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Evaluation and Amendment of Mlele Beekeeping Zone Management Plan, Tanzania

A case of community-based natural resources management

Bachelor Thesis presented by

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In the purpose of obtaining a UAS-WS Bachelor's degree in Natural Resources Management

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PURPOSE OF THE STUDY

To obtain the title of Bachelor of Applied Science UASWS in Natural Resources Management, the students of the 6th semester in the Haute Ecole du Paysage, d'Ingénierie et d'Architecture (hepia) Geneva, Switzerland, are to realize a Bachelor Thesis. This last step in the studies is intended to test the ability of the future graduates to put their knowledge and skills into practice in a real situation. It is an individual work allowing the student to handle a professional situation throughout the whole process. The time allocated to the thesis is limited to 10 weeks, during which the undergraduate will prove his/her capacity in implementing a professional and scientific approach in applied ecology and environment sciences.

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GLOSSARY

- ***Biodiversity:*** Biodiversity is a compound word derived from 'biological diversity' meaning the variability among living organisms from all and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems (Convention on Biological Diversity 1992).
- ***Community or Community-Members:*** *A*ll residents of Inyonga Division.
- ***Governance:*** Governance addresses power, relationships, responsibility and accountability. It defines the who's and how's of authority and responsibility on a given public concern which must be accepted by society (Lockwood *et.al.* 2006).
- ***Institutions:*** Institutions are rules, both formal and informal, that govern society and on which human economic activities and social interactions are built (North 1990 in Nelson 2010).
- ***Protected Area:*** An area of land and/or sea especially dedicated to the protection of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means (IUCN 1994).
- ***Stakeholder:*** Someone who is directly affected by the outcome of the planning process (Thomas & Middleton 2003).
- ***Sustainability:*** In the context of development, sustainability is achieved when a project or a community is able to live on by itself, without needing financial or technical support.

ABBREVIATIONS

ADAP	Association for the Development of Protected Areas
BKO	Beekeeping Officer
BKZ	Beekeeping Zone
BR	Bee Reserve
CBNRM	Community-Based Natural Resources Management
CBC	Community-Based Conservation
CBO	Community-Based Organization
CHF	Swiss Francs
CMPA	Collaboratively-Managed Protected Area
DBKO	District Beekeeping Officer
FBD	Forestry and Beekeeping Division
FR	Forest Reserve
GCA	Game Controlled Area
IBA	Inyonga Beekeepers Association
IBDSP	Inyonga Beekeeping Development Support Program
IEA	Inyonga Ecotourism Association
IUCN	International Union for Conservation of Nature
MNRT	Ministry of Natural Resources and Tourism
MP	Management Plan
TBGS	Tanzania Big Game Safaris
TFS	Tanzania Forest Services Agency
TSH	Tanzanian shillings
UASWS	University of Applied Science Western Switzerland
USD	United States Dollars
WD	Wildlife Division

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SUMMARY

Tanzania's growing urbanization makes the pressure on land and resources increase rapidly. It is now widely recognized that involving the communities in Conservation projects will be the key to their success. The challenge in community-based conservation is to create incentives in community-members to protect the natural resources.

This Bachelor Thesis has been made in the context of a community-based natural resources management project. An assessment of the management model performance was needed after several years of implementation to define the amendments to be made. This study thus focuses on identifying the causes of community-based conservation successes and failures in the particular case of Mlele Beekeeping Zone, the first multi-use area centered on beekeeping activities in Tanzania.

Meetings, focus groups, semi-directed interviews and informal exchanges were used to gather information from managers, stakeholders and villagers on their perception of the project, the governance system and the conflicts over resource access and use.

The results showed that several aspects in the management model were missing or inadequate, and highlighted three *sine qua non* conditions for local involvement that were not achieved. The first is for community-members to have rights and access to the resources and their benefits in a substantial way. The second is for the management authority to achieve transparency and accountability allowing a trustful relationship to be built between the managers and the community. The third is a management model easy to understand and efficient in its implementation.

Keywords: Community-based conservation, participatory management, decentralization, Tanzania.

PART I PLANNING ASSESSMENT

1 INTRODUCTION

The main tool for conservation has historically been strictly protected areas (PAs), such as National Parks (NP). Created exclusively for wildlife conservation, they did not leave room for people (Adams & Hulme 2001). Multiple-use areas were originally buffer zones around these strictly protected areas, where local communities were allowed to stay (DeGeorges and Reilly 2009). They soon became essential to people's residency and sustenance, as parks and barriers were flourishing (Nelson 2007; Nelson *et al.* 2007).

The way of comprehending conservation has changed with the increasing awareness that local communities should be involved in natural resources management to increase its efficiency, and avoid greater poverty and spoliation (Balasinorwala *et.al.* 2004). Conservation must no more be taken as a lone value, but considered as a whole, and pursued by society to achieve social goals such as livelihoods, cultural diversity, community-based appropriate development and social equity (Lockwood *et.al* 2006).

The essence of collaboratively-managed protected areas(CMPAs) can be defined as the "*principles and practices that argue that conservation goals should be pursued by strategies that emphasize the role of local residents in decision making about natural resources*"(Adams and Hulme 2001). Although CMPAs still have a long way to go, changes at an international level have begun, leading the way to a more sustainable management of natural resources, not only in terms of biodiversity, but also in social and economic terms (Lockwood *et.al* 2006).

The main challenge for community-based natural resources management (CBNRM) is now to effectively bring benefits to the populations, and not only deprive them from their resources by holding out the prospect of money and development to communities never actually seeing anything coming back to them (DeGeorges and Reilly 2009).

In the current context of population growth and increasing poverty, one of the radical changes in conservation that may be necessary in the 21st century is the redefinition of the majority of protected areas to multiple use areas, allowing access and use of the natural resources. The stricter categories are indeed unable to achieve conservation as they are rapidly overtaken by spoiled communities having no other alternative than poaching and encroaching upon these lands for their own survival (DeGeorges and Reilly 2009).

> *"The ownership of land and natural resources, access and the right to use them are of fundamental importance, not only for more balanced and equitable development, but also to the level of care accorded to the environment. It is only when people can satisfy their needs, have control of the resource base as well as have secure land tenure that long term objectives of environment protection can be satisfied"*
>
> Tanzania Ministry of Natural Resources and Tourism (1998a)

2 PROBLEM STATEMENT

Mlele Beekeeping Zone (BKZ) is the first community-managed area centered on beekeeping activities in Tanzania. The purpose of this project is to give use and access rights back to local communities having been deprived of their lands, and to develop incentives for them to protect themselves the forest they depend on. The BKZ allows multiple sustainable uses as means to alleviate poverty and improve the socio-economic context without endangering the possibility for current and next generations to meet their needs.

Several types of CMPAs already exist in Tanzania, but none of them plans multiple uses. It is thus a real challenge for both the community-based organization (CBO) and its governmental partners to create a completely new frame for this type of protected area. IBA is working in partnership with the Tanzania Forest Service (TFS), a semiautonomous agency which mission is to improve management and conservation of forest and bee products and to ensure their sustainability and quality.

The pressure on lands is high and illegal activities are increasing within the protected area. The management of Mlele BKZ thus needs to be organized and implemented efficiently to maintain the forest quality. The population's support is a key asset for the success of such a project, and must be earned through not only speeches, but real opportunities for them to benefit directly from what they often see as restrictions and confiscation of their ancestral property.

The Beekeeping Zone should be governed by three documents: a Memorandum of Understanding (MoU) as the legal basis to CBNRM, village Bylaws to ratify the access and use rights and prohibitions accepted by local communities and authorities, and a management plan (MP) to describe yearly objectives and activities in the protected area.

This study has been made upon the mandate of the Association for Development of Protected Areas (ADAP) to answer the need expressed by Inyonga Beekeepers Association (IBA), the management authority, to accompany the process of evaluation and amendment of its Management Plan. It has focused on finding the underlying reasons explaining the successes and failures of the theoretical model and assessing IBA's implementation results.

As IBA needs the community acceptance and support, meetings were planned first with the villages and then with smaller groups of stakeholders and experts from the different sectors of activity taking place in Mlele BKZ. The high number of stakeholders having been identified around BKZ makes the process of Bylaws and MP establishment even more difficult seeing that the management model plans multiple uses resulting in numerous conflicts to handle in a participatory way.

The purpose of these meetings was to identify the weaknesses in the management, both at technical and institutional levels, and to pinpoint key conflicts regarding the natural resources access and use. The governance system was studied to better understand the shortcomings of the power distribution between the numerous institutions surrounding the BKZ and assess the model's performance. The technical aspects of the plan were analyzed and compared to the planning of other types of collaboratively-managed areas in Tanzania.

The new documents on which Mlele Beekeeping Zone will rely need to be more accessible and understandable, setting the frame with, as Agrawal (2007) summarizes: "*rules that are easy to*

understand and enforce, locally devised, take into account differences in types of violations, help deal with conflicts, and help hold users and officials accountable".

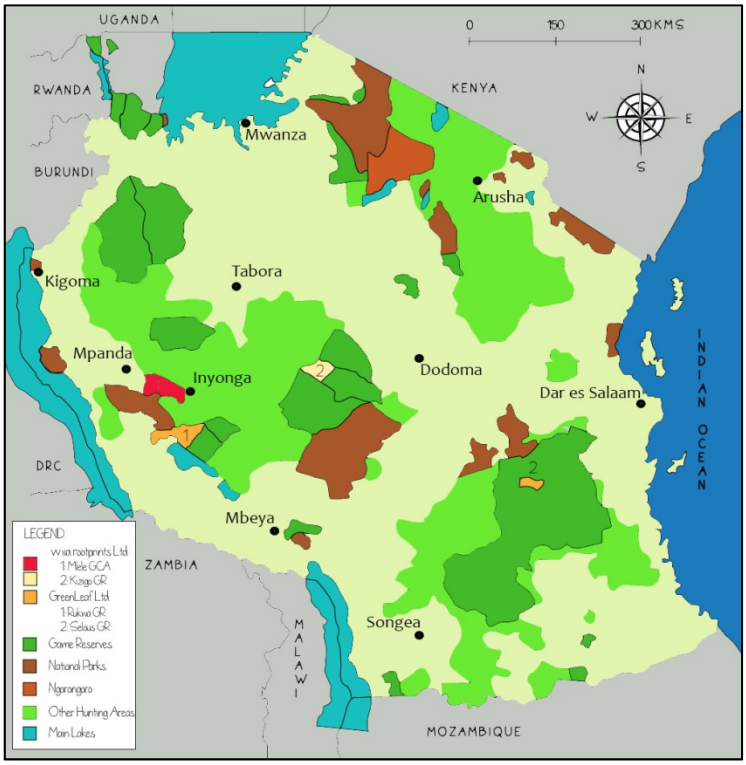
3 CONTEXT

3.1 SOCIO-ECONOMIC BACKGROUND

3.1.1 TANZANIA

Tanzania is an Eastern African country counting 49,25mio inhabitants, of which 28% are living under the national poverty line[1]. More than 28% of the total land surface is occupied by protected areas[2] prohibiting agriculture, housing and extractive activities in most cases.

Although rapidly urbanizing, the economic foundation remains the natural resources base, employing 80% of the workforce (CIA 2013). In rural areas, people rely on agriculture, livestock and a range of natural products for food and income.



Source: www.wild-footprints.com

Illustration 1 Part of Territory occupied by PAs

A World Bank study (2008) suggests that informal natural resources uses at local and national level could be worth USD100 per capita, or about 30% of existing mean income (Nelson 2010).

3.1.2 INYONGA

This study focuses on a community-based conservation (CBC) project in Inyonga, Mlele District, Western Tanzania. Inyonga is a Division formed by a group of thirteen villages: Inyonga, Nsenkwa, Kamsisi, Mtakuja, Kaulolo, Utende/Uzega, Mgombe, Kanoge, Wachawaseme, Mapili, Ipwaga and Masigo (Appendix 1). Most of the lands around the villages are reserved lands to which people do not have access (Appendix 2).

Despite a theoretically compulsory education system, a lot of children and teenagers do not attend school as their parents often need them to help in the fields or to earn money, and resent the European school system. The level of education is low and many people don't know how to read and only speak Swahili and their tribe dialect.

[1] World Bank, *http://data.worldbank.org/country/tanzania* consulted 16.09.2014.
[2] MNRT, *http://www.mnrt.go.tz/about/welcome-to-mnrt* consulted 16.09.2014

The local tribe is the Konongo, traditional hunters-gatherers originally living in multiple clans in Mlele forest and deriving their sustenance from forest products such as honey. They were converted to agriculture during the 20th century when the English settlers decided to make them leave the forest and regrouped them in the current Inyonga after a sleeping sickness epidemic (Nelson *et. al.* 2007). Despite this forced villagisation process, the social organization remained the same.

In the past decades, the intense deforestation that occurred in numerous regions of Tanzania because of the increasing need for lands provoked the draining of water sources, and ultimately the decreasing of rainfall to a stage where people needed to find other places to live. Multiple tribes originating from all over Tanzania thus emigrated and arrived in Inyonga wishing to find available lands to live and work, encouraged by politicians.

The region is now facing great challenges in terms of natural resources management due to the rapid development it had in the last few years. Indeed, its isolation protected the forests around Inyonga, thus still preserved and holding an important economic potential. The population increases fast as people are highly dependent on natural resources for their livelihoods and were attracted to areas where forests and lands were still plentiful, like Inyonga. The roads and infrastructures quality is improving and migration reaches 5.8% per year in Mlele District (Hausser 2014, pers.com., July 30). The governmental policy caused the progressive classification of lands around Inyonga on which the villagers traditionally practiced their activities. On the 10,000sqkm of Inyonga, only 620sqkm are left under village authority. The pressure on land and natural resources has never been so important, and is bound to increase.

This situation has led to an increase in illegal uses and constant conflict situations between villagers, governmental authorities and IBA. Indeed, Despite the legal framework theoretically leaving room for the communities to keep access and use rights to some of these areas such as Forest Reserves (FR) or Game Controlled Areas (GCAs) to a certain extent, the institutions practically controlling these lands have often denied these rights and excluded the people from the forest (ADAP 2013a).

3.1.3 CONSERVATION HISTORY

Conservation history in Tanzania is intimately linked with its colonial past. The country has seen the lands gradually taken from local communities (Nelson *et.al.* 2007). This process dismantled local resources governance systems, and contributed in shifting many resources status from theoretical common property to practical open access. The result has been intensifying conflicts over rights and tenure amongst different local, national, and international resource users, as well as general degradation of natural resources such as forests and wildlife (Nelson 2010).

By the midst 20th wildlife was converted from a locally-used and community-managed part of the natural resources to a resource which Europeans possessed exclusive legal access to. Local people were cast aside and had nothing to say in the new order that was being established (Carruthers 1995). Traditional systems were replaced by the Judeo-Christian principles of taming and civilizing Nature (Maddox 2002). Instead of slowing the wildlife downfall, the Europeans took control away from communities, and without proper knowledge of historical ecological conditions they ultimately failed to develop the region economically up to the moment of African independence (de Vries 2005). Tensions between wildlife and people were then unavoidable (Nelson 2010; Maddox 2002).

The Government enacted The Wildlife Conservation Act in 1974 (WCA). Despite the end of colonial stewardship, the WCA did not seek to reinstate traditional use rights, local management and access to the resources. However, it didn't add more land use and settlement restrictions on Game Controlled Areas, which thus remained used and occupied by local communities (Nelson *et.al.* 2007).

By the late 1970s the country's economic condition worsened rapidly as a result of both its socialist policies and surrounding wars (Bigstein *et.al*. 2001 in Nelson *et.al.* 2007). Within this context, funds for wildlife management dropped greatly. At the same time, the prices of both rhino horn and elephant ivory on international markets rose dramatically, resulting in an explosion of these species poaching (Nelson *et.al.* 2007).

As Tanzania's anti-poaching regulations were proved unable to enforce the laws and prevent the decline of many large mammal species, protected areas designed to preserve wildlife habitats also showed evidence of deficiency in key aspects (Nelson *et.al.* 2007).

During the 1990s, community-based natural resources management strategies became a widely promoted narrative for achieving sustainable conservation through interconnected conservation, rural development and local governance (Adams and Hulme 2001). However, sustainable development was not always considered as a panacea. During the 1990s and the 2000s, community-based approaches have been largely criticized as they were not as efficient on short-term as they wanted to admit (Roe 2008).

The inadequacy of protected areas combined with the difficulty of enforcing legal prohibitions on rural wildlife uses played an important part in triggering new ideas in Tanzania about ways to work with communities surrounding PAs in order to devise more equitable and practicable conservation policies (Baldus *et al.* 1994, WSRTF 1995a, WSRTF 1995b, Murphree 2001 in Baldus *et.al.*).

3.1.4 PROJECT HISTORY

The project started in 2001 at the request of a Tanzanian community of beekeepers. The Swiss international NGO ADAP made a commitment to help them in the process of gaining management rights over a governmental protected forest area. ADAP then created the Inyonga Beekeeping Development Support Program (IBDSP), which accompanied the process and gave technical and financial support throughout the past years.

ADAP promotes the participation of local communities to achieve more sustainable conservation. The organization deems necessary in order for PAs to be successful to not exclude the people living around them and their needs. It thus supports the establishment of natural resources management mechanisms by helping the community in capacity building and encouraging environmental friendly money generating activities for sustainable development[3].

The original process for Inyonga beekeepers was intended to create a private Bee Reserve (BR) under the authority of the community. For the area to be accepted as community-managed, the support of the local villages was needed, and had to be organized. The twelve villages around Inyonga assembled in 2002 and formed the CBO Inyonga Beekeeping Association which has since become the government partner in managing the area. The purpose of the Association was to develop

[3] ADAP, *http://www.adap.ch/* consulted 21.09.2014

beekeeping and other environment-friendly activities allowing poverty alleviation along with conflict resolution and natural resources sustainable use.

However, establishing a Bee Reserve would have made the area subject to a change in legal status. Such a process is long and time-consuming, and requires taking many steps in the management planning. It is made in such a way that a community without outer support would be unable to complete these steps (Hausser *et.al.* 2009). The decision was made to create a Beekeeping Zone, a multiple-use area with an intermediary status. The process to acquiring the Bee Reserve (BR) status has been momentarily put aside, and it was decided that IBA's management would need to prove its sustainability during a few years before resuming the process.

The process of decentralizing the management rights was made official in 2010 with the signing of a MoU between the Ministry of Natural Resources and Tourism (MNRT) and Inyonga Beekeepers Association. The MoU was signed by the Forestry and Beekeeping Division (FBD) of the MNRT. However, the Ministry started a reform process in order to decentralize the power and fight corruption in the highest Government echelons. Created in 2012, the TFS is a semi-autonomous Agency succeeding the FBD and is now IBA's official partner.

This document ratifies the passing of management rights from the Government to IBA exclusively, even though the land is still owned by the Government (Appendix 3). Nevertheless, before an agreement could be found IBA had to present a management plan to be validated by the MNRT, as a proof of their incentive and seriousness.

A first management plan was written with the support of (ADAP) and the University of Applied Sciences – Western Switzerland (UASWS) and put into practice since 2007 (Weber 2005, Varet 2006). It must now be amended and adapted to IBA's new realities and challenges.

The project is now at the stage of evaluation and amendment of the management implemented the last few years in order to adapt its activities to new realities and make up for weaknesses. As the socio-economic and technical context do not allow for a very complex and exhaustive Management plan, the final document will thus consist of easy to use principles. The overall purpose of this document is for the project to achieve sustainability by offering means to improve the socio-economic context through moderate use of natural resources by the communities.

3.2 MLELE BEEKEEPING ZONE

3.2.1 LEGAL FRAMEWORK

Mlele Beekeeping Zone is an 850sqkm demarcated area within Mlele Forest Reserve. The area has a complicated legal framework as it is both under the statuses of Forest Reserve (FR) and Game controlled Area (GCA) in addition to the BKZ status.

The FR is under the authority of the Tanzania Forest Service (TFS) of the Ministry of Natural Resources and Tourism (MNRT), and governed by the Forest Act in force since 2002 and the Forest Policy. This particular forest is a national production FR, which means it is allowed to harvest timber within the area as long as a license has been delivered (MNRT 2002a). The Beekeeping Zone is the only part of Mlele Forest Reserve where timbering is prohibited for conservation purposes (Marunda 2014, pers.com., August 25).

The GCA on the other hand depends on the Wildlife Division (WD) of MNRT, currently transforming in the Wildlife Management Authority. The purpose of this type of protected areas is to prohibit illegal hunting (MNRT 2013), including resident wildlife uses, to preserve game populations and for trophy hunting activities. They are governed by the Wildlife Authority Act of 2013.

Both FRs and GCAs statuses correspond to the IUCN category VI: Protected area with sustainable use of natural resources (Appendix 4), as to allow a "*sustainable flow of natural products and services to meet community needs*" (Chape *et.al.* 2003). They are established by the Parliament and the Government holds property and management rights on them. They theoretically are accessible to the communities having obtained a written agreement from the Division Director (MNRT 2002a, MNRT 2013). In practice, community members are hardly aware of their rights and resort to illegal extraction thinking there is no other way.

A Bee Reserve is a "*land area administered and managed for the purpose of sustainable development of bee and bee fodder resources*" (MNRT 1998b). The management institution can be governmental or community-based. For the time being, the area kept the intermediary status of Beekeeping Zone. The BKZ and the BR statuses are also equivalent to IUCN category VI.

Beekeeping is promoted by the government to enhance the contribution of the beekeeping sector to the sustainable development of Tanzania and the conservation and management of its natural resources for the benefit of present and future generations (MNRT 2002b).

The legal basis of Mlele BKZ is bound to the statuses of FR and GCA, and village Bylaws to be adopted along with the management plan cannot contradict the national laws, namely Forest Act (2002), Wildlife Conservation Act (2013) and Beekeeping Act (2002).

3.2.2 ECOLOGICAL VALUE

Mlele Forest Reserve is located in the Mlele Hills. Its vegetation is characterized as dry Zambezian Miombo woodlands, with a high variety of micro-habitats (Appendix 5) such as seasonally inundated swamps and grasslands amounting to less than 5% of the area (Fischer *et. al.* 2013). A great part of the tree species present are known to be foraged by bees, and the presence of numerous water sources make of the Mlele BKZ, and particularly the escarpments, a high potential area for quality honey and other apiary products (Kayombo *et.al.* 2013).

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Illustration 2 Typical Miombo Forest Structure

The distinctive feature of the miombo is its important alternation in vegetation types between grasslands and forests, providing food for both grazers and browsers, which explains partially the high number and diversity of herbivore species (Estes 1991).

An important community, composed mainly of ungulates and carnivores of all sizes, shows that the ecosystem is well-structured and preserved. Indeed, the number of species observed in the area is higher than in most of PAs with higher status, and most of the rare species observed in NPs are present (Mermod 2012; Hausser *et. al.* 2014 in review; Delisle unpublished data 2014). This leads to the conclusion that categories do not equal conservation value. Partially protected areas are largely unstudied but may hold similar or higher diversity than stricter PAs (Caro 1999).

Mlele Forest Reserve and the Beekeeping zone also hold an important value for the wildlife dispersion at national level as it is part of a wildlife corridor (Caro *et.al.* 2009). Functional corridors are essential to the survival of many species travelling in search of water and pastures during the long months of drought (Marunda 2014, pers.com., August 25).

3.2.3 MULTIPLE USES

Beekeeping

The Beekeepers are the central users of Mlele Beekeeping Zone. Beekeeping activities concern 20% of Inyonga Division population (Hausser *et. al.* 2009) and hold a great economic potential as the region is ideal for apiary production (Appendix 6). IBA and the BKZ have been created to protect this exceptional value and increase its role in the community development.

Tourism

Recreational opportunities are becoming a most important aspect in the development of protected areas through ecotourism. A Tourism Association has been created with the support of ADAP, the Inyonga Ecotourism Association (IEA), promoting sustainable tourism and adding social and cultural aspects to the standard wildlife-based tourism. Ecotourism is deemed a very beneficial activity both for Natural Resources conservation and socioeconomic development (Lockwood *et.al.* 2006), and the annual projected benefits of such a program were estimated at USD20,000 for 48 tourists (Gelsi 2009).

Hunting

Tanzania has developed a tourist hunting industry which is one of the largest in sub-Saharan Africa, generating about USD27,000,000 in total annual revenues (Baldus & Cauldwell 2004; Degeorges & Reilly 2009).

A great part of the protected areas allow trophy hunting as sole wildlife-based activity. The BKZ is also part of a hunting block because of its GCA status. The company exploiting the area is Tanzania Big Game Safaris (TBGS).

In Mlele District only, the revenues generated by tourism hunting in 2012 amount to approximately TSH75,000,000 that is more than USD40,000 (Appendix7).

Agriculture and Pastoralism

Although agriculture and livestock keeping and grazing are prohibited in the Beekeeping Zone, it is important to note that they are the principal activity in Inyonga with tobacco-growing as the first cultivation.

Tobacco is at the same time the most profitable and the most harmful crop for the environment as tobacco companies are the only ones to supply the farmers with all necessary inputs and to guarantee the purchase of the whole production (Hausser *et.al.* 2009). The intensive practices linked with this culture are nevertheless rapidly degrading the village lands, thus regularly necessitating new space.

Forest products gathering

Non-timber forest products are of great importance for the villages. The majority of villagers depend on natural resources, directly and indirectly, for their livelihood. They have claims about ownership, access and use rights to these forests to gather fruits, mushrooms, and a lot of forest products they use for self-consumption, medicine, or for selling purposes.

3.3 LIMITS AND CONSTRAINTS

Several events participated in delaying and hindering the study process:

- One of the central collaborators in IBA, Mr. Shabaan, fell seriously ill and all the team including Mr. Hausser had to take urgent measures for his evacuation to Dar es Salaam. In this context, IBA staffs were not in high spirits for the entire duration of the study.
- ADAP Project Coordinator, Mr. Baraka Melakiti, who was supposed to support and accompany me throughout the two months, had to leave for Dar es Salaam on August the 1st to interview candidates to the position of IBA Technical Advisor. He declared Malaria and had to remain there to be hospitalized until the 31st of August. When he returned, one week only was left for me to stay in Inyonga, as I had to leave on the 8th of September. At that time, the newly-appointed Technical Advisor was just arriving in Inyonga and needed Mr. Melakiti's help to be introduced to the other staffs and Committees and begin his work. The Project Coordinator had then to leave again on September the 3rd, going to Dar es Salaam for work issues. All in all, and despite his good will, he was unable to support me for the entire two months I spent in the Association.
- Very few people speak English in Inyonga, and my translator, Watt John, was my only option although he was originally a secondary school teacher. He proved unable to translate the villagers' comments in full detail and often summarized, possibly resulting in loss of information and opinions.
- My hepia representative, M. Hausser, though present in Inyonga for two weeks, had health problems starting July 28th and couldn't support me fully due to pain and concern, not only for him but also his dear friend Shabaan. He left on August 1st and had to go on sick leave until September 15th, period of time during which he was almost completely unreachable.
- Beginning of the 10 weeks study, scheduled around July 17th, was postponed to July 28th due to a car breakage in the bush and imposed changes in the overall organization.
- The first meeting, central part of my work, was scheduled on the 31st of July, but had to be put off till the 10th of August because of village farmers duties. It only left one month to plan the whole meetings and discussions with stakeholders.

- With this turn of events, it became clear that meeting the twelve villages of the District would be impossible in the limited time. As we had already discussed it, it was decided to focus on the five villages whose boundaries were closest to the BKZ.
- My translator has been unavailable one week from the 25th to the 31st of August. Meetings were thus impossible as no replacement was available.
- Infrastructures and communications means were really limited. Electricity and internet connection were not a given, and the impossibility to access supplementary information made it difficult to bring grist to my mill during all the stay in Tanzania, that is to say 7 out of the 10 weeks the study lasted.
- The meetings had a very low attendance rate considering the villages' population. The results may thus be unrepresentative of the whole community.

4 RESEARCH QUESTIONS

"How can the model implemented in Mlele beekeeping zone become sustainable and replicable?"

To answer this question, it is necessary to document several aspects of the management, namely:

- In which aspects does the previous Management planning fail to solve conflicts pertaining to natural resources property, access and use rights?
- How can it be adapted for an easier daily use?
- How and to what extent can the management increase the BKZ's income and self-provision?
- What indicators should be implemented for a better monitoring of the results?
- Is the western tool "Management Plan" effective in developing countries?
- How is the program seen by village people outside of IBA?

5 HYPOTHESES

To attain better efficiency, the Management plan needs to address existing conflicts to try and find solutions.

It is necessary to reevaluate access and user rights to the resources, to develop means of control of these regulations, and to establish sanctions in case of violation. To meet this need, access permits, rental fees and product taxation must be redefined.

Sustainability of the project is achieved by natural resources conservation, social context improvement and financial autonomy of IBA. By increasing the part of internally generated funds, IBA increases the management sustainability.

Business Plans must be formulated for each of the lucrative activities in order to increase IBA's income. They must be clearly linked with the Management Plan.

The previous plan lacked in scientific rigor. To make up for low institutional organization at community-level, a stricter framework must be implemented through performance evaluation based on indicators.

To put an end to the beekeepers' lobby on the BKZ, IBA must open up to other users. It would allow redefining objectives for all stakeholders, and increasing the association's competences.

6 OBJECTIVES

"Amending the previous Management model to make it sustainable and replicable"

To achieve this goal, many aspects must be addressed:

- Remaining conflicts in tenure, access and use rights must be identified, discussed with the stakeholders and ultimately solved by means of a consensus.
- The structure and organization must be simplified for a better information and understanding at every level.
- Self-financing capacity must be strengthened, namely access permits, rental fees and production taxation amount and implementation. Business plans for each of the nature-based activities are to be established. The financial objective is for the BKZ to be able to pay for 50-75% of their expenses (5% at present).
- Indicators must be identified to monitor the management outcomes and a scoreboard must be provided to IBA to facilitate their implementation.
- New Bylaws are to be drafted to facilitate adaptation and acceptation by all the management partners. The purpose of these Bylaws is to clear all misinformation in Mlele BKZ legal framework and management. It also needs to define how the management revenues will be distributed among the different stakeholders, more specifically at the village level.

7 METHODS

7.1 PARTICIPATORY PLANNING

Participatory planning has become an important tool for modern natural resources management (Dovers 1997). It is due to growing concerns about legitimacy and efficiency of governmental management. Opinions may vary in terms of the extents to which communities should gain power and authority over natural resources but the benefits at economic, social and ecologic levels give pragmatic reasons to implementing such processes (Lockwood *et.al.* 2006, EPA 2012).

Two main approaches for participatory management are being promoted in Tanzania (MNRT 2007). The first approach is community-based management. Under community-based management villagers take full ownership and management responsibility for an area within their jurisdiction. The second approach is joint management. It is a collaborative management strategy that divides management responsibility and revenues between the government and communities (Blomley *et.al.* 2008, MNRT

2003, MNRT 2006). Mlele BKZ falls into the latter category, as the management rights transmission is still in its testing stage. The BKZ management principles are derived from Joint Forest Management (JFM), but the area is not bound by its precise guidelines.

Success of the management planning is greatly influenced by the involvement of local people. As those communities are be directly impacted by the Management Plan, they are as important in the process as competent planners (Thomas & Middleton 2003). It is nevertheless time-consuming, potentially expensive and may be slowed down by interest groups opposing views.

The advantages of involving the communities for the planners are the following:
(based on Lockwood et. al. 2006)

- It provides information and advice that might otherwise be difficult to obtain,
- It allows identification of major issues,
- The solutions suggested are more creative,
- The failure risk is reduced,
- It allows competing interests and conflicts management,
- The government accountability is increased.

The purpose of implementing the following methods is to gather information at every level to define the weaknesses in the previous management principles. Failures in the planning can be identified through an assessment of users' conflicts. Conflicts result indeed from overlapping or incompatible rights of different stakeholders. Mistakes must be identified, listed and understood to be corrected.

Six different types of conflicts have been observed in Mlele BKZ. They are pertaining to boundaries, sense of ownership, user rights by conflicting parties, regulation of illegal use, land tenure insecurity and benefit generation (Hausser *et.al.*2009). These six subjects were treated in the individual and group meetings. Addressing the conflicts enables to highlight key issues in each of the stakeholders' positions.

7.1.1 GENERAL MEETINGS

The twelve villages around Inyonga have been involved in the management since the start of the project. The whole community participated in the establishment of the first BKZ management plan and draft Bylaws. It has been considered that to simplify the decision-making process and to increase the commitment of the managing community, only the villages having real claims to the area and incentives to keep their access and use rights over it should be involved.

General meetings were thus organized in the five nearest villages from the BKZ, namely Utende/Uzega, Mgombe, Kanoge, Wachawaseme and Inyonga, to which all villagers have been invited. It was necessary to give the opportunity to the whole village to share views and understand the purpose of all this process. The main objective of these meetings was to inform the villagers to render them able to participate and adopt the Bylaws with full knowledge of the facts and stakes.

It was decided that within the short time and to not confuse the villagers, it would be better to focus only on the aspects directly affecting them. These subjects pertain to general knowledge of the BKZ, rights and prohibitions, and what would be the costs and the benefits deriving from them. All these elements also have to figure in the Bylaws.

The poor education level of community members also implies ignorance of the laws and of their own rights. For these reasons, we had to take some time to fill this gap in their knowledge, and give them room for questions in case they did not understand.

The high percentage of illiterate people demanded for a change in methods to be able to reach to them. It was decided that we would rely on eloquent drawings instead of text as much as possible. A young local boy was appointed to draw on A1 posters, and we completed with simple charts written in Swahili (Appendix 8):

- The first board is the organization chart explaining clearly that the Ministry is the legal owner of Mlele BKZ and how the different institutions are imbricated at Ministry, District and Village levels. The villagers need to understand that even if they have to participate in the establishment of Management Plan and Bylaws, they cannot decide whatever they want, as the National Acts must be respected.

- The second board pertains to roles of the three main actors in the management: IBA in the center, the District and the villages on both sides. IBA is the management authority, and the District and the villages have the right and responsibility to control its good functioning.

- After explaining the general framework, we tackle the allowed and prohibited activities within Mlele BKZ. We explain that prohibited activities are dependent on the Forest Act, the Beekeeping Act and the Wildlife Authority Act. These activities are prohibited because they are not sustainable, and would cause the forest quality to decrease until there is nothing left, as it happened in other Tanzanian regions. Sustainable activities, however, are allowed as long as a permit is delivered to whoever wants to enter the BKZ.

- The last panel shows the benefits of the management. There are ecological benefits derived from a preserved ecosystem: forest products, good forests, clean water, good Beekeeping site, Wildlife, and rainfall. There are social benefits: security from regular patrols, employment opportunities, access for ritual ceremonies and pride for the community as it is the first project of this kind. There are finally economic benefits, induced by the permits for allowed activities and the fines collected from the offenders. The main constraint induced by the creation of a BKZ is the restriction on resources use. However, the only activity authorized in other surrounding PA but not in the BKZ is timbering, as it goes against the beekeeping potential. Moreover, if it kept only the statuses of FR and GCA, villagers would not have the right to access and to use some of the forest products as it is now possible in Mlele BKZ.

- For the benefit sharing, it is most important that they understand that the main part of the income should go to IBA to pay for management activities, that it cannot only serve to village projects and that the benefit sharing will have to be accepted by the District authorities.

7.1.2 FOCUS GROUPS

Focus groups are planned interviews with a small group of participants (4-12 persons). It allows the organizer to obtain information on the different values and sights on a given subject, and the reasons they're built on. It is possible by observing the structured interaction between the participants in a relaxed and non-binding context.

They are used to assess and amend programs, and are a very effective way of collecting different opinions and differences linked to sex, age and region and ethnical origins (Scolum *et.al.* 2006). They are also useful to:

- determine the nature and intensity of concerns and values of the participants about certain questions;
- give a general survey of public opinion when financial and time restrictions do not allow for an exhaustive survey;
- collect comments from individuals and groups of interest;
- gather the reaction and detailed opinion of people and groups concerning the propositions made and possible solutions;
- collect information on specific needs of the participants on the subjects.

Focus groups were formed for groups of users, divided by activity sectors. The purpose of this method is to encourage discussion between people with the same point of view instead of confronting several groups with conflicting interests. The subjects tackled in each focus group pertained to the aspects the group is involved in, to document the Bylaws and the MP with the results of these discussions.

7.1.3 SEMI-STRUCTURED INTERVIEWS

The semi-structured interview, or semi-directed interview, revolves around previously defined subjects approached freely by the interviewee. The precise questions are not formulated beforehand but created throughout the interview. The role of the interviewer is mainly to guide the conversation through each issue without interrupting or destabilizing the respondent. It is important that the interviewer does not emit a judgment. The aim is to create an atmosphere of trust and understanding (Romelaer 2005).

They are meant for the governmental officers and sectorial experts met individually as well as key persons in charge of the project. The topics covered essentially pertained on opinions and perceptions of IBA and its managements functioning and shortcomings. District officers and experts' inputs are also essential in making sure the Bylaws are compatible with the Acts and Policies and cover all the issues the BKZ could be facing in the future.

7.1.4 INFORMAL EXCHANGES

This type of exchange takes place outside of formal interviews. It concerns all useful information gathered on casual circumstances. The importance or such exchanges must not be underestimated, as they offer an opportunity to go beyond heavy and complex hierarchical relationships. They allow a better understanding of the situation and increase the acceptance by the local population (URD 2004).

Informal exchanges complete the data collected through more formal exchanges like focus-groups and structured interviews. Moreover, they give the opportunity to discuss with other stakeholders than the ones formally interviewed (URD 2004). The ability to gather such information depends highly on individual social skills and the faculty of creating a comfortable exchange frame. As the time

passes by and people get used to you, it becomes easier for them to open up and talk outside of IBA office.

7.2 MANAGEMENT PLAN

The management plan derives from the management global objectives and vision and defines the who's and how's of actions to take in a protected area, together with a decision-making framework for a given period (Thomas & Middleton 2003). It is the technical tool formulating the objectives set for the BKZ and the actions to attain said objectives. It describes how to use, protect and manage the area, and must ensure the sustainability of the forest in the most efficient way. This document must be known by all the villagers likely to go to the BKZ, and IBA must be able to understand it in order to implement the management.

A management plan as conceived in European countries in not applicable in Mlele BKZ. The socio-economic background in Inyonga being that of a poor rural area, the process of implementing a management plan confronts a low rate of educated people. Illiteracy, ignorance of the law and lack in competences is a core issue in the BKZ management. These aspects contribute in determining the successes and failures of the "Management Plan" approach in the given context. Modifications were necessary in the conventional management plan structure and content. Several aspects nevertheless correspond while others derive from rigid prescriptions.

An important literature already exists in the field of Protected Areas Management. The structure and process of establishing new planning principles were defined starting from the previous Management Plan and using methodological guides. Its content and structure were analyzed in relation with the understanding and the knowledge of the staff supposed to implement the management. It is indeed crucial that the people involved in decision-making and field work are well aware of their roles and duties. It was also compared with the Management Plan Guidelines issued by the MNRT for Joint Forest Management in Tanzania. Other similar references were also used to define the key aspects to attain better management and greater community investment.

It is important that the level of detail of the planning takes the importance of the issues to be addressed and the governing organization planning capacity into account. The priorities set for the management should correspond to the IUCN category of said protected area. It is the role of the planners to clearly identify the purpose, scope, resources and staff available for the project. The planning approaches must be respectful of the laws and values of the community, and include a participatory identification of the issues. The multi-value and multi-use context must be taken into account (Thomas & Middleton 2003).

Several central aspects of the planning must be carefully designed as they define the outcomes of the management. It includes realistic and measurable objectives with clear performance indicators, and links between objectives, actions and outcomes allowing IBA management staffs to not only take actions without knowing their purpose, but to actually appropriate this management plan. It would thus increase their involvement and sense of responsibility towards the protection of Mlele Beekeeping Zone.

7.3 BYLAWS

The Bylaws are the result of a consultative process (Appendix 9) enabling the villages to find an agreement on the rules and regulations to implement. They are a public document and the villagers must have access to it. For this reason, they shall be available in Swahili even if an English copy is produced first. Their purpose is to set the frame for the management principles, by describing the rights and prohibitions, offences and penalties and income sharing for Mlele Beekeeping Zone.

The adoption of Bylaws by the concerned villages is the final step to ratify the rules and regulations pertaining to Mlele BKZ. In the case of Mlele BKZ, as IBA is the legal management authority, it is its role to draft and supervise the process of making and adoption of the document, and not the Village Councils'. All the villages are nevertheless represented in IBA central committee, ensuring that their interests are defended.

7.4 DATA TREATMENT

The first step in assessing the functioning and performance of IBA and the management is to know and understand the theoretical functioning of the complex governance system. ADAP reports are key sources of information concerning the model set for the CBO and how it was designed. It also gives a historical perspective of the evolution since the project's beginning in the early 2000s. Legislation and ministry reports are useful to understand the national context and the resources decentralization policy.

The data collected during the participatory meetings document on the project's reality and the stakeholders' perceptions both in IBA and the community members' point of view. Meeting all the stakeholders and discussing the issues and difficulties they are facing allows identifying the weaknesses in the technical aspects of the Management Plan and assessing the governance system performance and weaknesses as to make up for them in the new plan.

Written notes were taken during and after conversations and analyzed for trends and patterns as well as shared assumptions about the causality and meanings of the conflicts between users and resource conservation.

The method used to identify problems and shortcomings in the planning and implementation is the discourse analysis. Recurrent conflicts, questions and remarks brought about by the stakeholders inform on the issues the whole villagers -and not only specific users- need to be addressed. The most repeated questions inform on key collective issues.

The theoretical functioning must then be confronted to the practical performance of the model. The reasons explaining the differences between what should be done and what is actually done. They can be due to inadequacy of the model, weaknesses in the planning, or deficiency in the implementation. The aim is to find the underlying causes of these defects and offer acceptable solutions.

8 ANALYSIS

8.1 CONFLICTS

Conflicts are highlighted by the fact that several attempts have already been made in drafting Bylaws. IBA staffs went to the villages to discuss their content, get the villagers' opinions and ultimately their approval, but never has a document been approved by the whole community.

The absence of Bylaws participates in slowing down the process of decentralizing the management and in the denial of IBA's authority. The Association's efforts must be maintained to finally come to a consensus.

8.1.1 BOUNDARIES

There are multiple conflicts regarding the borders between village lands and protected areas. As Inyonga and the villages are expanding rapidly, people tend to advance in the forest to find space for housing, livestock grazing and agriculture. Several houses have already been dismantled and people were chased from the Beekeeping Zone with the support of the District (Kamba 2014, pers.com. July 20).

It seems also that two different boundaries have been set by the Government for village limits, resulting in conflict with somehow legal housing and agriculture inside the Protected Areas, as there is an overlapping between the different land use plans. The District is now trying to find a solution as to not have village lands in the Forest Reserves surrounding Inyonga. This type of threats and conflicts will intensify in the next years and may result in the downgrading of a part of the reserved lands.

8.1.2 ACCESS AND SENSE OF OWNERSHIP

The access to the BKZ is open to anybody paying an entrance fee. Some villagers fear that people outside of Inyonga community will come and grab the resources of their forest. It is however not a problem as the potential for forest products in the BKZ is high and far from being reached. Moreover, it is only beneficial to increase the flow of money within IBA thanks to outsiders.

The sense of ownership is very strong in the villages particularly in Kanoge and in a less virulent way also in Mgombe and Wachawaseme. The three villages consider that they should be the only ones to benefit from the forest, as the others are not adjacent to the BKZ, and that each village should take care of their own forest instead of taking theirs. It is however interesting to note that before the 1940s villagisation the people from Kanoge lived inside Rukwa GR (Hausser 2014 pers.com. September 24) and have thus no ancestral link to the BKZ lands that they now claim as theirs.

These small quarrels are linked with the pressure on lands and resources and the greed of people not wanting to share the potential benefits of the BKZ. It will be necessary to make the villages understand that they should stand together instead of looking first at their personal benefits, as they would have higher chances of success in a broader scale.

8.1.3 USER RIGHTS AND CONFLICTING PARTIES

Hunting

The Game Controlled Area status of Mlele BKZ implies that the exclusive hunting rights are owned by a private company paying taxes for the block allocation (MNRT 2013). In the Beekeeping Zone, the situation is rendered complicated by the illegal but tolerated rental of the block from the legal owner, Wild Footprint Ltd, to another company, Tanzania Big Game Safaris (Hausser 2014 com.pers. July 31). Wild Footprint is making great profit from this arrangement, but declines all responsibility as the actual exploiting company of the block is TBGS. TBGS on the other side, already paying a high fee to hunt in the area, doesn't want to invest more, especially since it's not the owner.

The trophy hunting activities are strongly regulated through quotas established by the Wildlife Division. Even though the quotas should be adapted every year to reflect the populations' evolution, it is almost never done in practice, as the Government lacks in time and money to conduct wildlife surveys in the numerous protected areas and hunting blocks (Mwangombe 2014 pers. com. July 29). In Mlele Beekeeping Zone, such studies take place regularly, but as the block in which the 850sqkm of BKZ is included is an area of almost 3000sqkm, the results obtained in the BKZ can by no means be extended to all the block.

The management activities are proved to be very effective to guarantee the good quality of the forests, thus holding an important and diverse wildlife. Regular anti-poaching activities and road maintenance are done by the VGS even though it should be the role of the hunting company. For the services IBA provides, the hunting company should participate in the management costs. The difficulty lies in the particular situation of Mlele, as the owning company and the exploiting company are not the same, and both of them refuse to pay, arguing it should be the other.

The main conflicts between users are revolving around hunting, whether being trophy hunting or hunting rights for communities. The villagers deplore the fact that the access to Wildlife is now reserved exclusively to foreign hunters, and that they don't benefit in any way of this situation as trophy hunting is paying taxes to the MMRT only and nothing comes back, neither to IBA nor to the villages. Villagers fear to encounter professional hunters and hunting company staffs in the BKZ as they are chased and threatened by them.

One of the key issues for the villages is to find a way to have access to wildlife legally. Game hunting for meat is still widespread and necessary in rural communities (Nelson *et.al.* 2007). The land use planning context of Inyonga makes the access to a source of meat a central issue, as the whole area around the villages are reserved lands with no access for resident hunting. Wildlife is nonetheless an important part of the traditional forest resources that allowed people to live in the region for centuries, and that has been appropriated first by the Europeans, and then by the Government.

Even if it can contribute to the decrease of wildlife populations if it is not controlled, the species targeted are generally little threatened and of lesser trophy value. It was said clearly that if resident hunting was not possible through legal ways, it would nonetheless be achieved illegally, as it is the case now. The situation of resource confiscation in Mlele Beekeeping Zone tends to create conflicts with the community. The villagers thus lack in commitment and incentives to protect something they don't benefit from. It could eventually lead to heavier poaching and biodiversity loss.

The question of negotiating quotas with the government may be a solution for the villagers to be able to hunt common antelopes for meat, and it would be necessary to sit with the Hunting companies to discuss this issue and solve it in a win-win agreement for both the villagers and the hunters, as they are the only legal right holders for hunting in the block.

Tourism

The tourism activities other than hunting are allowed inside Mlele Beekeeping Zone. A campsite has been built and is maintained by IBA. The area being part of a hunting block, trophy hunters could accidentally encounter tourists in the BKZ. In the best case scenario the two groups of people are annoyed and disappointed to have come so far in a wild remote area to meet other Europeans, and in the worst case scenario someone could be shot accidentally while wandering around the bush. These two activities are thus incompatible in the same space at the same time, and an agreement must be found to avoid these situations.

8.1.4 REGULATION OF ILLEGAL USES

The main issue in the regulation of illegal uses for IBA is the adoption of Bylaws to ratify the law enforcement role of the association. It is for now impossible for the VGS to apprehend people and grab the benefits of their work, even though they take important risks during the patrols.

Poaching

There are two categories of illegal wildlife uses still happening in Mlele BKZ despite regular patrols. The first is community members hunting antelopes for the meat, and the second is organized poaching of trophy species by external people. In the latter case, the people originally come from the Burundian refugee camp of Katumba. These groups are armed and will rather kill people when encountering them than take the risk of being reported to the police. They are targeting mainly buffaloes (*Syncerus caffer*, Sparrman 1779) and elephants (*Loxondonta Africana*, Blumenbach 1797). With the number of villagers going to the forest for diverse reasons, it becomes important to chase them from the BKZ.

Insecurity and fear of the poachers have been discussed in the general meetings. The villagers and beekeepers thus asked for IBA to provide means for the VGS to protect the legal users and ensure their safety. This problem is however already known as IBA is in the process of obtaining permits for two weapons.

Timbering

Management patrols revealed that timbering activities are increasing in the area, even though the BKZ is the only Protected Area around Inyonga where it is forbidden. In all other Forest Reserves, it is possible to obtain a permit through the Licensing Officer. Considering that Mlele BKZ is also the area with the greatest patrol effort and thus the highest risk, the only reason the offenders would come is because they find there more valuable timber than everywhere else. It is at the same time indicating that the forest is still preserved, and that is threatened.

Beekeeping

The most common offences occurring in beekeeping activities is the use of bark hives and fire for harvesting. A lot of beekeepers possess only this type of hives for financial reasons as they can build them easily and without paying anything, just by using trees. The villagers asked IBA to provide means to switch from traditional to modern hives if the use of bark hives had to be prohibited and punished.

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Illustration 3 A traditional Bark Hive

However, a debarked tree is deemed to die, and the most used species are also the most foraged by bees. It could be very harmful to the forest apiary potential, even though the beekeepers don't realize it yet because of the preserved state of the forest. A law forbidding their use was thus adopted in 2007, but even since then, it is really difficult to enforce because of the lack in alternatives. The price for a modern hive is indeed of TSH50,000, which is too high for the local people. This situation is bad for both beekeepers and authorities, as the first know they are infringing the law and the latter know they can't do otherwise.

As it is responsible or operational management, IBA has to enforce the law and fine the offenders. It is however difficult as a great majority of the nearly 11,000 beehives present in the BKZ are bark hives. IBA and the District authorities thus try to provide solutions and help to the beekeepers, through micro-credits systems. IBA had organized a savings and credit co-operative (SACCOS) service: the members could borrow some money to finance the buying of new hives, and refund the association after they realized enough benefits from the honey produced. Unfortunately, the persons in charge were not trustworthy and they stole the SACCOS money.

8.1.5 LAND USE AND TENURE INSECURITY

The Beekeeping Zone status plans multiple uses as long as they're not harmful to the forest and its potential for beekeeping activities.

The land tenure in Mlele BKZ is secured thanks to the MoU, but the Government can decide not to renew it after the 10 years period if it considers IBA is not doing proper work with the management and doesn't meet the terms of the agreement. It is thus depending on the appreciation of the District authorities and the MNRT.

8.2 INSTITUTIONS AND GOVERNANCE

Institutions are the rules, both formal and informal, that govern society and on which human economic activities and social interactions are built (North 1990 in Nelson 2010). Ostrom (2007) defines them as "*shared concepts used by humans in repetitive situations organized by rules, norms, and strategies*". Institutions such as property rights determine who is allowed to use a resource and access or hold that resource's value. Formal institutions include laws, policies, and constitutions,

which all serve to define, distribute and delimit the power of governments and people. Informal institutions include norms, customs and beliefs, which are all collective means of governing human behavior through "rules" of social interaction.

Institutions provide the basis of "governance". Governance addresses power, relationships, responsibility and accountability. It defines the who's and how's of authority and responsibility on a given public concern which must be accepted by society (Lockwood *et.al.* 2006). Different types of governance and protected areas take place in Tanzanian protected areas. Most of them depend on governmental institutions (Hausser 2014, pers.com. April 10) (Appendix 10).

8.2.1 LOCAL GOVERNMENT

In theory

(Based on Brockington 2007, unpublished data)

In Tanzania, and more generally in Africa, traditional local institutions have been abolished by the Europeans and replaced by the western system based on private and exclusive property right held by the Government. After the Independence, the country kept its historically highly centralized power structure and went against the complex social hierarchy that was defining the rural societies. However, the traditional social organization didn't disappear and both systems have been coexisting until today. Governmental officials and traditional chiefs are both present in Inyonga, and villagers know where to go to find solutions depending on their problems and needs.

The Villages Act of 1975 created the Village Council as a head body for the villages. Members were to be elected every five years by a Village Assembly composed of all the adult residents. They were originally designed to pass the development plans from higher levels of decision to be implemented at local level. The capacity of Village Councils to represent and speak for their villages has sine improved and they became a means for village empowerment (Figure 1).

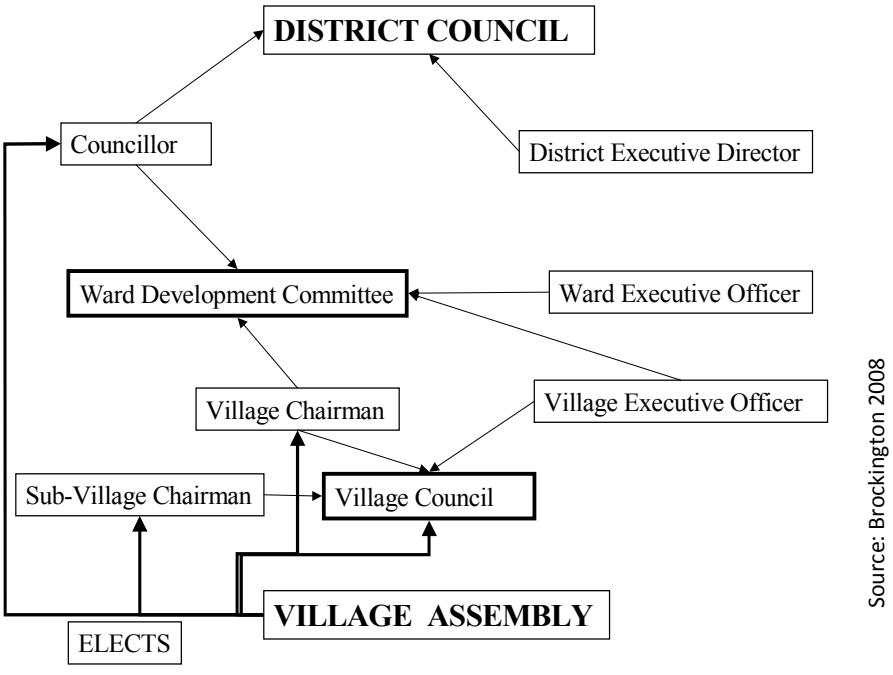

Figure 1 Elected and Appointed Officers

Matose and Wily (1996) suggest that the particular form of village organization in Tanzania is a key asset in the success of CBNRM. The Village Council, composed of people elected by the villagers, holds important powers. It is only up to its members to seize this opportunity to become "*active vehicles of local organization, self-reliance, public activity and decision making*". However, in parallel to this Village Council, the Government is represented by a Village Executive Officer (VEO) appointed by the District Authorities.

Villages are grouped into wards, and for each ward a councilor is elected to represent it in the District Council. The District councils were created to collect taxes from the villagers, and the funds they levied were important. They also monitored villagers' activities to ensure fair taxation and resource allocation. They used the revenues to fund diverse projects for local development.

The role of the District Councilors was to decide the levels of taxation and how the revenues would be allocated. These decisions were then implemented by the District Executive Director through Ward Executive Officers appointed by the District. The ward executives then instructed Village Executive Officers, also appointed by the District, on the District Councils' decisions to carry out. Village Executive Officers collected the taxes themselves, Ward Executive Officers compiled and monitored their village's returns and sent them to the Districts (Figure 2).

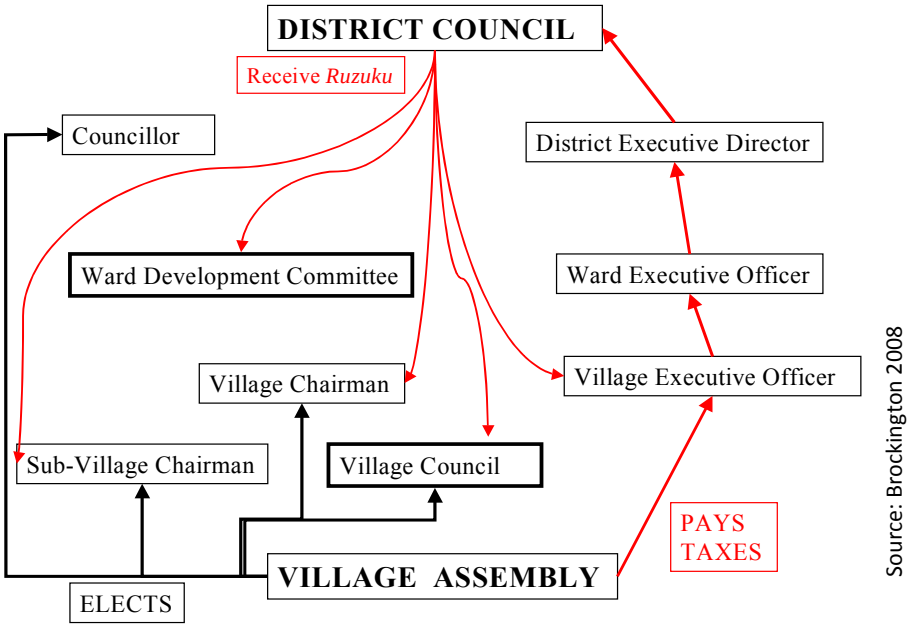

Figure 2 Taxation flows

This administration system appears to have a structure allowing decentralisation to work. Taxes are raised at the village level to be spent by the District Council. Members are villagers' representatives. A part of the taxation raised from villagers goes directly back to the village to be spent by elected village and ward authorities. Legislative powers are also devolved to a certain extents as Village Councils have the power to pass their own Bylaws. These are subject to District Council approval and can govern local natural resource management. When problems arise, public village meetings of all the registered electors, the Village Assembly, can meet to discuss.

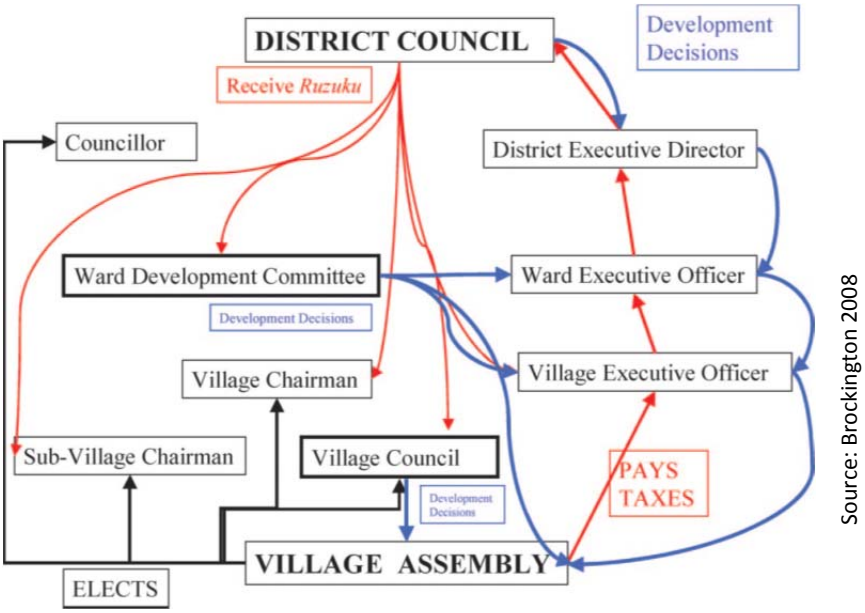

Figure 3 Flows of money and responsibility in district government

The District of Mlele was only created in 2012 to meet population growth. The improvement of roads and infrastructures allowed Inyonga to become an administrative center between the towns of Mpanda and Tabora. Mlele District collaborates with IBA for the management, and is responsible of supporting and controlling the good functioning of IBA. Its duties include participating in the anti-poaching patrols and law enforcement as well as providing technical support or information to IBA concerning planning and operational management. The newly established District is still in its settlement phase and has a lot of matters having priority to supporting IBA.

In practice

Tanzania scores badly in international transparency surveys[4] and many examples illustrate local government failures.

A study conducted in Sumbawanga concluded that 90% of the District tax was paid by villagers' activities, yet less than 1% of it was spent in agriculture and livestock sectors. The major part of the district council's budget was spent on its own running and financing (Brockington 2008).

In Mtowisa, the lack of confidence in district council accountability was widespread. It is due part to the performance of tax collection and expenditure and to the obvious corruption in the government business (Brockington 2008). "*The reciprocal element between local government and citizens is lacking in Tanzania. There is not so much a failure of accountability, rather its absence. Politics and government there works without it. Attempts to introduce accountability will therefore face challenges when attempting to work with existing political structures or customs* "(Fjeldstad 2001).

The village organization results in a kind of double authority system, where locally elected people and appointed officers are constantly struggling for more power. It was particularly apparent during the meetings planning. The authority supposed to receive and forward our invitation was the VEOs, but it was suggested that instead of going to them only, we should go to the village leaders, namely Council members. We also observed several times that the VEO didn't transmit the meeting

[4] Transparency International, *http://www.transparency.org/country#TZA_DataResearch , consulted 04.10.2014*

announcement and we arrived in villages on the due date to find that nobody heard of it. It is one more example showing the reluctance of key people to support the project, or a display of typical lack of commitment in the power structure.

I was informed that in order to make people come, allowances should be paid to either the leaders to convince the villagers to come, or all the people that were attending the meeting, as I was taking their working time and they needed to earn money. Unfortunately, I had not enough money and was not willing to pay them for something they would benefit from.

8.2.2 IBA

IBDSP supported the development of Inyonga Beekeepers Association, with about 500 members in 2008 and 226 in 2014. IBA is the Government partner in managing the area. The MoU states clearly that the main objective of IBA concerning the management activities is to preserve the forest quality and its potential for beekeeping activities. The association's other roles and objectives, as described in its Constitution, are to promote modern Beekeeping by educating and informing the community beekeepers, and supporting apiary products quality improvement and marketing.

Leaders

IBA is functioning according to a complex structure organization chart (Appendix 11).

Committees are composed of IBA members elected from the villages, and are the decision-making groups for IBA's activities. They are also the link between Government and villages and association members for information and knowledge transmission.

The central committee is the highest decision board composed of 12 members elected from subcommittees' members to represent the 12 villages of Inyonga Division. A lot of subcommittees were created but are not exercising their functions. The elected people seem however to be chosen in relation to their social status and not their skills, which can be a good opportunity to give legitimacy to IBA, but is in this case totally counter-productive.

The leaders' duty should be to make sure the Constitution is well-known and respected, but themselves don't respect it despite knowing it and being supposed to set the example in the Association. This is already attracting the attention of the District authorities, demanding the Central Committee to settle its problems without further delay (Tenganamba 2014, pers.com. August 22). The accountability of people is really low, partly because the management plan does not put responsibilities on the people, but stays too vague and addresses the association in its whole, partly because even if there is a responsible person, nobody wants to take disciplinary actions in fear of losing his social status by opposing other community members.

However, an important step forward was recently made under ADAP advice. When a new manager had to be hired, the leaders, for the first time, chose a young man with low social status. It revealed a good choice as Mr. Maganga is now very efficient in his tasks.

In the last few years, several events involving staffs stealing money and abusing their roles stained IBA's reputation and resulted in discouragement of both leaders and members. The association now needs a fresh start as to regain the trust of the community and the pride to manage the area. The

first step in this process is to make sure the people responsible of funds mismanagement and misappropriation are dealt with in accordance to the law, and at least part of the funds recovered.

The current situation in IBA leaders is that of disinterest and/or incomprehension concerning what they are supposed to do. It seems all the progress that had been made since the beginning of the project was lost. The meetings previously taking place are no longer panned, and attendance has never been so low. The leaders totally lack in self-confidence and discipline and rely entirely on ADAP to help them. The common decision to appoint someone able to specifically help them in organization and planning was made, and a Technical Advisor was hired.

The lack of energy, commitment and will to enforce the constitution may be linked to the committee aging. Moreover, the members are only beekeepers, and other groups don't have the possibility to join. It may partly explain the lack of skills and innovation seeing that they all have the same interests and views.

It is now essential for the leaders to pull together and to follow the constitution, the bylaws and the management plan. If the current Council members don't take measures to remediate the situation, they will have to be replaced. In parallel the skills, planning capacity and accountability of the association needs to be increased with the help of the Technical Advisor and the support of ADAP.

Management Team

The management team is the staff paid to implement the decisions of the Councils. It is composed of the Manager, an accountant and a secretary. The manager is important because of his Commitment and his understanding of the important issues in IBA. He resents the fact that the leaders are not working for the Association's development. However, his field of action is limited by leaders reminding him that he's here thanks to them and that they have the power to fire him if he complains about their work.

VGS

The Village Game Scouts have the most practical knowledge of the management as they are responsible for the management activities implementation. They work under the management team and their roles are to go on regular anti-poaching patrols, to ensure the ecological monitoring of the BKZ and to maintain the borders, roads and infrastructures in good state.

They have benefited from several trainings, mainly pertaining to ecological monitoring, and some of them are now able to realize these monitoring activities by themselves. It includes setting and collecting of camera traps, GPS handling, field protocol filling and animal tracking. They were also trained for patrols by the Wildlife Division, where they learnt to handle firearms, to recognize poaching signs and what behavior to adopt when encountering offenders.

The general appreciation of their work is very good, as several studies on flora and fauna species richness have demonstrated the quality of Mlele Forest, for which the VGS can take all credit. Indeed, the patrols taking place during 7 days every month seem efficient against anti-poaching. Even though the area is of only 850sqkm, the anti-poaching budget is fifty times higher in Mlele BKZ than in Rukwa GR or Katavi NP. They are committed to their work and begin to take pride in their results. It is thus important to encourage and support them.

8.2.3 IEA

Tourism activities are currently managed by Inyonga Ecotourism Association, the other CBO based in Inyonga, created with the support of IBDSP and working in partnership with IBA. However, with the extremely limited communication means, they depend totally on ADAP to find people interested in visiting Inyonga. The relative remoteness of the area and the low level of infrastructures is also an obstacle to western standards of comfort. These aspects will surely change with the development of Inyonga in the next few years, but it is for now binding for IEA.

Partnerships were discussed with Katavi NP and Rukwa GR, but were never finalized. The opportunities of Inyonga and the BKZ would offer complementary experiences to the usual wildlife-oriented safaris. The tourists attracted by these other PAs would also increase the pool of BKZ potential visitors greatly and help the association in becoming more independent.

It has been three years since the last tourist came in Mlele BKZ, because of diverse issues like insecurity and transport unavailability. Nevertheless, the tourism committee still holds its meetings and tries to support groups interested in developing activities based on local culture and traditions. However, IEA lacks in opportunities and means to evolve by itself and is currently spending its meager savings to build a separate office from the one they are currently lent by IBA. We may say that they were not able to set priorities in their tasks and that they would benefit from more organization.

8.3 CURRENT MANAGEMENT PLAN STRUCTURE AND CONTENT

There is an important process about creating a protected area. It consists of:
(Adapted from Graham *et al*., 2003)

- determining the geographic limits of the area and what type of status it should have;
- determining who is entitled to have a say about matters in said PA;
- creating a framework for land and resource uses allowed;
- enforcing the rules pertaining to resource access and use;
- deciding how financial and other resources will be spent to support specific conservation and sustainable development activities;
- generating revenues, by selling permits and generating fees, taxes and in-kind contributions, and deciding how those are distributed and used; and
- entering into agreements with other parties to share or delegate some of the above powers or to decide about other matters relevant to the PA.

Several of these aspects were lacking in Mlele BKZ previous Management Plan and Bylaws. These issues will now be addressed to provide IBA with a functional working tool and a strong legal basis to ratify its authority.

8.3.1 OBJECTIVES, ACTIONS AND INDICATORS

The objectives present in the previous management plan are too aspirational and refer mostly to great principles of sustainability and community mobilization without means to assess the performance of the management (Appendix 12). They need to be linked with the actions to be taken in the BKZ and monitored by indicators.

The management objectives defined by Joint Forest Management from which the BKZ is derived are to "*improve forest quality through sustainable practices, to improve livelihoods through increased forest revenues, and secure supply of subsistence forest products and forest governance at village and district levels through effective and accountable natural resources management institutions*" (MNRT 2007).

The BKZ objectives will be reformulated but will not change fundamentally. An order or priority should also be set among them to help IBA in decision-making processes considering the most important aspects to be accomplished (MNRT 2007). As the management plan concerns the operational management of the BKZ, objectives should address these aspects only, and not all the activities of IBA.

For each objective, actions to take should be described in a detailed but simple way enabling IBA to understand and implement them. Even though some of the duties of IBA are listed in the previous management plan, it is totally lacking in precise implementation descriptions. The management staff should be able to plan its management with the help of the management plan, as it is its first purpose.

Finally the results of these management activities should be measured and quantified by indicators. The use of indicators is widely spread in conservation and management monitoring. Although their scientific rigor is criticized, they remain a useful tool to assess the results of implemented measures. Indicators will be defined both from literature review and on-the-spot observations. Those listed in the previous management plan lack in clarity and order (Appendix 13). Even if they target the rights subjects, they don't provide IBA with means to assess their activities' performance.

8.3.2 GOVERNANCE SYSTEM

The governance system as set out in the current management plan fails to give IBA the management of the Beekeeping Zone. Indeed, the plan describes a lot of governmental institutions that shall manage the BKZ instead of IBA, following the example of the Inyonga Division Executive Board, composed mainly of district officers and representatives. When the local government works and duties are defined, it leaves for the association only the right of approving their decisions (Appendix 14). The previous plan was indeed made before the government devolved exclusive management rights to IBA through the MoU. The new management plan shall thus involve only IBA in operational management decision process and implementation, and describe the roles of the District and the Villages Councils to control and assist the association.

8.3.3 RULES AND REGULATIONS

Some rules and regulations pertaining to access and use of the BKZ were included in the previous management plan, but were not complete. As the simultaneous work on the Bylaws already covered these aspects, the choice was made to separate the two documents completely. The management Plan now refers to the Bylaws to provide information on offences, fines and benefit sharing.

8.3.4 FINANCIAL OPPORTUNITIES

To better assess the sustainability of the management, it would be necessary to include financial aspects to the planning, as they are absent from the first management plan. The external support of ADAP will not last forever, and it is now time for IBA to take action as to increase its part of self-generated funds and find other means to finance its management.

The operational management pertains only to activities inside the perimeter of Mlele Beekeeping Zone. It is thus not referring to the costs of all IBA's activities. For managing the BKZ, IBA needs approximatively 100 million shillings per year, or CHF55,000 (Hausser 2014 pers.com. July 31). Patrols only take half of the total but the results in terms of forest quality indicate it is worth it.

For now, IBA generates around 5% of the 100 million shillings it needs for financing the management. The association's objective is to increase this part to 50-70%. This really low income can be explained by the difficulty of implementing and controlling the permit system already in place. It also may be linked with the tendency of some IBA members to rely heavily on ADAP to solve its internal and financial problems.

The main part of IBA's income is generated by the selling of honey. IBA buys rough honey from the producers, processes it and sells it at a higher price to make benefits. Activities and resource extraction from the BKZ are however currently not taxed in any way.

Several opportunities exist to generate income, in different activity sectors, such as beekeeping, hunting and tourism. They could be studied and included directly in the Management Plan as realistic previsions of the yearly income of each sector of activity depending on existing data collected by IBDSP and IBA. Or separated Business Plans could be made in a more exhaustive way and in full detail and linked with the Management Plan. This second solution would nevertheless necessitate a lot of time and a complex process of assessment of the financial opportunities around Mlele BKZ. It is thus important to reflect on the feasibility of such Business Plans in the context of IBA and Inyonga planning capacity and skills. Without disputing the importance of including financial aspects in the new management planning, we can discuss on the way of doing so. Considering the troubles IBA had with the management plan, it would maybe be easier to not overwhelm them with complex and detailed documents as Business Plans can be.

Beekeeping

Since the beginning of the project, many beekeepers have benefited from several trainings on modern beekeeping and means to increase honey quality. Thanks to these opportunities, offered by IBA and supported by ADAP, the prize of regional honey was multiplied by ten and acquired a good reputation in the whole Tanzania.

Annual honey production estimates for Mlele District vary from 80 tons to over 200 tons, depending on multiple factors, including naturally irregular honey production. Average yearly global financial income from beekeeping was estimated between USD80,000 and USD120,000 (Hausser *et.al.* 2009). Although suffering from bad market conditions, bee products hold an important potential in alleviating poverty in Tanzania (Mwakatobe. and Mlingwa 2005). For the Beekeeping zone only, the production attains an average of 40 to 50 tons per year (Kamba 2014 pers. com. August 12), but it is difficult to know precisely because the majority of beekeepers sell their honey through individual channels (ADAP 2012).

The beekeeping activities could play an important role in the BKZ income generation. The main opportunity both for IBA and its members is to centralize the selling of the production. Beekeepers complain about the bad marketing conditions for honey, but will however sell it to the first buyer they see. If they manage to regroup and set the prices between them, they would suffer less from the competition. Moreover, the money earned through the sales of honey stays in IBA and is used for the project development. It is indeed the first step to increase their individual benefits as well as IBA's.

The only fee currently required from IBA members' is five thousand shillings for yearly access, which is low compared to the benefits the beekeepers make, especially commercial ones. Indeed, some beekeepers possess hundreds of hives and are making millions of shillings every year in the BKZ, only paying these five thousand shillings. It would be fairer to find a way to collect money depending on the profits beekeepers are making.

There is a risk that with a new system the beekeepers will desert Mlele BKZ to escape the tax. The main issue is thus to make them understand very clearly that if the BKZ was created here, it was because of its high rate and quality of melliferent trees and thus potential for beekeeping products. If they don't want to participate in its protection, IBA will fail to generate enough money and will thus be unable to maintain its activities. The patrol effort made by the VGS is high compared to other forests around Inyonga, even of stricter IUCN status such as GRs. Without it, the forest quality will decrease rapidly with the easier access for poaching and illegal timbering.

Several ideas have been discussed with IBA, ADAP, beekeepers groups, the District Beekeeping Officer and experts from the Tabora Beekeeping Institute to find a new way of generating money without asking too much from the poorest people.

The idea of increasing the access fee to the BKZ was emitted, but it was put aside because it wouldn't be accepted by the beekeepers, a part of which don't have the possibility to pay a fee sufficiently high to play a role in IBA's income. Moreover, only 54 of the 226 members paid their contribution last year, and those who paid are the ones having their beehives in Mlele BKZ and needing the permit (Maganga 2014, pers.com. August 18). The first action to take would thus be to enforce the existing rules and make the members pay before trying to change the system.

The question of plot rental was tackled, with prices established as a function of plot quality. The quality is increased by the presence of water and proportion of melliferent trees. It would nevertheless need an important work of covering the whole area, assessing and classing the quality of the different plots within the BKZ. Moreover, a great part of the beekeepers have been going to the BKZ to practice their activity for generations, and have inherited their plots from their father or

grandfather. This new system would thus go against the traditional way of inheritance of the plots, would necessitate chasing small beekeepers possessing good plots because of their inability to pay the rental fee, and would benefit only the richest beekeepers.

It was suggested that the beekeepers should be fined in relation with the number of hives they possess, independently of the type, for their access permit. The disadvantage of this solution lies with its impossibility to take the cyclical natural honey production into account. Indeed, if beekeepers are taxed on their number of beehives, whether the yearly production is good or not, problems are bound to emerge when they will not be able to pay the tax due to their low production and income.

It is almost impossible to ask for a tax on each hive, because a lot of the smallest beekeepers possess dozens of bark hives, and would thus be unable to pay even 1000 shillings for each. This solution would then require making categories of beekeepers. For the smallest beekeepers and groups of beekeepers, the original fee of five thousand shillings could be maintained and other categories and amounts could be settled in a participatory way. It is nevertheless important to note that the number of big beekeepers adds up to less than 10, meaning that it would be difficult to make significant money with this system.

A tax on the production could be introduced, but is deemed to be difficult to implement, as the beekeepers will try to escape by lying on their production. A control by roadblock would be effective for big producers needing a car to transport their harvest, but the major part of them are using bicycle tracks, which makes it hard to control. The advantage of this solution is that it holds a greater potential in income generation. It is indeed important not to forget that all this process has for sole objective to increase IBA's income.

Hunting

The possibility of retrocession of part of the hunting taxes is currently discussed with the Ministry. The Director of the Wildlife Division is the only one given the authority to decide on such a matter, with the agreement of the concerned hunting company. The signing of a Joint Agreement, formalizing the contract between the MNRT and IBA, would allow the latter to increase its yearly income tremendously considering that the mean revenue WMAs generate with wildlife taxes is of approximately TSH 25,000,000 (ADAP 2014).

The Wildlife Division of MNRT currently being in the process of transforming into the Wildlife Management Authority as an independent body, the discussion has been put aside as the Current Wildlife Director could be dismissed and replaced in the new institution.

In any case, this process will take a long time to first plan a meeting with both TFS and WD, and see if the WD accepts to discuss the matter. If an agreement is possible, tough negotiations will then be necessary to set the specific terms.

Tourism

The best time for tourism in Mlele is the dry season going from July to December. Even though the capacity was estimated to 48 (8 groups of 6 people) by Thomas Gelsi in 2009 (Gelsi 2009), it seems now more feasible to reduce it to 36 (6 groups of 6 people) due to the time it takes to organize, accompany and debrief every group (Hausser 2014 com.pers. July 31). If this ideal number could be

attained, it would allow IBA to generate a lot of money, only with the development tax of USD400 currently paid by every people wanting to enter the BKZ, amounting to almost TSH735,000 in September 2014. To this tax are added all the accommodation fees for visiting the area and camping inside as set out in the previous management plan (Appendix 15).

Non-Timber Forest Products

Mushrooms, forest fruits and healing plants are central natural resources for the villages. These non-timber forest products cannot be taxed if it is for self-consumption.

The production of forest-derived products, such as syrups and jams, could be a mean for the women to increase their income and to develop economic activities. It has been encouraged in the past by IBA and ADAP, but seems to have decreased. The difficulties faced by these groups of women are conditioning and marketing of these products. The coming of electricity and the possibility to have refrigerators will maybe contribute to the development of these activities in the next few years.

Some people, nevertheless, collect and sell some of these products at a high price when the demand is important. An example is the need for straws to build camps at the beginning of the hunting season, when the major part isn't dry enough yet (Hausser 2014, pers.com. March 11). If it was tolerated until now, it must be punished. Only IBA is authorized to collect straws, and only for use in the campsite.

The potential benefits for these products could not be assessed during the ten weeks this study lasted and will thus necessitate further research.

Products of Illegal Activities

All products of illegal activities seized by IBA during VGS patrols are property of IBA, and should be used or sold for purposes of financing the management. As for fines and penalties paid by the offenders, they are legally property of IBA as the MoU makes it the only authority in the BKZ. Nevertheless, the District is currently keeping all the money generated by poachers arrests, as IBA's right to collect fines is not ratified by accepted Bylaws.

Although the in-kind goods seized by IBA are useful to the management activities and financing, the amount of money potentially earned this way is unpredictable.

Tanzania Forest Fund

The Tanzania Forest Fund (TFF) created by the TFS is a key element in the prospect of long-term management funding in Mlele BKZ. The fund's purpose is to "*mobilize and provide stable and long term sources of funding for conservation and sustainable management of natural resources in Tanzania*"[5].

The support provided by this agency to community-based structures is an opportunity for Mlele BKZ (ADAP 2012). IBA has already applied for a TSH50,000,000 funding to finance its management and development activities.

[5] Tanzania Forest Fund, *http://www.forestfund.go.tz*/ consulted 29.09.2014

9 DISCUSSION

9.1 MANAGEMENT MODEL

The purpose of MBKZ was to give means to the community to protect its forest to maintain its high potential for apiary products. For this reason, the villages were always informed and involved, and in the beginning the meetings attracted a lot of interested and enthusiastic people. However, with the passing years, the financial difficulties and internal problems of IBA discredited the association. In parallel, the constant migration brought a lot of people in Inyonga neither knowing nor caring about such ventures. These two factors led to the loss or watering down of people's awareness.

The BKZ planning was designed as a capacity-building process based on participatory planning, training and study tours at several levels, developing sustainable activities and techniques, and supporting small enterprises. The purpose of ADAP is to empower the community members and give them means to manage Mlele BKZ sustainably and without external support, and even to serve as an example to show other communities the process for creating other Beekeeping Zones around Tanzania (ADAP 2013b).

The theoretical model, if it could be implemented and understood easily, would provide for effective conservation based on a strong community-based organization. However, the institutional frame cannot be overlooked.

The model chosen for participatory planning seems to be too complicated. The gaps between the European management planning and tools are obstacles at several levels. Information and communication means and capacity as well as the high level of ignorance of rights and laws are so many complications questioning the feasibility of participation in the case of Inyonga, at least in its current form.

Mlele Beekeeping Zone is the first protected area planning multiple uses in Tanzania. Although centered on beekeeping activities, the model allows ecotourism, trophy hunting, and forest products use by residents. Many users imply even more conflicts on access and use rights. The sector-based Tanzanian Government is a hurdle to this multi-use approach as it only provides for models based on one resource use.

Since a few years, several types of community-managed protected areas emerged, following the example of Wildlife Management Areas (WMA) for meat and Village Forest Reserves (VFR) for timber, but never the ownership over valuable resources has been devolved to a local actor. The Tanzanian Government allows the retrocession of management rights but none of the PAs models plan for local people or local communities' governance. Mlele Beekeeping zone is a hybrid with on one hand the new type of resource use, beekeeping, and on the other the will to follow the path of Selous WMAs for hunting taxation systems.

The lack of ownership, land tenure security and access to resources and their benefits are major reasons explaining the failure of numerous development projects over the past decades (Junge 2004). Without secure rights of access to natural resources, rural people will not have a long-term interest in managing them or participating in CBNRM (Degeorges and Reilly 2009).

The same goes for IBA as the TFS can decide to terminate the MoU if it is not respected. It would mean the return of the BKZ under Governmental governance and the end of some of the community access and use rights. As Fjeldstad (2001) observed in Tanzanian local governments, no accountability system exists within IBA and the leaders failed several times to fulfill their duties. It didn't go unseen and the District recently ordered a change in the Central Committee authority and law enforcement. Whether they would carry out their threats is another question. However, if the new District authorities reveal dutiful, IBA leaders will have to become more careful.

The current weaknesses in IBA are however to be considered in the context of Inyonga, a rural region of Western Tanzania. Even with capacity-building programs offered to IBA members and staffs, it is now as if nothing had been done as all the people that had benefitted from these trainings ten years ago have left or are dead. The association will also face difficulties with newcomers, not interested in protecting someone else's lands, not caring for community-based projects, and unhappy that the resources are not in a state of practical open access. In this regard, the model chosen by IBA was not inadequate, but suffered from uncontrollable events that no other model can avoid.

Degeorges and Reilly (2008) observations on Wildlife management project CAMPFIRE in Zimbabwe note that with the coming of CBNRM brought by westerner scientists, "*most programs are stuck in the stage of "Management With the People", and are held up in attempting to reach the stage of "Management by the People" by a lack of trained people from the community to operate and manage the complex institutional arrangements, businesses and wildlife/resources at this stage and a reluctance by government to "let the resource go" for philosophical, political and monetary reasons".* Tools and processes designed in European universities may not be applicable in the present case.

So to summarize, advance in community-based conservation in Inyonga is restricted by on the one hand a cultural gap, and on the other hand structural problems at the management level.

The reason behind these failures is not inadequacy of community-based natural resources management, but poor implementation due to untrustworthy people. Mlele BKZ experience also shows that with good care and long-term personal investment, CBNRM can achieve numerous successes, provided that communities and CBO's reach the point where "their" area means more to them than poaching money.

Concerning the hypotheses, after analyzing and comparing the results, we are now able to:

- **Validate** "to attain better efficiency, the Management plan needs to address existing conflicts to try and find solutions".
- **Validate** "it is necessary to reevaluate access and user rights to the resources, to develop means of control of these regulations, and to establish sanctions in case of violation. To meet this need, access permits, rental fees and product taxation must be redefined".
- **Validate** "sustainability of the project is achieved by natural resources conservation, social context improvement and financial autonomy of IBA. By increasing the part of internally generated funds, IBA increases the management sustainability".
- **Question** "Business Plans must be formulated for each of the lucrative activities in order to increase IBA's income. They must be clearly linked with the Management Plan".

- **Validate** "the previous plan lacked in scientific rigor. To make up for low institutional organization at community-level, a stricter framework must be implemented through performance evaluation based on indicators".

- **Validate** "to put an end to the beekeepers' lobby on the BKZ, IBA must open up to other users. It would allow redefining objectives for all stakeholders, and increasing the association's competences".

9.2 NATURAL RESOURCES MANAGEMENT

Tanzania provides for an encouraging legal framework in decentralization of natural resources management. Reforms have been adopted in wildlife and forestry sectors, and the FBD is interested in including the BKZ project in its amended Policy as a model for a new type of protected areas promoting beekeeping activities.

Despite the success of forestry reforms in supporting the emergence of locally-managed forests, and providing relatively clear legal framework for community-based forest management, little progress has been made in enabling local communities to take ownership of these forests through timber harvesting and other commercial activities. "*Tanzanian communities seem to have secured rights over their forests but captured few of the economic benefits derived from "their" resources*" (Nelson 2010). The power structures can seem well-designed, but they cannot realize decentralization alone: "*It is the performance of these structures, the way they actually operate, which will determine how well decentralized local democracies work*" (Brockington 2008).

These policies were undoubtedly adopted under donors' influence (Hausser *et.al.* 2009). Certain Tanzanian elites seem indeed to have set their minds to grab the natural resources. In this context and despite the set frame for a return of lands and management rights to local communities (Alden Wily, 2003), retrocession of these rights has proven very difficult.

One of the CBC problems and difficulties has been that for effective local management projects to emerge, institutional reforms need a complete shift of authority over natural resources from central state to local communities (Alden Wily 2002; Borrini-Feyerabend *et.al.* 2004; Lockwood *et.al.* 2006; DeGeorges and Reilly 2009). An indicator of this difficulty to "let it go" is that all Tanzanian policies allow central authorities to override community rights in community-based conservation projects (Hausser 2006).

However, the problems faced by IBA are far from being an isolated case. Such shortcomings in CBC have also been observed in the whole country and abroad.

Wildlife based activities in Tanzania are regulated by the law and controlled by local Game Offices. The complexity of the law and the lack of control means like vehicles and fuel for patrolling cause illegal hunting activities to proliferate in the major part of reserved land, as it has been observed in Uruma FR in Tabora Region (Carpaneto and Fusari 2000). The law seem distant to the villagers as nobody in this remote area is here to enforce them, and they all practice illegal activities on a daily basis, in majority for their own sustenance. When told about the governmental laws regulating forest and wildlife uses in the BKZ, they laughed and retorted that they should all go to prison according to what I was saying.

One of the main issues in Tanzania is the poor commitment of Governmental Institutions to their own policies regarding community conservation, particularly in the wildlife sector (Baldus 2006; Nelson 2007; Nelson *et al.* 2007). Corruption and fund misappropriation are common at every level of the power chain (Brockington2008).

Some authors doubt on sustainability of wildlife, even in CBNRM, as long as the community will not own the resource and their survival dependence labelled as poaching and the main cause of the species demise (Degeorges and Reilly 2009). A strong feeling of resource spoliation is increasing the hostility of villagers towards the hunting companies and IBA.

People appear more and more irritated by corruption, bad governance, and the fact that the elites don't defend the common interest of the country and its population but individual greed (ADAP 2012). In this regard, community-based conservation can be an answer only if the whole community is committed and has incentives to fight corruption at every level of the governance system.

> "*Where rights over resources use and conservation are either completely undefined or unenforced, conditions of "open access" tend to encourage the depletion of the resource because nobody possesses incentives for conserving a resource which is available for appropriation by any prospective user*" (Nelson 2010).

Several events having occurred in the BKZ illustrate the fact that laws cannot prevail in a context where the resources must be protected by small people unable to stand up against powerful corrupted officials.

A private Indian hunter was apprehended by a VGS patrol without permit in the BKZ, obviously with poaching intents. He declared having been mandated by the Prime Minister to shoot a buffalo. However, if the Prime Minister really had wanted a buffalo, he would have had his own services shoot it and would not have hired a private. The VGS, ignoring the law, fearing the name of the Prime Minister and unable to require assistance from IBA in the bush decided to let him go.

Another similar case involved the wealthy and powerful Sumri family. Arrested on the 31rd of December 2013 by a VGS patrol and Mr. Yves Hausser, Mr. Sumri said that he was there to hunt buffaloes. Mr. Hausser started to explain that it was impossible in the BKZ because of the GCA status before realizing one of the people accompanying Mr. Sumri was a Wildlife Division Ranger from Rukwa GR Headquarters. It meant that the Wildlife Division knew what was happening and tolerated it to avoid opposing the Sumri, despite being the ones supposed to enforce the law. Mr. Hausser, knowing the Rukwa Project Manager well, went to complain and was asked not to talk about what had happened in the higher reaches in Dar es Salaam. The commitment of the Project Manager is not at fault in this case and he would undoubtedly work well if there weren't corrupt people above him.

The more recent example is the weapon acquisition process initiated by IBA to allow the VGS to fight properly against poachers. The permit was difficult to obtain but the weapon could finally be delivered after two years procedures. However, despite the fact that the association asked and received the authorization for a semi-automatic machine gun (SMG), they were given a hunting rifle. It was only when IBA staffs went to receive the weapon that they were told it was illegal for them to have SMG. No proof was ever given as to the legitimacy of this speech.

These anecdotes reveal that without control, accountability and transparent institutions, law will not be enforced. Now how to ask simple villagers to succeed where governmental institutions fail?

IBA seems however to move in this direction, as proves another event occurred in January 2014. Again, it starts with a VGS patrol arresting offenders, this time with timber, inside of the BKZ. They brought the culprits to the District authorities as they do not have the authority to sentence them. There, they were put under pressure by the District Game Officer who declared having delivered a permit to these people. However, he didn't have the authority to do so for the BKZ. The VGS were first threatened then offered money to let it go, but didn't surrender. IBA project Supervisor had to take action and brought the case to the District Executive Director, the highest Authority in the District, who decided that the District Game Officer would not be working with IBA anymore. It is however interesting to note that no disciplinary measure were taken against the corrupted officer.

9.3 COLLECTIVE ACTION

With devolved natural resource management at local level, and particularly community-based conservation in poor rural economies, many authors describe a transformation in forest quality, management effectiveness and village attitudes to forest management (Alden Wily and Haule 1995; Matose and Alden Wily 1996; Alden Wily 1997, 2002; Alden Wily *et al*., 2000; Alden Wily and Dewees 2001).

Ostrom (1990) thinks indeed that even a small community of users is able to "*manage the resources collectively and control violators, in such a way as to preserve the resource over time*". She says that such institutions can be self-maintaining because of participants having an incentive to watch out for cheaters and abusers.

The validity of the successes claimed by these authors is weakened by their poor descriptions of local institutions and their functioning. Such quick overview of village governance neglects to depict the practical performance of village and district local government and it specifically fails to mention problems of corruption at the local level (Brockington 2008). He condemns Village forest reserves praised for their well-functioning management committees without serving the community but rather representing the interests of one particular group (Brockington 2007), as it is currently the case in the BKZ. For strong mobilization, community representativeness must be considered in the planning model.

There are numerous well known cases of district leaders and law enforcement groups involved in criminal behavior. Combined with the poor performance of local development projects and taxation expenditure and returns, the situation created an atmosphere where villagers have little faith in their government. The expectation is that money will be misspent and positions abused for personal profit (Brockington 2008). Fighting this rampant corruption often proves difficult as it can lead to violence in its broadest form, meaning not only physical force, but aggression, threats and use and abuse of power relations.

However, a World Bank sponsored review of community-based natural resource management has noted that contrary to the common belief, unfavorable institutional context is not always an obstacle to but can be a motor for community mobilization to overcome the difficulties and "*forge ahead with*

activities even when an enabling macro-level framework does not exist" (Manor, 1999, Brockington 2007, Brockington 2008).

An astonishing example of such success in Tanzania comes from a project in the eastern Serengeti where villagers in Ololosokwan have reserved a part of their lands for wildlife in return for a share of tourism income. It allowed the community to gain USD50,000 equivalent to the revenues of entire Districts. The huge benefits had for unexpected effect an uncommon level of transparency in the village accounts, with an independent audit of expenditures. Seeing opportunities, people got an incentive to manage this money justly (Alcorn *et al.*, 2002; Nelson & Makko, 2003).

Mlele Beekeeping Zone could also appear as a solution to by-pass the governmental institutions in the management of natural resources. However, due to IBA's decision to accept only beekeepers as members, the association fails to represent the different groups forming a community. Villagers feel cast aside and relegated to the role of mere observers.

The BKZ will not be a true community-based project until the time when people other than beekeepers also possess incentives to protect the forest. Instead of a community working with IBA, the villagers seem to see the project as just another way for some people to divert the resources and are thus distrustful and sometimes even hostile, as it was also observed by Brockington (2008) in Mtowisa development projects.

This situation of mistrust, though fundamentally originating from cultural divergences, can also be partly due to misinformation and project instrumentalization by several groups of interest. Local authorities take ownership of the successes when the project is praised, and accuse IBA and ADAP of grabbing the resources and their benefits when people complain. Villagers' ignorance of their basic rights, the laws and the project's purpose and aims. It is increasingly apparent that communities have not been able to capture the full range of economic values from the forests over which they have legal control (Blomley *et.al.* 2009).

The success of community-based projects, whether VFR or BKZ, may be dependent on the extent to which they do not interfere with the profit making schemes of local officials (Brockington 2007) and other illegal users. In the BKZ, offenders began to be arrested in 2012-2013 thanks to the help of the then Project Supervisor, previous member of the Wildlife Division, who taught the VGS arrest procedures. Problems arose as results began to show. In February 2013, a patrol was attacked by an armed group, threatened, beaten and abandoned naked in the bush 40km away from Inyonga. The point of the muggers was to stop the patrols, as poaching was becoming dangerous in the BKZ because of their efficiency. They supposedly came from the ancient Burundian refugee camp of Katumba. Discontent is however also present in Inyonga Division itself, as villagers are used to go hunting in the forest.

For de Vries (2005) the failures in community based conservation were not caused by a lack of awareness or conservation capacity at village level. Instead, the problem was much broader and more structural: "*the villagers, if left to themselves, would manage sustainably. They have done so for centuries. It is the outside, external influence that differs*."

In the current situation, the people commitment in Inyonga is linked to daily allowances. Community-members don't see anything to gain from the BKZ. They seem to forget that since the beginning of

the project, the money generated through beekeeping products made the economy grow and the flow of money in Inyonga increased. An indicator of that is the difference in number of brick houses these last few years (Hausser 2014 pers. com., September 30).

The collective action in Inyonga is in a precarious situation. The central issues as it has been mentioned previously are on one side the rampant corruption and funds misappropriation and on the other side the difficulty of developing incentives in the villagers. Despite IBA and ADAP efforts to develop commitment and accountability, having some kind of power and access to money makes it difficult for local people to resist their own greed.

9.4 PROPOSED REFORMS

We can now try to answer the research question **"how to make the management model implemented in Mlele beekeeping zone sustainable and replicable"**. Answers to this question will be approaches to structural and functional changes allowing IBA to get closer to its goal. These subjects were tackled during meeting with IBA and IEA Central Committees and the members agreed on these opportunities and put them in the Agenda. It is now in their hands to make the change happen.

9.4.1 CBO RESTRUCTURATION

To face its current challenges IBA will have to change several fundamental aspects of its functioning. The first action to take is to open up the association to non-beekeepers. It would allow involving the whole community instead of a single user group seemingly retaining all the rights and benefits over the forest resources, thus signing the end of the beekeepers' hold-up on the BKZ. A better representativeness of the community will participate in increasing the people's awareness and knowledge regarding the BKZ, also resulting in better acceptance of the project.

Inyonga Beekeepers Association and Inyonga Ecotourism Association have always worked in collaboration, but both lack in financial resources to maintain their activities. In the context of Inyonga it appears now that it is too difficult to support two different CBOs. We thus discussed the possibility of a merging with the leaders of both associations. They concurred on the fact that they were already depending on each other for services and that it would only make it easier to combine the objectives of both institutions.

The merging of IEA into IBA will allow at the same time to change the association's organization structure. The association's internal functioning, powers and responsibilities will thus be redefined to deal with the empty shells of the subcommittees. The committees and the management team were until today unable to describe clearly their tasks. Clearly assigning each entity its roles, duties and scope will allow increasing the leaders and staffs knowledge, understanding and accountability.

The people elected to the Committees must henceforth be chosen for their interest in the tasks to perform as well as useful skills or knowledge, as it was started with the Manager. Social status must not rule anymore in IBA.

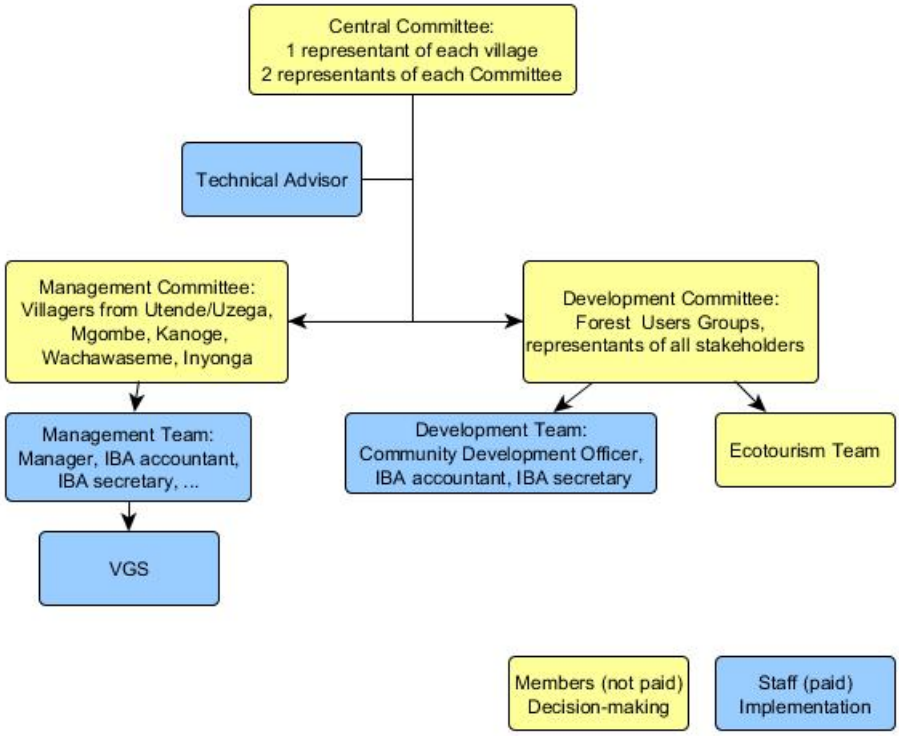

Figure 5 Amended Organization Chart

9.4.2 TAXATION SYSTEM

The main reason explaining the community's lack of interest in the project is the absence of benefits. People will want to participate as soon as money will be involved, to be sure that they receive a part of it and that their interests are defended in the decision-making processes.

Increasing IBA's income will thus not only help for the activities funding, but will also draw the attention of the community and thereby their interest in supporting the BKZ project.

The new income generation system plans that all activities generating money in the BKZ should be taxed according to the benefits the users derive from the resources. A part of the benefits must then be distributed to the villages as they are the most affected by the regulations over resource uses.

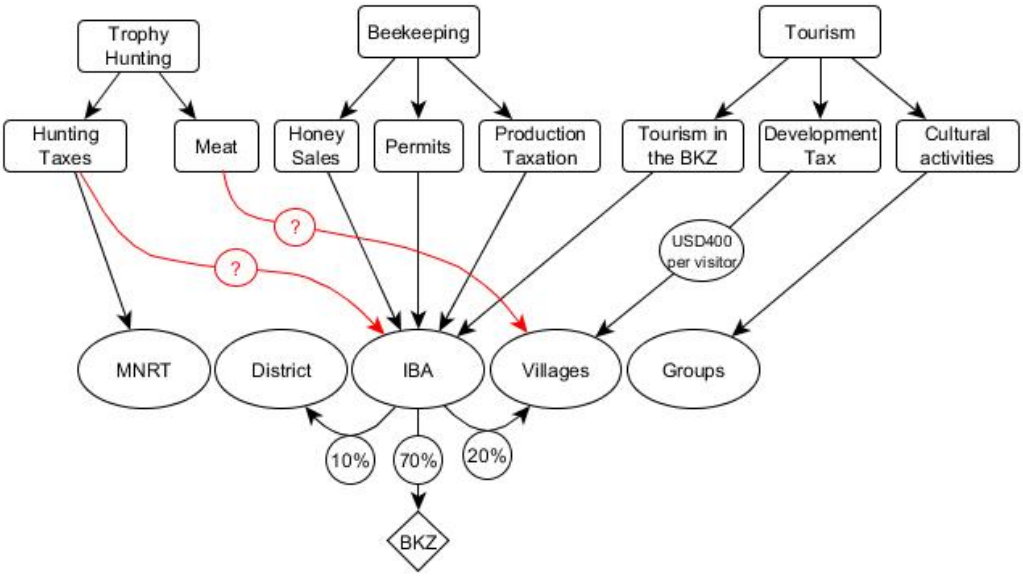

Figure 6 Activities, Income Sources and Distribution

For Beekeeping, based on the results of village general meetings and focus groups, it has been decided that the best solution to increase the income in the beekeeping sector would be to tax the beekeepers on their production. It has the highest economic potential, the VGS are confident in being able to enforce it and the beekeepers agree that it would be acceptable. However, for this system to have a chance, it is central that not only beekeepers shall pay for their activities, but also hunters. It is impossible to ask small people to participate while letting rich stakeholders getting richer without paying for the management.

The participation of hunting activities will also be a central issue in IBA's financial sustainability. IBA must engage in arduous discussions with the Wildlife Division.

In the ideal conditions of implementation, IBA yearly revenues could be organized as follows:

Beekeeping sector:

- Implementation of the existing access permit:
  TSH1,130,000 or 1.1% of the 100,000,000 needed
- Taxation: considering a honey production of 40,000 liters in the BKZ, if 70% (28,000) is reported and can be taxed at 10% of the market price (currently TSH3500 for rough honey):
  TSH10,000,000 or 10% of the 100,000,000 needed
- Selling: for 5,000 liters of rough honey being sold by IBA at current market price of TSH7,000 the benefit is :
  TSH17,500,000 or 17.5% of the 100,000,000 needed

Ecotourism sector:

- For 36 (6 groups of 6) people coming in one season, spending 4 days in Inyonga including 2 nights in the BKZ and assisting an educational visit:
  TSH15,840,000 or 15.8% of the 100,000,000 needed

Trophy Hunting sector:

- If part of the taxes paid to the MNRT are given back to IBA after the WMAs model:
  TSH25,000,000 or 25% of the 100,000,000 needed

Other sources of money :

- Including fundings, products of illegal activities, non-timber forest products taxation, …
  TSH 30,000,000 or 30% of the 100,000,000 needed

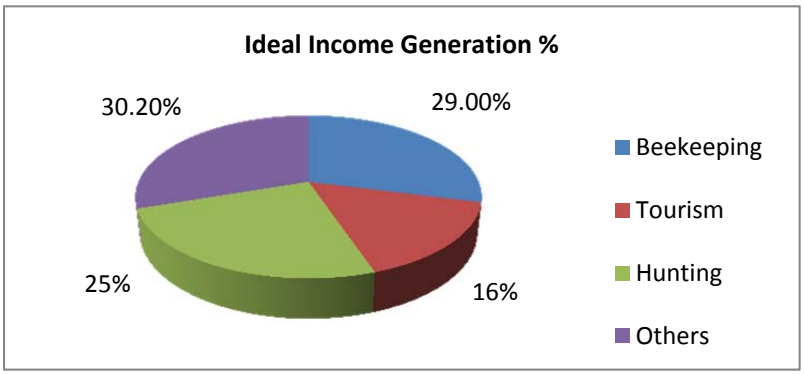

Figure 7 Assessment of the Ideal yearly Revenue

In the worst case scenario, IBA yearly revenues should aim for a minimum of:

Beekeeping sector:

- Implementation of the existing access permit:
  TSH1,130,000 or 1.1% of the 100,000,000 needed
- Taxation: considering a honey production of 20,000 liters in the BKZ, if 50% (10,000) is reported and can be taxed at 10% of the market price (currently TSH3500 for rough honey):
  TSH3,500,000 or 3.5% of the 100,000,000 needed
- Selling: for 2,000 liters of rough honey being sold by IBA at current market price of TSH7,000, the benefit is:
  TSH7,00,000 or 7% of the 100,000,000 needed

Ecotourism sector:

- For 20 people coming in one season, spending 4 days in Inyonga including 2 nights in the BKZ and assisting an educational visit:
  TSH8,800,000 or 8.8% of the 100,000,000 needed

Trophy Hunting sector:

- The WD refuses to discuss the retrocession of a part of its taxes and doesn't participate in the funding of Mlele Beekeeping Zone.

Other sources of money :

- Including fundings, products of illegal activities, non-timber forest products taxation, …
  TSH 80,000,000 or 80% of the 100,000,000 needed

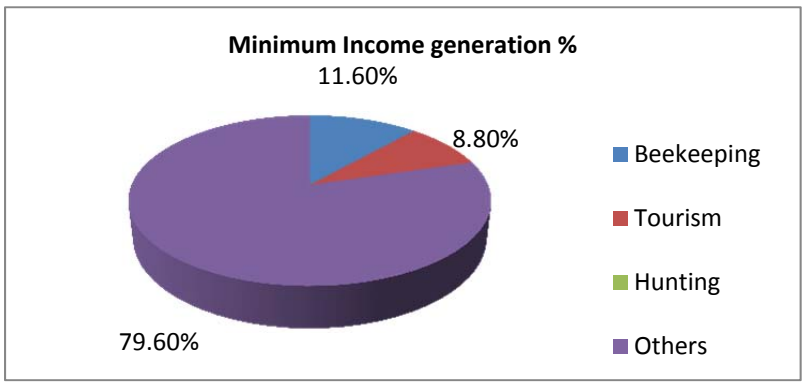

Figure 8 Assessment of the Minimal Yearly Revenue

Even if those numbers are taken as examples, the main things to note are the high beekeeping and tourism potentials and more generally the project's self-funding capacity. The fact that even in a really bad context, beekeeping and tourism can each generate almost 10% of the management needs is also encouraging.

10 CONCLUSION AND PROSPECTS

The difficulties encountered during the study may have had an influence on the quantity and quality of data collected. The few people having participated to the meetings will induce a lack in representativeness in the community's views and opinions.

The language barrier has been an important factor of bias, especially since my translator proved unable to translate precisely the discussions in the villages. It must also be noted that the English version of the Management Plan provided by IBA was a rough translation of the document written in Swahili. It seems that the original English versions have been lost. It was thus difficult to assert the differences in the two documents, as it was surprising to find that management activities were not described in the translation. Were these central aspects of the planning missing in the work document or is it a translation mistake?

Several issues have however been identified, providing IBA with measures to take to improve its performance.

The fact that the key documents were never adopted by the community showed a gap between IBA and the villagers. The purpose of this study was to identify means to reduce this gap. The lack of interest from the community can be due to several things, but mainly:

- The absence of financial benefits providing incentives to participate
- The impossibility for non-beekeepers to get involved
- The lack of accountability and transparency in IBA's functioning
- Cultural inadequacy of the tools used and processes implemented

Reforms can be undertaken, but the key factor in IBA's future success will be to achieve more accountability and transparency. Its ability to sentence its own members and leaders if they commit an offence is one of its greatest weaknesses. If IBA can surpass its internal problems and assert its authority, it will be able to regain the trust of the whole community now formally involved in the BKZ management thanks to the CBO restructuration.

The TFS and the District will hopefully support the project and back the association in the legal framework changes it wants to initiate. If the different sectors' Directors accept these reforms, IBA will increase its income and the population will gain motivation for the project to succeed, thus proving that the pilot project of Mlele Beekeeping Zone can be successful and sustainable.

In spite of its difficulties, IBA has achieved many things in the management of Mlele Beekeeping Zone since the project's early stages. The forest is efficiently protected and its quality increased in the last years. Some people in IBA have real incentives to protect the area and are able to understand that resisting the temptation of bribing money can be more beneficial in the longer term. It is a very good sign of the people's commitment and understanding of the future value of their work and not thinking only about short-term benefits.

> "*The development of effective devolved government of natural resources will be a long struggle which has both to design accountable institutions well, and reshape the democratic cultures filling them.*" (Brockington 2008)

With the newly appointed Technical Advisor and its structural and control system changes, IBA is however on its way to restore its image and gain new incentives to keep on with CBNRM. The new basis provided by the amended Management plan and the Bylaws will allow appropriation by IBA management team and thus increase the performance.

The main uncertainty concerning the Beekeeping Zone's future, whether or not IBA achieves a strong community mobilization, is the restricting legal framework. The sector-based Government is preventing new models to be designed. With appropriate reforms, communities could become real actors in their resource base management and define themselves the way they want their lands to be used and the benefits shared. When communities will have the power to do so, they will have a real incentive to protect the base of their livelihoods, and conservation will go a step further.

The Wildlife Division's strong grip over the wildlife highly profitable uses will however be an obstacle in such ventures. Its refusal to retrocede part of the wildlife taxes and use rights would deprive IBA of important revenues in a context where ADAP will soon have to withdraw and the sources of funding are not plentiful.

If despite these difficulties IBA manages to achieve accountability and secure revenues, the sustainability of the project will be at hand.

PART II DELIVERABLES

AMENDED MANAGEMENT PLAN DRAFT

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1 BACKGROUND

This management plan was drafted by ADAP and the University of Applied Sciences – Western Switzerland (UASWS), on behalf and with the help of Inyonga Beekeepers Association (IBA).

This particular community-managed protected area was created upon the instigation of a beekeepers' group in 2001. Its purpose is to give access and use rights to the forest products for sustainable activities, allowing poverty alleviation along conservation and socio-economic development of Inyonga Division villages. This protected area is centred on beekeeping activities, and the area was chosen for its high apiary products production potential.

This management plan refers to a part of Mlele Forest Reserve, Called Mlele Beekeeping Zone. The area is also part of Mlele Game Controlled Area.

2 FOREST DESCRIPTION

2.1 LOCATION

The area is found sixty kilometers east of Mpanda Town and adjacent to the western villages of Inyonga Division, in the Mlele Mountains.

Its borders are defined in the attached map (Appendix 16), and demarcated by beacons. The trees on the border have been cut on a 20 meters band to mark the entrance in the BKZ.

The size of said Beekeeping Zone is 850sqkm within Mlele Forest Reserve. In the South it is bordered by part of Mlele Forest Reserve and Rukwa Game Reserve. In the west it is bordered by Katavi National Park and Mlele Forest Reserve in the North and East it is bordered by Mpanda North-East Forest Reserve.

2.2 GEOLOGY AND CLIMATE

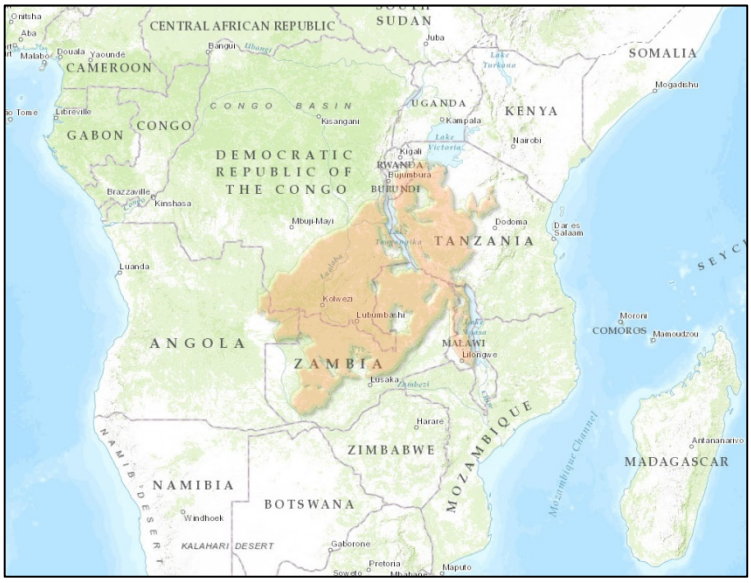
Mlele Forest is located in the East African Rift Valley, characterized by two granitic plateaus towering above the plains, separated by a steep escarpment. The north-east plateau has a mean altitude of 1,000 m and covers a half of the BKZ. The south-west plateau lies at around 1,400 m and is part of Rukwa GR. Numerous water sources take their origins in the escarpments and provide water to the BKZ (Appendix 17).

The soil in the area is red/black types of soil. It is loose and easily percolated by water. A few areas have clay soil. The average temperature ranges between 26 centigrade and 30 centigrade annually. Mean annual rainfall ranges from 920mm to 1,200mm, mainly between November and March.

2.3 VEGETATION AND LANDSCAPE

Mlele Beekeeping zone landscapes are diversified and characteristic of the Central Zambezian Miombo woodlands ecoregion. It consists of broadleaf, deciduous savannas and woodlands, in mosaic with grasslands in shallow soils, semi-aquatic vegetation in swamps areas and floodplains (mbugas) as well as gallery forests near permanent rivers (Hogan 2014).

This ecoregion covers most of western Tanzania, a large part of central and northern Zambia, the southeastern area of the Democratic Republic of Congo, western Malawi and parts of Burundi and northeastern Angola (Hogan 2014). It is first of Africa in terms of species number, and one of the richest ecosystems in the world[1].



Source: www.worldwildlife.org/science/wildfinder/

Illustration 4 Repartition of the Central Zambezian Miombo Woodlands ecoregion

The vegetation of Mlele Beekeeping Zone holds a high variety of micro-habitats (Kayombo *et.al.* 2013):

- ***Terminali-Combretum woodland:*** Woodland patches within the typical miombo woodland, dominated by *Terminali* spp. and *Combretum* spp.
- ***Seasonal water lodging wooded grassland plain*:** Areas where water lodging was revealed to be prominent, especially during rainy season. The dominant woody plants were *Acacia derepanolobium* and *Combretum* spp. However, grass remains the dominant growth form.
- ***Grassland:*** Areas dominated with grasses within the miombo woodland. This was dominant in seasonanal water lodging areas. These were revealed to be browsing points for the wildlife like buffaloes and Sebo antelopes.
- ***Acacia-Terminalia-Combretum woodland:*** This was a type of woodland that was dominated by *Acacia* sp., *Terminalia* spp. aAnd *Combretum* spp. Mixed with *Antidesma membranacea*.

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Illustration 5 Miombo Grassland

- ***Evergreen forest patch:*** Vegetation observed within the miombo woodland especially at the north-western side of Mlele Beekeeping Zone, at Masigo. The dominant trees were: *Garcinia buchananii, Rawsonia lucida, Mystroxylon aethiopicum, Berquaertiodendron natalense* and *Euphorbia candelabrum.*

[1] WWF, *http://www.worldwildlife.org/science/wildfinder/* consulted 17.09.2014

- ***Forest Galleries:*** This was a vegetation fringe along the river side such as Kibola stream. The dominant trees were *Raphia farinifera, Syzygium cordatum, Kotschya africana, Hymenodictyon floribunda, Ficus sur, Faurea saligna, Bridealia micrantha, Rothmania longiflora, Dracaena* sp., *Rhus* sp.and *Milletia oblata*.

Illustration 6 Forest Gallery

- ***Wooded grassland:*** The vegetation consisted of woody plants and grass, of which grass was the dominant growth form. Trees including *Terminalia* sp. *Albizia antun esiana*. The abundant grass was *Hyperhenia* spp. mixed with other species of grass.

One hundred and twenty four (124) tree species were identified, of which 90% are known to be foraged by bees. The estimated canopy cover was revealed to be <30% and 30-60%.

Mlele BKZ thus holds a high potential for beekeeping activities and its biological diversity makes it an important area for conservation, as most of the other regional forests have already been degraded.

2.4 WILDLIFE

As of today, 49 animal species were observed directly or indirectly in the BKZ (Hausser *et.al*. 2014, in review) (Appendix 17). Most of the rare species present in stricter PAs were found, such as the wild dog (*Lycaon pictus,* Temminck 1820), the leopard (*Panthera pardus,* Linnaeus 1758), African elephant (*Loxodonta Africana,* Blumenbach 1797) and the lion (*Panthera leo,* Linnaeus 1758). A large range of different ungulates, both grazers and browsers, can be found. Eighteen species have been registered, including unusual species like the Topi (*Damaliscus lunatus,* Burchell 1823), Rohan (*Hippotragus equinus,* Desmarest 1804) and Eland (*Taurotragus oryx,* Pallas 1766).

These results show that the wildlife diversity in the Beekeeping Zone is very high for such a low status protected area.

A fauna corridor is going from Moyowosi GR through Mlele BKZ, Katavi NP and many other PAs, all the way to Ruaha NP(Caro *et.al*. 2009). Mlele BKZ is thus part of an important complex of protected areas (Marunda 2014, pers.com., August 25), also linking Katavi NP and Rukwa GR and offering supplementary habitats for the wildlife of this ecosystem.

2.5 CULTURAL IMPORTANCE

Important ancient graves of Konongo leaders are present in the BKZ. The area was indeed occupied by numerous clans of Konongo people, and the ancients still have incentives to keep access to these places. They go meet their ancestors to ask them for advice on the issues they're facing, whether it is between people, for good harvesting or to call the rain season.

2.6 THREATS

2.6.1 TIMBERING

Several activities endangering tree species can be observed in the BKZ: wildfire, logging, cutting for poles and rods, beekeeping, camp huts, wildlife trapping, debarking and grazing. The management revealed that timbering is increasing (Malembecka 2014, pers.com., August 21st).

The most logged species are *Pterocarpus angolensis*, *Afzelia quanzensis* and *Pterocarpus tinctorius* which are also the best quality bee fodder. The damages of those trees thus have a negative impact to the bees.

2.6.2 LAND ENCROACHMENT

Pressure on lands is high in Inyonga Division as the village lands are completely enclosed in Protected Areas of different status. Villagers are in need of space for agriculture and housing. Pastoralists also tend to go beyond the forest borders to find pasture for their cattle.

2.6.3 POACHING

Illegal wildlife hunting in the BKZ is a threat mainly to rare and valuable species like elephants and buffaloes that are targeted by organized and armed groups. Small antelopes are also poached, but in a lesser way and usually for personal consumption of the meat. Though these illegal uses are decreasing thanks to the regular patrols, it is still a threat to certain species populations.

Villagers hunting for meat are less detrimental to the populations but are difficult to control. As long as they won't have access to meat in another way, they will keep on coming to the BKZ.

© Delisle 2014

Illustration 7 Giraffe bones found in BKZ in a poachers' camp

2.6.4 WILDFIRE

Fire is at the same time a great threat for the forest and an essential component of its functioning. During the dry season, the wildlife benefits from fire to regenerate the vegetation when the pasture is scarce. The fires occurring in the BKZ are in most cases man-made, either by villagers coming to practice an activity (legal or illegal), or by the VGS for management purposes. Wildfire can rapidly burn large forest areas to ashes, and must thus be controlled strictly.

2.6.5 ESTABLISHMENT OF A MILITARY CAMP

Tanzanian Government announced its idea of creating a military training camp inside Mlele Beekeeping Zone (Melakiti 2014 pers. com. July 13). IBA does not have supplementary information and no formal procedure has been undertaken.

If it is maintained, this project will jeopardize IBA and ADAP's work greatly, and would undoubtedly provoke the dismantlement of the BKZ. However, it is for now in the early stages and an alternative can be discussed. For that purpose, the TFS contacted IBA to oppose the project

2.6.6 GOVERNANCE

The difficulties shown by the Natural Resources Sector to enforce the laws question the Government's ability to manage the PAs efficiently and protect their values against illegal taking and corrupted officials. It could threaten the habitat and wildlife at national level if solutions cannot be found to achieve transparency and commitment within the power structure at every level.

2.7 OWNERSHIP AND MANAGEMENT HISTORY

Mlele Beekeeping Zone is property of the Tanzanian Government. The Ministry of Natural Resources and Tourism transmitted the Management Rights to the Community-Based Organisation Inyonga Beekeepers Association (IBA) for an approbatory period of ten years. This agreement is ratified by a Memorandum of Understanding (MoU) signed in 2010. A first Management Plan was established before the MoU was signed and validated by the MNRT. In place since 2007, this Management Plan must now be evaluated and assessed according to the new realities Mlele BKZ and IBA are facing. Village Bylaws have been drafted but were never formally accepted by the villages, slowing the process of regulating use and access rights for Mlele Beekeeping Zone.

3 OBJECTIVES

These objectives are to be considered with their priority order. In the eventuality the Manager has to make a decision concerning which action to take first, the choice must be made to give precedence to the higher ranked objectives.

1) To protect and maintain the quality forest for apiary products
2) To stabilise the BKZ boundaries and to prevent encroachment
3) To enhance conservation in the BKZ
4) To encourage sustainable multiple uses of the forest
5) To bring the Beekeeping Zone under effective management
6) To motivate local community members to participate in supervision and management of Mlele BKZ

4 MANAGEMENT AUTHORITIES

The management is done in collaboration between IBA for the operational management, the District and the villages for collaboration, support and control.

4.1 INYONGA BEEKEEPERS ASSOCIATION

Inyonga Beekeepers Association is the only institution authorized to implement management and enforce the law within Mlele BKZ, as stated in the Memorandum of Understanding (2010) and the Bylaws (2014).

The Association manages the area on behalf of the villages and the beekeepers community, with as its head the Central Committee, composed of 15 people elected from the members. The 12 villages

must be represented, and 2 people from each subcommittee must also be elected to join the Central Committee.

The role of the leaders is to make decisions for IBA's strategies and future. Their duty is to make sure IBA Constitution is known and respected by all members including themselves and to enforce the rules and procedures in case of members' misbehaviour.

The management Committee is the subcommittee responsible for decision making concerning the BKZ operational management. They are responsible of controlling the reports of management staffs and patrol leaders, and meeting to find solutions to the problems encountered in the management of Mlele BKZ. If the management plan or the Bylaws must be amended, they are to present possible solutions to the Central Committee and the General Assembly. Its members are elected from IBA members according to their commitment, knowledge and skills.

The Management Team is responsible of day-to-day management. It carries out the decisions made by the Committees and implements the management plan. This includes delivering permits, collecting fines from offences and enforcing the law.

The Village Game Scouts take care of the field activities inside the BKZ.

4.2 DISTRICT

4.2.1 STEERING COMMITTEE

The District Steering Committee represents the Government in the collaborative management of Mlele BKZ. Its role is to give technical and in-kind support to IBA for the operational management as well as controlling its good functioning and respect of the MoU and Association Constitution.

4.2.2 DISTRICT NATURAL RESOURCES OFFICER

The District Natural Resources Officer shall work in close collaboration with IBA, the stakeholders and the villages to achieve conservation and development. His duties are to:

- Give technical advice and help for all implementation issues concerning BKZ conservation and natural resources management,
- Inform people on IBA's objectives and activities conducted in the BKZ,
- Follow up the patrols and fire combating activities conducted in the BKZ,
- Support formulation and implementation of BKZ Bylaws.

4.3 WARD DEVELOPMENT BOARD

The ward development board is responsible of supervising activities in environmental and village project development sectors. It shall

- Receive and assess monthly reports on the project development,
- Discuss types of projects recommended by villagers and wards and means of implementation,
- Give information on the challenges and opportunities in the BKZ,
- Provide recommendations and help for bylaws formulation and implementation.

4.4 VILLAGES

The villages of Utende, Mgombe, Kanoge, Wachawaseme and Inyonga play an active part in the management planning. They are involved in the process of making and adopting Bylaws for Mlele Beekeeping Zone. The village councils are the link between the villagers and IBA, and have to vehicle information and report of significant events concerning the BKZ.

5 ZONING

Mlele BKZ is currently divided into different areas depending on the activities that prevail in each of them. This zoning is for now only used in practice and could be ratified in the management plan (Appendix 19). The south-western part, near the Iloba River, holds a high potential for tourism activities, and to avoid danger and conflicts, an agreement has been made between IBA and the Hunting Company that the hunters will not come in the area when tourists are present, from July to December.

An area or approximately 200sqkm bordering the villages of Kanoge and Mgombe will be allocated to resident hunting. It is necessary to separate trophy hunting areas from village hunting areas to avoid unnecessary encounters between villagers and the hunting company potentially resulting in major conflicts.

The entire area is dedicated to beekeeping as well as non-timber forest products gathering, no specific zone is defined for these activities. It implies that villagers are potentially present in the forest all along the year, including the high touristic season between June and November. Hunting is allowed but communication between TBGS and IBA is imperative to avoid people being accidentally shot.

6 MANAGEMENT ACTIVITIES

The management activities are the actions undertaken by IBA to achieve the objectives set for the Beekeeping Zone in section 13 of this management plan.

6.1 MANAGEMENT TEAM

6.1.1 PERMITS

A group of three people, the Manager, a member of IBA Committee and a District officer, shall be responsible of issuing permits for allowed activities and collecting the fees corresponding to each permit as set out in the Beekeeping Zone Bylaws.

Permits will be delivered twice a year in May and November corresponding to the honey harvesting seasons. Beekeepers shall have a period of one month to apply for a permit before the decision-group gathers and studies the applications.

IBA and the District must work together to ensure that the beekeepers are aware of the procedure and the deadlines.

The permits shall inform on the emission date, holder name, village, type and quantity of natural resources to be extracted, and purpose and be signed and stamped with IBA's seal. The permit and a receipt shall be delivered to the beneficiary and a copy of the receipt shall be kept by IBA.

6.1.2 FINES

A group composed of the Manager, a member of IBA Committee and a District officer is to be responsible of hearing the offenders apprehended by the VGS, and upon admission of their wrongdoings, IBA Manager shall collect the monetary penalties corresponding to the offence, in accordance with the gravity of their actions. In the case where offenders deny their culpability, it is the Management Committee Chairman responsibility to make sure they will be brought to the Police to further investigate the case.

6.1.3 PLANNING OF ACTIVITIES

The Manager shall plan the activities for each month in collaboration with the patrol leader, and submit the schedule to ADAP for approval. When the monthly schedule is approved, ADAP will provide the money if IBA cannot finance all of it itself and the accountant will unblock the necessary amount.

6.1.4 INFORMATION AND MOTIVATION

One of IBA's central objectives is to trigger incentives for the community members to participate in the forest protection and management, either directly through IBA, or indirectly by knowing and following the rules, and fighting illegal use.

It is necessary to build trustful relationships with the villages, and to achieve this goal, meetings are one of the main tools for sharing information, views and ideas. IBA will be better accepted and supported if the villagers know its works. Collaboration is indeed the central and most challenging aspect in the BKZ management, and its functioning shall be entrusted to the management team and the Committees. These meetings will also serve to inform the villagers on the project's difficulties, successes, and financial incomes. They shall be planned in the villages of the Division at least twice a year and other meetings can be called in case of extraordinary events.

6.2 VILLAGE GAME SCOUTS

6.2.1 PATROLS

Anti-poaching patrols shall take place every month during at least 7 days. The period of the month is neither set in advance nor regular to avoid poachers knowing how not to go in the BKZ because of the VGS's presence. The patrol will be composed of ten VGS, chosen by the Patrol leader. Among the patrol members should figure at least one to carry a weapon. If IBA cannot provide a weapon-carrier for every patrol, the patrol leader should report it to the Manager as to ask for the contribution of the Wildlife Division or the District.

The Patrol leader is responsible of organizing the patrolling dates, teams, areas, and ensuring the good work of the VGS.

6.2.2 PERMIT CONTROL

The Duty of the VGS is to control any person met in the BKZ to make sure they possess a permit. Anyone entering the BKZ without a genuine permit as described in subsection 16.1.1 to this management plan is considered an offender and shall be arrested and taken to IBA office.

6.2.3 FIRE MANAGEMENT

Only IBA staffs are allowed to start fires in Mlele BKZ. Early burning is practiced at the beginning of the dry season in May and June, when the grass is not completely dry yet. Fire shall be put in selected areas during the patrols. No dry area shall be burnt, to prevent fire damages to the forest. A turnover shall be made in the burnt areas to allow vegetation to regenerate in the whole BKZ, and not always in the same places. Advice and cooperation should be asked of the District Natural resources Officer and the District Beekeeping Officer.

6.2.4 BORDER MAINTENANCE

The borders of the BKZ shall be maintained and clearly demarcated every year in June and July, especially in the places the BKZ is adjacent to village lands. The borders, beacons and boards should be cleaned and replaced if necessary. The District officers shall help IBA to remove people and buildings in case of trespassing.

6.2.5 ROADS MAINTENANCE

The roads and tracks within the BKZ must be repaired when damages are observed during the patrols. A control of all tracks must be made after the wet season as to make sure they are passable.

6.2.6 CAMPSITE MAINTENANCE

The Campsite shall be ready to accommodate tourists or researchers at the beginning of the dry season, in early July. For that purpose, VGS should take care of cleaning the area and rebuilding the infrastructures if they were damaged. In case the bungalows' straw roofs need to be changed IBA VGS can collect straws and sell the surplus.

6.2.7 ECOLOGICAL MONITORING

An ecological monitoring survey shall be done every year at least once to assess the wildlife populations' evolution. The study shall be done by setting 36 camera-traps on grids pre-determined in collaboration with ADAP and UASWS. The cameras will then work for 3 full weeks, and shall be collected after precisely 21 days. A battery check should also be done on a sample of cameras for every grid during the capture period, to make sure they are still working.

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Illustration 8 Setting of a Camera-trap

6.2.8 BEEKEEPING TAXATION CONTROL

During the two annual harvesting seasons, VGS are to go to the BKZ and control the registered camps and beekeepers to assess their production. They shall compare the number of beehives the beekeepers declared to the number they are actually harvesting (order of magnitude, not exact number). Non-registered camps and products will be fined according to the Mlele Beekeeping Zone Bylaws 2014 .It shall take place during 7 days at the beginning of each harvest, usually July and November, when the beekeepers are in the forest.

6.2.9 CALENDAR OF ACTIVITIES

	Target Period																																							
Field Activities	January				February				March				April				May				June				July				August				September				October				November				December			
Monthly patrols																																															
Road maintenance																																															
Early burning																																															
Campsite maintenance																																															
Border maintenance																																															
Production control																																															

These target dates are indicative and subject to change depending on the Management Team and the VGS judgement.

6.3 ECOTOURISM TEAM

The Ecotourism Team is responsible of organizing the visitors' trips accommodations and activities in Inyonga and the BKZ. The Team has to keep records of and contact with the groups and people offering cultural activities and work for the development of said activities and quality of the tourism experience.

7 RULES

7.1 ACCESS RULES

Anybody is allowed to enter and practice activities in the Beekeeping Zone, provided he or she asked for and received a specific permit from IBA.

If the time should come when the production potential of the forest is reached, community members shall prevail on outsiders for the access to limited resources.

7.2 USES

7.2.1 USES FORBIDDEN NOW AND IN THE FUTURE

- Harming the trees in any way
- Honey harvesting with fire
- Honey harvesting from wild colonies
- Hunting without licence
- Livestock keeping and grazing
- Agriculture
- Mining and soil products extraction
- Charcoal production
- Destroying water sources

7.2.2 USES PERMITTED ONLY ON THE ISSUE OF LICENCES WITH PAYMENT OF FEES

- Tourism
- Trophy hunting
- Beekeeping
- Scientific research
- Non-Timber Forest Products for selling purposes

7.2.3 USES PERMITTED ON THE ISSUE OF DOMESTIC USER PERMITS WITHOUT PAYMENT

- Ritual Ceremonies
- Temporary camps for allowed activities
- Fetching water and collecting dead wood for authorized camps
- Non-Timber Forest Products for self-consumption

8 UTILISATION

8.1 BEEKEEPING

Beekeeping is the central activity in the BKZ, and it is to preserve the high production potential of the forest that the area was created. The beekeepers, members or not of IBA, shall be granted access to the zone by the purchasing of a permit. They shall report their names, village, number and location of beehives upon registering at IBA. By requesting a permit, they undertake to disclose their production and pay taxes for the apiary products they harvest in the BKZ.

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Illustration 9 A Beekeeping Camp in Mlele BKZ

The tax amounts to 10% of the market value of the products, according to the terms specified in Mlele Beekeeping Zone Bylaws. It means that a beekeeper possessing 10 liters of honey costing 3500TSH a liter will have to pay a tax of TSH3500.

Example:

If 1 liter is sold for TSH3500

For 1 liter the tax is 10% of TSH3500 so TSH350

For 10 liters the tax is 10*350 so TSH3500

8.2 HUNTING

Trophy hunting is allowed in the BKZ for the block owner only. The hunting company is bound to follow the yearly quotas established by the Wildlife Division.

Hunting does currently not participate in IBA's income generation since all taxes are paid to the WD as provided for in the law on Game Controlled Areas. The retrocession of part of these taxes to IBA is currently discussed with the WD.

Source: Tanzaniabiggame.com

Illustration 10 A Trophy Hunter with his Sable Antelope

Resident hunting is prohibited by the law on GCAs. Access to meat is however an important need for local

communities. For that reason, IBA will take the problem to the WD and request the possibility for villagers to access wildlife through specific quotas for common antelopes and for consumption in the Division only.

8.3 TOURISM

Tourism activities are organised by IBA Ecotourism Committee and working team. IBA Ecotourism Officer is responsible of the smooth running of the trips. It is his duty to make arrangements with the concerned people or groups to organize the guests' desired activities.

ACTIVITES	**PEOPLE CONCERNED**	**FEES**
Development Tax for IEA activities	Foreigners	USD400
Entering the BKZ for tourism activities	Tourist with guides	TSH10,000/= per day
Entering the area for tourism activities	Indigenous without guides	TSH3,000/= per day
Camping in the BKZ campsite	Foreigners with guides	TSH20,000/= per night per person

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Illustration 11 BKZ Campsite at Sunrise

8.4 SCIENTIFIC RESEARCH

Scientific Research is allowed in the BKZ for both Tanzanian and foreigners. To acquire the right of conducting surveys in the area, permits from the governmental institutions TAWIRI and COSTECH are needed. IBA shall then issue a permit to conduct the study in the BKZ. Fees for research are

ACTIVITES	PEOPLE CONCERNED	FEES
Research with extraction	Indigenous or foreigner researcher	TSH300,000/= per month
Research without extraction.	Indigenous or foreigner researcher	TSH150,000/= per month

8.5 EDUCATION

Apiaries have been placed in the BKZ near the road to Mpanda to welcome visitors and show them the beekeeping traditional activities and techniques.

A fee of TSH 10,000/= per person per day is asked to organize the demonstrations.

8.6 NON-TIMBER FOREST PRODUCTS GATHERING

Forest products other than wood and straws can be harvested by the holders of a permit issued by IBA. For products destined to self-consumption by community members the permit is free but compulsory. For products intended for sale, a fee is asked in accordance to the type and quantity of goods as provided for in the Bylaws.

9 RECORD-KEEPING

All books and records are freely accessible to community-members of Inyonga Division upon request to IBA management staffs.

9.1 OFFENCES & FINES BOOK

It is the Manager's responsibility to record all offences against the rules, offenders charged, fines levied, date paid, receipt number, and where the fine money has been deposited, spent on what items, etc.

9.2 PERMIT BOOK

It is the Manager's responsibility to record each permit issued by the Committee, for what purpose, to whom, amount of the fee, number of receipt issued, date of expiry, who will supervise or inspect the use, etc. Permits and licences themselves may be hand-written, signed and stamped using IBA stamp.

9.3 PATROL BOOK

The leader of every patrol has the responsibility to record exactly who patrolled where, when, what damage to the forest seen, etc. His reports must be submitted to IBA Management Committee. A copy must be sent to ADAP.

10 FINANCIAL MANAGEMENT

10.1 FINANCIAL OBJECTIVES

In the next few years, IBA yearly revenues should aim for a minimum of:

Beekeeping sector:

- Implementation of the existing access permit:
  TSH1,130,000 or 1.1% of the 100,000,000 needed
- Taxation: considering a honey production of 20,000 liters in the BKZ, if 50% (10,000) is reported and can be taxed at 10% of the market price (currently TSH3500 for rough honey):
  TSH3,500,000 or 3.5% of the 100,000,000 needed
- Selling: for 2,000 liters of rough honey being sold by IBA at current market price of TSH7,000, the benefit is:
  TSH7,00,000 or 7% of the 100,000,000 needed

Ecotourism sector:

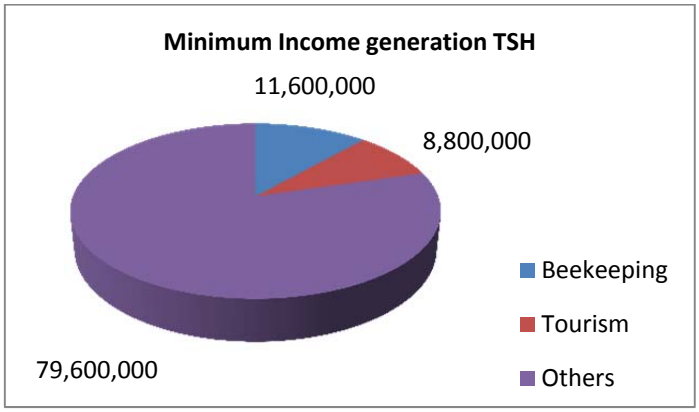
- For 20 people coming in one season, spending 4 days in Inyonga including 2 nights in the BKZ and assisting an educational visit:
  TSH8,800,000 or 8.8% of the 100,000,000 needed

Trophy Hunting sector:

- If the WD refuses to discuss the retrocession of a part of its taxes:
  -

Other sources of money :

- Including fundings, products of illegal activities, non-timber forest products taxation, …
  TSH 80,000,000 or 80% of the 100,000,000 needed



On a longer term, if IBA manages to make an agreement with the MNRT for hunting taxes, if the ecotourism activities develop thanks to new infrastructures and with the taxation implementation performance increasing, IBA yearly revenues could be organized as follows:

Beekeeping sector:

- Implementation of the existing access permit:
  TSH1,130,000 or 1.1% of the 100,000,000 needed
- Taxation: considering a honey production of 40,000 liters in the BKZ, if 70% (28,000) is reported and can be taxed at 10% of the market price (currently TSH3500 for rough honey):
  TSH10,000,000 or 10% of the 100,000,000 needed
- Selling: for 5,000 liters of rough honey being sold by IBA at current market price of TSH7,000 the benefit is :
  TSH17,500,000 or 17.5% of the 100,000,000 needed

Ecotourism sector:

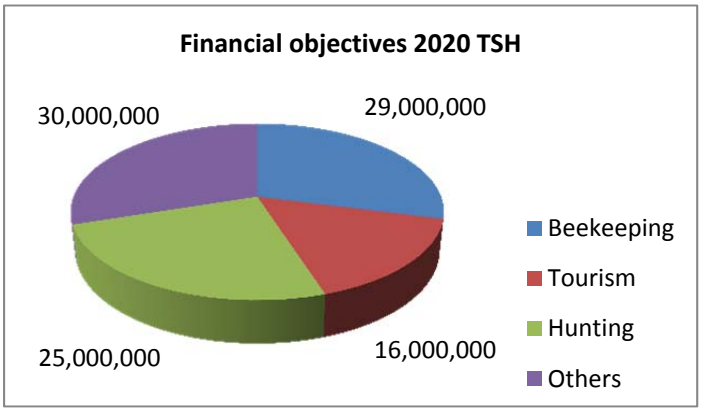
- For 36 (6 groups of 6) people coming in one season, spending 4 days in Inyonga including 2 nights in the BKZ and assisting an educational visit:
  TSH15,840,000 or 15.8% of the 100,000,000 needed

Trophy Hunting sector:

- If part of the taxes paid to the MNRT are given back to IBA after the WMAs model:
  TSH25,000,000 or 25% of the 100,000,000 needed

Other sources of money:

- Including fundings, products of illegal activities, non-timber forest products taxation, …
  TSH 30,000,000 or 30% of the 100,000,000 needed



10.2 BENEFIT SHARING AND RESOURCE ALLOCATION

The income generated by the management will be shared between IBA, the District and the Villages involved in the management.

IBA shall keep 70% of the income to pay for the management activities costs as described in the section 6, namely:

- Salaries for IBA paid staff and VGS
- Purchasing equipment and food needed for patrols
- Boundary clearing and boards
- Fire monitoring in the BKZ
- Material for campsite and roads maintenance
- Educational visits and apiaries maintenance
- Ecological monitoring
- Training and capacity-building programs
- Purchasing of office equipment and information recording books

The villages shall receive 20% of the income to be spent for village development projects only.

The District shall receive the 10% left of IBA yearly income.

In the event where all the sub mentioned costs can be covered by the income generated through the management, the benefits will be used to finance IBA's other activities.

11 ACCOUNTABILITY

IBA Accountant will be held accountable for receiving, receipting, and holding money from fines and fees and other sources and to keep that money safely. The cashbox will be controlled at the end of every month to ensure that the amount inside the cashbox is the same as the one reported in the book.

All funds received must be reported quarterly to the District Council and the Village Councils. It is then each Village Council's duty to inform the Village Assembly and to keep the reports available for the villagers to see. Any community member of Inyonga Division may access to records relating to payment of fines, expenditure, etc.

Once a year, IBA finances shall be audited by a private specialised company to ensure that books are kept properly and see that no funds have been misused or any book falsified.

12 PROCEDURES FOR HANDLING OFFENCES

The offences, penalties and procedures linked with illegal uses of natural resources within Mlele Bekeeping Zone are set out in the Mlele Beekeeping Zone Bylaws of 2014, signed and agreed upon by IBA, the District Council and the villages involved in the management. IBA shall refer to these Bylaws to enforce the law and apply the procedure.

In the eventuality where the offender is proved unable to pay the fines or to refund the expenses he generated, IBA may compel him or her to participate in association manual work such as road maintenance for a duration corresponding to the debt amount.

13 MONITORING AND EVALUATION

Indicators have been defined to assess the results of the activities implemented in the Beekeeping Zone as described in section 16 of this management plan. The manager is responsible of guaranteeing that each indicator's success is evaluated by internal of external experts.

Every year, IBA shall discuss its successes and shortcomings according to these indicators and record its evaluation. The results of every year will be compared to the previous years to document the evolution of IBA's performance.

Indicators for operational management evaluation:

- Number of people arrested with game meat or trophies
- Number of people arrested with timber or woods products and tools
- Quantity of timbering products seized in one year
- Type of timber seized (See Bylaws Appendix 3)
- Type and quality of trophys and wildlife products seized
- Increase of the honey quality
- Number of accidents or bee bites
- Number of people requesting equipments
- Increase of the honey quantity per beehive
- Number of buckets collected in the camps
- Number of beekepers requesting this service
- Number of clues of violent wildfire (trees burnt)
- Size of burnt areas
- Presence of boards at the BKZ borders
- Number of people arrested for grazing cattle in the BKZ
- Number of people arrested for practicing agriculture activities in the BKZ
- Number of people arrested for housing in the BKZ
- General state of the roads
- Tourists' satisfaction regarding campsite
- Number of animal species
- Abundance of animal species
- Number of rare species (See Bylaws Appendix 2)
- Abundance of rare species
- Number of tree species
- Number of melliferent species
- Abundance of melliferent species
- Abundance of high quality timber species (See Bylaws Appendix 3)
- Regeneration
- Canopy cover
- Number of permits issued for non-timber forest products gathering for self-consumption
- Number of permits issued for non-timber forest products gathering for selling purposes
- Number of users groups registered
- Percentage of the targeted amounts effectively attained for each sector of activity
- Staffs and leaders being able to describe their roles and duties
- Reports done as provided for by the management plan
- Meetings taking place as described in the Constitution
- Number of members or leaders abusing their roles
- Sentencing implementation for members and leaders making an offence

14 CONFLICT RESOLUTION

Conflicts between members or groups of different interests are to be handled in a participatory and democratic way, according to IBA's constitution. To discuss conflicts or events of great importance, a meeting can be called for by the members.

If conflicts between members and/or leaders should arise and no solution can be found within the Association, IBA may refer to Ward authorities for assistance in mediation.

15 STRATEGIC PLAN

	Objectives	Actions	Performance indicators
1	To protect and maintain the quality forest for apiary products	VGS Patrols	Number of people arrested with game meat or trophies
			Number of people arrested with timber or woods products and tools
			Quantity of timbering products seized in one year
			Type of timber seized (See Bylaws Appendix 3)
			Type and quality of trophies and wildlife products seized
		Training on modern techniques	Increase of the honey quality
		Providing suits and smokers for beekeepers	Number of accidents or bee bites
			Number of people requesting equipments
		Building and selling modern beehives	Increase of the honey quantity per beehive
		Providing honey collection camps	Number of buckets collected in the camps
			Number of beekepers requesting this service
		Early burning	Number of clues of violent wildfire (trees burnt)
			Size of burnt areas
2	To stabilise the BKZ boundaries and to prevent encroachment	Maintenance of boundaries	Presence of boards at the BKZ borders
			Number of people arrested for grazing cattle in the BKZ
			Number of people arrested for practicing agriculture activities in the BKZ
			Number of people arrested for housing in the BKZ
		Maintenance of roads and ADAP campsite	General state of the roads
			Tourists' satisfaction regarding campsite
3	To enhance Conservation in the BKZ	Wildlife monitoring by IBA staffs	Number of animal species
			Abundance of animal species
			Number of rare species (See Bylaws Appendix 2)
			Abundance of rare species
		Vegetation survey by experts (every 5 years)	Number of tree species
			Number of melliferent species
			Abundance of melliferent species
			Abundance of high quality timber species (See Bylaws Appendix 3)
			Regeneration
			Canopy cover
4	To encourage sustainable multiple uses of the forest	Supporting and facilitating access and uses	Number of permits issued for non-timber forest products gathering for self-consumption
			Number of permits issued for non-timber forest products gathering for selling purposes
			Number of users groups registered
5	To bring the Beekeeping Zone under effective management	Formulation of financial objectives for income generation	Percentage of the targeted amounts effectively attained for each sector of activity
		Increase the understanding and knowledge of management plan and Bylaws	Staffs and leaders being able to describe their roles and duties
		Respecting and following Association Constitution, MoU, Bylaws and Management plan	Reports done as provided for by the management plan
			Meetings taking place as described in the Constitution
			Number of members or leaders abusing their roles
			Sentencing implementation for members and leaders making an offence

DRAFTED BYLAWS

The following Bylaws have been drafted on the basis of participatory meetings with Villages, District and IBA representatives and existing laws regulating the BKZ. The structure has been established in collaboration with the head of the Legal Unit of MNRT.

It is important to note that the draft is by no mean finished and requires further development, adjustments and specifications. The purpose of this document is to lay the foundations for IBA to be able to discuss it with the villages until an agreement is reached. The aspects that could not be tackled or for which no solutions were found in the 10 weeks the study lasted are indicated in *italics*.

BYLAWS FOR MLELE BEEKEEPING ZONE

2014

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BYLAWS

BYLAWS FOR MLELE BEEKEEPING ZONE

2014

PRELIMINARY PROVISIONS

1) The Ministry of Natural Resources and Tourism is the legal owner of the Beekeeping Zone. The management rights have been transmitted to Inyonga Beekeeping Association (IBA) through a Memorandum of Understanding (MoU) signed in 2010. — Legal owner and management rights handover

2) IBA is the only authorized institution regarding any decision for Mlele Beekeeping Zone operational management. — Operational management authority

3) These Bylaws shall be translated into Kiswahili and that translation shall be published in the Gazette and in any other manner and form as will enable citizens of Tanzania to gain access to that translation. — Translation in Kiswahili

4) Whenever there is a conflict or an inconsistency of interpretation between the Kiswahili and English version, the English version shall prevail to the extent of the inconsistency or conflict. — English version prevails

PART I

PURPOSE

5) The purpose of these Bylaws is to provide a legal basis for the management activities conducted in the Beekeeping Zone and to regulate the sustainable use of natural resources activities within Mlele Beekeeping Zone. Legal asis and regulations

PART II

JURISDICTION

6) These Bylaws may be cited as Bylaws for Mlele Beekeeping Zone, 2014. They shall come into operation as soon as published in the Government Gazette. They shall apply to every user, visitor or anyone entering the Beekeeping Zone, including Tanzanian citizens and foreigners. Entry into force

7) Mlele Beekeeping zone is defined as an 850sqkm area demarcated within Mlele Forest Reserve, as shown in the annexed map. Definition of the area

8) Mlele Beekeeping Zone being part of a Forest Reserve and a Game Controlled Area, laws and rules within the area are defined by corresponding Acts, namely Beekeeping Act, Forest Act and Wildlife Management Authority Act. Multiple statuses

9) These Bylaws shall be accepted and adopted by Inyonga and the 5 villages sharing boundaries with the Beekeeping Zone, namely Utende-Uzega, Mgombe, Kanoge, Wachawaseme, which have agreed to establish and manage jointly the Mlele Beekeeping Zone. Adoption by the managing villages

10) These Bylaws can be amended, providing that - Amendment

    a) The proposed changes are not contrary to the spirit of theses Bylaws;
    b) IBA Management Committee, the Village Councils and the District Council all agree on the terms.

PART III

PROHIBITED AND ALLOWED ACTIVITIES

11) Sustainable natural resources use activities, as defined in these Bylaws, are allowed within the Beekeeping Zone, with the condition of a permit delivering by the management authority. Promotion of sustainable activities

12) Any person wanting to enter Mlele Beekeeping Zone and/or practice activities in the zone shall be registered and be delivered an access permit by IBA. Registration and permit issuing

13) The following activities are allowed through a licence: Activities needing a license

a) Recreation and tourism activities;
b) Modern beekeeping;
c) Scientific research;
d) Tourism hunting;
e) Collection of non-timber forest products such as fruits and mushrooms for selling purposes, except straws.

14) The Following activities are allowed through permits, without fee: Activities needing a permit, but no fee

a) Ritual ceremonies;
b) Establishment of temporary camps for allowed activities;
c) Wood collection and water fetching for allowed camps;
d) Collection of non-timber forest products such as fruits and mushrooms for self-consumption, except straws.

15) Permits and licenses shall be delivered by IBA *Manager or a delegated representative* only. Permit delivery

16) The prohibited activities within Mlele Beekeeping Zone are the following: Prohibited activities

a) Harming the trees in any way;
b) Honey harvesting with fire;
c) Honey harvesting from wild colonies;
d) Hunting without licence;
e) Livestock keeping and grazing;
f) Agriculture;
g) Mining and soil products extraction;
h) Charcoal production;
i) Damaging water sources in any way.

17) All prohibited activities taking place in the area will lead to judicial procedures, monetary compensation and/or imprisonment. Law enforcement

PART IV

OFFENCES AND PENALTIES

18) Offenders will be fined in accordance to the quantity and quality of the illegal products they harvested, and the sentence will be made proportional to the seriousness of the offence. The fine shall be higher when the quantity indicates selling purposes. Proportionality in sentencing

19) IBA Village Game Scouts are the executive authority within Mlele Beekeeping Zone. Upon assisting to or hearing of an illegal activity conduced in Mlele Beekeeping Zone, they shall - Arrest procedure

a) Apprehend the offender or the group of offenders and conduct them to IBA Management Committee;
b) Refuse to receive any money or in-kind goods from the offenders;
c) Avoid unnecessary violence.

20) VGS abusing their role and/or acting contrary to these Bylaws and their duty will be liable to fines and imprisonment twice as important as the amounts and terms set in these Bylaws for the people outside of the management team VGS committing an offence

21) IBA Manager is held responsible of enforcing the law. Upon confronting apprehended offenders, he shall - Fine procedure

a) In the case the wrongdoings are confessed in writing, fine the culprit in accordance to these Bylaws, and report the case to the Police.
b) In the case the wrongdoings are denied, bring the suspect to the Police to report the case and ask for further investigation.

22) Any person wanting to enter Mlele Beekeeping Zone and/or practice activities in the zone shall pay a five thousand shillings access permit fee. Registration and permit issuing

23) Any person found in the BKZ without a permit shall be liable to a fine not less than fifty thousand shillings and no more than two hundred thousand shillings or to imprisonment for a term not exceeding six months or both such fine and imprisonment. Trespassing

24) It is prohibited to cause bush or grass fire, or fell, cut, burn, injure or remove any standing tree. Offenders shall be liable to - a fine of not less than thirty thousand and not exceeding one million shillings or to imprisonment for a term of not less than two years or to both such fine and imprisonment. Penalty for harming trees

a) In the case of species mentioned in the Class I of the Annex 3 to these Bylaws, to a fine of not less than thirty thousand shillings and no more than one million thousand shillings or to imprisonment for a term not exceeding two years or both such fine and imprisonment;
b) In the case of species mentioned in the Class II of the Annex 3 to these Bylaws, to a fine of not less than fifty thousand shillings and no more than three hundred thousand shillings or to imprisonment for a term not exceeding one year or both such fine and imprisonment;
c) In the case of species mentioned in the Class III of the Annex 3 to these Bylaws, to a fine of not less than forty thousand shillings and no more than two hundred thousand shillings or to imprisonment for a term not exceeding six months or both such fine and imprisonment

d) In the case of species mentioned in the Class IV of the Annex 3 to these Bylaws, to a fine not led than thirty thousand shillings and no more than one hundred thousand shillings or to imprisonment for a term not exceeding 3 months or both such fine and imprisonment;
e) In the case of species mentioned in the Class V of the Annex 3 to these Bylaws, to a fine of not less than twenty thousand shillings and no more than two hundred thousand shillings or to imprisonment for a term not exceeding 2 months or both such fine and imprisonment.

Penalty for damaging the vegetation

25) It is forbidden to collect or damage any shrub, bush, grass, sapling, seedling or any part thereof. Offenders shall be liable to a fine not less than ten thousand shillings and no more than fifty thousand shillings or to imprisonment for a term not exceeding six months or both such fine and imprisonment

Penalty for using fire to harvest apiary products

26) Any person using open fire to harvest apiary products commits an offence and shall be liable to a fine of not less than thirty thousand shillings and no more than one hundred thousand shillings or to imprisonment for a term not exceeding six months or both such fine and imprisonment.

Misinformation or information withholding

27) Lying about production or hiding any apiary products is an offence subject to a fine not less than one hundred thousand shillings and corresponding to the taxation value of said products or to imprisonment for a term not exceeding six months or both such fine and imprisonment.

Prohibition of bark hives

28) Any person using or found in possession of one or more bark hives shall be liable to a fine of *two hundred* shillings per bark hive.

Penalty for harming animals

29) Any person hunting, capturing, killing, wounding or molesting an animal shall be liable –

a) in the case of an animal specified in Part I of Annex 2 to these Bylaws, to fine of *two million* shillings and imprisonment for a term of not less than *five years* or both such fine and imprisonment;
b) in the case of an animal specified in Part II of Annex 2 to these Bylaws, to a fine of not less than *five hundred thousand* shillings or imprisonment for a term not exceeding *2 years* or both such fine and imprisonment;
c) in the case of an animal specified in Part III Annex 2 to these Bylaws, to a fine of not less than *fifty thousand* shillings or imprisonment for a term not exceeding *6 months* or both such fine and imprisonment.

30) A person shall not possess a firearm, bow, arrow or any other weapon without the written permission of the Director General previously sought and obtained. Any offender should be liable – Possession of a weapon

a) In case of possession of a single action fire arm, to a fine of not less than five hundred thousand shillings or to imprisonment for a term of not less than 2 years or to both such fine and imprisonment;
b) In case of possession of automatic fire arms, to a fine of not less than one million shillings and imprisonment for a term of not less than 5 years and or to both such fine and imprisonment.

31) For grazing and keeping any livestock in the Beekeeping Zone, the fine shall be not less than five thousand shillings per head of livestock or imprisonment for a term of not less than 2 months or to both such fine and imprisonment. Grazing and livestock keeping

32) Pollution or undermining of water sources is an offence subject to a fine of not less than one hundred thousand shillings and not exceeding one million shillings or imprisonment for a term not less than six months or both such fine and imprisonment. Undermining water resources

33) *In the case of people committing a repeat offence, the amounts specified in these Bylaws shall be doubled.* Recurrence

PART V

INCOME AND BENEFIT SHARING

34) Beekeeping activities are subject to a tax on the production: Beekeeping taxation

a) Beekeepers shall report to IBA the quantity of apiary products they harvested for each season, in July and November;
b) A tax of ten percent (10%) of the market price shall be collected by IBA for honey and beeswax collected within Mlele BKZ.

35) *Non-timber forest products like fruits and mushrooms for selling purposes are taxed according to quantity and type of goods:* Forest products taxation

a)

36) The hunting company shall pay a part of its taxes to IBA, as provided for in the Joint Agreement between the MNRT and IBA. Trophy hunting taxation

37) Tourism activities shall be taxed as follows: Tax and fines for tourism activities

a) Any person or group of person no resident entering Mlele Beekeeping Zone for ecotourism activities shall pay a tax of USD 400 *deposited directly into a common bank account* and to be allocated to village development projects.

b) Any person or group of person no resident, allowed by IBA, wanting to spend one night in the campsite has to pay twenty thousand shillings per night and per person.
c) Any person or group of person no resident, allowed by IBA, wanting to camp in the Beekeeping Zone outside of the campsite has to pay seven thousand shillings per night and per person.

38) Penalties paid by offenders shall be collected by IBA. Penalties

39) All products of illegal activities seized shall belong to IBA and be *used as IBA committees see fit or* sold to finance the management. Products of illegal activities

40) Any person found in possession of illegal activities products shall be convicted to reimburse IBA for any costs and expenses he or she has incurred in the seizure, storage, maintenance and removal of said goods. Reimbursement in case of costs

41) All the income generated by permits, fees, fines and selling of products shall be shared between IBA, the District and the villages Benefit Sharing

a) *70%* of all revenue shall be kept by IBA to finance the operational management;
b) *20%* shall be shared equally by the 5 villages involved in the management;
c) *10%* shall be returned to the District authorities.

42) IBA shall spend its part of income for purposes of implementing the management, namely to - Resource allocation within IBA

a) Pay salaries for IBA management staff and VGS
b) Finance the operational management activities as described in the Management Plan
c) Purchase equipment and food for VGS management activities
d) Repair and maintain the cars in good state
e) Finance the judiciary procedures and court to prosecute offenders

43) The villages shall spend their part of the money generated by the management for village development projects only. Resource allocation in the villages

44) The village projects to be financed shall be decided upon by the Village Councils and voted in a General Assembly. Procedure of Resource allocation

REFERENCES

Legal Basis

Ministry of Natural Resources and Tourism (MNRT). (1998a). *The National Forest Policy*. Printed by the government Printer, Dar es Salaam, Tanzania.

Ministry of Natural Resources and Tourism (MNRT). (1998b). *National Beekeeping Policy.* Printed by the government printer, Dar es Salaam, Tanzania, 57 p.

Ministry of Natural Resources and Tourism (MNRT). (2002a). *The National Forest Act*. Printed by the government Printer, Dar es Salaam, Tanzania.

Ministry of Natural Resources and Tourism (MNRT). (2002b). *The National Beekeeping Act*. Printed by the government Printer, Dar es Salaam, Tanzania.

Ministry of Natural Resources and Tourism (MNRT). (2003). *Forest Regulations*. Printed by the government Printer, Dar es Salaam, Tanzania.

Ministry of Natural Resources and Tourism (MNRT). (2013). *The National Wildlife Management Authority Act*. Printed by the government Printer, Dar es Salaam, Tanzania.

Books

Adams, W.M., Hulme D. (2001) *Conservation and communities: changing narratives, policies and practices in African conservation*. Pages 9–23 in D. Hulme, M. Murphree, editors. African wildlife and livelihoods: the promise and performance of community conservation. James Currey, London.

Borrini-Feyerabend G., Kothari A., Oviedo G. (2004*). Indigenous and local communities and protected areas: Towards equity and enhanced conservation: Guidance on policy and practice for co-managed protected areas and community conserved areas.* Best Practice Protected Area Guidelines Series No. 11, IUCN, 129 p.

Estes, R. (1991). *The behavior guide to African mammals: including hoofed mammals, carnivores, primates*. Univ of California Press.

Lockwood M., Worboys G., Kothari A. (2006). *Managing Protected Areas: a Global Guide.* Earthscan. 802 p.

Graham, J., Amos, B., & Plumptre, T. W. (2003). *Governance principles for protected areas in the 21st century*. Institute on Governance, Governance Principles for Protected Areas.

Nelson F. (2010). *Community rights, conservation and contested lands: the politics of natural resources governance in Africa*. Earthscan, 330p.

Ostrom E. (1990). Governing the commons: The evolution of institutions for collective action. Cambridge university press.

Ostrom E. (2007). *Institutional Rational Choice: An Assessment of the Institutional Analysis and Development Framework*. In Theories of the Policy Process, ed. Paul A. Sabatier, 21-64. Boulder, CO: Westview Press.

Romelaer P. (2005). *L'entretien de recherche*. In Management des ressources humaines : méthodes de recherche en sciences humaines et sociales 101-137.

Peer-Reviewed Articles

Agrawal A. (2007). *Forests, governance, and sustainability: Common property theory and its contributions*. International Journal of the Commons, vol 1, no 1, pp111-136.

Alden Wily L. (2003). *Community-based land tenure management: Questions and answers about Tanzania's new Village Land Act, 1999*. International Institute for Environment and Development, Drylands Programme.

Balasinorwala T., Kothari A., Goyal M. (2004). *Participatory conservation: paradigm shifts in international policy*. IUCN, Gland, Switzerland and Cambridge, UK, and Kalpavrish (India).

Baldus R.D., Krischke H., Lyamuya V. and Ndunguru I.F. (1994). *People and Wildlife: Experiences from Tanzania*. Selous Conservation Programme Discussion Paper No. 16. SCP, Dar es Salaam, Tanzania.

Baldus, R.D.; Cauldwell, A.E. (2004). *Tourist hunting and its role in development of Wildlife Management Areas in Tanzania*. GTZ: Dar es Salaam, Tanzania.

Baldus R.D. (2006). *Tanzania: the crucial role of governance in ecosystem management—conclusions from the Selous conservation programme.* IUCN SSC Gnusletter 25(2):11–13

Blomley, T., Pfliegner, K., Isango, J., Zahabu, E., Ahrends, A., & Burgess, N. (2008). *Seeing the wood for the trees: an assessment of the impact of participatory forest management on forest condition in Tanzania.* Oryx, 42(03), 380-391.

Brockington, D. (2007). *Forests, community conservation, and local government performance: The village forest reserves of Tanzania*. Society and Natural Resources, 20(9), 835-848.

Brockington D. (2008). *Corruption, Taxation and Natural Resource Management in Tanzania*. Journal of Development Studies, 44:1, 103-126.

Caro T.M. (1999). *Densities of mammals in partially protected areas: Katavi ecosystem of western Tanzania.* J. Appl. Ecol. 36, 205–217.

Caro, T., Jones, T., & Davenport, T. R. (2009). *Realities of documenting wildlife corridors in tropical countries*. Biological conservation, 142(11), 2807-2811.

Carpaneto, G. M., & Fusari, A. (2000). *Subsistence hunting and bushmeat exploitation in central-western Tanzania*. Biodiversity & Conservation, 9(11), 1571-1585.

Carruthers, J. (1995).*The Kruger National Park. A social and political history*; University of Natal

Press: Pietermaritzburg, South Africa.

Chape S., Blyth S., Fish L., Fox P., Spalding M. (2003). *United Nations list of protected areas*. IUCN: Gland, Switzerland and Cambridge, UK; UNEP World Conservation Monitoring Centre, Cambridge, UK.

DeGeorges, P.A., Reilly, B.K. (2008). *A critical evaluation of conservation and development in Sub-Saharan Africa*; The Edwin Mellen Press: Lewiston, New York, NY, USA.

DeGeorges P. A., Reilly, B. K. (2009). *The realities of community based natural resource management and biodiversity conservation in Sub-Saharan Africa.* Sustainability, 1(3), 734-788.

De Vries D. (2005). *Choosing Your Baseline Carefully: Integrating Historical and Political Ecology in the Evaluation of Environmental Intervention Projects.* Journal of Ecological Anthropology, 9(1), 35-50.

Dovers, S. R. (1997). *Sustainability: demands on policy*. Journal of Public Policy, 16, 303-318.

Fischer C., Tagand R., Hausser Y. (2013). *Diversity and distribution of small carnivores in a miombo woodland within the Katavi region, Western Tanzania.* Small Carnivore Conservation, Vol. 48: 60–66.

Fjeldstad, O.-H. (2001) *Taxation, coercion and donors: local government tax enforcement in Tanzania.* The Journal of Modern African Studies, 39(2), pp. 289–306.

Hausser Y., Weber H., Meyer B. (2009). *Bees, farmers, tourists and hunters: conflict dynamics around Western Tanzania protected areas.* Biodiversity Conservation, 18(10), 2679-2703.

Hausser Y., Tagand R., Vimercati E., Mermod S., Fischer C. (2014, in review). *Revisiting conservation value of a community-managed area in Western Tanzania with the use of camera traps.* African Journal of Ecology.

Maddox, G. (2002). *Degradation narrative and Population time bombs: Myths and realities about African environments.* In *South Africa's environmental history: Cases and comparisons*; Dovers, S., Edgecombe, R., Guest, B., Eds.; David Philip Publishers: Capetown, South Africa, 2002; pp. 250-258.

Manor, J. (1999) *The Political Economy Democratic Decentralisation*. The World Bank: Washington, DC.

Matose, F. and Wily L. (1996). *Institutional arrangements governing the use and management of miombo woodlands. The Miombo in Transition*: Woodlands and Welfare in Africa. B. Campbell, CIFOR.

Murphree, M.W. (2001). *Community based conservation: Old ways, new myths and enduring challenges.* In *Experiences with community based wildlife conservation in Tanzania*; Baldus, R.D., Hahn, R., Kaggi, D., Kaihula, S., Murphree, M., Mahundi, C.C., Roettcher, K., Siege, L., Zacharia, M. Tanzania Wildlife Discussion Paper No 29; Wildlife Division/GTZ: Dar es Salaam, Tanzania.

Nelson F. (2007). *Emergent or illusory? Community wildlife management in Tanzania.* IIED, Dryland Issue Paper 146, London.

Nelson F., Nshala R., & Rodgers W. A. (2007). *The evolution and reform of Tanzanian wildlife management*. Conservation and Society, 5(2), 232.

Roe D. (2008). *The origins and evolution of the conservation-poverty debate: a review of key literature, events and policy processes*. Oryx, 42(04), 491-503.

Wily, L.(1997). *Moving forward in African Community Forestry: trading power, not use rights.* Society and Natural Resources, 12, pp. 49–61.

Wily, L., Akida, A., Haule, O., Heribeth, H., Hozza, S., Kavishe, C., Luono, S., Mamkwe, P., Massawe, E., Mawe, S., Ringo, D., Makiya, M., Minja, M. and Rwiza, A. (2000). *Community management of forests in Tanzania*. Forest, Trees and People Newsletter, 42, pp. 36–45.

Wily, L. and Dewees, P.A. (2001). *From users to custodians: changing relations between people and the state in forest management in Tanzania*. World Bank Policy Research Paper, 2569.

Practical guides and reports

ADAP (2012). *Programme de gestion communautaire des ressources naturelles et soutien à l'apiculture dans la région d'Inyonga* : *Rapport final d'activités de la phase III*. 15p.

ADAP (2013a). *Programme de gestion communautaire des ressources naturelles et soutien à l'apiculture dans la région d'Inyonga : 2ème rapport intermédiaire d'activités de la phase IV*. 9p.

ADAP (2013b). *Programme de gestion communautaire des ressources naturelles et soutien à l'apiculture dans la région d'Inyonga, Phase V : Dossier de projet.* 15p

Alcorn, J., Kajuni, A., & Winterbottom, B. (2002). *Assessment of CBNRM best practices in Tanzania.* Final report prepared for USAID Tanzania and USAID Africa Bureau, Office of Sustainable Development.

Alden Wily, L. (2002). *Participatory forest management in Africa: an overview of progress and issues.* In *Second international workshop on participatory forestry in Africa. Defining the way forward: sustainable livelihoods and sustainable forest management through participatory forestry*, Arusha, United Republic of Tanzania (pp. 18-22).

Brockington D. (2007). *Decentralisation, Local Government, and Natural Resource Management: Corruption, accountability and democratic performance in Tanzania.* Unpublished data.

Central Intelligence Agency (2013). *"Tanzania"*. The World Factbook. Retrieved 12 July 2013.

EPA (2012). *Public Participation guide.* U.S. Environmental Protection Agency, 122p.

Hausser (2006). *Tanzania Legal Survey*. Gland, Switzerland and Cambridge, UK: IUCN, 8p.

Hogan M. (2014). *Central Zambezian Miombo Woodlands*. World Wildlife Fund, 9p.

Kayombo C.J, Issa Mpinga I., Natai H, (2013). *Melliferous Status and Activities Endangering Tree Species Composition and Diversity Survey of Mlele Bee Keeping Zone [Mbkz], in Mlele District, Katavi Region-Tanzania.* Forestry Training Institute-Olmotonyi, 91p.

Mwakatobe, A. & Mlingwa, C. (2005). *The marketing of bee products in Tanzania*. Paper presented at the Bees for Development Honey Trade Workshop held in Dublin, Ireland, August 2005.

Nelson, F. and Makko, S.O. (2003) *Communities, conservation and conflicts in the Tanzanian Serengeti.* Third annual community-based conservation network seminar: Turning Natural Resources into Assets, Savannah, Georgia.

Scolum N., Eliott J., Heesterbeek S., Lukensmeyer C.J. (2006). *Méthodes participatives : Un guide pour l'utilisateur.*Fondation Roi Baudouin, 197 p.

MNRT (2003). *Framework for Participatory Forest Management.* Ministry of Natural Resources and Tourism, Dar es Salaam, Tanzania.

MNRT (2006). *Participatory Forest Management: Facts and Figures*. Ministry of Natural Resources and Tourism, Forestry and Beekeeping Division, Dar es Salaam, Tanzania.

MNRT (2007) *Joint Forest Management Guidelines: For establishment of Joint Management Agreements in Protection and Production Forests*. Forestry and Beekeeping Division, Dar es Salaam, 56 p.

Thomas L. & Middleton J. (2003). *Guidelines for Management Planning of Protected Areas*. IUCN Gland, Switzerland and Cambridge, UK. ix + 79pp.

URD (2004), *Manuel de la participation à l'usage des acteurs humanitaires.* Association Urgence Réhabilitation Développement, 8p.

WSRTF. 1995a. *A Review of the Wildlife Sector in Tanzania. Volume 1: Assessment of the Current Situation*. Ministry of Tourism, Natural Resources and Environment: Wildlife Sector Review Task Force, Dar es Salaam, Tanzania.

WSRTF. 1995b. *A Review of the Wildlife Sector in Tanzania. Volume 2: Possible Future Options.* Ministry of Tourism, Natural Resources and Environment: Wildlife Sector Review Task Force, Dar es Salaam, Tanzania.

World Bank (2008). *Agriculture for Development.* World Development Report 2008,Washington, 265p.

Bachelor Theses

Mermod S. (2012). *Etude et comparaison de la diversité spécifique des moyens et grands mammifères de deux aires protégées à statut de protection différent.* Mémoire de bachelor, Haute Ecole du Paysage, de l'Ingénierie et de l'Architecture, Genève, 68p.

Varet C. (2006).*Etude d'un projet de gestion communautaire: Mise en place du plan de gestion de la Beekeeping Zone d'Inyonga*. Mémoire de diplôme, Ecole d'ingénieur de Lullier, Genève 69p.

Weber H. (2006). *Classement de la Bee Reserve d'Inyonga, Tanzanie, et établissement d'un plan de gestion*. Mémoire de diplôme, Ecole d'ingénieur de Lullier, Genève 74p.

Gelsi T. (2009). *Conception et mise en oeuvre d'une offre de tourisme communautaire dans la region d'Inyonga en Tanzanie.* Mémoire de diplôme, Ecole d'ingénieur de Lullier, Genève 61p.

Delisle L. (2014). *Evaluation comparative de la valeur de conservation de différentes aires protégées tanzaniennes par le biais de pièges photographiques*. Hepia, Genève.

Personal communications

Hausser Y. Professor at University of Applied Science - Western Switzerland (UASWS), main technical advisor for Association for the Development of Protected Areas (ADAP).

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Tenganamba . Mlele District Administrative Secretary (DAS).

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et d'architecture de Genève

Hes·so
Haute Ecole Spécialisée
de Suisse occidentale

Evaluation and Amendment of Mlele Beekeeping Zone Management Plan, Tanzania

A case of community-based natural resources management

APPENDIXES

Bachelor Thesis presented by

Roxane Didier

In the purpose of obtaining a UAS-WS Bachelor's degree in Natural Resources Management

October 2014

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APPENDIX 1

Map of Inyonga Division

Inyonga Villages

Scale 1:250,000

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To Mpanda

To Tabora

N

Mlele BKZ

Kamsisi

Utende/Uzega

Mgombe

Kanoge

Inyonga

Wachawaseme

Mtakuja

Nsenkwa

Kaulolo

Mapili

Ipwaga

Masigo

0 5 10 20 30 40 Kilometers

Légende

- Villages
- Mlele Beekeeping Zone
- Inyonga Villages Boundaries

Roads

- Main
- Secondary
- Track
- Patrol
- No road/broken

APPENDIX 2

PAs Around Inyonga

Protected Areas around Inyonga

Scale 1:250,000

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N

Mpanda North East FR

Ugalla River FR

Inyonga FR

Mlele FR

Mlele BKZ

Rukwa GR

Rungwa River FR

Katavi

0 5 10 20 30 40 Kilometers

Légende

- Villages
- Mlele Beekeeping Zone
- Inyonga Villages Boundaries

Protected Areas

- Game Reserves
- National Parks
- Game Controlled Areas
- Forest Reserves
- Mlele FR

APPENDIX 3

Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING

BETWEEN

MINISTRY OF NATURAL RESOURCES AND TOURISM – FORESTRY AND BEEKEEPING DIVISION

AND

INYONGA BEEKEEPERS ASSOCIATION

Dar Es Salaam **2010**

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (hereinafter referred to as the MoU) is entered this 04. day of DECEMBER, 2010.

BETWEEN

the Ministry of Natural Resources and Tourism-Forestry and Beekeeping Division of P.O. Box 9372, Dar Es Salaam (hereinafter referred to as "MNRT-FBD") on one part

AND

Inyonga Beekeepers Association of P.O. Box 16, Mpanda (hereinafter referred to as "IBA") on the other part, (collectively referred to as "the Parties").

WHEREAS MNRT-FBD is having a mandate of managing Mlele Hill Forest Reserve within Mpanda District, Rukwa Region and IBA having a mandate given by MNRT-FBD to carry out beekeeping activities within the area of 850 Km sq (as shown in the map) for development and sustainable use of forest plants in the reserve as income generation to the Local Beekeepers;

AND WHEREAS the Parties, on the basis of this MoU, have agreed and stated their mutual desire to develop and reinforce their cooperation in development and sustainable use of forest plants by conducting beekeeping activities;

PURSUANT to the mutual desire to cooperate in development and sustainable use of forest plants by conducting beekeeping activities the Parties hereby agree as follows:

ARTICLE 1
OBJECTIVE

The objective of this MoU is to establish a working relationship between the Parties and their cooperation on equality, overall reciprocity and mutual benefit on establishing a Beekeeping zone in mlele forest reserve which will be the main source of bee breeding materials, source of Package Colonies for both stinging and stingless honeybees, enhance conservation of biodiversity of honeybees and for the production of bee products.

ARTICLE 2
MUTUALITY

This MoU is made in utmost good faith and trust between MNRT-FBD and IBA with the common objective of proper management of forestry and beekeeping resources and income generated from Beekeeping Zone shall be divided in accordance with the Beekeeping Zone Management Plan.

ARTICLE 3:
PARTIES RESPONSIBILITIES

1. MNRT-FBD shall:

a. Provide technical support to IBA;
b. Monitor beekeeping activities conducted by IBA in the forest reserve;
c. Maintain open links of communication during the life of this MoU;
d. Monitor contract compliance and advice accordingly;
e. Not allow harvesting of forest produce other than those specified in this MoU within Beekeeping zone unless there is a mutual consent between parties;
f. In case the terms of MoU are not being fulfilled MNRT-FBD may terminate without compensation and assume its management until the other party commits in writing to adhere to the terms and conditions of the MoU.
g. Ensure that wildlife activities comply with the relevant laws and in case the wildlife activities to be conducted fall under the beekeeping zone, the licence holder shall inform IBA authority for monitoring.

2. IBA shall:

a. Manage beekeeping zone in accordance with the Beekeeping Act No. 15 of 2002 and Beekeeping Regulations of 2005;
b. Abolish unregulated exploitation of forest biodiversity especially the rare, irreplaceable species of plants and those threatened by overexploitation especially those of beekeeping, ecological and economical values;
c. Protect, conserve and development of the forest bio-genetic resources;
d. Plant /gap planting of indigenous plant/tree species with beekeeping values;
e. Ensure sustainable existence of honeybees by maintaining and effectively apply appropriate beekeeping techniques and methods;
f. Cooperate with Forest and Beekeeping Division in the management and sustainable utilization of genetic resources;
g. Work hard to improve quality and quantity of honey, beeswax and other bee products and ensure sustainable supply of the same;
h. Provide services as demonstration centre for beekeeping activities;
i. Make this zone as a source of bee breeding materials, source of package colonies for both stinging and stingless honeybees, enhance conservation of biodiversity of honeybees and production of bee products;
j. Perform regulated eco-tourism without compromising to the environment;
k. Allow researchers, trainers to conduct research and training in the beekeeping zone;
l. Allow dully authorized officers from the Government to visit and or in respect the Bee-Reserve and those officials shall communicate to IBA any observations, comments or recommendations observed during the visit;

m. Submit two progressive reports per year to the Director of Forestry and Beekeeping, one in early July and the other in Early January.

ARTICLE 4:
JOINT RESPONSIBILITIES

4.1 The parties shall each designate a representative to be responsible for all routine liaisons within the scope of this agreement. These representatives shall be empowered to make decisions on all relevant issues of a technical nature within the scope of work, but not those, which may impinge on major policy or financial matters, which need higher level decision making;

4.2 All joint activities or meetings shall be conducted subject to prior mutual consultation and agreement between the parties;

4.3 It is the intention of both parties to make every effort to contribute towards mutual support and collaboration in all areas covered by this agreement and in all activities undertaken jointly or singly in pursuance of the objectives of this agreement.

ARTICLE 5:
AMENDMENTS, INTERPRETATION, EXTENSION AND TERMINATION

5.1 Any dispute between the parties regarding the interpretation or implementation of this agreement shall be settled amicably by consultation or negotiation within the spirit of collaboration;

5.2 This agreement shall become effective on the date of its signing by both parties. It will remain in force for **ten (10)** consecutive years and it could be reviewed by both parties and may be extended, modified or unmodified in substance, for a further period by mutual agreement;

5.3 This agreement may be amended by means of mutual written consent on both parties;

5.4 Either Party may terminate this Agreement if the other party causes a fundamental breach of the Agreement by giving the other party a written notice of termination of not less than 60 days.

a. If the Agreement is terminated, IBA shall stop work immediately and make the area safe and secure as soon as possible.

b. If the Agreement is terminated by MNRT-FBD's convenience or because of the fundamental breach of the Agreement by MNRT-FBD, IBA shall be entitled to be indemnified for the investment made by them.

5.5 It is the obligation of each part to inform another party when its circumstances change.

IN WITNESS WHEREOF, the Parties, acting through its duly authorized representative, have signed this Memorandum of Understanding:

For and on behalf of MNRT-FBD

.....

Ms. Gladness Mkamba,
For: Director of Forestry and Beekeeping.

For and on behalf of IBA

.....

Mr. Noel F. Malilo,
Chairperson.

INYONGA BEEKEPERS ASSOCIATION (IBA) DATE 04/12/2019 P.O.BOX 16 MPANDA

APPENDIX 4

IUCN Categories

Ia Strict Nature Reserve

- Category Ia are strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphical features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring

Ib Wilderness Area

- Category Ib protected areas are usually large unmodified or slightly modified areas, retaining their natural character and influence without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

II National Park

- Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities.

III Natural Monument or Feature

- Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

IV Habitat/Species Management Area

- Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Many Category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.

V Protected Landscape/ Seascape

- A protected area where the interaction of people and nature over time has produced an area of distinct charcter with significant, ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VI Protected area with sustainable use of natural resources

- Category VI protected areas conserve ecosystems and habitats together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area

(source : www.iucn.org)

They correspond to line 2: IUCN category II and column A1: Governance by government: national ministry or agency in charge of management. They are managed by the para-statal body Tanzania National Parks (TANAPA) and the legal basis is the National Parks Ordinance. They are destined to sustainable tourism, and all other activities are banned.

They correspond to IUCN category IV and column A1: Governance by government, national ministry or agency in charge of management. They are managed by the Wildlife Division and based on the Wildlife Act. They are meant almost exclusively for trophy hunting by foreign tourists. They are divided in hunting blocs, rented by hunting companies.

They correspond to IUCN category VI and column A1: Governance by government: national ministry or agency in charge of management. Though originally intended for local communities' traditional hunting, GCAs are multi-use areas, and as such they allow other activities like forestry or beekeeping. They are also divided in hunting blocks and managed by the Wildlife Division.

IUCN category VI. Another kind of multi-use area, created to maintain timber stocks. Logging is allowed and subject to a permit. Other activities such as apiculture, hunting and mining are allowed but people cannot settle down or farm these lands. All types of FR are based on the Forest Act. Governmental FR have a governance by Government type A1: Governance by government, national ministry or agency in charge of management and are managed by Tanzania Forest Service (TFS), while district-level FR are managed by the district, column A2: sub-national ministry or agency In charge of management.

IUCN category VI, column B2: Shared Governance, collaborative management. They are destined to sustainable use of the natural resources, and managed by local communities or co-managed. Residency, agriculture and grazing of livestock are not allowed.

IUCN category VI, column B2: Shared Governance, collaborative management between community-based organizations (CBOs) and Wildlife Division and District. They are destined to non-consumptive use and hunting and managed by CBOs.

Correspond to IUCN category VI. They are created to promote sustainable use of bee products and bee fodder. They can be Governmental, in which case they correspond to column A1 and are managed by the Tanzania Forest Service. District-level bee reserves correspond to column A2: sub-national ministry or agency In charge of management, and managed by the District.

IUCN category VI, column B2: Shared Governance, collaborative management. They are administered to improve sustainable use of bee products and bee fodder and are managed collaboratively by a community-based organization and district offices.

APPENDIX 5

Map of the Vegetation

Vegetation

Scale 1:250,000

Evaluation and Amendment of Mlele Beekeeping Zone Management Plan

Bachelor thesis hepia

Roxane Didier October 2014

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N

0 5 10 20 30 40 Kilometers

Légende

- Mlele Beekeeping Zone
- Inyonga Villages Boundaries
- open grassland seasonally inundated
- open woodland
- dense bushland
- thicket
- urban area
- bare soil
- grassland with scattered cultivation
- bushed grassland
- closed woodland
- woodland with scattered cultivation
- bushland with emergent trees
- swamp
- wooded grassland seasonally inundated
- open bushland
- natural forest
- wooded grassland
- mixed cultivation
- bushland with scattered cultivation
- open grassland

APPENDIX 6

Beekeeping production and Revenue in Mlele District

2004-2012

Year	No of Beekeepers	No of Beehives	Honey		Bees wax		Total District value
			Weight (KGS)	Value TSH	Weight (KGS)	Value TSH	
2004	3270	99,719	10,540	21,080,000	8,000	32,000,000	53,080,000
2005	3000	60,900	20,942	41,884,000	13,680	54,720,000	138,488,000
2006	3470	80,081	316	948,000	128	384,000	1,332,000
2007	5600	113,301	37,600	75,200,000	13,009	45,531,500	120,731,500
2008	5460	130,486	42,238	126,714,000	20190	80,760,000	207,474.00
2009	4314	135,535	29,000	116,000,000	12,6	56,700,000	172,700.00
2010	5390	142,089	62,011	310,055,000	28,44	142,200,000	452,255,000
2011	4300	100,297	63,016	315,080,000	28,440	142,200,000	457,280,000
2012	4270	110,000	66,220	331,100,000	18,000	126,000,000	457,100,000

Source : District Land and Natural Resources Officer DLNRO– Mlele District 2014

APPENDIX 7

Revenue from Wildlife Hunting in Mlele District

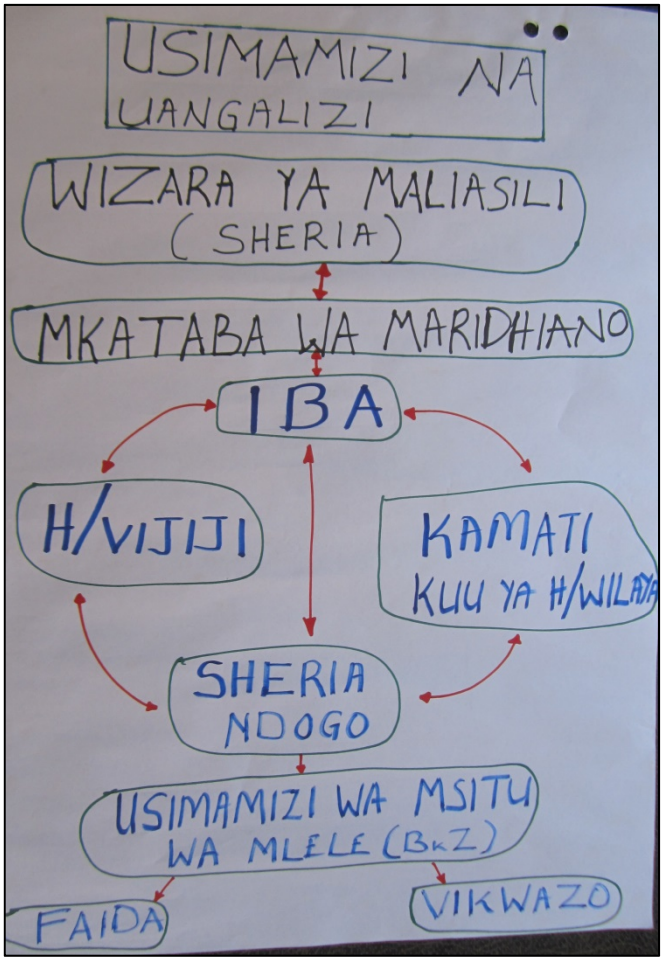
2004-2012

YEAR	TOURIST HUNTING ANIMAL KILLED	VALUE TSHS
2004	334	160,467,500.00
2005	252	125,367,500.00
2006	279	146,512,500.00
2007	297	263,455,000.00
2008	287	343,465,000.00
2009	250	124,850,000.00
2010	150	52,401,400.00
2011	200	79,360,000.00
2012	180	75,360,000.00

Source : District Land and Natural Resources Officer DLNRO– Mlele District 2014

APPENDIX 8

Presentation Boards for General Meetings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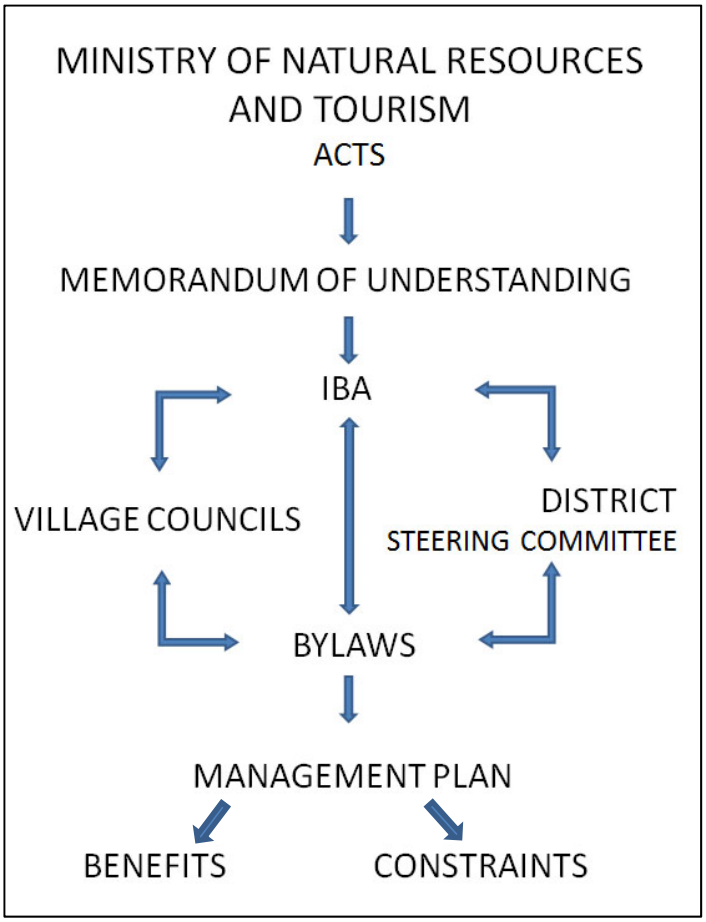
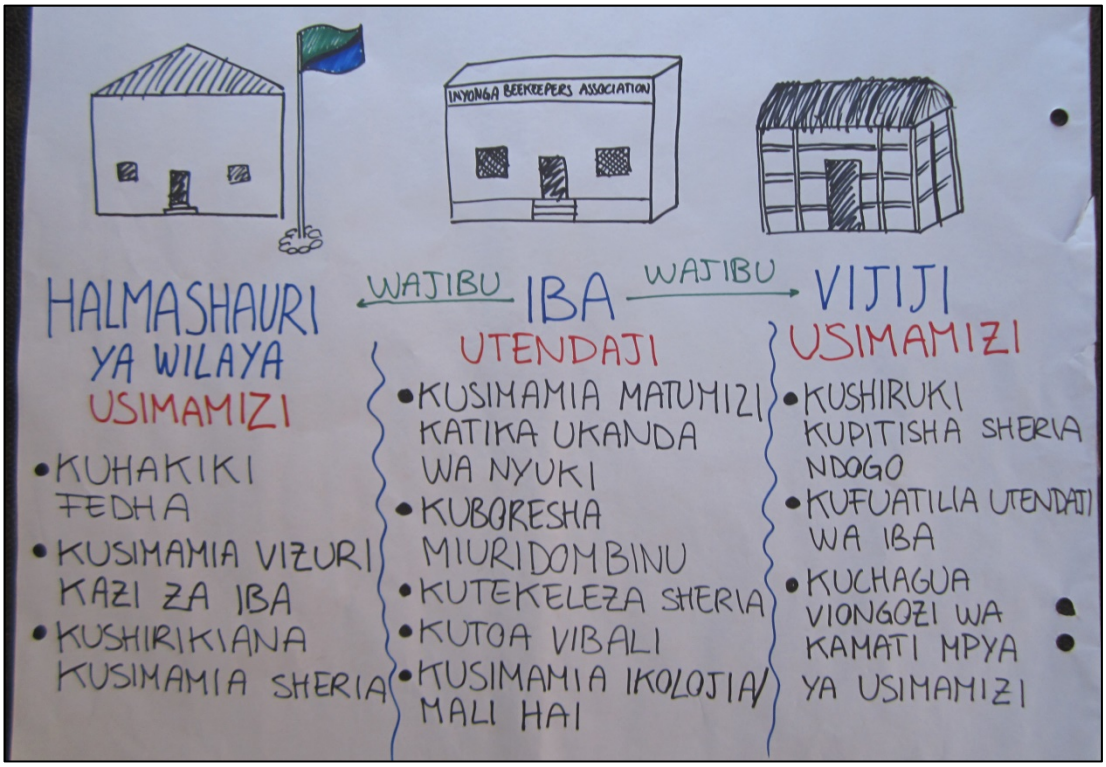
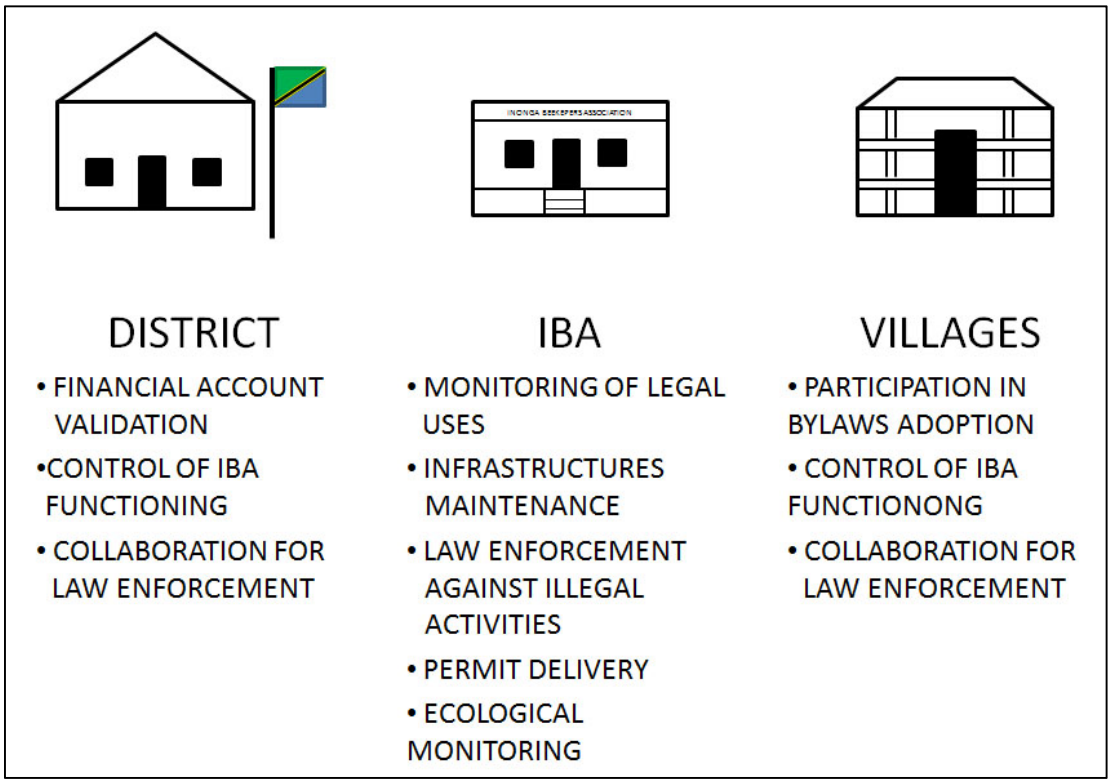
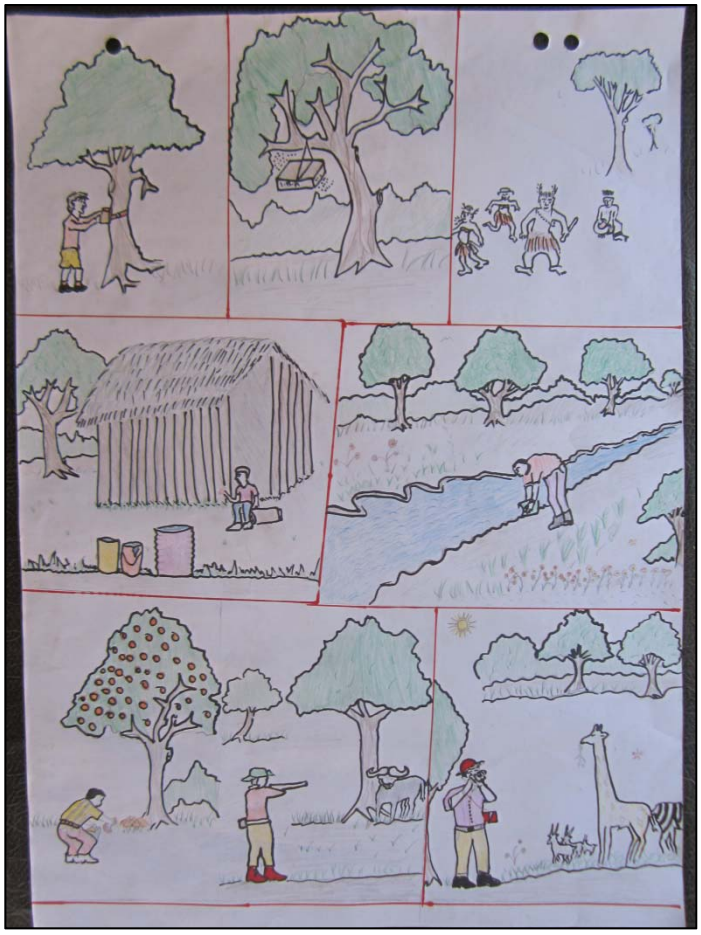
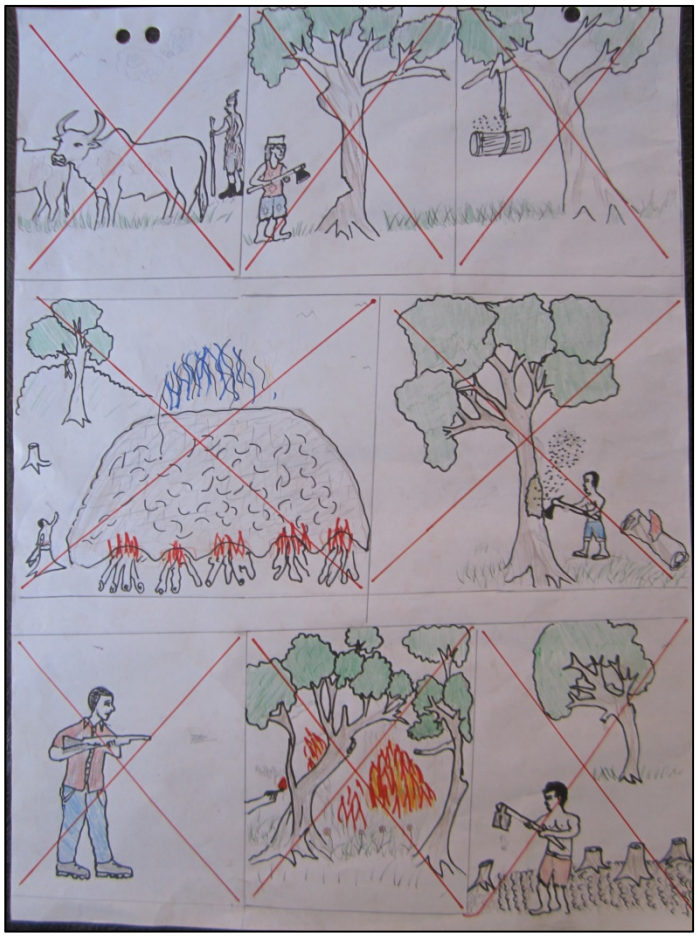
WIZARA YA MALIASILI (SHERIA)
MKATABA WA MARIDHIANO
IBA
H/VIJIJI
KAMATI KUU YA H/WILAYA
SHERIA NDOGO
USIMAMIZI WA MSITU WA MLELE (BkZ)
FAIDA
VIKWAZO

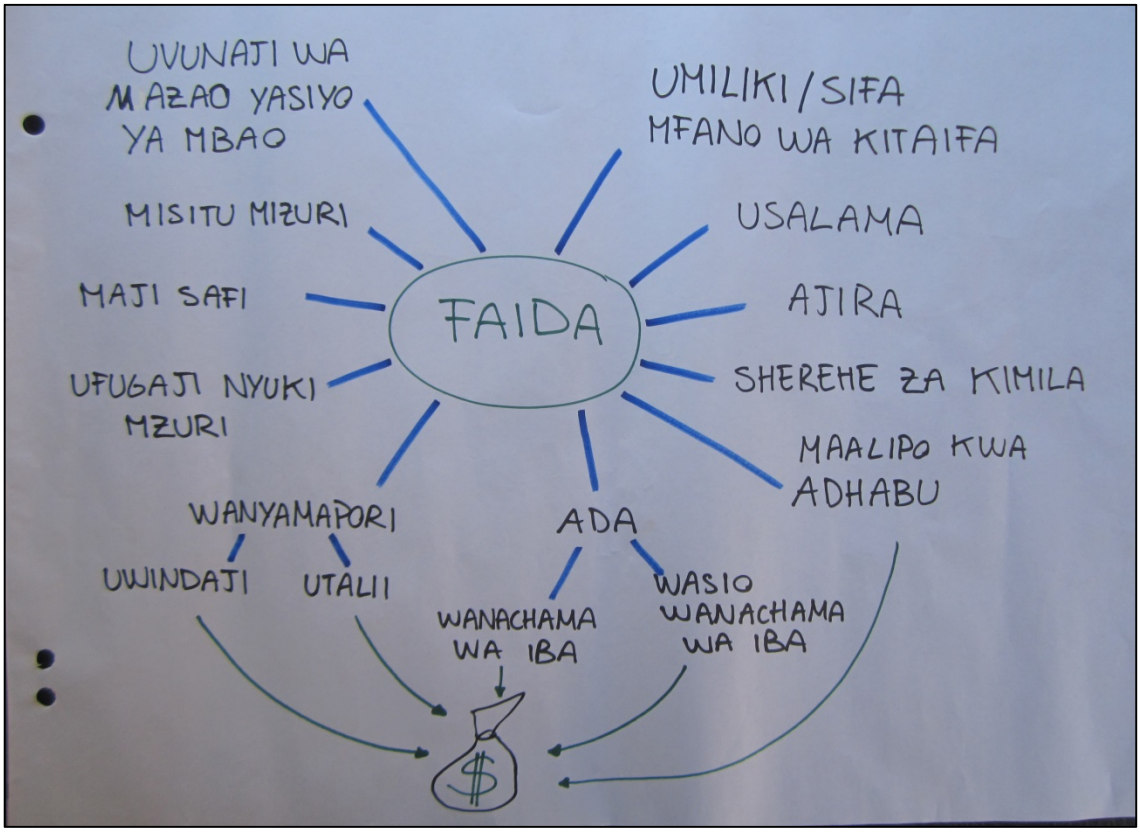

MINISTRY OF NATURAL RESOURCES AND TOURISM
ACTS
MEMORANDUM OF UNDERSTANDING
IBA
VILLAGE COUNCILS
DISTRICT STEERING COMMITTEE
BYLAWS
MANAGEMENT PLAN
BENEFITS
CONSTRAINTS

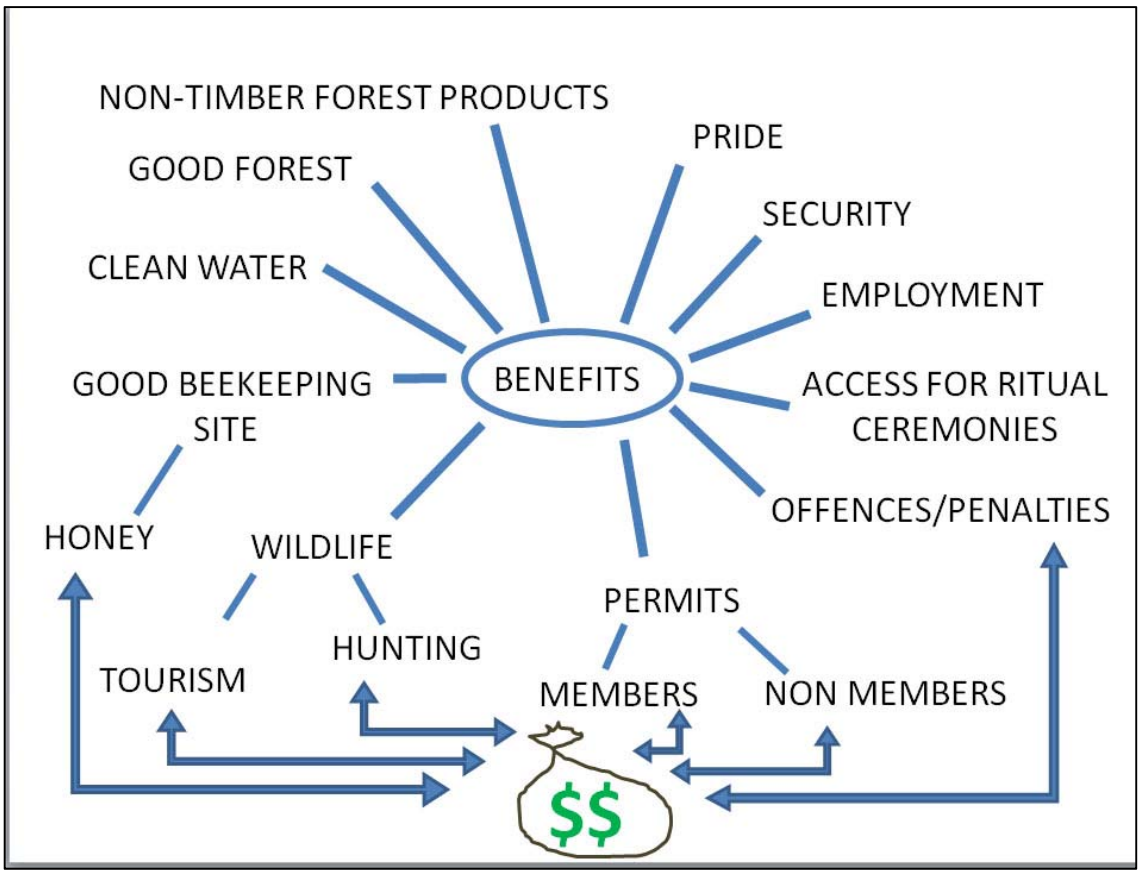

INYONGA BEEKEEPERS ASSOCIATION
HALMASHAURI YA WILAYA USIMAMIZI
•KUHAKIKI FEDHA
•KUSIMAMIA VIZURI KAZI ZA IBA
•KUSHIRIKIANA KUSIMAMIA SHERIA
WAJIBU
IBA UTENDAJI
•KUSIMAMIA MATUMIZI KATIKA UKANDA WA NYUKI
•KUBORESHA MIUNDOMBINU
•KUTEKELEZA SHERIA
•KUTOA VIBALI
•KUSIMAMIA IKOLOJIA/ MALI HAI
WAJIBU
VIJIJI USIMAMIZI
•KUSHIRIKI KUPITISHA SHERIA NDOGO
•KUFUATILIA UTENDAJI WA IBA
•KUCHAGUA VIONGOZI WA KAMATI MPYA YA USIMAMIZI


DISTRICT
• FINANCIAL ACCOUNT VALIDATION
•CONTROL OF IBA FUNCTIONING
• COLLABORATION FOR LAW ENFORCEMENT
IBA
• MONITORING OF LEGAL USES
• INFRASTRUCTURES MAINTENANCE
• LAW ENFORCEMENT AGAINST ILLEGAL ACTIVITIES
• PERMIT DELIVERY
• ECOLOGICAL MONITORING
VILLAGES
• PARTICIPATION IN BYLAWS ADOPTION
• CONTROL OF IBA FUNCTIONONG
• COLLABORATION FOR LAW ENFORCEMENT






UVUNAJI WA MAZAO YASIYO YA MBAO
UMILIKI / SIFA MFANO WA KITAIFA
MISITU MIZURI
USALAMA
MAJI SAFI
FAIDA
AJIRA
UFUGAJI NYUKI MZURI
SHEREHE ZA KIMILA
MAALIPO KWA ADHABU
WANYAMAPORI
ADA
UWINDAJI
UTALII
WANACHAMA WA IBA
WASIO WANACHAMA WA IBA
$


NON-TIMBER FOREST PRODUCTS
PRIDE
GOOD FOREST
SECURITY
CLEAN WATER
EMPLOYMENT
GOOD BEEKEEPING SITE
BENEFITS
ACCESS FOR RITUAL CEREMONIES
OFFENCES/PENALTIES
HONEY
WILDLIFE
PERMITS
HUNTING
TOURISM
MEMBERS
NON MEMBERS
$$

APPENDIX 9

Procedure for making Village Bylaws

The legal source of Village Bylaws is the *Local Government (District Councils) Act No. 7 of 1982*. This law has been amended twice (1992, 1999), each time giving more strength to the village level of government. The procedure for making Village Bylaws given below comes from that law (especially section 163).

1. A proposal for developing Bylaws is put forward by a Committee in the village community.

2. The Village Council calls a Village Assembly to discuss the proposal.

3. Views of the villagers should be taken into account. Village Council then drafts the final bylaws and passes it. It is recorded in the minutes.

4. The Village Council submits the Bylaws to the Ward Development Committee for its comments and support. It is recorded in the minutes. Though not legally required, the District Council may want this.

5. The Chairperson of the Village Council then submits the proposed Bylaws to the District

Council Chairperson, through the DED and copied to the DFO. He includes:

• a copy of the Minutes of the Village Assembly where the Bylaws were discussed

and agreed

• a copy of the Minutes of the Village Council meeting

• a copy of the Minutes of the Ward Development Committee

6. At its next meeting, the District Council discusses the Bylaws. Usually the DFO presents the Bylaws to the Council meeting and gives his technical opinion. If the Bylaws are approved this is recorded in Council Minutes.

7. The District Chairperson signs and dates all the copies of the Village Bylaws. These are returned to the Village Council.

8. The Village Chairperson also signs and dates the copies. Some copies are returned again to the files of the District Council. The District Council may post a copy on its notice board as public notice.

9. Usually the Village Council makes sure that the local Primary and District Magistrates have copies to use if any cases relating to the matter are brought before them. The Village Council keeps one copy in its file and also posts one copy at the Office so that everyone in the village can see it

Source: MNRT 2007

APPENDIX 10

The IUCN protected area matrix:

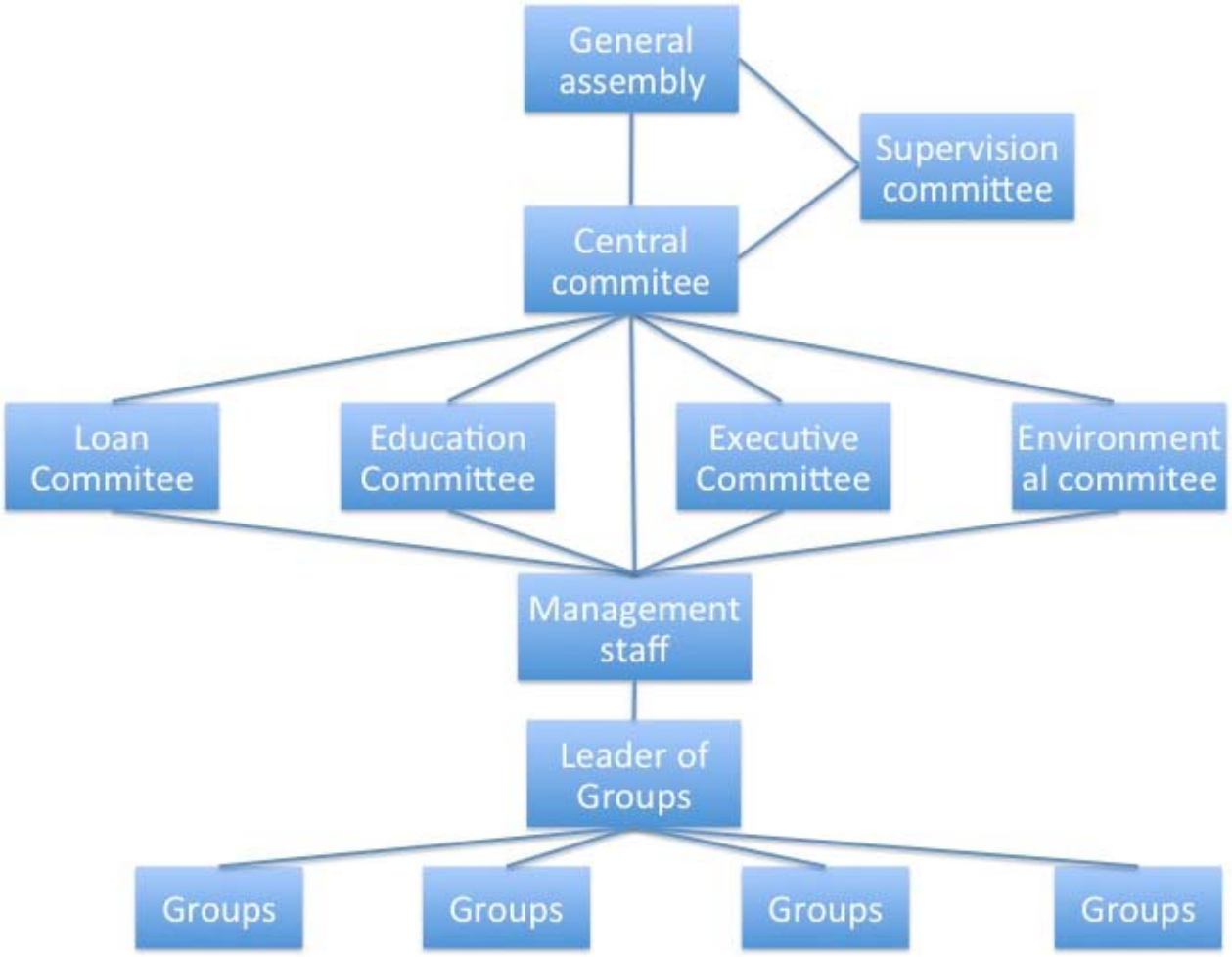
Governance and management types in Tanzania

Governance types / Protected area categories	A. Governance by government			B. Shared governance			C. Private governance			D. Governance by indigenous peoples and local communities	
	Federal or national ministry or agency in charge of management	Sub-national ministry or agency in charge of management	Government-delegated management (e.g., to an NGO)	Transboundary management	Collaborative management (various forms of pluralist influence)	Joint management (pluralist governance bodies)	Declared and run by individual land-owner	By non-profit organisations (e.g., NGOs, universities, co-operatives)	By for profit organisations (e.g., individual or corporate land-owners)	Indigenous territories and conserved areas—declared and run by indigenous peoples	Community conserved areas—declared and run by local communities
I a. Strict Nature Reserve											
Ib. Wilderness Area											
II. National Park	NP										
III. Natural Monument											
IV. Habitat/ Species Management	GR										
V. Protected Landscape/ Seascape											
VI. Managed Resource Protected Area	GCA, National FR, National BR	District FR; District BR			Village Land FR, WMA, BKZ						

(source : www.iucn.org)

APPENDIX 11

IBA Current Organization Chart



Source: ADAP 2012

APPENDIX 12

IBA Management Plan 2007 Objectives

-To protect, preserve to growth and develop the biodiversity and the sources of water for the present and future generations

-To preserve the water sources ,animals, birds and other biodiversity in the area

-To motivate the people in supervising the Mlele beekeeping zone

-To prepare the rules supervision program by means of involving the community

-To prepare a plan for raising the income of the community surrounding the Mlele beekeeping zone

-To prepare a strategy for a system of how to have a sustainable use of the natural resources

Source: IBA

APPENDIX 13

IBA Management Plan 2007 Indicators

-Improvement of vegetation types in some of the area in the BKZ, especially the areas previously cleared

-Number of wild animals and birds to increase in and out of the BKZ

-Decreasing of illegal activities including fire and traps in the BKZ

-Water increasing in the BKZ water catchments

-Sources of water out of the BKZ will be covered by natural vegetation types

-Increasing of the nurseries bed out of the zone for different planting trees

-Modern beekeeping and fishing activities improving

-Decreasing number of people entering in the zone for natural resources utilization

-Tree Debarking and roots utilizations will be decreasing

-Transparency of provided information concerning the BKZ events

-Decreasing number of cases sent to court concerning environmental protection

-To be well recognized of beekeeping zone and respected

-Increasing of awareness on techniques/ strategies on the conservation of the forestry resources to the community, for example community to providing information concerning the illegal activities conducted in the beekeeping zone and people who did illegal activities

Source: IBA

APPENDIX 14

IBA Management Plan 2007 Power Structure

Structure of Inyonga division Executive Board

(a)Inyonga Division executive Board will be made by 8 members.

(b)Members will be appointed according their status; Chairman of the Board, as a Representative of the General Secretary of Ministry of Natural Resources and Tourism. Secretary of the Board will be District Beekeeping officer (Mlele) Board will be sit twice per year. In order to assess the strength and challenges faced protection activities in the BKZ.

(c)Inyonga Executive Board will work instead of village governments on the wards of Inyonga, Nsenkwa and Utende.

Works and Responsibilities of the Inyonga executive board

-To arrange and supervising the daily activities preserving, protection, conservation and development of the Zone.

-To put the regulations of patrols survey in and out of the Zone and make sure that IBA had work responsibility properly.

-To make sure that there good relationship between Beekeeping zone Stakeholders that is MNR&T, Mlele district council, TBGS, IBA with Rukwa game reserve

-To give information's to the Ward development board and Natural resources office on the all activities concerning protection and different events was occurred like Fire burning,grazing,Number of permit authorized , pernaties from the accused persons.

-To make punishments/penalties for all accused persons of the BKZ through the laws says.

-To make sure that the VGS will work properly and ecological monitoring or patrol will be conducted twice pr month.

-To make sure that BKZ can be utilization according rules and regulations of supervising was settled in this program.

-To solve problems occurred in proper time.

-To keep clear Records for all issue concerning supervision of the BKZ

-To make sure that license and permit of utilization of the Zone resources will be controlled under IBA.

-To arrange payment program for the people whose work in the BKZ

-To arrange a tour guides in the BKZ and their payment.

-To arrange and budgeting activities of the Zone like;

-Ecotourism activities

-Tourism hunting activities

-Fire Breaks Activities and Boundaries

-Different Natural Resources program activities.

-Send accused person to court when the accused person failed to pay penalties had authorized by this laws.

-To arrange regulations this can be used by all villages/villagers on the resources utilization in the BKZ.

-To arrest and inspect any person who's suspected to possess natural resources products illegal

-Mlele beekeeping Zone bank account will be opening by inyonga executive board for money depositing which obtained from the accused person fine and penalties, money will be withdrawing for development purposes of the Zone and district beekeeping officer will be one of the signatories in the BKZ account and the signature for witness only.

-The Executive board have responsible of arranging and supervising fire burning on that time had feel light time to burn.(For advising from DNRO)

-The Board have mandatory to make changes on the utilization of the zone resources; if there changes can make development in the supervision of zone protection any changes should be authorized by IBA and information given to generally assembly of wards board of development.

-To put in list of all accused person and penalties provided and punishment given.

-To make sure that all villagers well understanding zone bylaws and changes time to time on utilization of BKZ.

-To make sure that BKZ boundary will be visible for everyone and respected.

Responsibility of the different leaders on the board

Chairman responsibility:

-He will be responsible for protection of BKZ

-To make sure that all meeting should be conducted and supervised decision will be implemented perfectly and report will be written.

Works and IBA responsibility.

-Approve and provide permit to person would like to work in the BKZ by follow the rules and bylaws of the area.

-To make sure that all activities supervising and assessing will be followed on time.

-To provide important directives to patrol leader

-To make inspection in the zone time to time

-To arrange timetable for patrols personnel

Source: IBA

APPENDIX 15

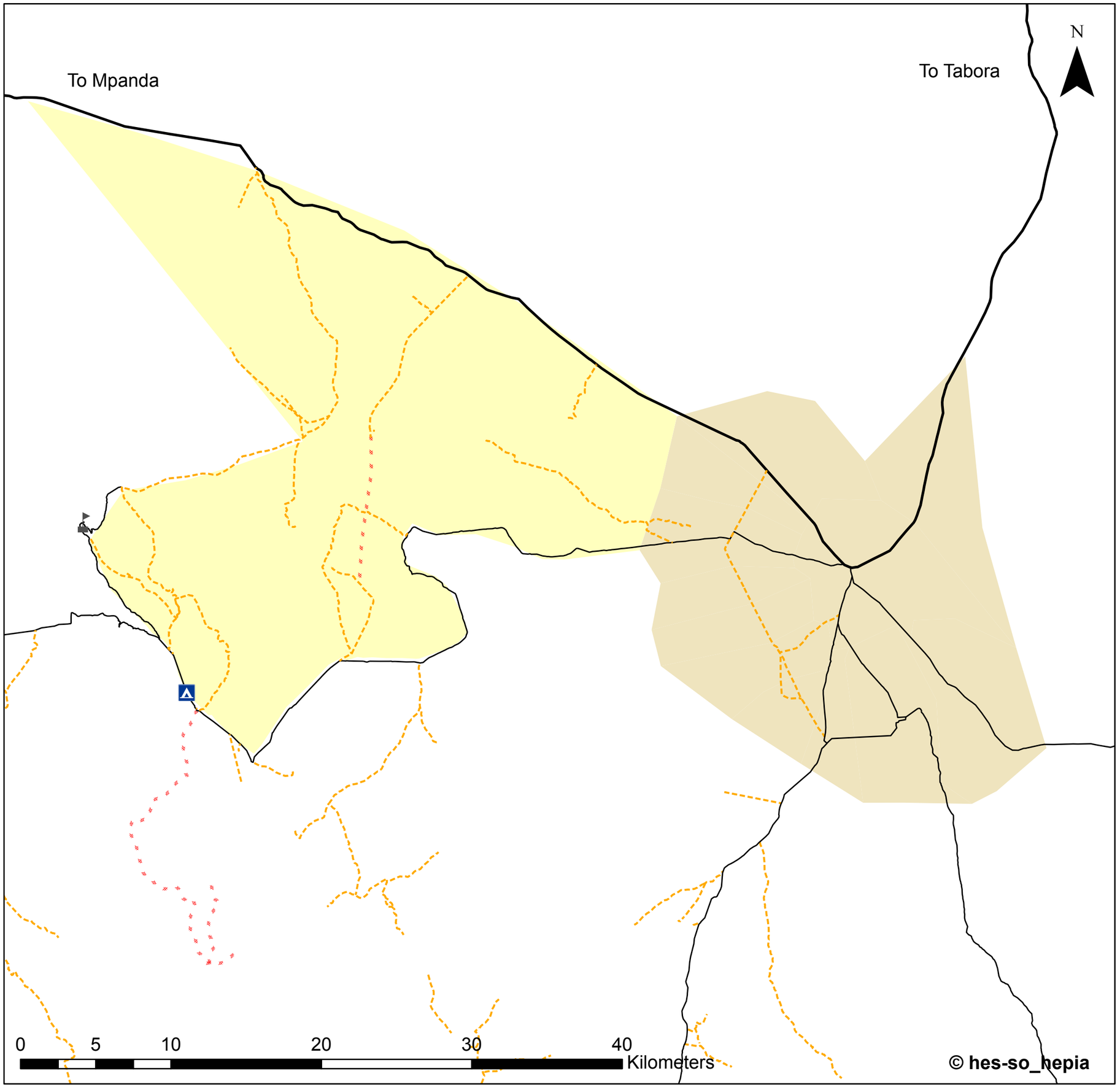
BKZ Ecotourism Fees

ACTIVITES	**PEOPLE CONCERNED**	**FEES**
Development Tax for IEA activities	Foreigners	USD400
Entering the BKZ for tourism activities	Tourist with guides	TSH10,000/= per day
Entering the area for tourism activities	Indigenous without guides	TSH3,000/= per day
Camping in the BKZ campsite	Foreigners with guides	TSH20,000/= per night per person

Source: IBA

APPENDIX 16

BKZ Boundaries



Beekeeping Zone Boundaries

Scale 1:250,000

Evaluation and Amendment of Mlele Beekeeping Zone Management Plan

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Roxane Didier October 2014

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Légende

- Mlele Beekeeping Zone
- Inyonga Villages Boundaries

Roads

- Main
- Secondary
- Track
- Patrol
- No road/broken
- ADAP Campsite

APPENDIX 17

Water and Relief

Water and Relief

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N

0 5 10 20 30 40 Kilometers

Légende

Mlele Beekeeping Zone

Altitude lines

- 810 - 1000 m alt.
- 1000 - 1200 m alt.
- 1200 - 1400 m alt.
- 1400 - 1600 m alt.
- 1600 - 1800 m alt.

Major rivers

- Major rivers
- Secondary Rivers

APPENDIX 18

Wildlife Species Observed in the Beekeeping Zone

N°	Order	Common name	Latin name	Observation name
1	Primates	Yellow baboon	*Papio cynocephalus*	*a,b,c,d,e*
2	Primates	Silver monkey cluster	*Cercopithecus (n.) mitis*	*a*
3	Primates	Vervet monkey	*Cercopithecus aethiops*	*a,b,e*
4	Primates	Lesser bushbaby	*Galago moholi*	*c,e*
5	Primates	Greater bushbaby	*Otolemur crassicaudatus*	*c*
6	Insectivora	Four toed Elephant shrew	*Petrodromus tetradactylus*	*e*
7	Lagomorpha	Cape hare	*Lepus capensis*	*a,e*
8	Lagomorpha	Scrub hare	*Lepus saxatilis*	*a,b,c,e*
9	Rodentia	Squirrel sp.	*Sciuridae*	*e*
10	Rodentia	Spring hare	*Pedetes capensis*	*a,c,d,e*
11	Rodentia	African Porcupine	*Hystrix cristata*	*a,d*
12	Rodentia	Cane rat	*Thryonomys swinderianus*	*c*
13	Carnivora	Side-striped jackal	*Canis adustus*	*a*
14	Carnivora	Wild dog	*Lycaon pictus*	*d,e*
15	Carnivora	Honey badger	*Mellivora capensis*	*a,d,e*
16	Carnivora	Slender mongoose	*Herpestes sanguinea*	*e*
17	Carnivora	Dwarf mongoose	*Helogale parvula*	*b,c,e*
18	Carnivora	Banded mongoose	*Mungus mungo*	*b,c,e*
19	Carnivora	Marsh mongoose	*Atilax paludinosus*	*a,d*
20	Carnivora	White tailed mongoose	*Ichneumia albicauda*	*a,c*
21	Carnivora	Bushy tailed mongoose	*Bdeogale crassicaudata*	*a*
22	Carnivora	Spotted hyena	*Crocuta crocuta*	*a,d,e*
23	Carnivora	Miombo genet	*Genetta angolensis*	*a,c,e*
24	Carnivora	Un-identified large genet	*Genetta sp.*	*a*
25	Carnivora	African civet	*Civettictis civetta*	*a*
26	Carnivora	African palm civet	*Nandinia binotata*	*c*
27	Carnivora	Wild cat	*Felis sylvestris*	*c,d*
28	Carnivora	Serval	*Felis serval*	*e*
29	Carnivora	Leopard	*Panthera pardus*	*a,c,d,e*
30	Carnivora	Lion	*Panthera leo*	*c,d,e*
31	Tubulidentata	Aardvark	*Orycteropus affer*	*a,d*
32	Proboscidea	African elephant	*Loxodonta africana*	*a,d*
33	Perissodactyla	Plain zebra	*Equus burchelli*	*a,b,c,d,e*
34	Artiodactyla	Hippopotamus	*Hippopotamus amphibius*	*d*
35	Artiodactyla	Bushpig	*Potamochoerus larvatus*	*a,c,d,e*
36	Artiodactyla	Warthog	*Phacochoerus aethiopicus*	*a,b,c,d,e*
37	Artiodactyla	Giraffe	*Giraffa camelopardalis*	*a,b,c,d,e*
38	Artiodactyla	African buffalo	*Syncerus caffer*	*a,d,e*
39	Artiodactyla	Common eland	*Taurotragus oryx*	*d*
40	Artiodactyla	Greater kudu	*Tragelaphus strepsiceros*	*a,c,d,e*
41	Artiodactyla	Bushbuck	*Tragelaphus scriptus*	*a,d,e*
42	Artiodactyla	Southern reedbuck	*Redunca aurundinum*	*b,c,e*
43	Artiodactyla	Common duiker	*Sylvicapra grimmia*	*a,b,c,d,e*
44	Artiodactyla	Sharpe's grysbok	*Raphicerus sharpei*	*e*
45	Artiodactyla	Kirk's dik dik	*Madoqua kirkii*	*b,c,d,e*
46	Artiodactyla	Impala	*Aepyceros melampus*	*a,c,d*
47	Artiodactyla	Topi	*Damaliscus lunatus*	*c,d,e*
48	Artiodactyla	Lichtenstein's hartebeest	*Alcelaphus b. lichtensteinii*	*a,b,c,d,e*
49	Artiodactyla	Roan antelope	*Hippotragus equinus*	*a,b,d,e*
50	Artiodactyla	Sable antelope	*Hippotragus niger*	*a,b,c,d,e*
a : camera trap ; b : foot transect; c : car transect; d : indirect observation; e : opportunistic direct observation ; n : nothing				

To this list we can add 51, Artiodactyla, Klipspringer, *Oreotragus oreotragus*, observed in 2011.

Source: Mermod 2012

APPENDIX 19

Zoning of the Beekeeping Zone

N

Kamsisi
Utende/Uzega
Mgombe
Kanoge
Inyonga
Wachawaseme
Mtakuja
Nsenkwa
Kaulolo
Mapili
Ipwaga
Masigo

0 5 10 20 30 40 Kilometers

Zoning

Scale 1:250,000

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Légende

- Mlele Beekeeping Zone
- Resident Hunting Zone
- Mlele Ecotourism Area
- Villages
- Inyonga Villages Boundaries

APPENDIX 20

Wildlife Species Classes for Sentencing Proportionality

PART I

A. MAMMALS

	Kiswahili name	English name	Scientific name
1.	Babakoto sanje	Sanje Mangabey	*Cercocebus sanjei*
2.	Choroa	Oryx	*Oryx beisa callotis* (Thomas)
3.	Chui	Leopard	*Panthera pardus* (Linnaeus)
4.	Duma	Cheetah	*Acinonyx jubatus* (Schereber)
5.	Faru	Black Rhinoceros	*Diceros bicomis* (Linnaeus)
6.	Kipunji	Highland Mangabey	*Lophocebus kipunji*
7.	Mbuzi-mawe (Nguru)	Klipspringer	*Oreotragus oreotragus* (Zimmermann)
8.	Mbwa-mwitu	Wild Dog	*Lycaon pictus* (Temminck)
9.	Mindi	Abbotts Duiker	*Cephalophus spadix*
10.	Nyati (Mbogo)	Buffalo	*Syncerus caffer caffer* (Sparrman)
11.	Nzohe(Nzobe??	Sitatunga	*Limnotragus spekeii* (P.L. Sclater)
12.	Palahala rosaveti	Rosevelt Sable	*Hippotragus niger roseveltii*
13.	Pimbi	Hyrax	*Heterohyraxl procavia*
14.	Pundamilia	Zebra	*Equus burchellii (* Matschie)
15.	Sengi	Giant Elephant Shrew	*Rhynochocyon udzungwensis*
16.	Sheshe	Puku	*Kobus vardoni* (Livingstone)
17.	Simba	Lion	*Panthera leo* (Linnaeus)
18.	Simbamangu	Caracal	*Felis caracal* (Schreber)
19.	Swala robati	Roberts Gazelle	*Gazella granti robertsi*
20.	Swala twiga	Gerenuk	*Litocranius walleri* (Brooke)
21.	Tandala Mdogo	Lesser Kudu	*Strepsiceros imberbis* (Bylyth)
22.	Tembo (Ndovu)	African Elephant	*Loxodonta africana* (Blumembach)
23.	Tohe milima	Mountain-Reedbuck	*Redunca fulvorufula* (Afzelius)

B. BIRDS

	Kiswahili name	**English name**	**Scientific name**
24.	Korongo nyangumi	Shoebill (Whale headed stock)	*Balaeniceps rex*
25.	Korongo usomwekundu	Wattled Crane	*Bugeranus carunculatus*
26.	Kozi kipanga	Peregrin Falcon	*Falco peregrines*
27.	Kwale udzungwa	Udzungwa Forest Partridge	*Xenoperdix udzungwensis*
28.	Ninga	Green Pigeon	*Treron*

C. REPTILES

	Kiswahili name	**English name**	**Scientific name**
29.	Mamba	Slender Snorted Crocodile	*Crocodilus cataphractus*

D. AMPHIBIAN

	Kiswahili name	**English name**	**Scientific name**
30.	Chura wa Kihansi	Kihansi Spray Toad	*Nectophrynoides asperginis*

E. NATIONAL GAME

Wanyama wote wa Taifa

Source : Wildlife Conservation Act (MNRT 2013)

APPENDIX 21

Tree Species Classes for Sentencing Proportionality

Class	Botanical Name	Trade or Vernacular Name
I	- *Dalbergia melanoxylon* - *Diospyros ebenum/mespiliformis* - *Combretum stuhlmanii* - *Milicia exelsa* - *Pterocarpus* all spp. - *Osyris santallum* - *Beilschimeidia kweo* - *Millettia stulhmanii* - *Brachylaena huillensis* - *Olea* all spp. - *Swartzia madagasearensis* - *Khaya anthotheca*	- E.A. Blackwood, mpingo, mugembe - Ebony, mgiriti, msindi, mnumbuhi, mkulvi. - Mperamwitu, mguruwe, Mkwaya. - Mvule, mkongola, Iroko - Mninga, mkula, mngubi, mtumbati mtoni, mkurungu, mninga maji. - Msandali, Sandal wood - Mfimbo, mkweo, mkanta - Pangapanga, mpande - Muhuhu, mhugwe, mkarambati - Loliondo, mchiyo, mshisho, brown olive, mzira, E.A olive, mtagala, mwalambo, mkimba-kubwa - Paurosa, Kasanda, msekeseke - Mkangazi, mwamiovu
II	- *Breonadia salicina* - *Afzelia quanzensis* - *Cephalosphaera usambarensis* - *Entandophragma* all spp. - *Fagaropsis angolensis* - *Hagenia abyssinica* - *Juniperus procera* - *Markhamia* all spp. - *Newtonia* all spp. - *Ocotea usamberensis* - *Mangrove* all spp. - *Oxytenanthera abyssinica* - *Parinari curatellifolia* - *Podocarpus* all spp. - *Syzygium cummnii* - *Vitex Kenyansis* - *Berchamia discolour* - *Pericorpsis angolensis* - *Minusopsis kumei* - *Chrysophyllum* spp. - *Burkea africana* - *Brachystegia* all spp. - *Julbernadia* all spp. - *Balphia kirkii* - *Albizia* all spp. - *Erythrophleum guineense* - *Spirostachys Africana* - *Ambygonocarpus angolensis* - *Sterculia* all spp.	- Adina, mgusia, mdogowe, mgwina - Afzelia, mkora, mkongo, mafu, mfuru, mbambakofi - Mtambara, mtambaa - Mrie, mongo, muwondo, mbokoboko, mkalikali - Mtua, mkunguni, mtongoti - Hagenia, mwanga, luziluzi - Pencil cedar, mtarakwa, mwangati - Mtalawanda - Mshashita, mdadauka, mkufi mpunga, Newtonia - Camphorwood, mkulo, mseri, muheti, maasi - Mikoko - Mwanzi, mlanzi - Mubula, mule, msabula, msawula - Podo, mse, msisimu, mtokosi - Mzambarau, mvengi - Mfudo - Bird plum, Mgandu, Mnago, mkuni, okoo nyabumbu, - Mbanga, muwanga - Muhulu, Mgoma, - Mberimberi, mfu mulembelembe - Bukea, Mkarati,Magando, Msangala - Mtundu, Myombo, Mkuti - Muba, Mvuva, Mtondo, Mtondoro, mwangati, msima, mtundu, mgombo, muwa, mpanate, - Balphia, Mkuruti, Mkuranga. - Mfurangi, Mtanga, Mdurasi, Mvimbafura, mukingu, Omurera, Mshai, Mboromo, Mhenge - Bangawanga, Mjeringwe - Misanda, mwavi, mbaraka, mkarati, mkola - Msaraka, muharaka, mwaraka - Mhozya, mluze, mgude, mfune, mkweanyani, mkweranyani, mguwa, mkwelangedere, moza, mbalamwezi, mperamusi, mpalamusi, mwingirangidengi, mkungulanga
III	- *Morrus lactea* - *Filcalhoa laurifolia*	- E.A Mulberry, kumbu, mkuzafunta - Filcalhoa, iseta, mkuta
	- *Casipourea malosana*	- Pillar wood, ndiri, msadora

	- *Lovoa brownii/swynnertonii*	- Nkoba, (Uganda Walnut), msau, mukusu, Kilimanjaro mahogany
	- *Cordyla africana*	- Codyla, mroma, mgwata
	- *Maesopsis eminii*	- Musizi, muhumula, musika
	- *Cordia africana*	- Mukumari, mringaringa, msingati
	- *Erkebergia ruppeliana*	- Erkebegia, msisi, tiwe, msimbi, ol mikumo
IV	- *Xymalos monospora*	- Mburumo, dimu, mkalikisumu, lemonwood
	- *Fauzea* all spp.	- Mifuka, msisi, lisega
	- *Rapanea rhododendroides*	- Rapanea, mlimangombe, mwasa, mshiwizo, kidongashawa
	- *Pteleopsis myrtifolia*	- Mwindi, mnepa, mparu, mgofu, makwenzi
	- *Bombax rhodognaphalon*	- Msufi-mwitu, mfume
	- *Fagara amaniensis*	- Amani satin wood, mfarakumbi, mfuakumbi
V	*All tree species not listed in the preceding classes i.e. others*	

Source: Forest Regulations (MNRT 2003)