife gets her own shamba and can also sell the produce. However, nowadays the norm is to have one wife.

The rains start at the end of November, so farmers begin preparing their shambas at the beginning of November. The maize and beans are planted in December. The beans are harvested in March, and then planted again, since the rain continues to fall. The second harvest comes in July. The maize is harvested in June. Beans are then immediately planted again in the wetlands area, and harvested just before the rains start. Some maize may also be planted in the wetlands.

People were not able to estimate amount of maize that they produce, because they harvest it gradually throughout the dry season. They say, however, that if the conditions are good and there is not too much rain, they can produce enough food to last the year. If there is too much rain, the soils become waterlogged and there is hunger that year. If there is hunger, people go to Pwaga or Chogoro to seek labouring jobs, which they do in exchange for food. From one acre, it was estimated by a group of people that they can harvest up to six sacks of beans in a good year. There are different types of beans - kalubungura, soya, and another type which is red and didn't appear to have a name. Soya has a very good market, but only yields around two sacks per acre. One debe of beans can be sold for 5-6000TSh at harvest time, and for 10,000TSh later in the season.

Transporting the crops to market is difficult. Farmers take their crops to the village markets, where they will find buyers. They mostly use donkeys for transport. There are two or three donkey owners in the village, who own between them twelve donkeys, and they hire them out. Donkeys are used to bring the crops down from the shambas to the house at 1000TSh per trip. To take crops to market, mostly in

Lumuma, Malolo or Chogora, it costs 2000TSh, 3000TSh and 2500TSh respectively. One donkey can carry three debes, so two donkeys are needed to transport one sack. Some people take their crops down to Lumuma on their heads – one person can carry one debe and ten litres at a time. It takes 3-4 hours to get to Lumuma on foot, and up to five hours with donkeys, since they have to follow a slightly longer path. In the dry season some small vehicles may arrive in the village, there are also the mission vehicles and there is one person in the village who owns a small lorry, and takes people's crops down to Mpwapwa. One sack costs 12,000TSh to transport, plus the fare (8000TSh) for a person, then there is the expense of staying in town. If a farmer does not have many sacks, it makes better sense to use donkeys. Lorries can be hired from Mpwapwa for 300,000TSh. Farmers have occasionally done this, but not often. There doesn't appear to be any evidence of farmers getting together to transport their produce.

Livestock

People in Mbuga keep cattle, pigs, goats and hens. There are about 120 cattle in the village. In the past, there were many more, but ECF/rinderpest (both diseases were mentioned in the same context) struck in the 1960s, the majority died, and people say that they never managed to build up their herds again. Now only a few people own cattle, and they all live in Mahandasi, since that is where the grazing area has been set aside. No cattle are allowed in other parts of the village (except in Mafwemela, a distant sub-village near to the forest reserve). Livestock keepers sell their cattle at the markets in Rudi, Chogora and Malolo.

Almost every household has a pig or two. A piglet is purchased for 10,000TSh and fed on maize chaff and domestic waste. It takes between 8-15 months to fatten them, then they sell them in the village, at 2000TSh per kg. (one pig weighs between 90-100kg). Pig fat for cooking with is also sold, having been boiled down, at 1500TSh per litre. One pig can generate 30 litres of fat.

Forest issues

People told us that they don't use the forest reserve much, since it is a long way up the mountain. However, there are certain forest products that they do get from there, including:

- timber
- building poles
- firewood – very occasionally
- medicines – traditional healers take some of their medicines from the forest, but they don't use much and in addition, some have started planting various types on their shambas.
- honey – bees live in caves or in hollows in trees. A honey collector can harvest one or two litres, up to a debe. No-one keeps bees here, although there would be an interest.
- vegetables (derega) – but most people have dug up some and planted it at home.

As well as this, people cite the less tangible benefits they receive from the forest, in the form of rain, water and fresh air.

Most of the timber used in the village comes from the forest reserve, and the main tree used is mpodo. Mpodo is used in building and also for furniture. The alternative to harvesting it in the forest reserve is to bring it in from Mpwapwa which is extremely expensive, both to buy and to transport. For the new secondary school, the village got all the timber from the forest reserve, but for the dispensary the government brought it from Mpwapwa. However, everyone was at pains to stress that there is no commercial harvesting of timber (or anything else) from the reserve. In addition, mpodo is only used for public buildings – for private houses mostly mivengi, mhenyi or msungwe is used for doors and furniture, although people also mentioned that there are hardly any large trees left in the public forests, since they have all been used. And there are still many mpodo trees in the forest. People are not clear about how long it takes for a tree like mpodo to grow, but felt it might be in the region of about ten years. One group told us that they had tried to propagate and plant mpodo, but it didn't work. However, they would like to try again.

We told that it takes three days to cut down an mpodo tree and to dig the pit in which to saw it up. One tree produces four logs of 12', and pit sawyers can cut one log into planks in two days. One log produces thirty planks, or 60 2"x6' roofing timber (kench). One plank of 1"x10' sells for 2500TSh.

Access to firewood is difficult in the main part of the village, since there are few trees near to the houses. An area of the forest about the village, bordering on the reserve, has been set aside for firewood, but women estimate that it takes around four hours to complete a round trip. People say that firewood didn't use to be a problem in the past - each house had trees nearby, there was a small population, but now all the trees near houses have disappeared and the population and thus the firewood needs have grown. The women in the planning meeting mentioned their desire to have fuel saving stoves, because they would like to go to collect firewood less often. In Mafwemela sub-village, there is no problem of firewood – the settlement is surrounded by miombo woodland.

Hunting appears to be an issue in this village, and in one remote part of the village we passed a group of hunters and their dogs. People told us that in the past there were many more wild animals in the forest than there are now, including elephants, buffalo, eland, funo, tandala, lions and leopards. One older man remembers there being elephants in the forest. Some people hunted them for meat, and he recalls them taking elephant meat to Galigali to exchange for maize. The general opinion was that these animals died out, and the ones who didn't migrated to Ukwiva forest reserve in Kilosa, or Mikumi National Park. There was discussion of this issue at the planning meeting and the participants attributed it to two causes – it was partly because of the outbreak of ECF/rinderpest (people couldn't agree on which disease it was) which decimated herbivore numbers, and partly because there has been so much hunting. 'We didn't understand,' lamented one member of the meeting, 'we didn't realise they would disappear if we kept hunting them.' People assert that hunting is much less now – hunting isn't something that people generally choose to do, because it is hard work and difficult, all for a bit of meat. There is more meat in the villages these days because more people keep pigs. However, there are certain clans who hunt as a matter of course – 'it's in their blood,' explained one man.

There are other animals which have been hunted but whose numbers haven't been as badly affected, e.g. mbawala, wild pigs, haruzi, dikdikis. Mbawala live just outside the forest in the grasslands and have been badly hunted. Haruzi have fared better – they are too fast for most hunters, so they tend to get away. Partridges are also hunted a lot, but their population is still large in the forest. There are various types, with different colours. They are also often killed in the agricultural season, partly because they eat crops and partly because eggs and chicks are destroyed by fires. One man recalled that in 1997 there was a time when there were terrible storms and heavy rain. There were big flocks of birds previous to this, but after the storms most of the birds had disappeared and their population never recovered.

There are no sacred places in the forests, or places where clan rituals take place. There is one forest, however, on the southern boundary of the village, called Mbikimkiva. It is said that even though it is a small forest, if you enter it, after a short time you will find that you are completely lost. There are still many large trees in this forest, and people tend to avoid it if they can.

Older people told us that until 1960 forest guards used to come to check the forest on a regular basis, but since then no-one has come. There is no forest officer in the ward. Speaking about the condition of the forest, some people felt that it was in a worse condition than in previous years, others assert that it hasn't changed much. There are few problems with the forest, apart from the small amount of harvesting discussed above. Fires occur on the grasslands, but do not reach as far as the forest. Fires are started by people burning their shambas, by hunters trying to flush out prey, by honey collectors, by livestock keepers burning away ticks in the long grass, and for amusement. People also say that there are several water sources that are drying up. They put this down more to increased pressure of farming and less rain than on forest destruction, but cite it as a possible causative factor. No-one clears the forest for shambas – it is too far away and there is other land nearer at hand. Even the village forest land is not cleared for shambas, since there are large areas of natural grassland which are much easier to clear.

In Mafwemela sub-village, the nearest sub-village to the forest, people say that they have been told to move down to the main village, since they are too close to the forest and to water sources. This is a government directive. They are resisting the orders and trying to remain where they are, maintaining that they are not contributing to forest destruction in any way. However, ten households have already moved away.

People told us that the forest reserve belongs to the government, but that it is up to them to look after it since they are the ones who get the benefits. One man in Mafwemela talked about the fact that they were expected to protect the forest – 'It's like if you have a baby and you kill it, the government will come and lock you up, even though it's not their baby. So, you have to take responsibility for some things, even though they don't belong to you'.

There are two tree planting groups in the village. They complain that they don't have any tree seeds to plant. When presented with the suggestion that they could try propagating indigenous trees, they welcomed the idea. There is also a village environment committee, which say that they take steps when there are fires, encouraging people to go and put them out. However, they have never received any training and are not clear about their roles and responsibilities.

Several people told us that there have been researchers coming to the village and going up to look at the forest. One young man in the planning meeting had taken part in a survey to count small animals. Others explained that these researchers had described what they were doing in the forest, and had shown them pictures of animals which can only be found in Mafwemela forest.

Leadership

Various problems associated with village and ward leadership were mentioned:

- At the moment, there is no VEO – the previous one was moved and has not yet been replaced.
- People complained that the ward leaders are not transparent.
- Neither village nor ward leaders are well versed in their roles and responsibilities
- Everyone in the village is more or less related – they are all the same tribe, are quite isolated and thus have intermarried over the years. This makes enforcing laws difficult – no-one wants to be responsible for putting a family uncle in jail, for example. There are also clan rivalries. Both situations hinder development.

Education

Mbuga has two primary schools. One is in the centre of the village near to the mission – it has 697 students and 10 teachers, although there is a shortfall of seven teachers. In 2006 62 students out of 64 passed to secondary school, most going to the new secondary school in Mbuga. The other primary school is in Mahandasi sub-village (Wangama primary school). It has four classes – St I-IV – with 162 students and three teachers. Mafwemela sub-village would also like to build their own school, since their children walk over an hour to school every day. However, with the possibility of the entire sub-village being forced to move, this does not seem likely at the moment.

The secondary school for the ward opened in 2006. So far it has one class, Form 1, and five teachers. The Roman Catholic mission has built four classrooms, and an application has been made to TASAF to build an administration block.

Because of the poor condition of the road and the total lack of transport up to the village, it is difficult to recruit and retain teachers in this area, especially women.

Services

There are three water pumps in Mbuga, installed in 2007 by the district authorities, with contributions from community members. But people complain that the water is dirty. One is in Tetema Juu subvillage, another at the school in Maua, and one in Mji Mpya. The district says that if they keep using

the pumps, the dirt will disappear, but so far it hasn't. Two people were assigned to repair the pumps, but they haven't received training yet, and there is no money for spare parts, although a bank account has been set up. However, there is not a big problem of water availability in this village, so the pumps are not much used. There are a lot of wells and fresh water springs, especially in the area of Iteema. In Mafemela, they use water from small streams in the valleys. There is no problem for normal domestic water, but safe drinking water is a problem. Most don't boil their water, because it takes too much firewood, and firewood is not easy to get.

There are two dispensaries – government and mission. Most people use the government dispensary because they use the health insurance scheme, therefore the treatment is free. But the supply of drugs finishes early and there is no capacity for testing. There is a larger mission hospital in Lumuma with better service, but it is very distant and there is no transport there. While we were running our planning meeting in Mbuga, a request came to use the car to rush a woman with obstructed labour to Mpwapwa district hospital for a caesarean. In the end, she gave birth naturally, but it is a situation which occurs fairly frequently, and the nearest place for a caesarean is Mpwapwa, four hours away by car. Traditional birth attendants are used for emergencies, but most women prefer to use the services of the dispensaries.

Transport is the biggest problem in the village – 'The lack of a road affects everything!' exclaimed a man in the planning meeting. The road is passable in the dry season, although it is steep, winding and rocky, but it becomes more difficult during the rains. The mission helps to maintain the road, and they have recently received 20 million TSh from the government to improve the road, but recognise that that amount of money is not sufficient to make a significant impact. There is no form of public transport in the village, and few vehicles come up to Mbuga. Lifts are often available from mission vehicles and they can also be called on to help in emergencies. Otherwise it takes six hours to walk to Lumuma, a market centre with a hospital and a bus to Mpwapwa. There was another road to Mbuga in the past, which followed the valley through Mafwemela sub-village directly to Lufusi. It was constructed at the time in the 1960s when mica was mined in large quantities in the village. However, after the mining stopped in the 1970s, the road fell into disrepair, and although it is still visible, it is no longer passable by vehicles.

There are several machines and shops in Mbuga. Almost every subvillage has a machine.

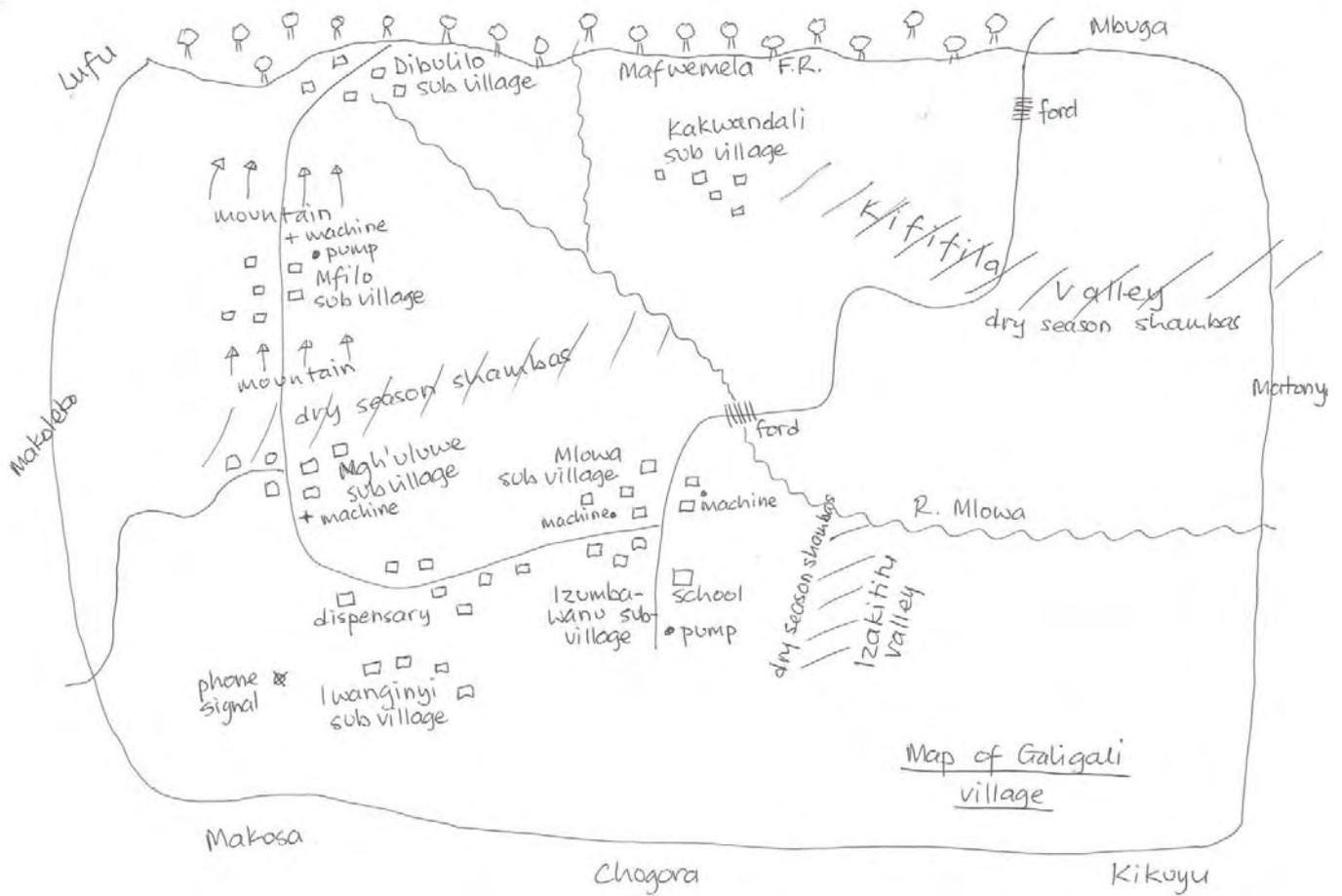
There is a sacco in the village, in the process of being set up with help from the district cooperative department.

There is mobile phone access from the village, which involves a twenty minute hike up a mountain from Majengo sub-village. The signal comes from Mgeta or Doma.

3.2 Galigali

Settlement and administration

Galigali is a remote village 20km on from Mbuga, along a steep, narrow, twisting road, which in two places bumps over rough fords, made of branches laid in the water and mud. The neighbouring villages are Mbuga, Lufu, Makoleko, Makosa, Chogora, Kikuyu and Matonya. Galigali has a population of 2349, with 501 households. The main tribe is the Hehe. There are seven sub-villages – Mlowa, Izumbawanu, Iwanginyi, Ngh'uluwe, Mfilo, Dibulilo and Kakwandali. Two sub-villages are particularly close to the forest reserve – Dibulilo and Kakwandali. People in Kakwandali told us that it is an old settlement. In 1974 they were ordered to go down to live in the main village, and a special squad came up to demolish the houses. But the people continued to farm their shambas in the sub-village. They later began to move back up again, with others who were originally from other sub-villages. Now they are being told to leave once again, because they are too close to the forest. Dibulilo is closer to the forest, and the people are also being told to leave their homes. We heard in Lufu that Dibulilo is now a sub-village of the newly created village of Gamuhungile (previously a sub-village of Lufu). But people in Galigali denied this, saying that the only connection Dibulilo people have with Gamuhungile is that the children attend the school there because it is nearer than the school in Galigali



Map 2 Sketch map of Galigali Village

Agriculture

The mainstay of the economy of Galigali village is agriculture. People cultivate between 2-5 acres, although they found it difficult to estimate area, since each household has several small patches of land scattered throughout the village. Some say that there is not sufficient land for everyone's needs, others say that there is. There are three main areas of dry season cultivation in the village – Kififila valley, Izakititu valley and a valley on the way to Mfilo sub-village. Farmers in Galigali generally have three quarters to one acre of irrigated land in these areas.

The main crops grown in Galigali are maize as a food crop, as well as some cassava and bananas, and beans as a cash crop, together with some garlic, potatoes and tomatoes. In Kakwandali sub-village the crops cultivated are maize, beans and potatoes. One acre of beans can yield up to 4-5 sacks, but this depends on the fertility of the shamba. Garlic is planted in the lowland areas, and a quarter acre can produce three sacks. The lowland areas are more fertile, but there are also more insect pests there. Most shambas are burnt each year, in order to kill pests, but this also has the effect of decreasing the fertility. Fertility is also declining because farmers cultivate the same shambas year after year, and use no fertiliser. In Kakwandali we were told that some farmers make terraces in an attempt to preserve fertility, but it is difficult because the slopes can be very steep.

Maize is planted in December, and harvested in May or June. Three rows of beans are generally planted between widely spaced rows of maize. Beans are planted twice, in November and March. Beans are also cultivated in the dry season, on irrigated areas, as well as potatoes, onions and tomatoes as minor cash crops. People cultivate a large area using only a hand hoe – they say that unless they have a large family, the usual system is to prepare a large barrel of pombe, call the neighbouring farmers who all come and cultivate the shamba, then drink the pombe. The following day it will be the turn of another farmer. Men and women cultivate together, unless a man has two wives, in

which case each wife has her own shamba, and is entitled to sell her own crops. But most men are monogamous.

Buyers come up to buy the crops from the village, or people take their beans and potatoes to the markets in Chogora, Lumuma or Kinusi. The means of transport is with donkeys or as headloads. When buyers come to buy crops from the village, they walk up, buy the beans or garlic, hire donkeys in the village then take the beans down to the roadhead. It takes around 3-4 hours to walk down to Chogora – three hours with a headload, four with donkeys. The hire of a donkey to Chogora costs 2500TSh, and to Lumuma 3000TSh

In the village, beans are sold at 6000-7000 TSh per debe in a year when many beans have been harvested and 8000-10000 TSh when there are few beans. In the markets, the price is higher, as much as 12000 TSh. If a family harvests three sacks of beans, they will keep two for food and seeds and sell the remaining sack. Garlic sells at 5000-7000 TSh per debe.

In Kakwandali sub-village there are many people, but the area of land is very large and there is no shortage. At any time, farmers can cut new shambas from the grassland areas. Most families cultivate between 2-4 acres. In the dry season they cultivate by the river, and each household has about half an acre. This is mostly for food, especially potatoes, which help to bridge the hunger gap between harvests of maize.

Farmers complained that there is no agricultural extension worker in Galigali.

Livestock

There are 284 cows, 150 sheep and goats, 60 pigs and 35 donkeys in Galigali. Most animals are kept with a view to ultimately selling them for meat, although donkeys are rented out and provide a constant source of income.

- Cows are not taken to the market, nor are they generally slaughtered in the village for meat. Buyers come up to the village to buy them for 80,000TSh for a calf or 200,000TSh for a cow, and take them down to Mwapwa or to Chogora. There are many cows in the village, although few livestock keepers. One person might own 10-15 cows.
- Goats are sold to buyers for 6000-25,000 TSh who then walk them down to the market. If a goat is slaughtered in the village, the meat sells at 2000 TSh/kg.
- Piglets are sold for 10,000 TSh, and an adult pig of 75 kg sells for 80,000 TSh. One kg of pork costs 1600TSh in the village. Pigs are often kept as a form of insurance, to sell if there is an emergency, such as sickness in the family.
- Donkeys are bought and sold – a small donkey costs 30,000TSh, a large one between 50-80,000TSh.

Other sources of income

No other sources of income were mentioned, apart from the preparation of pombe by women. However, in Kakwandali, women said it didn't pay to make pombe – they said that after buying and milling the maize, it wasn't worth it for the price they could charge.

Forest issues

People recognise the forest as a source of rain, water, cool weather, they see that it protects the land, they get forest products from it and there are many animals which are here but nowhere else. Mbawala, dikdik, colobus monkey, vervet monkey, funo, bushbaby, frog, chameleon, butterflies were cited as examples. A group of women added that it repairs the environment and that there are rare animals which their children need to see, although the women themselves say they haven't seen them – animals like a frog with horns, birds, snakes and chameleons. They stressed that it is very important to conserve the forest for the world and the future, not only for their own children. These women were aware that

there had been teams of researchers in the forest and they also knew about the Eastern Arc mountains and the place of the Rubeho forests in them.

There were differences of opinion about who the forest reserve belongs to. Some say it belongs to the government, while others say it belongs to the five villages which surround it. But everyone knew that the forest reserve has been closed by the village government and no-one is allowed in it. The women told us that people are now scared to enter it, since if they are caught, there is a fine, and if they are caught cutting down a tree, the fine is 10,000TSh. Some people were not sure why the forest had been closed, but others said it was because they needed to protect the forest to ensure the continuation of the benefits they receive (rain, water and good weather, in particular). The only people to go through the forest are those who walk to Lumuma, since the path crosses the reserve. People told us that to go to Lumuma, it is necessary to start at 1pm, to sleep in Ilanganguru, and to continue the next day, arriving in Lumuma in the afternoon.

The only forest product harvested from the forest reserve in any quantity is timber. The main species mentioned was mwembanyigu, which seems to be the local name for mpodo. This was used when the school and the dispensary was being built. Other species cited were mhenyi, and mvengi from water sources outside the forest reserve. Most doors in the village are also made from mpodo. Several people told us that there are no longer so many large mpodo trees in the forest. There are small ones but they are not yet big enough to make them worth using. The group of women suggested guarding the forest until those trees have grown then they will be able to use them. An mpodo tree takes a week to cut into planks. Pit sawyers from the village cut 100 2"x6"x12' planks and sell them e.g. to the school for 2500TSh per plank. 250,000 TSh can thus be made from one tree. However, everyone was adamant that there was no commercial harvesting of the timber from the forest reserve. 'Even if we could transport it,' commented one man, 'how far could we take it with no official stamp on it?'

People do not refer to the miombo woodland as 'forest' (msitu), instead referring to it as 'bush' ('pori', or woodland). It is clear that it is not valued in the way that the forest reserve type forest is, and people say that it is not as large or thick as it used to be, because more and more people are using it. It belongs to the village, and there are bye-laws dictating its use – firewood, building poles and timber can be cut, but it can't be cleared for shambas. Many forest products come from the woodland rather than the forest reserve, since there are substantial areas of it in the village, including firewood, poles, fruit (msaada, miguhu, mizombe (mikuyu), migohola, mitumba). Women laughed at the thought of going all the way to the forest to collect firewood when it was available so much closer at hand. However, they also said that compared to the past, firewood is more distant and they spend more time collecting it since there are now a lot more people than there used to be. In Kakwandali people maintained that there is no difference in the condition of the woodland now and in the past. Firewood is also not a problem – it is as close as it always was.

There are hunters in the village. Some do it for food, but others do it because it's something they do - 'they don't feel comfortable if they don't go hunting,' said one man. Some people hunt the wild pigs which invade the shambas from the forest, but they don't bother with the monkeys, because they are not edible.

The people in two sub-villages – Dibulilo and Kakwandali – have been told to leave and settle in the main village. These are government instructions. These sub-villages are deemed to be too close to the forest reserve and to water sources. The people we spoke to in Kakwandali said that they don't destroy the forest, and rarely even enter it. However they did admit to cultivating close to the stream which passes through their sub-village. A group of men explained that even if they stopped cultivating next to the stream, the authorities say that their shambas on the steep mountain slopes are causing erosion and spoiling the environment, so they'd still have to go. They say that they are custodians of the forest and stop other people going up there, but both the ward councillor and the village government have told them they have to go, and said that they would be beaten if they refused, so they have no support. They say that although most people in Kakwandali have houses down in Galigali, they have no shambas there, so there is no way for them to live. They would prefer to move to another village. Already out of

about 100 houses there are only around 45 left. We wanted to go to Kakwandali to speak to people near to the forest, but the village government members who were present made elaborate excuses about why they shouldn't accompany us, there were no people left up there anyway. In the end, we went up on our own, and found many people still up there. It is not clear whether the village government didn't want us to see people up there because they were tacitly allowing them to remain in the sub-village, or whether they didn't want us to see that they have so far failed to remove a lot of the people.

The same applies to Dibulilo sub-village, more remote even than Kakwandali. Dibulilo is closer to the forest than Kakwandali, and it is possible that people from this village are responsible for the farming within the forest reserve that was spotted on the satellite pictures. We heard reports from Galigali however that it is people from Gamuhungile who are stealing timber from the forest to build their school, and Dibulilo residents feel that they should stay where they are to help to guard the forest against such thieves. .

There is another part of the village – Ipepe – where everyone has already left, since there is an intake at Idinindi.

We spoke to some of the members of the VEC. They say that they do patrols and give advice to people who have been told to move away from the forest. They also tell people to plant trees. However, they have not had any training yet, and they are not aware of many of their responsibilities. Other people in the sub-villages had heard that there was a VEC but didn't know what they do.

There is one tree planting group who have planted neem trees. They are intending to sell some and plant the rest. People said that they were told to plant trees a few years ago, and they planted Eucalyptus, but now they are being told that they shouldn't have planted Eucalyptus because they use up too much water. Women in Kakwandali said that they weren't going to plant trees again, because they might get it wrong again and have to dig them up.

Leadership

This is a village with major problems of leadership. There have been several VEOs in quick succession. The one we met claimed he knew nothing about the village yet and was not able to help us with many issues. When we went for the planning meeting, the VEO was not present in the village, hadn't been there for the past five days and had not passed on the message that we were coming. There was also no chairperson at the time of the meetings. There were no senior figures from the village government in our planning meeting. When we were planning to go up to talk to people in Kakwandali, they were obstructive, refusing to accompany us up there on the grounds that it was pointless, we wouldn't find anyone up there. There are other indications of inadequate leadership in Galigali - the mission in Mbuga, which also works in Galigali, says that they have trouble motivating people in that village, and there were half built classrooms at the school which it was clear were not progressing any further

Education

There is one school in Galigali with 428 students and seven teachers (six men and one woman). The headmaster told us that they are short of three teachers. There are several distant sub-villages in Galigali which makes it difficult for students to come to school, especially small children and especially in the rainy season. People in Kakwandali told us that their children live down in the village during the week and come home at weekends. Children from Dibulilo, even more distant than Kakwandali, now attend the new school in Gamuhungile, which is nearer. All 19 students who took the St 7 exam passed, and all went to Massa secondary school, but in future more may start going to the new secondary in Mbuga.

Services

Water – there is no problem with water, there's a lot of it and it's near to people. There are two pumps in two sub-villages which were installed by the district in 2006. But most people still use the rivers. Women in Kakwandali said that they were promised a pump and they collected stones but in the end

there were only two pumps for Galigali. They say that there is plenty of water, but it is not safe and their children suffer from diarrhoea.

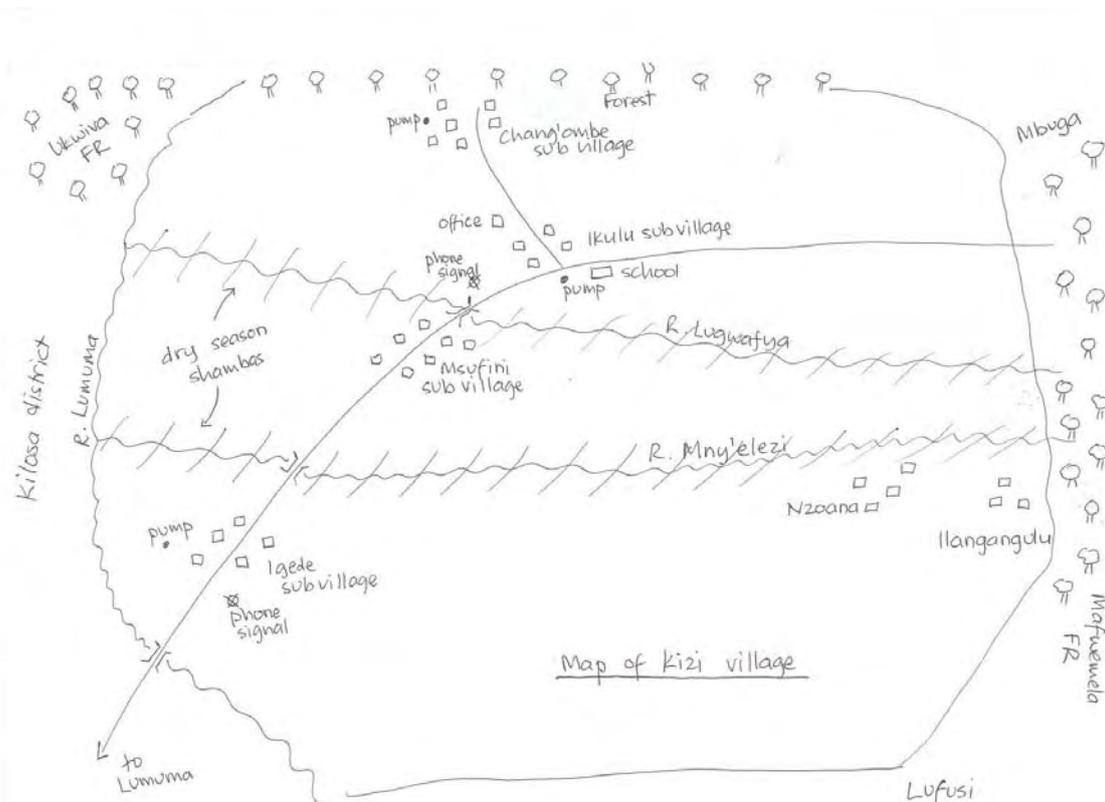
Health – there is a dispensary, with one nurse and one village health assistant. TBAs, who have received training, cooperate with the dispensary and are very helpful. The mission also helps out with the dispensary, bringing drugs and other equipment during the rainy season. A mobile MCH clinic goes out to some of the sub-villages.

There is a lack of transport in Galigali. There is only road, which snakes through the mountains from Kizi and Mbuga, but people in Galigali face more towards Chogor and Kikuyu villages, to which there is no road. Agricultural produce is usually taken down to Chogora by donkey, but building materials are brought to Kikuyu village by lorry, then loaded onto donkeys and brought up a track which is longer but less steep.

3.3 Kizi

Settlement and administration

Kizi is in a broad valley bisected by the Lumuma river, on the boundary with Kilosa district. There are five sub-villages – Ikulu, Msufini, Chang'ombe, Igede and Ilangangulu. People first moved to this area at the time of the German war against the Hehe in Iringa. Chief Simle Kiyanga was the first chief, and he also became the head of all the other chiefs in Mwapwa. In 1961 he could no longer continue as chief as that position was abolished at independence. However, the dynasty lives on – the present WEO is son of that chief. The main tribes in Kizi are the Hehe, the Sagara and the Gogo. The population is 1043, with 178 households. Kizi doesn't actually have a boundary with Mafwemela FR, but one of its sub-villages, Ilanganguru, is close to a sub-village of the same name in Lufusi, which is near to the forest reserve.



Map 3 Sketch map of Kizi Village

Agriculture

The majority of people in Kizi engage in agriculture as their main or only source of income. The food crops cultivated include maize, cassava and sweet potatoes. The main cash crop is beans. There have been attempts to cultivate onions, as they do further down the valley in Lumuma, but they don't have enough irrigated areas. In Igede sub-village, farmers also cultivate groundnuts for sale.

People estimated that a large family cultivates 3-4 acres, a smaller family 1-2 acres. However, they complain that due to the pressure of a growing population, there is not enough land in the village for them to cultivate a larger shamba if they wanted to. In Igede sub-village, land is still available, and many families cultivate 3-4 acres of maize and two acres of beans.

Maize is planted in Dec, but beans are not planted at the same time, because it is too wet and they would rot. Beans are planted in March and harvested in June. They plant two rows of beans between two rows of maize, waiting until the maize begins to form the cobs. In this way, they can harvest both the maize and the beans at the same time. This is the way they can make the best use of scarce land, and minimises the labour of cultivating two shambas instead of one. In addition, some farmers added that the planting of beans between the maize makes the soil softer and more workable. It takes a debe of beans to plant an acre, and a farmer would expect to harvest 2-4 sacks per acre, depending on the weather – if there is too much rain, the soil becomes waterlogged and less beans are produced. Those with irrigated land plant beans in the dry season too.

However, very few people, probably fewer than a quarter a group of men estimated, have irrigated areas for the dry season. The level of the river is very low, so it's difficult to get the water up to the shambas, therefore they can only cultivate in one season. They maintain that if there was better irrigation, they could diversify their crops, but for now they are forced to rely on only one cash crop. They say that they need someone to come and dig an irrigation channel for them from higher up in the mountains. They have never tried to dig it themselves. In the meantime, many people have nothing to do during the dry season. In the upper reaches of the river Mng'elezi, people from Mafwemela sub-village of Mbuga come to cultivate during the dry season.

If the rain is good, food will last to the end of the year, but if it is bad there can be a shortfall. Some people cultivate irrigated land by the river, others buy in maize with money from selling their beans, some sell food crops, and others go to look for labouring jobs in Pwaga – they cultivate one acre and are given one debe and ten litres of maize, which lasts the average family for about a week.

Buyers come to the village to buy beans, so it is not necessary for people to transport their own crops. The price for beans is around 4000-5000TSh when there are a lot of beans and 8000-10000TSh if there aren't so many. Most buyers come with lorries – the road is not too bad, although it deteriorates during the rains. A group of men complained that even if they did diversify and cultivate other cash crops, there is no market and no-one to come and buy them. People from Igede sub-village sell their crops to buyers as they drive past or take them down to Lumuma themselves.

Some people, particularly young men, transport their crops to Mpwapwa by lorry, either filling a lorry themselves or sharing with other young men. For one sack of 200kg, the transport price is 12000TSh. The fare is 6000TSh, and it is necessary to stay a night in Mpwapwa. One kilo of beans sells for 600TSh in Mpwapwa and 400TSh in Kizi. If a farmer has only a few sack of beans, it makes more financial sense to sell to buyers coming to the village.

People complained that some shambas in the village are no longer as fertile as they were in the past, especially the sandy parts. However, they say that they are aware of it and rotate beans and maize in an attempt to maintain fertility. Some said that they also dig in the beans plants after harvest, but others say they burn them. No-one uses fertiliser. The loss of fertility is because farmers are forced to keep cultivating the same shambas year after year – there is too much pressure on land to allow them to leave shambas fallow. They also cultivate on steep slopes without any erosion control. Several farmers

said that they have no agricultural expert in the village to give them advice about how to deal with problems that they face.

There are few other sources of income open for people in Kizi. Women make pombe to sell in the village. They buy three debes of maize for 3000TSh. One litre of pombe sells for 200TSh. There are seven debes in one barrel, in which they cook the pombe, so in theory they can make 28,000TSh out of one barrel. However, in reality it is more like 24-25000TSh, after they have honoured the tradition of giving out free 'tasters' to their customers.

Livestock

Another way to generate income is by keeping livestock. However, this is not something that many people do in Kizi. According to village statistics, there are:

3 cows and 3 calves

40 goats and sheep

42 pigs

22 donkeys

A group of women explained about pig keeping. In the group of eight women, three kept pigs and they say that this is fairly representative of the village. Pigs are also bought and sold almost exclusively in the village. A piglet is bought for 10,000 TSh. At eight months, if well fed, it will have reached between 40-80kg and is ready for sale. It can be sold for 50,000TSh. If it has not been as well fed, it may take a year or more for it to fatten sufficiently for it to be sold. The alternative is to keep a female pig for three or four years, during which time it will have piglets, which can be sold for 10000TSh each. After four years, the pig is sold for meat, when it can fetch as much as 100,000TSh. One kilo of meat costs 2000TSh, and everyone in the village eats pork. People like keeping pigs, but it is not within everyone's reach – the limiting factor is not the initial outlay, but the ability to feed them. Pigs need maize chaff, which has to be bought in – there is not sufficient from milling a farmer's own maize. They also need drugs for worms.

Goats cost between 20-30000TSh to buy – they are mostly bought, sold and consumed in the village. They sell at 2400TSh per kg after slaughter. Donkeys in Kizi are generally used for bringing in crops from the shambas. A trip from a shamba costs between 500-1000TSh.

There is no livestock officer in the village, so there is no expertise locally available. However, there is a retired livestock officer living in Mbuga, who is willing to be consulted, and there is also one in Lumuma.

Forest issues

Mafwemela FR is distant from Kizi and does not border on the village, e.g. it takes three hours to walk to Mafwemela from Igede sub-village. However, it is clear that people in this village do use some of the products from the forest reserve, especially timber (mpodo) for building and for doors. There are also poles in the forest which are cut for building. People also mentioned that mninga can be used, but that it is scarce and only comes from the lowlands. Kidole forest, part of Ukwiva FR in Kilosa, is another source of building poles and timber for people in Kizi. Pit sawyers cut the trees down and saw them into logs – 3-4 per tree – and then into planks – 100-120 per tree – which sell for between 1500-2500TSh per plank, depending on their size. Timber from the forest reserve was used when new classrooms were built for the primary school.

A group of men said that in the past anyone could go into the forest reserve at any time, but now it's closed and the village governments of the villages surrounding the reserve prevent people from entering. A group of women said that they never went to the forest reserve anyway, so they have no idea what it is like and whether its condition has changed, but they know that it is important as a source of all their water and rain, and that it keeps the sun from shining too strongly – 'we'd be living in a desert if it wasn't for the forest keeping our weather nice and cool,' said one woman.

However, the people of Kizi rely more on the miombo woodland than the forest reserve for their needs. All firewood comes from the woodland, and women say that it does not take long to collect, although there are laws which say that they are only allowed to collect dead wood, and not cut trees. Timber also comes from the woodland – a carpenter gets a licence from the village government and can then go and cut down a tree to make doors or furniture – the preferred species are msungwi, mkwee, mhenyi, msani. The laws concerning the woodland also say that areas cannot be cleared for shambas. However, it is not clear how well these laws are enforced. People said that there are a lot fewer trees now in the woodland than there were, partly because of drought, and partly because there are so many more people using the resources (and presumably clearing shambas). Another problem which afflicts the woodland is fire, which breaks out every year and blazes through the woodlands. We saw a fire start in Igede sub-village, high on the mountainside – within minutes it had swept across acres of the mountain, blackening the vegetation in its path. People in that sub-village told us that if fires break out, they put them out, but we saw no evidence of this happening. At the same time, a fire of that ferocity would be impossible to deal with. The village government said that they had never brought anyone to justice for setting fires. They admitted that it would be good, since it would serve as a lesson to others. It is mostly hunters who set the fires.

One tree in the woodland was heavily exploited a few years ago - mikobora (sandalwood). Buyers came into the village in 2005 to buy sandalwood roots. Everyone began to dig up the roots to sell and now there are many fewer trees than there were. The buyers only came in for one season – on one trip all the roots were confiscated since they were operating without a licence.

Inhabitants of the sub-village of Ilangangulu have been told to move down to the village, since they are too near to the forest, and since people at the Lumuma mission, which produces electricity from a small hydroelectric plant, have complained that they are not getting enough water to drive their turbine, since people are cultivating too close to the water sources. People in Igede sub-village complained that it was not really fair, since half of the sub-village of Ilangangulu is in Lufusi and people are still living there. There are also many hunters in Ilangangulu, who trap dikdiks, wild pigs and baboons. The village authorities told us that Ilangangulu residents had already all gone, but it may be a similar situation to Kakwandali, where there are still many people.

There was confusion about whether there is a VEC in Kizi or not. A group of women said that there is, and that if people cut down trees or set fires, they take the news to the village government. However, the village government representatives said that a VEC has not yet been set up and the social services committee has been doing some forest related work. They assured us that setting up a VEC was high on their agenda for the next meeting.

There is one environmental group in Kizi, who raise tree seedlings - mstafeli, mango and guava - and have dug a fishpond. There are ten members – six women and four men. They say that they will plant their trees and if there are any left, they will sell them. They are sure that there will be buyers, since people in Kizi like planting trees.

Leadership

There is evidence that leadership is weak in Kizi, although the meetings that we held were well attended by government representatives and started promptly when we arrived. The village chairman says that the village government holds around three meetings a year. The last meeting was held recently, but the one before that was a long time ago, no-one could quite remember. There has been one public meeting this year, in March. People in Igede argued that the last public meeting was last year sometime.

Other factors also point to weak leadership. A group of women complained that they still don't have a dispensary, even though people contributed money and the foundations are in place. They accuse the leaders of not following up the project, of not being prepared to take the necessary action to get it moving again. The water committees are also not functioning due to lack of stationery.

The problem is attributed to a lack of training in leadership skills and good governance. But at the same time, almost everyone in the village is related in some way, many to the chief's clan, and this makes it difficult for anyone in a position of leadership to enforce laws

Education

There is one primary school in Kizi with 361 students and eight teachers, six men and two women. Children from the most distant sub-villages come to the school. In Igede we heard that children walk to school for one and a half hours every morning, than back again in the afternoon, without having had breakfast or anything to eat at school. Their parents were concerned but said they had not spoken to the school board or head – there was nothing that they could do.

Services

There are three water pumps in Kizi, one in Ikulu, one in Chang'ombe and one in Igede. Others get their water from the rivers. People living in Igede say that the water from the pumps is better than that from the rivers and since they have been using pump water for drinking, there have been fewer stomach problems. Two young men for each pump were trained to repair the pumps if they break down – they have also been given tools. There should also be a committee and contributions for using the water, but this hasn't happened yet. People are nervous that if the pumps need a spare part, there will be no money with which to buy it. It appears that a committee has been selected, but they haven't yet started work because the village leaders haven't given them a book in which to write their minutes and expenses.

There is no dispensary in Kizi, although the foundations have been laid, so most people go to Lumuma, where there is a large mission health centre. It takes two hours to reach Mbuga dispensary and four to Lumuma, but there are testing facilities at Lumuma, so it is often the preferred option. People said that they might go to consult traditional healers if they are not satisfied with the treatment they have received at the dispensary. But most don't.

There is a sacco in Mbuga. Some people have put their money into it, but nothing has happened since, there is no indication that loans will soon be given, and now because of this no-one else is investing their money. It is a problem of leadership.

There are three places where mobile phones can pick up signals in the village.

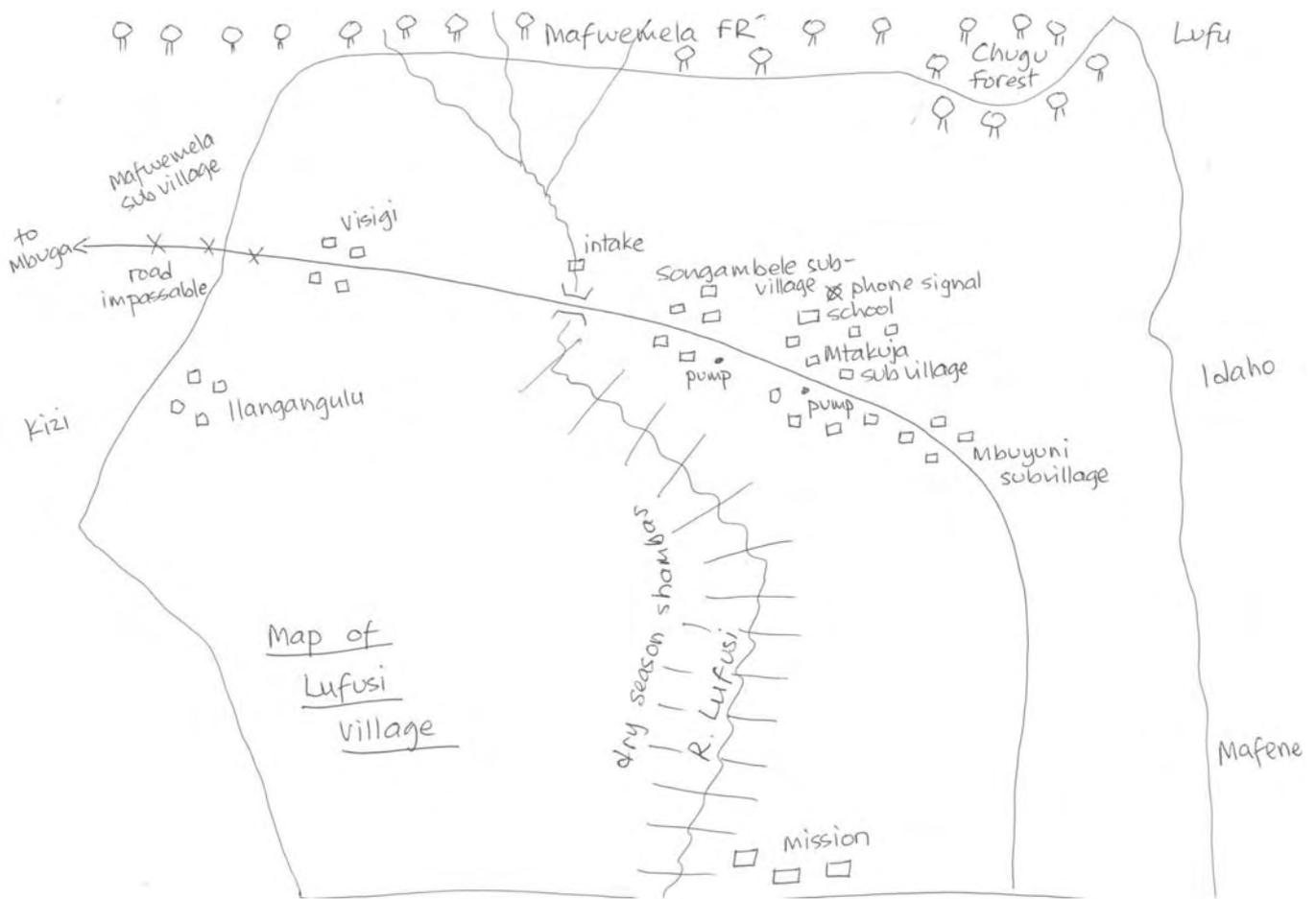
3.4 Lufusi

Settlement and administration

Lufusi village has three subvillages – Mtakuja, Mbuyuni, Songambe – and a population of 765, with 128 households. There are three main tribes in Lufusi - Hehe, Gogo and Sagara. The original tribe are the Gogo. The Hehe moved in from Galigali, Lufu, Kizi and Mbuga. We visited a distant part of Songambe sub-village – Visigi. In the past, they lived in Idete right next to Mafwemela FR, but were moved in 2001 by the village government, because they were too near to the forest. Lufusi is set in a broad wooded valley with the river Lufusi running down the middle of it. There is a rough road coming up the hill from Lumuma. Originally this road ran directly through to Mbuga, but since the mica mines closed down, the road has fallen into disrepair.

There have been people living in the Lufusi valley for a long time. In 1974, the government moved the people down to Mafene village, and demolished their dispensary and courthouse. However, the people began to drift up again in the 1990s, attracted back by the fertility of the shambas and the space.

Lufusi is in Lumuma ward. It takes about one hour to walk to Lumuma (Mafene), the ward centre. The villages surrounding Lufusi are Kizi, Mbuga, Lufu, Idaho and Mafene.



Map 4 Sketch map of Lufusi Village

Agriculture

Agriculture in Lufusi is different than it is in other villages surrounding Mafwemela FR. There is a huge area of irrigated shambas, with an intake constructed in 2002 with which to ensure equitable distribution of the water, and for this reason farmers can cultivate a much wider range of crops throughout the year. The village is also nearer to the market at Lumuma. There is an atmosphere of serious business where agriculture is concerned in Lufusi, and this is because of the onions. There is a lot of money to be made from onions – we met a farmer in Mafene (Lumuma) who had a large onion store with about 8 millionTSh worth of onions in it.

Food crops include maize, cassava, sorghum and finger millet. Cash crops are mainly onions and beans, but also groundnuts, sunflowers, cowpeas and sesame. Maize, sorghum, sunflowers, ground nuts and cowpeas are cultivated on rainfed shambas. These are too dry for beans, so they are always cultivated in the irrigated areas, along with the onions and some maize in the dry season. Farmers don't appear to mix crops in one shamba, but they say that they do rotate crops from season to season in order to ensure good yields. The agricultural calendar is complex in Lufusi, and involves two seasons of beans and onions, as well as all the crops on the rainfed shambas.

Seasonal calendar for agricultural activities in Lufusi

| Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|-------------------------------|-------------------------|-----|-----|---------------|-----|-----|---------------|-----|----------------|-----|-----|
| Cultivate shambas (irrigated) | Plant maize (irrigated) | | | Harvest maize | | | | | | | |
| Harvest onions | | | | Plant beans | | | Harvest beans | | Harvest onions | | |
| beans | | | | | | | Plant | | Plant | | |

| | | | | | | | | | | | |
|-----------------------------|--|--|--|------------------------|--|--|--------|-----------------------|----------------|--|--|
| Store onions | | | | Sell onions | | | onions | | beans + onions | | |
| Cultivate shambas (rainfed) | | Plant maize sorghum g/nuts cowpeas (rainfed) | | Harvest cowpeas g/nuts | | | | Harvest maize sorghum | | | |

Each household has an irrigated area of half to one acre. It is possible to rent an irrigated shamba. For maize the price per acre is 8-10000TSh, for beans, 15-20000TSh, and for onions 30000TSh. The price depends on the season, and the fact that onions produce more income than other crops.

The price of onions fluctuates according to the quantity and the season. In October, onions sell for 27-30000TSh per sack (one sack contains 13 debes), but if farmers wait until February, they can sell for 50-60000TSh per sack. They usually sell some in October, to meet debts, then store the others in long shelters. The onions harvested in July are sold immediately, because the price is still good then. Farmers say that they can harvest 60 sacks from one acre. There are many expenses involved in onion cultivation however, including fertiliser and pesticides, sometimes labour - there is a lot of weeding involved – and transporting the onions from the shamba to Lumuma. The total is around 7000-10000TSh used to produce one sack of onions. Fungus can also attack an onion crop, for which there is no cure and which causes the onions to rot.

Farmers either transport their onions to Dar es Salaam, or wait for buyers to come up to the village. If they are transporting them to Dar, they have to take them down to Lumuma by donkey or tractor, to load onto a lorry. One sack on a tractor from Lumuma to Lufusi costs 2500-3000TSh. A lorry from Lumuma to Dar costs a total of 600,000-700,000TSh and can take 55-60 sacks. The price for a sack of onions in Dar ranges from 60000TSh when onions are in plentiful supply to 180,000TSh when they are not, and especially in February and March.

Cowpeas are taken to the market in Pwaga, where buyers transport them to Dar. One debe sells for between 2000-7000TSh, depending on supply. The highest prices are paid in February and March. It costs 1500TSh to transport three debes of cowpeas from Lufusi to Pwaga by donkey, and takes four hours. Beans, cowpeas and groundnuts can also be taken to Lumuma market. The problem with transporting crops by donkey is that there are not sufficient donkeys in the village - there are two donkey owners, and they only have seven donkeys between them.

Things are different in Visigi, where there is no irrigated land, and only beans and maize are cultivated. Each family cultivates around 5-6 acres, either using their own labour, or cooking a barrel of pombe and inviting the neighbours to help. In the past, they cultivated beans in Visigi in February, harvesting them in April, then they would move up to Mafwemela sub-village of Mbuga village to cultivate the second crop, because the sun is too strong in Visigi. Now, however, they have been told that they can no longer cultivate in Mafwemela because people are being moved from that sub-village. So they now cultivate their second crop of beans down in Lufusi village. They go down in August and rent land – about half an acre for 5000TSh. They sell their crops at Lumuma market. The only problem of cultivating in Visigi is the animals from the forest, especially baboons, who come to steal the maize. From the moment of planting maize until it is harvested, it has to be guarded.

There is generally no problem of hunger in Lufusi. Often the food crops are sufficient to last the year, but if they aren't, there is either plenty of money from the sale of onions to buy in food, or people can easily find work on other farmers' shambas, in Lufusi or down in Lumuma. The price paid for labouring fluctuates, according to the season and whether there is hunger – when there are few labourers

available, the price is high (as much as 12000TSh ?per acre?) but when there is hunger and many people are looking for work, the price can drop as low as four litres of maize for a day. Normally it would be 5000-7000TSh (per acre??). When there is no hunger and people are busy, they pay 12,000TSh because there are very few labourers.

Farming cash crops like onions and beans is time consuming and doesn't leave much time for other income generating activities. The only other income generating activity we encountered is pombe making. We spoke to women in Visigi who say that they take their maize down to Lufusi village and make the pombe there, because there are more people down there. It is possible to make 20,000 TSh from one barrel of pombe. In a month they might do this two or three times. There is a rota for selling pombe in Lufusi village – each day two barrels are sold, made by different women, according to the slots they have been allotted by the village government. There is a pombe making group in the main part of the village, who are trying to raise money to join a network. There are thirteen members, including two men, who cut the firewood for cooking the pombe.

Livestock

There are 25 cows, 78 goats, 7 donkeys and 47 pigs in Lufusi. The group of women we spoke to in Visigi estimated that about half the people in Visigi keep pigs. In the past there used to be many more cows, but there was a time when thieves came from the plains and stole them – Masai, working together with local youths – and people lost heart and never built up their herds again.

Forest issues

All the groups of people we spoke to were able to state clearly the benefits they gained from Mafwemela FR – rain, water, animals, tourism, as well as timber, poles and occasionally income from portering jobs. They also knew that there are animals and birds here that are found nowhere else in the world, citing bushbabies, Colobus monkeys and frogs as examples, and explaining that researchers come here to look for these animals. They say that they are the ones to look after such a special forest, even if it doesn't belong to them.

They harvest timber from the forest reserve for their village needs, especially for public buildings such as the primary school and teachers' houses. No timber harvested in the reserve ever goes outside the village. Pit sawyers fell a timber tree, such as mpodo, and cut it into two logs. They can then cut it into sixty planks. It is brought down from the forest as headloads by porters, who charge 600-1000TSh per piece to transport. Each plank can then be sold for 2000-2500TSh. However, both women and men said that they do not use mpodo as their first choice, since it is eaten by termites – it is better to use mkola, which is found in the woodland.

A group of women in Visigi sub-village told us that they used to harvest reeds (ukindu) from the forest reserve, and thick grasses (nduru) to make mats and baskets for domestic use. But now they are too scared to go in to collect them, because last year people came to the village to tell them not to. One woman explained to us, 'A woman called Shukuru talked to us and told us that we weren't allowed to go into the forest for anything, and that if we did, we would be locked up in jail for years and years.' These women understand that if they destroy the environment, they won't get good rain. 'But we think we could cut some reeds without destroying the environment,' the same woman went on. 'We could just cut the ones on the edge of the forest and leave the ones on the inside to keep growing.' Now they say they have to buy mats and baskets. Other women told us that it is a very steep three hour walk to get to the forest, and there are not many who know how to weave baskets and mats, and they are so busy with their agriculture that they don't have time anyway for weaving.

There is a forest at the northern end of Mafwemela FR, Chugu, whose gazettement status is unclear. However, the people in Lufusi say that it is part of the reserve, since there is a beacon in the middle of the forest. They say that it means the boundary goes through the centre of the forest, but they still consider the whole forest to be part of the reserve. They refer to it as Ipondelo, the name of the mountain which it is on. There is a gap between Chugu and Mafwemela, in which bracken (masilu)

naturally grows. There has never been cultivation there (it is too high) and it has never had any tree cover.

There is a huge area of miombo woodland in the village, which the people refer to as 'pori' (woodland) not 'msitu' (forest). There are village laws relating to this woodland, e.g. it is not permitted to clear a shamba, or even extend an existing shamba – an application has to be made to the village government for this. It is also not permitted to cut trees or branches for firewood – it must be dead when it is collected. However, it seems that if poles are needed for building a house, it is possible to go into the woodland and cut them. Some timber is also harvested from the woodland, including mkola, mkangazi, mhenyi, msani, from which doors in the village are made. All firewood needs are met from the woodland.

There is a VEC in Lufusi. A group of women explained that they deal with environmental matters, e.g. identifying suitable places for tree planting, encouraging people to plant trees, giving education about the environment, showing people where to clear new shambas. Ordinary people had heard about the VEC too, although they associated them only with tree planting.

Fires and hunting both affect the woodland and the forest reserve. Fires are often started by hunters, in order, according to a group of men, that they can see the animals better against a black background. People say they put the fires out but it seems unlikely in most cases, since some are high up on the mountainsides and spread very quickly. There are many hunters in Lufusi, and not all from Lufusi village. They hunt wild pigs, mbawala and dikdikis. In the past hunters had guns, but these were confiscated by the government, so now they use traps.

There is a tree growing group, started by TFCG. They have planted neem, mkangazi and mjohoro. Their plan is to plant the trees next to their own houses, and also to select places in the village where trees can be planted, in order to look after the environment. In Visigi, the women said they'd like to plant some trees, and asked where they could get seeds from. There were some Melea seeds on a nearby tree – they say they just drop and seed themselves, but they have never thought to transplant them. A group of men said that the forest and woodland areas would be excellent for beekeeping, since there is water, trees and flowers, but no-one has ever tried.

Leadership

Speaking to women members of the village government, it appears that the village is run by the village chairman and the VEO, without involving other members much. The women say that the last village government meeting was in April, six months ago. The chairman is said to be involved in pit sawing and has his people up in the forest.

Education

There is a small primary school in Lufusi, with 206 students, and five teachers, including one woman. In 2006, all twenty one students passed to secondary school. Most went to Pwaga, some to Kibakwe and Wotta. Children from Visigi walk for one hour every morning to reach school.

Many young people leave the village as soon as they finish St VII. Girls may go to Dar es Salaam, Kilosa or Mwapwa to seek work as housegirls, and boys leave to look for work in the towns.

Services

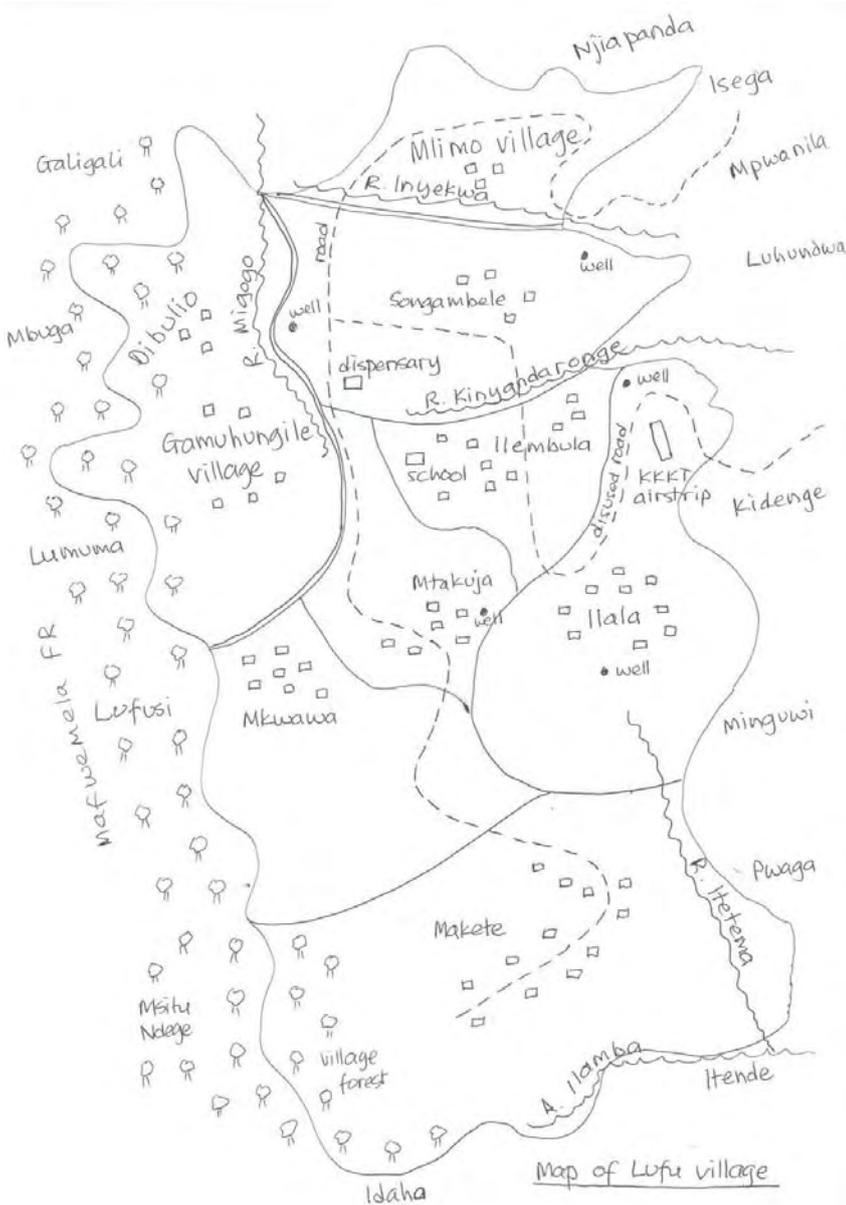
There are two recently installed water pumps in the village. A group of women complained that the water seems to come out of the pump looking clean, but when they take it into houses, it turns a rusty colour (indicating the presence of iron). So they don't use it. Most households are no more than about twenty minutes from the nearest stream. The water in the streams is clean, since there is no-one living further up the slopes.

There is no dispensary in Lufusi, although there is a village health assistant and some TBAs. If people are sick they go to Lumuma mission health centre. It is a half hour's walk, or one and a half hours from Visigi.

There is a benki kata (saccos) in Lumuma, which a group of women who make pombe have joined. They have not yet accessed a loan, and don't know anyone who has.

3.5 Lufu

Map 5 Sketch map of Lufu Village



Settlement and administration

Lufu is a large village with six subvillages – Mtakuja, Ilala, Mkwawa, Makete, Ilembula and Songambebe – and a population of 4012, divided between 834 households. It is isolated on a high plateau, next to Mafwemela FR. Its original population is the Hehe, who escaped from the war with the Germans and Chief Mkwawa at the end of the 19th century and came to hide in the mountains. Now there are also Gogo in Lufu, from the plains below the village. Lufu has undergone several permutations as a village. It was originally two villages – Isiki, which consisted of Dibulilo, Gamuhungile and Migogo (now Makete) sub-villages and which lay in Rudi division, and Lufu, in Kibakwe division, with Ilala, Ilembula and Songambebe sub-villages. In 1974, the two villages joined together to become Lufu, with the exception of Dibulilo sub-village, which passed to Galigali village. The village was now entirely in Kibakwe division. Recently, however, this large village split into three villages, each with its own school - Mlimo, Gamuhungile and Lufu. Gamuhungile now has Dibulilo as one of its sub-villages, although people in Galigali insisted it was still part of their village.

Lufu is in Luhundwa ward, the centre of which is a one hour walk down the mountain. There is a road up to Lufu,

but it is long, roundabout and extremely rough. Vehicles come up very infrequently, and lorries cannot come up at all. For this reason, everything must be carried up and down the steep and boulder strewn paths which connect Lufu to other villages.

Agriculture

Agriculture is almost the only economic activity in Lufu. Maize and wheat are grown for food, while beans and potatoes, and peas, garlic and tobacco on a small scale, are cultivated as cash crops. Each household cultivates around three or four acres, using only a hand hoe.

Crops are planted in December. In April, beans and potatoes are harvested, then planted again for harvest in July or August. The maize is also harvested in August or September. Beans are planted between the rows of maize, and their harvesting in April coincides with weeding the maize. Beans are mostly not planted in irrigated areas, because it is too wet for them. Potatoes are farmed on a separate shamba. Crops are not rotated, but shambas can be left fallow for 2-3 years. Three types of beans are cultivated - kalubungura, soya and kachina. One acre of beans yields about 4-5 sacks. The maize that they plant is their traditional type – they have never had access to modern seeds.

Beans are taken to market at Luhundwa or Mpwapwa, or buyers come up to the village. The price depends on where the beans are sold – in Luhundwa, one debe of beans is 8500-9000TSh, in Mpwapwa 10-12000TSh, and in the village 7000-8000TSh. The beans are transported down the mountain by donkey – three debes can be carried by one donkey, which costs 2000TSh to Luhundwa or Lumuma.

Potatoes are grown in the dry season in small irrigated areas alongside the rivers. They are also sometimes grown in rainfed shambas. There are three types of potatoes grown - Ludewa, Lushoto and Ngelenge (white). Ludewa is the preferred variety, with the best production. It is good for chips. One sack of potatoes is used to plant a quarter of an acre, and the yield is generally 8-10 sacks. Buyers coming up to the village pay 3500-4000TSh for a debe, in Luhundwa and Lumuma the price is only 500TSh more, and in Mpwapwa a debe sells at 5000-6000TSh.

Peas are grown on rainfed shambas. There are two types of peas – large ones and small one. The large ones have a better market. Their cultivation pattern is similar to that of beans – there are two cultivation seasons, between December and March, when they are harvested, and from April to July. A quarter of an acre yields 4-6 sacks together with the pods, and sell at 1500-2000TSh per debe to buyers in the village, and 3000TSh in the local markets.

Garlic is grown both in the irrigated areas and on the rainfed shambas. Three to five sacks can be harvested from a quarter of an acre. Garlic is sold at 7000-8000 per debe in the village and 9000-10000TSh in the local markets. People come from Mpwapwa to buy garlic in Lufu.

There is plenty of land available in the village. However, many of the shambas are on steep slopes and there has been much erosion over the years of these slopes. Most people don't use terraces to control the erosion, explaining that it is difficult to dig terraces, since the soils are gravelly and heavy. Perversely, in Ilala sub-village, terraces are used for beans and maize because the land is flat, and easier to dig.

If there is a reasonable amount of rain, then food lasts throughout the year. If there is too much rain, then people finish their food and have to look for labouring jobs on the plains below the village.

A group of women explained to us that women and men have separate shambas, to reduce conflict in the household – the women sell their own produce, the men sell theirs and each keeps the money. Most of the household expenses come from the women's income – 'we are able to run our households more or less single handed,' asserted one woman. 'Men spend their money on pombe and other things we don't know about, but we have to look after our children.' Women cultivate large shambas of up to four acres by cooking pombe and inviting people to help on the shamba, then they drink the pombe. A few women have small businesses like a café which allows them to hire labourers for their shambas.

There is no agricultural extension worker in the village, although there is one at ward level who very occasionally comes up to the village.

Livestock

There are many people with livestock in Lufu.

- Cattle are kept for milk and meat. The milk is usually kept for domestic use. Each sub-village has its own area set aside for grazing.
- Many people keep pigs. It is usually the woman's job to feed the pig, but the man sells it. It is expensive to keep a pig, since maize chaff has to be bought in, but in the end it pays well.
- There are many donkeys in the village and they are worked hard, travelling up and down the rocky paths to the plains. There are not enough for the amount of work that there is. A group of men complained that their donkeys almost never produce young, and if they do the young donkeys don't survive for long – they are not able to rest their donkeys because of the volume of work, so they get too tired, sicken and die.
- Goats and sheep are also kept.

There is a government livestock officer in the village.

Forest issues

There are several types of forest in Lufu. There is Mafwemela FR, then adjacent to it is Chugu forest, which in Lufu is referred to as Msitu wa Ndege. There is a village forest which continues down the hill from Chugu forest, whose vegetation resembles that of the forest reserve. Within the village, there are patches of heavily used forest reserve type rainforest along ridges and there are extensive areas of miombo woodland. People were able to list the benefits of having such large areas of forest close to their village – forest products such as timber and poles, rain and water, clean air (some told us that the trees take the carbon dioxide and give them oxygen) and animals not found anywhere else. A group of women told us about the unusual animals found in the forest reserve – 'There are Colobus monkeys, kwale, owls, snakes, a type of frog which suckles its young and chameleons as big as goats!' The women admitted that they hadn't seen any of these animals, since they don't go to the forest, but they have seen pictures in leaflets.

People gave alternative reasons for the name of the forest above their village forest (which doesn't have a name). Some said that in the past, the sub-village of Makete was called Ndege, and on the map there is a river called Ndege which passes through village land. Others told us that it is called Msitu wa Ndege because there's a certain bird which is often heard calling in that area and not in other areas. It resembles a kwassa, or a duck, it has a large head, a dark back and a white stomach. There are a lot of them because they are not edible...

There seems to be a difference of opinion as to whether Chugu/Msitu wa Ndege is part of the central government forest reserve or not. People in both Lufu and Lufusi insist that it is, although some official records are unclear. There was a man in the Lufu planning meeting who said his father had taken part in placing the beacons in the 1950s to indicate the forest reserve boundaries, together with forest officers from Kibakwe. He said that a beacon had been put in Ndege forest. A man from Makete sub-village said there is a beacon in Ndege forest, with the date 1956 on it.

There is a gap between Ndege/Chugu forest and Mafwemela FR. There is bracken growing in that gap, but no trees – there never have been trees there, and it has never been cultivated, since it is too high and too far away from the village. A group of men suggested that the bedrock might be close to the surface and for that reason there are no trees.

Timber used in the village includes mpodo, mzungela and mhenyi, all from the village forest, although in Makete sub-village we heard that there is no more mpodo in that forest. Women in Makete sub-village, the sub-village nearest to the village forest, told us that if they are building a new house, the village government permits them to enter the village forest to cut building poles. For the rest of the village, much of the timber used comes from a large stand of tall Eucalyptus which were planted next to the old school in 1983. These trees are gradually being cut down and sold. One piece of roofing timber costs 3000TSh, a ridge pole costs 5000TSh and smaller pieces cost 1700TSh. The roofing timber of a new house we entered were clearly Eucalyptus.

Firewood never used to be a problem, but in recent years it has been more difficult to access, since the pressure of a growing population has finished off a lot of the woodlands in the village – this sort of forest is now only found on the slopes leading out of the village. There are still small stands of dense woods dotted around the village however, which women claim is the source of their firewood. However, it is likely that much of it, especially in Makete sub-village, comes from the village forest.

There are reeds (ukindu) on the edge of the forest reserve, but no-one uses them because no-one in the village knows how to weave mats. Also on the edges of the reserve are found ming'ii, another type of reed, from which women make baskets. Most know how to make these baskets, and make them for their own use, and to sell to other people in the village.

The forest reserve is closed to the people and they are not allowed to go into it for any reason. In 2006, the village government also closed the village forest, which is contiguous with the forest reserve (Chugu/Ndege). According to a group of women, this was because each village has been told by the district to set aside its own forest reserve. There are now fines of 50,000 TSh if people are caught in that forest. The village government said that there are no serious threats to these forests. Until 1978 there was a forestry official in the village, but since then it has been the responsibility of the village to guard the forest. People in Makete sub-village say that they see that it is particularly their responsibility, since they live so near to the forest. In 2001 thieves came in from other villages to saw timber in the forest reserve, but the village government forced them to leave and no-one has ever tried again. Now there may be a small amount of cutting for jembe handles and firewood, but little else. Women say that it is up to them to protect their forest since without it they won't have good rain and the winds will be too strong.

In the village, fire is a big problem and almost every day towards the end of the dry season there will be a fire burning somewhere in the village. It is usually hunters who set them, since people say that they claim that it is easier for them to find animals who hide in the unburnt sections of the mountainside. Livestock keepers also burn the pasture to get rid of ticks, although the livestock officer has told them that ticks are more effectively removed by dipping their animals.

Hunting is also a threat to the forest and its animals. There are many hunters in the village, who go after dikdik, rabbits, mbawala, kwale and haruzi in the forest. We saw a group of hunters loping through the village with a pack of dogs, spears and one small plucked kwale between them. People told us that hunting is really only a hobby and there is no necessity for them to hunt to survive – there is plenty of meat available in the village. It is a question of education.

A group of women told us that the VEC was appointed by the village government in 2005 and that the leaders went on a seminar in Morogoro. It seems that this seminar was actually a network meeting rather than a training for VECs. The VEC has had no training in its roles and responsibilities. The women in the VEC explained that they use plays and songs to encourage people to look after the environment, e.g. to stop setting fires, to put out fires, to plant trees, to avoid erosion.

There are five groups who are ready to plant trees, but they are still waiting to receive tree seeds. One group has planted sixty Eucalyptus trees. Members from one of the groups said that they wanted fruit trees, but that they needed types which were suitable for a place as cold as their village. They said they had tried planting guavas, but they fruits had come out very small and sour.

Leadership

There do not seem to have been many village or government meetings recently, and the village leaders have received no training in leadership or governance. However, they seem to be interested in and serious about protecting their forests, and prepared to take steps to ensure the forest remains intact.

Education

There is one primary school in Lufu, with 555 students and 10 male teachers. They need six more teachers, but staff are reluctant to come and live up in a village like Lufu. Lufu is a big village, and it

takes children two hours to walk from some of the sub-villages, e.g. Makete, to school. Their mothers say that they get up at 5am to prepare ugali for their children to eat before they leave for school, but there is no more food for them until they arrive home in the afternoon after another two hour walk. In the rains, the younger children are not able to go to school at all.

In 2006 50 students passed the St VII exam, out of 58 who took it. These students will go on to secondary schools in Pwaga, Luhundwa and Mbuga.

Services

- Water - there are no pumps in Lufu, so everyone uses river water. People say that it is reasonably clean, because there is no-one above them to dirty the water, but they still get stomach problems. In the dry season, they dig wells in the wet areas near to the rivers.
- Health - there is no functioning dispensary in Lufu yet, but they have already built the building, and are waiting for it to be staffed. They are now building a doctor's house, by their own efforts – they will not get a doctor to come until there is somewhere for him/her to live. There's a nurse supported by KKKT (the Lutheran church) who comes to the village, and there is an airstrip in Ilala sub-village which MAF (Mission Aviation Fellowship) use to bring health professionals. Until the dispensary is ready, most people go to Kibakwe and Lumuma, because they can perform tests in those health centres.
- There are six milling machines spread around the village.
- The road is very bad and impassable for most vehicles. The village has been given 57 million TSh for road repairs by the district authorities. This money will go to a contractor. The village government are pessimistic and do not see that this amount will make much difference.

4. Conclusions

Several points came out which apply to all the villages surrounding Mafwemela forest reserve.

The forest reserve has not been significantly exploited and does not seem to be under serious threat at present. Some harvesting, particularly of timber, takes place, but generally only for public buildings such as schools, dispensaries, staff houses, etc., and at a level which is probably sustainable. There is no commercial exploitation. In several of the villages, there is sufficient timber in the woodland areas to supply requirements for timber. For other needs, such as firewood, the forest is too far away to be practicable. Hunting certainly takes place in the forest reserve, but it is not clear to what extent. The fact that we saw two hunting parties during our time in the area suggests that it might be widespread.

People show a high awareness of why their forests are special and what benefits they bring, even ordinary people in the sub-villages, and also women, who are often the ones who miss out on information. The benefits they mainly mention are not direct and tangible, such as timber, firewood or money, but more indirect, such as water, rain, good weather. They also display a certain pride in the fact that there are animals in their forest which are not found anywhere else. For this reason, many people were very positive about protecting their forests, and enthusiastic to do what they could to help. In the planning meeting, instead of forecasting a future of dire environmental disasters and impending desertification, people refused to be so pessimistic and said that they had already understood what was the problem and what was needed, and that things would actually now begin to improve. This may not be realistic, but at least they are positive about the possibilities, and may thus be more ready to take part in conservation activities.

However, the knowledge is also almost exclusively focused on the forest reserve, which is relatively unthreatened, and there is little awareness about the woodlands and the general environment of the villages, which have suffered from greater degradation, as well as the threats posed by hunting and fires. People do not value the miombo woodland areas in the way that they value the forest reserve, even though many of their needs come from the woodland. They say that there are laws restricting destruction of the woodland, and limiting the use of the resources, but it is not likely that they are strictly enforced. There are no village forest reserves of woodland areas. Fires are also a huge problem – although they do not burn as far as the forest reserve, and it seems that no-one sets fires in the reserve, huge swathes of woodland are burnt every year during the dry season.

There is a lack of clarity about who owns Mafwemela forest reserve. Many people think that it belongs to them. And even those who don't, see that it is their responsibility to protect it, in the absence of the real owners. There is also no knowledge about the Forest Act and its implications for the people living next to a central government forest reserve. There is also the issue of Chugu/Ngege forest – whether it is part of the central government forest reserve or not.

At present there is an operation on the part of the government to move communities living next to the forest reserve further down the mountain. This goes against what TFCG stands for – they believe in educating people to live in harmony with their surroundings and to become the principal protectors of the forest, whereas the forest department believe that moving people is the solution. There is nothing TFCG can do about this however, since it is government policy. But people welcomed us and were happy to talk to us, and didn't see TFCG as part of the problem.

There is tremendous enthusiasm for planting trees in all the villages we visited. It makes sense in some villages, e.g. Mbuga or Lufu, where there are few trees left around the houses, and people have to travel increasing distances to find firewood. But in other villages there are so many trees growing close by in the woodlands that, when people realise the difficulties and limitations of tree planting (labour involved in the planting, limited survival rate), they may not be so keen. They may not end up using their planted trees, but continue to exploit the woodlands while preserving the trees they have planted. On the other hand, they may plant trees for very specific purposes, e.g. fruit trees, trees for shade, a particular type of timber tree.

Agriculture is almost the only form of income generation in these communities. There is very little income generated from the sale of forest products. In addition, in most villages, with the exception of Lufusi, people rely almost entirely on one cash crop – beans. Farmers say that they are noticing the levels of fertility dropping and they don't have access to information about solutions to this problem, e.g. techniques for cultivating on steep slopes, digging in crop residues, etc., although in some villages they told us that they rotate crops in an attempt to maintain fertility. However, people also told us that even if they were able to increase the amounts of crops that they produce, the main problem facing them is transport of the crops to market. There is a limit to how much can be carried down the mountains on donkeys or as headloads. Until the infrastructure is improved, this will continue to be a problem. The number of donkeys in each village contributes to this problem – people complain that there are never enough, which means that the existing donkeys are overworked and thus in poor health.

There is a lack of leadership capacity in the village leaders. Most are not aware of basic leadership skills and good governance, which affects the way committees, such as the VECs are run, the way information is passed around the communities, and the enforcement of laws. Because of the isolated nature of the communities, the majority of people in the villages tend to be related in some way, which also has an effect on leadership and law enforcement. VECs, where they exist, are not aware of their roles and responsibilities and have never received any training. In some villages, the VECs are barely functional.

There have been few organisations/NGOs working in this area, and government officials rarely appear, so people are enthusiastic to see an organisation prepared to come and work with them. However, due to their lack of contact with this sort of organisation, and their relative isolation, they have little experience of coming up with suggestions and ideas, and have not been exposed to outside influences.

Appendix 1: Terms of Reference

Assessment of the socio-economic status of five villages in the Rubeho Mountains and development of participatory environmental action plans

1) Background

The Tanzania Forest Conservation Group is seeking a consultant to assess the socio-economic status of five villages in the Rubeho Mountains in Mpwapwa District and to facilitate the development of environmental action plans with these villages. This work is being carried out as part of the project 'Rubeho Environmental Action Plan'. The project is being led by the Tanzania Forest Conservation Group with funding from the Critical Ecosystem Partnership Fund.

Forest management in the Rubeho Mountains has been chronically neglected. Annual government investment for natural resource management for the whole of Mpwapwa District (one of the two Rubeho districts) was US\$ 1000. External investment has been minimal and primarily focused on research. As a result of under-investment in forest management, natural resource dependence by the forest adjacent communities, weak governance and low awareness of the forest's values, forest loss appears to be increasing.

The Rubeho Environmental Action Plan project (REAP), which is led by the Tanzania Forest Conservation Group, working closely with the Mpwapwa District Council, will initiate a process of conservation planning and fund raising for the most biologically unique of the three Rubeho Forests, Mafwomero.

Information collected during the assessment outlined in this terms of reference, and the plans that are developed will form the basis of the Rubeho Environmental Action plan. The socio-economic information will also constitute monitoring data for the project. The assessment will cover the five villages selected for inclusion in the project: Mbuga, Kizi, Galigali, Lufu and Lufusi.

The work outlined in this terms of reference contributes to Output 2 of the project:

'Through a participatory planning process, a strategy has been developed to guide sustainable natural resource management in the Mafwomero Forest landscape and resources have been mobilized for the implementation of the plan.'

Objectives

- To assess the socio-economic status of five villages in Kibakwe Division.
- To facilitate the development of a natural resource management plan for Kibakwe Division with the involvement of a wide range of stakeholders.

Methods

3.1 Socio-economic assessment

Review of secondary data including village and district records.

Focus group discussions, interviews, observations and other participatory appraisal tools as deemed appropriate by the consultant.

Wherever possible data should be triangulated to avoid bias.

The consultant should make a particular effort to interview a representative sample of people including a balance between men / women, rich / poor and young / old.

Data collected by the consultant will include:

1. Demographic information including population figures broken down by gender and age group. Figures from the national census, from the District's records and from the village governments records should be listed for each village.

Annual intercensal growth rate (%) between the 1988 and 2002 censuses should be calculated for each village.

Number of households in the village citing the data source(s).

2. Describe settlement pattern including the number and names of the subvillages.

Using a GPS record a central point of the village (e.g. government offices or primary school). Where possible also record points at the village boundary.

Sketch maps may be included here.

3. Local forms of organization and administrative set up:

Ward name and proximity of ward government offices. Names of political parties, NGOs, CBOs and other pressure / interest groups present in the village.

4. Identify major occupations (seasonal, full time – agriculture, trade / small business, logging etc) (establish each by gender / percentage).

Additional information on forest product trade (based on observations as well as discussions): forest products sold from the village (including tree species sold for timber); source area for forest products; means of transport used to take forest products from the village (lorry, boat, bicycle, porter etc); average prices; approximate volumes traded.

5. List existing economic services in the village e.g. shops, guest houses, restaurants, milling machines, banks, fundis, food vending etc.

6. Education

Educational institutions in the area – primary schools, secondary schools, technical / folk development college / center

- Establish enrolment in each
- Qualification attained

7. Water supply

List major source of water – tap water, wells, river etc.

8. Other services

Electricity

Telephone

Transport

Savings and credit facilities

9. Major development projects in the village

10. Leadership

Number of village assembly meetings held in the last year

Village environmental committee established

Number of times that VEC met over the last year

Other leadership issues detected during discussions

11. Village government knowledge attitudes and practices of natural resources

This will be assessed using an adapted version of the PEMA KAP assessment.

3.2 *Participatory natural resource management planning*

The consultant will use a visioning approach in developing the natural resource management plans. This approach enables communities to define a vision of how they would like the village's natural resources to be managed. There are three key steps in developing a vision-based action plan. The first step involves assessing the current situation; the second step involves defining a vision of a desirable

future state for the natural resources in the vicinity of the village. The final step is to identify actions needed to achieve that vision. These actions should be timed over a ten-year period and resources / inputs necessary to fulfil these actions should be identified. The workshops will be conducted during village assembly meetings. As such, any adult member of the community may participate. At least 30% of the participants should be women.

These methods are detailed in the planning handbook developed by the PEMA Programme.

4) Activities

4.1 Socio-economic assessment

The Consultant will:

- Review secondary data sources.
- Survey the socio-economic status of the area using a combination of focus group discussions, interviews, observations and other participatory appraisal tools as deemed appropriate by the consultant.

Provide recommendations to TFCG on priority socio-economic issues relevant to participatory natural resource management planning.

4.2 Natural resource planning

The consultant will conduct one-day visioning workshops in five villages:

The consultant will be responsible for:

- Preparatory activities (ensuring that village leaders have been properly briefed about the nature of the workshop and that they will convene a “village assembly”)
- Facilitating workshops as per methodology documented in PEMA’s field guide
- Writing-up the results

The consultant will spend one and a half days in each village collecting the socio-economic data. S/he will complete all of the socio-economic assessments before returning to the first village to conduct the planning.

5) Outputs

The consultant will produce two reports that will include the following information:

5.1 Socio-economic report

- 1) Title page
- 2) Executive summary
- 3) Table of contents
- 4) Introduction: background to the project
- 5) Methods: Describe the methods and activities that were undertaken as part of this consultancy. This will include a detailed description of the timetable of activities.
- 6) Results
- 7) Conclusions

Appendices

Data from each of the villages

Terms of reference

5.2 Participatory environmental action plan report

1. Title page
2. Executive summary
3. Table of contents
4. Introduction: background to the project
5. Methods: Describe the methods and activities that were undertaken as part of this consultancy. This will include a detailed description of the timetable of activities.

6. Results including summaries of the results for all of the villages including participation and some analysis of the similarities and differences between the villages. It should also include a synthesised version of the plans which will be the overall plan for Kibakwe.
7. Conclusions
8. Recommendations

The appendices should include brief reports for each of the villages including:

- Introduction including name of village, number of participants (male / female), meeting location and date.
- Description of the current situation
- Statement of shared vision
- List of supporting and opposing forces
- List of actions required to achieve that vision with a timeline and list of inputs required to achieve those actions

List of participants and their position

6) Time Frame

| Day | Activity | Location |
|---------|---|----------|
| 1 | Background reading and survey design | |
| 2 | Survey design and discussion with TFCG | |
| 3-5 | Travel to Mpwapwa and secondary data collection at national and district level | |
| 6 – 21 | Data collection in villages (2.5 days per village plus 0.5 days travel per village) | |
| 22 – 24 | Data analysis and report writing | |
| 25 | Report finalization | |

Appendix 2: Schedule of activities

| Date | Location | People |
|----------|--|---|
| 15-10-07 | Mbuga Mafwemela sub-village | Village government, VEC and elders Group of men |
| 16-10-07 | Galigali Kakwandali sub-village | VG, VEC, teachers – men -15 VEC – women - 6 Group of men – 5 Group of women – 7 |
| 17-10-07 | Kizi Igede sub-village | VG, environmental groups, traditional healers Group of men and women |
| 18-10-07 | Lufusi Visigi - distant part of Songambe sub-village | VG, VEC, traditional healers – men - 22 VG and VEC - women - 7 Young men – 3 Women – 5 |
| 19-10-07 | Lufu Makete | VG and VEC – men and elders – 15 VG and VEC – women - 5 Men – 15 Women – 20 |

Appendix 3: KAP criteria

| | Issue | Criteria | Score |
|---|---|---|-------|
| 1 | Knowledge of Forest Act | Is unaware of the Forest Act | 0 |
| | | Has heard of the Forest Act but doesn't know its contents | 1 |
| | | Is familiar with the Forest Act and can describe key implications for their village/situation | 2 |
| 2 | Knowledge of Village Environmental Committee (VEC) | Is unaware of VEC | 0 |
| | | Has heard of VEC but cannot accurately describe what they are or what they are supposed to do | 1 |
| | | Is familiar with VEC and can accurately describe what they are and what they are supposed to do | 2 |
| 3 | Knowledge of public forest resource management plan | Is unaware of what a forest management plan is | 0 |
| | | Has heard of forest management plans but doesn't know their contents | 1 |
| | | Is familiar with forest management plans and can describe key implications for their own forest | 2 |
| 4 | Knowledge of forest values | Is unaware of ways in which forests benefit the community | 0 |
| | | Is aware of ways in which forests benefit the community but cannot give an estimate of their value | 1 |
| | | Is aware of ways in which forests benefit the community and can provide the rough value of at least one | 2 |
| 5 | Knowledge of threats to forest values | Cannot cite ways in which forest values are being significantly reduced | 0 |
| | | Can cite ways in which forest values are being reduced but cannot say which are doing the most damage or estimate how severe this damage may be | 1 |
| | | Can cite ways in which forest values are being reduced and can suggest which are most destructive and estimate their impact. | 2 |
| 6 | Knowledge of endemic or threatened species | Is unaware of the concept of endemic and threatened species | 0 |
| | | Is familiar with the concept of endemic and threatened species but cannot name any in their area | 1 |
| | | Is familiar with the concept of endemic and threatened species and can name at least two in their area | 2 |
| 7 | Attitudes towards the conservation of | Doesn't think conservation is necessary | 0 |
| | | Thinks conservation is necessary but are not sure why | 1 |

| | Issue | Criteria | Score |
|-----------|--|---|--------------|
| | forests | Thinks conservation is necessary and can produce reasons why it is necessary | 2 |
| | | Thinks conservation is necessary and have already taken steps to conserve some of their forests | 3 |
| 8 | Attitudes towards the condition of forest resources | Thinks that the condition of the forest in the village is good or better than it was 10 years ago | 0 |
| | | Thinks that the condition of the forest resources in the village isn't great but nothing significant needs to be done | 1 |
| | | Thinks the state of the forest resources in the village isn't acceptable and something significant needs to change | 2 |
| | | Thinks the state of the forest resources in the village isn't acceptable and have already taken some steps | 3 |
| 9 | Attitudes towards local communities – rights and capacities | Thinks that villagers do not have the right to participate in decision making about their own forest resources, and have nothing of value to contribute | 0 |
| | | Thinks that villagers have the right to participate in decision making about their forest resources but do not have the capacity to manage them | 1 |
| | | Thinks that villagers have the right to participate in decision making about their forest resources and have the capacity to manage them | 2 |
| 10 | Practice of implementing forest management plan | Does not have a management plan for any forest reserve in their village | 0 |
| | | Has a management plan for a forest reserve, but is not implementing it | 1 |
| | | Has a management plan for a forest reserve and is implementing it | 2 |

Appendix 4: Results of KAP scoring

Forest reserve and woodlands are considered separately under the conservation and condition criteria

Mbuga

| Criteria | VG/VEC | Group of people in Mafwemela sub-village |
|---------------------------|-----------|--|
| Forest Act | 0 | 0 |
| VEC | 2 | 1 |
| Forest management plan | 0 | 0 |
| Forest values | 2 | 2 |
| Threats | 1 | 1 |
| Endemic/threatened | 2 | 1 |
| Conservation of FR | 3 | 2 |
| Conservation of woodlands | 2 | 1 |
| Condition of FR | 2 | 1 |
| Condition of woodlands | 2 | 1 |
| Local communities | 1 | 1 |
| Management plan | 0 | 0 |
| Total | 17 | 11 |

Galigali

| Criteria | VG/VEC/ teachers – men | VEC - women | Group of men – Kakwandali sub-village | Group of women - Kakwandali sub-village |
|---------------------------|------------------------|-------------|---------------------------------------|---|
| Forest Act | 0 | 0 | 0 | 0 |
| VEC | 1 | 1 | 1 | 1 |
| Forest management plan | 0 | 0 | 0 | 0 |
| Forest values | 2 | 1 | 1 | 1 |
| Threats | 1 | 1 | 1 | 1 |
| Endemic/threatened | 2 | 2 | 2 | 2 |
| Conservation of FR | 2 | 2 | 2 | 2 |
| Conservation of woodlands | 1 | 1 | 0 | 0 |
| Condition of FR | 1 | 0 | 0 | 0 |
| Condition of woodlands | 1 | 1 | 1 | 1 |
| Local communities | 2 | 2 | 1 | 1 |
| Management plan | 0 | 0 | 0 | 0 |
| Total | 13 | 11 | 9 | 9 |

Kizi

| Criteria | VG/traditional healers - men | VG/environmental groups – women | Group of people – Igede sub-village |
|------------------------|------------------------------|---------------------------------|-------------------------------------|
| Forest Act | 0 | 0 | 0 |
| VEC | 1 | 0 | 0 |
| Forest management plan | 0 | 0 | 0 |
| Forest values | 2 | 2 | 1 |
| Threats | 1 | 1 | 1 |
| Endemic/threatened | 0 | 0 | 0 |
| Conservation of FR | 2 | 2 | 1 |
| Conservation of | 2 | 2 | 0 |

| | | | |
|------------------------|-----------|-----------|----------|
| woodlands | | | |
| Condition of FR | 2 | 0 | 0 |
| Condition of woodlands | 2 | 1 | 1 |
| Local communities | 2 | 2 | 1 |
| Management plan | 0 | 0 | 0 |
| Total | 14 | 10 | 5 |

Lufusi

| Criteria | VG/VEC - men | VG/VEC - women | Group of young men – S'mbele/Visigi sub-village | Group of women - Songambe/Visigi sub-village |
|---------------------------|--------------|----------------|---|--|
| Forest Act | 0 | 0 | 0 | 0 |
| VEC | 1 | 1 | 1 | 1 |
| Forest management plan | 0 | 0 | 0 | 0 |
| Forest values | 2 | 2 | 1 | 1 |
| Threats | 1 | 1 | 1 | 1 |
| Endemic/threatened | 2 | 2 | 0 | 1 |
| Conservation of FR | 2 | 2 | 2 | 2 |
| Conservation of woodlands | 1 | 1 | 0 | 0 |
| Condition of FR | 0 | 0 | 0 | 0 |
| Condition of woodlands | 0 | 0 | 0 | 0 |
| Local communities | 2 | 2 | 1 | 1 |
| Management plan | 0 | 0 | 0 | 0 |
| Total | 11 | 11 | 6 | 7 |

Lufu

| Criteria | VG/VEC - men | VG/VEC - women | Group of men – Makete | Group of women – Makete |
|---------------------------|--------------|----------------|-----------------------|-------------------------|
| Forest Act | 1 | 0 | 0 | 0 |
| VEC | 2 | 2 | 2 | 1 |
| Forest management plan | 0 | 0 | 0 | 0 |
| Forest values | 2 | 2 | 2 | 1 |
| Threats | 1 | 1 | 1 | 1 |
| Endemic/threatened | 2 | 2 | 2 | 0 |
| Conservation of FR* | 2 | 2 | 2 | 2 |
| Conservation of woodlands | 2 | 2 | 1 | 1 |
| Condition of FR* | 0 | 0 | 0 | 0 |
| Condition of woodlands | 1 | 1 | 1 | 1 |
| Local communities | 2 | 2 | 2 | 2 |
| Management plan | 0 | 0 | 0 | 0 |
| Total | 15 | 14 | 13 | 9 |

* includes village forest reserve too

Appendix 5: Population figures for the five villages

Statistics from the villages - 2007

| Village | Male | Female | Total | No of households |
|-----------------|------|--------|-------|------------------|
| Mbuga | 1206 | 1301 | 2507 | 439 |
| Galigali | | | 2349 | 501 |
| Kizi | 474 | 569 | 1043 | 178 |
| Lufusi | 338 | 427 | 765 | 128 |
| Lufu | 1869 | 2143 | 4012 | 834 |

Statistics from the census report – 2002, projected to 2006

| Village | 2002 | | | 2006 projected | | |
|-----------------|------|--------|-------|----------------|--------|-------|
| | Male | Female | Total | Male | Female | Total |
| Mbuga* | 1792 | 1915 | 3707 | 1858 | 2039 | 3947 |
| Galigali | 839 | 929 | 1768 | 893 | 989 | 1882 |
| Kizi | 524 | 550 | 1074 | 558 | 586 | 1144 |
| Lufusi | 302 | 402 | 704 | 322 | 428 | 750 |
| Lufu* | 1138 | 1364 | 2502 | 1212 | 1452 | 2664 |

*These villages have split into two or more villages since 2002

Appendix 6: Education statistics 2006-7 (source – the village primary schools)

| Village | Boys | Girls | Total | Sat St 7 exam 2006 | | | Passed St 7 exam | | | Teachers | | |
|-------------------------|------|-------|-------|--------------------|----|-------|------------------|----|-------|----------|---|-----------|
| | | | | m | f | Total | m | f | Total | m | f | shortfall |
| Mbuga | 334 | 363 | 697 | 33 | 31 | 64 | 32 | 30 | 62 | 9 | 1 | 7 |
| Wangama (Mbuga)* | 82 | 80 | 162 | | | | | | | 2 | 1 | |
| Galigali | 217 | 211 | 428 | 11 | 8 | 19 | 11 | 8 | 19 | 6 | 1 | 3 |
| Kizi | 171 | 190 | 361 | 9 | 11 | 20 | 9 | 11 | 20 | 6 | 2 | 1 |
| Lufusi | 97 | 109 | 206 | 14 | 7 | 21 | 14 | 7 | 21 | 5 | 1 | 1 |
| Lufu | | | | | | 58 | 27 | 23 | 50 | 10 | - | 6 |

*Only St I-IV

Mbuga secondary school

In 2006 151 students passed to the secondary school, and out of these, 104 come to the school regularly. There is roughly the same number of girls as boys. There are four teachers. In total they will need eight teachers.

Appendix 7. Participants in the socio-economic assessment.

VILLAGE NAME: MBUGA

DATE: 15TH OCTOBER 2007

| S/NO | PARTICIPANTS' NAMES | TITTLE |
|-------------|----------------------------|------------------|
| 1 | JULIANI MWAMBA | VILLAGE CHAIRMAN |
| 2 | CHARLES MNDENGELE | MEMBER |
| 3 | PRIMO MLANDALI | MEMBER |
| 4 | SILVERIO MWIKOLA | MEMBER |
| 5 | MERDADI LUKWAWILA | MEMBER |
| 6 | BASLEI LUHAMO | MEMBER |
| 7 | EGIDIO S. KIGOMBA | MEMBER |
| 8 | JAMES R. MNYAMBULI | MEMBER |
| 9 | JOHN MILIMO | MEMBER |
| 10 | JEMMA LUHAMO | MEMBER |
| 11 | GEORGE J. KIYANGA | MEMBER |
| 12 | VALENSI MNYENYELWA | MEMBER |
| 13 | GAUDENCE B. MWAKITINYA | MEMBER |
| 14 | STEPHEN MWAGISENENE | MEMBER |
| 15 | EKARISTA P. MHONDELE | MEMBER |
| 16 | PASKWINA LUKWAWILA | MEMBER |
| 17 | ALISPISIA KITINYA | MEMBER |
| 18 | APOLINAL KIHELULYE | MEMBER |
| 19 | EMESIANA KIYANGA | MEMBER |
| 20 | DEVOTA KIYANGA | MEMBER |
| 21 | ALEX MNYAWAMI | MEMBER |
| 22 | CHARLES KIGOMBA | MEMBER |
| 23 | FIDELIS S. MBWANI | MEMBER |
| 24 | ANISELMINA N. MBAKA | MEMBER |
| 25 | ADAMU P. MNYENYELWA | MEMBER |
| 26 | SIMON LUHAMO | MEMBER |
| 27 | SILVELI T. MILIMO | MEMBER |
| 28 | STANSLAUS KITINYA | MEMBER |
| 29 | BENJAMIN KIGOMBA | WEO |
| 30 | TRESPHOLI MWALUSTO | MEMBER |

VILLAGE NAME: GALIGALI

DATE: 16TH OCTOBER 2007

| S/NO | PARTICIPANTS' NAMES | TITLE |
|------|-----------------------|-------------------|
| 1 | PAULO A. CHITEMA | VEO |
| 2 | STANLEY C. KUSENHA | MEMBER - TEACHER |
| 3 | SEVELINI MLAGASE | MEMBER |
| 4 | DONATI MWASAMILA | MEMBER |
| 5 | ALFRED MNYAWONGA | MEMBER - RELIGION |
| 6 | LONJINO MBUTA | MEMBER |
| 7 | MENGI PWELEZA | MEMBER |
| 8 | FAIBELIUS MGOMBA | MEMBER |
| 9 | IGNAS NDUMILI | MEMBER |
| 10 | NICOLAUS KAPWAGA | MEMBER |
| 11 | ADELINA E. NGAO | MEMBER |
| 12 | OLIVA R. LESIJILA | MEMBER |
| 13 | PAULINA T. MNYANG'ALI | MEMBER |
| 14 | LEVINA A. NGIMBA | MEMBER |
| 15 | ANTONIA Z. MKALAWA | MEMBER |
| 16 | SOPHIA P. NYENGO | MEMBER |
| 17 | RICHARD M. MNYANG'ALI | MEMBER |

VILLAGE NAME: KIZI

DATE: 17TH OCTOBER 2007

| S/NO | PARTICIPANTS' NAMES | TITLE |
|------|------------------------|-------------------|
| 1 | MELCHIOLY CHALI | VILLAGE CHAIRMAN |
| 2 | KANDIDO S. MBWANI | VEO |
| 3 | THEODORY KIYANGA | MEMBER |
| 4 | CHRISTOPHER D. KIYANGA | MEMBER |
| 5 | ONESMO A. LUBELEJE | MEMBER |
| 6 | AGRITHA MWONGI | MEMBER |
| 7 | SCOLASTICA PWELEZA | MEMBER |
| 8 | PHILIMINA MILIMO | MEMBER |
| 9 | DELFINA MBWANI | MEMBER |
| 10 | GABRIEL MWACHALI | MEMBER - RELIGION |
| 11 | RONJIRO KIYANGA | MEMBER |
| 12 | CANDIDO KULANGA | MEMBER |
| 13 | EDWARD KAYAULA | MEMBER |
| 14 | JANUARY W. KIYANGA | MEMBER |
| 15 | STANLEY MWIKANU | MEMBER |
| 16 | RICHARD R. KITIME | MEMBER |
| 17 | HASSAN MSIGALA | MEMBER |
| 18 | PAULO KIYANGA | MEMBER |
| 19 | LEONARD KIYANGA | MEMBER |
| 20 | DEOGRAS KIYANGA | MEMBER |
| 21 | INNOCENT MWALWOA | MEMBER |
| 22 | LEDAS CHALI | MEMBER |

| | | |
|----|------------------------|--------|
| 23 | SEVERINI KIYANGA | MEMBER |
| 24 | WILHELIM KIYANGA | MEMBER |
| 25 | PONSIAN MWACHALI | MEMBER |
| 26 | PATRICE H. MNYENYELWA | MEMBER |
| 27 | EPIMACK S. KULANGA | MEMBER |
| 28 | ELANA A. MNYANG'ALI | MEMBER |
| 29 | CECILIA PAULO | MEMBER |
| 30 | CONSTANSTIA R. MALENDI | MEMBER |
| 30 | JOYCE MAKARA | MEMBER |

VILLAGE NAME: LUFUSI

DATE: 18TH OCTOBER 2007

| S/NO | PARTICIPANTS' NAMES | TITTLE |
|-------------|----------------------------|------------------|
| 1 | AGAPITH NJOLE | VILLAGE CHAIRMAN |
| 2 | HAROLD L. MADIHI | VEO |
| 3 | MOLIPILIO MWACHALI | FIELD ASSISTANT |
| 4 | RITHA KIYANGA | MEMBER |
| 5 | JULIANA SADANI | MEMBER |
| 6 | YASINTA SADANI | MEMBER |
| 7 | FRED KIYANGA | MEMBER |
| 8 | JOSEPH SADANI | MEMBER |
| 9 | MUSSA MWONJE | RELIGION |
| 10 | ANTHONI MACHAKA | MEMBER |
| 11 | ALEXANDER MSUMARI | MEMBER |
| 12 | AMOSI PIUS | MEMBER |
| 13 | WILLIAM KINOZA | MEMBER |
| 14 | MUSSA NYAMHOBO | MEMBER |
| 15 | JULIUS CHAEKA | MEMBER |
| 16 | SILVANO A. MSUMARY | MEMBER |
| 17 | PHELX R. MWALYEZY | MEMBER |
| 18 | OLIVA SENDWA | MEMBER |
| 19 | SEVERINA SIMIN | MEMBER |
| 20 | REOLIANI SADANI | MEMBER |
| 21 | MELCHIOR MILIMO | MEMBER |
| 22 | BALTAZALY SENDWA | MEMBER |
| 23 | MATHEW KONYAKI | MEMBER |
| 24 | JOYCE SAMWELI | MEMBER |
| 25 | FERDNAND KAJEMBE | MEMBER |
| 26 | JEROME SENDWA | MEMBER |
| 27 | JOSEPH MANYIKA | MEMBER |
| 28 | REOLIANI SADANI | MEMBER |
| 29 | RENJINO KITWANGE | MEMBER |

VILLAGE NAME: LUFU

DATE: 19TH OCTOBER 2007

| S/NO | PARTICIPANTS' NAMES | TITTLE |
|------|-----------------------|------------------|
| 1 | JOHN MWANGOSOLE | VILLAGE CHAIRMAN |
| 2 | PAULO HENRY NGWEMBELE | VEO |
| 3 | KANDIDO NGWEMBELE | MEMBER |
| 4 | EKARISTI MTAMBULO | MEMBER |
| 5 | WILLIAM MSUNGU | MEMBER |
| 6 | KOLONELY S. MTAMBULO | MEMBER |
| 7 | BARNABAS MSIGALA | MEMBER |
| 8 | TAYTAS KITINYA | MEMBER |
| 9 | LUCAS WOLLE | MEMBER |
| 10 | REHEMA KASANGA | MEMBER |
| 11 | BIATUS MFALINGUNDI | MEMBER |
| 12 | SEVELINI SAMILA | MEMBER |
| 13 | ROZALIA SWENYA | MEMBER |
| 14 | ELMINA MHANGA | MEMBER |
| 15 | MACLAUDI MGABE | MEMBER |
| 16 | PETER M. MSUNGU | MEMBER |
| 17 | ELIAS CHAMBULILA | MEMBER |
| 18 | DAMIAN MTAMBULO | MEMBER |
| 19 | JERIDA MAKUYA | MEMBER |
| 20 | ADELINA MDOGA | MEMBER |