

**Namtumbo District Council
&
MBARANG'ANDU Authorized
Association**

**Resource Zone Management
Plan (2009-2013) for the
Mbarang'andu Pilot Wildlife
Management Area**

October 2009

The Plan is Supported by the WWF (TPO) and the Millinium Challenge
Account - Tanzania



for a living planet®



APPROVAL PAGE

Implementation of this Plan has been approved by

.....

**Erasmus M. Tarimo
Director of Wildlife
Ministry of Natural Resources and Tourism
Dar-es-SalIMBARANG'ANDU AAm**

Date:.....

TABLE OF CONTENTS

LIST OF FIGURES.....	ii
ACRONYMS USED IN THE REPORT.....	iii
ACKNOWLEDGEMENTS.....	iv
EXECUTIVE SUMMARY.....	1
1.1 Introduction.....	4
1.2 Vision.....	4
1.3 Importance of the Resource Management Zone Plan.....	1
1.4 Policy Framework.....	1
1.5 Planning Process and Constraints.....	4
1.5.1 Planning Process.....	4
1.5.2 Planning Constraints.....	5
2. ANALYSIS OF THE INFORMATION DATA SHEET.....	7
2.1 Background Information.....	7
2.2 Analysis of Problems, Issues and Concerns.....	8
2.3 Analysis of Outstanding Resources and Values.....	11
2.4 Analysis of MWMA Significance.....	13
MANAGEMENT ZONE SCHEME.....	15
4.1. Ruhila Tourist Hunting Zone (745.83 km ²).....	16
4.2. Mbarang'andu Tourist Hunting Zone (1280.93 km ²).....	16
4.3. Beekeeping Zone (291.48 km ²).....	17
4.4. Identification and Implementation of Zones on the Ground.....	18
4. PROGRAMS.....	21
4.1. Visitor Use, Development and Revenue Program (VUDRP).....	22
4.1.1 Program Purpose.....	22
4.1.2 Tourism Development and Revenue Principles.....	22
4.1.3 Program Objectives, Targets and Activities.....	23
4.2 Administration and Operations Program (AOP).....	24
4.2.1 Program Purpose.....	24
4.2.2 Administration and WMA Operations Principles.....	24
4.2.3 Program objectives, targets and activities.....	25
4.3 Wildlife-People Relations Program (WPPRP).....	26
4.3.1 Program Purpose.....	26
4.3.2 Local People Relation Principles.....	26
4.3.3 Program Objectives, Targets and Activities.....	26
4.4. Natural Resources Management Program (NRMP).....	28
4.4.1 Program Purpose.....	28
4.4.2 Natural Resources Management Principles.....	28
4.4.3 Program Objectives, Targets and Activities.....	28
5. ENVIRONMENTAL STATEMENTS.....	30
5.1 Impacts on Local Economy and Revenue.....	31
5.2 Local Communities Social Conditions.....	31
5.3 Wildlife and Biodiversity Conservation.....	31
5.4 Ecosystem Maintenance and Ecological Integrity.....	32
6. IMPLEMENTATION OF THE RZMP.....	33
6.1 Implementation Framework.....	33
6.2 Annual Operation Plan and Budget.....	33
6.3 RZMP Implementation Team (RZMPIT).....	33
6.4 Monitoring and Evaluation Framework.....	33
6.5 Implementation risks.....	34
REFERENCES.....	35
ANNEX 1: PLANNING PARTICIPANTS.....	36
ANNEX 2: THE PROCESS OF PREPARING A WMA-RZMP.....	38

LIST OF FIGURES

Figure 1: The Position of Mbarang'andu WMA Relative to Tanzania and Selous Game Reserve.....	19
Figure 2: RZMP for Mbarang'andu WMA.....	20
Figure 3: Land Cover Map for Mbarang'andu WMA.....	21

ACRONYMS USED IN THE REPORT

AA.....	<i>Authorised Association</i>
AOP.....	<i>Administrative and Operations Program</i>
AOPB.....	<i>Annual Operation Plan and Budget</i>
CCDB.....	<i>Community Conservation and Development Bank</i>
CDP.....	<i>Community Development Policy</i>
EA.....	<i>Environmental Assessment</i>
FMP.....	<i>Fire Management Plan</i>
GMP.....	<i>General Management Plan</i>
LGRP.....	<i>Local Government Reform Programme</i>
MWMA.....	<i>Mbarang'andu Wildlife Management Area</i>
MBARANG'ANDU WMA..	<i>Authorized Association for the Mbarang'andu WMA</i>
MZP.....	<i>Management Zone Plan</i>
MZS.....	<i>Management Zone Scheme</i>
NGOs.....	<i>Non Governmental Organisations</i>
NRMP.....	<i>Natural Resources Management Program</i>
NSGRP.....	<i>National Strategy for Growth and Reduction of Poverty</i>
RDS.....	<i>Rural Development Strategy</i>
RZMP.....	<i>Resource Zone Management Plan</i>
SME.....	<i>Small and Medium Enterprise</i>
VEO.....	<i>Village Executive Officer</i>
VLUP.....	<i>Village Land Use Plan</i>
VUDRP.....	<i>Visitor, Development and Revenue Program</i>
WEO.....	<i>Ward Executive Officer</i>
WMA.....	<i>Wildlife Management Area</i>
WMAs.....	<i>Wildlife Management Areas</i>
WPRP.....	<i>Wildlife-People Relations Program</i>
WWF.....	<i>Wild Wide Fund for Nature</i>

AKNOWLEDGEMENTS

Financial support to develop the Resource Management Zone Plan (RZMP) for the Mbarang'andu Pilot Wildlife Management Area was provided by the World Wide Fund for Nature (WWF) Tanzanian Programme Office with support from Millenium Challenge Account-Tanzania (MCA-T). Technical facilitation to design the RZMP was provided by the College of African Wildlife Management, Mweka. The MBARANG'ANDU Authorized Association and Namtumbo District Council extend sincere gratitude to all of those that supported the development of the RZMP.

EXECUTIVE SUMMARY

In order to implement the Wildlife Policy of 1998 (Revised, 2007) the Government of Tanzania developed and approved several strategies including development and approval of the Wildlife Conservation (Wildlife Management Areas) Regulations in 2002 (Revised, 2005). Subsequently the Government of Tanzania completed and approved the guidelines for designation and management of Wildlife Management Areas in December 2005. The Wildlife Conservation (Wildlife Management Areas) Regulations 2005 calls for the development of a General Management Plan (GMP) or Resource Zone Management Plan (RZMP) before the establishment of WMAs in order to guarantee sustainable conservation of wildlife resources in local community lands and safeguard the interests of rural communities. A RZMP is normally operational for five years as an interim document before a General management Plan (GMP) is developed. GMP is a document that outlines the basic management and development philosophy of the WMA for a period of 10 years.

Reflecting on these policy and legal requirements, the MBARANG'ANDU Authorised Association (MBARANG'ANDU AA) that comprises of seven villages (Kitanda, Nambecha, Likuyu Sekamaganga, Kilimasera, Songambebe, Mchomoro, and Mtelawamwahi) and that is responsible for the Mbarang'andu Wildlife Management Area (MWMA) organized a workshop in June 2009 to analyse information data sheet of the prospective WMA and develop the RZMP. Thus this document is a result of the workshop organised by the MBARANG'ANDU Authorised Association.

The RZMP is a document that sets for the basic management and development philosophy of the MWMA, provides current image of the reality, defines the desired future of the MWMA and provides for the means of changing the negative situation and achieving the desired future over a period of 5 years.

During the workshop, the local authority and the process were guided by the following documents:

- The Wildlife Conservation (Wildlife Management Areas) Regulation, 2002 (Revised, 2005);
- The Wildlife Conservation Act, 1974;
- The Guidelines for Designation and Management of Wildlife Management Areas, 2005;
- A joint Village Land Use Plan (VLUP); and
- The Village Land Act No. 5 of 1999.

The first step was to identify the planning and management issues that would be addressed by the RZMP. Based on the information data sheet analysis, stakeholders identified the following major management problems:

- Increased crop damage by wildlife;
- Increased sizes of farms and farming in areas adjacent to the designated wildlife management area;
- Poaching or illegal harvest of resources in and around MWMA;
- Shifting cultivation;
- Inadequate income from wildlife conservation;
- Investment in WMA does not involve and benefit local people; and
- Tree cutting for charcoal burning.

The second step was to identify outstanding resources values. In any protected area there are many important resources and values. For planning purposes, the stakeholders agreed to focus on what was termed as outstanding resource values. The following outstanding resource values were identified:

- Variety of wildlife including Elephants, Lion, Rhinocero, Hippo and Leopard to mention just few. (a check list of animals found in the area is provided in information data sheet, separate from this document);

- Uranium deposit that is commercially exploitable;
- Valuable trees in the area;
- Natural wetlands and dams;
- Lukimwa, Litetelimo, Liwoyowoyo, Luegu, Ndilima, Mbarang'andu, Mtimbira rivers;
- Prominent hills/mountains namely: Mtungwe, Lihowela, Viteo vya Matanga, Unyama, Lingondima, Kanisa, Kilimatambo Tembo;
- Outstanding physical features like Litundandilo stone;
- Liulinde Forest;
- Ndilima falls and Hiyogo springs; and
- Adjacent Selous Game Reserve.

After problems analysis and identification of outstanding values, stakeholders visionalized that *"Mbarang'andu WMA is an integrated, well managed and self-financing protected area in which nationally-important biodiversity is protected, essential ecological processes are sustained and local people and stakeholders fully support and tangibly benefit from wildlife conservation efforts in the area"*.

Having visionalized the establishment for MWMA, the stakeholders defined the significance of the MWMA. The MWMA is significant because it is one of the most important WMA in Tanzania with vital potentials to generate revenue from tourism, photographic and hunting activities for the development of the villages.

Together with the analysis of the information data sheet, the Wildlife Conservation (Wildlife Management Areas) Regulation, 2005 requires villages to undertake technical decisions on zoning. The zoning is defined as a planning technique used for evaluating and classifying WMA lands. Zoning describes activities that can and/or cannot occur in each area of the prospective WMA, the rationale behind each decision on uses and levels of developments and it sets the limits of acceptable use and change.

The following three (3) management zones for the MWMA were developed:

- Ruhila Tourist Hunting Zone,
- Mbarang'andu Tourist Hunting Zone and
- Beekeeping Zone

The chapter on management zone scheme describes, in details, each of the zone mentioned above. Also the zone map was prepared to support and guide the implementation of the management zone scheme.

In order to fully implement the management zone scheme stakeholders developed the following four programs:

- Visitor use, development and revenue program

The overall aim of this program is to enhance visitor enjoyment and satisfaction and generate revenue that would make MWMA and the villages self-financing through non-consumptive and consumptive tourism and through rational use and allocation of revenue generated from the area.

- Administration and operations program

This program aims at increasing efficiency and effectiveness of the MWMA operations through the provision of relevant facilities, infrastructure and training to MWMA staff. Also the program shall implement activities for coordinating implementation of the RZMP.

- Protected area-community relations program

The program aims at supporting community livelihoods in order to ensure that the relationships between people and wildlife are improved and maintain. Improved relationship would guarantee sustained conservation support from the local people of the ten villages.

- Natural resources management program

Natural resources management program is aimed at protecting biodiversity and entire ecosystem. It is also aimed at ensuring that natural resource data is available for making rational and sustainable management decisions.

Under each program, overriding principles that would be used to implement and monitor the program are described. Also objectives, target and activities for each target are described for each program.

The last chapter is on Environmental Assessment (EA) of RZMP. Environmental Assessment of the proposed actions indicated that in a short-term the MWMA revenue, biodiversity and the ecosystem in general would be adversely affected by the implementation of the RZMP proposed programs. The implementation of the RZMP would require heavy initial financial investments. This will have short-term adverse effects on financial resources and the budgets of the village governments. However, in the long-term, the MWMA shall benefit financially from increased income resulting from diversified visitor uses and other revenue generating activities like tourist hunting. Also, in a short-term, establishment of campsites and other physical developments shall adversely affect the biophysical resources and the entire ecosystem. The RZMP proposes Environmental Impacts Assessment (EIA) for all new physical developments in the MWMA, as measure to ensure sustainable utilisation of the wildlife resources in the area. Further more, the RZMP recommends studies after the implementation of some physical developments, as feedback mitigation measures.

In order to ensure effective and efficient implementation of the RZMP the following activities need to be given the highest priority:

- Development and circulation of Kiswahili version of the RZMP;
- Development and implementation of a monitoring plan, with objectively verifiable performance indicators;
- Formation of RZMP implementation team;
- Development of annual operation plan and budget;
- Purchase of essential movable and fixed assets; and
- Ensure that staffs of the MBARANG'ANDU AA members are trained and ready to implement the RZMP.

1. BACKGROUND INFORMATION

1.1 Introduction

The first Wildlife Policy of Tanzania was adopted in 1998, and revised in 2007. The policy provides the framework for the establishment of a new form of land use, Wildlife Management Area (WMA), for the purposes of effecting community-based conservation. The policy aims at involving rural communities and other stakeholders in taking joint responsibility for the sustainable management of wildlife and other natural resources inside village lands. The policy also aims at resolving conflicts between local people and wildlife authorities, sharing information and improving livelihoods of local community through wildlife management programs.

In order to support the implementation of the Wildlife Policy, the Government developed and approved the Wildlife Conservation (Wildlife Management Areas) Regulations in 2002. Subsequently the Government completed and approved the Guidelines for Designation and Management of Wildlife Management Areas in December 2002. The Guidelines were intended to serve as practical tools used to establish and manage Wildlife Management Areas (WMAs) in the pilot districts of Tanzania. The Wildlife Conservation Act (2009) also supports the development WMA.

In order to guarantee sustainable conservation of wildlife resources in WMAs, and safeguard the interests of traditional communities, the Wildlife Conservation (Wildlife Management Areas) Regulations 2002 calls for the development of a General Management Plan (GMP) or Resources Management Zone Plan (RZMP) before the establishment of WMAs. A RZMP, which operates for five years only, as an interim measure before a GMP is developed.

Reflecting on these policy and legal requirements, seven (7) villages of the Namtumbo district agreed to set aside land according to Village Land Act (1999) to form Mbarang'andu Wildlife Management Area (MWMA) and established the MBARANG'ANDU Authorised Association (MBARANG'ANDU AA) to manage the MWMA. After a field reconnaissance survey, a two-day workshop was organised by MBARANG'ANDU AA in June 2009. The objectives of the workshop were to:

- Familiarize MBARANG'ANDU AA members with the WMA concept and principles;
- Undertake problems and threats analysis for MWMA;
- Identify outstanding resources values of the MWMA;
- Define purposes and significance of the MWMA;
- Define the desired future for the MWMA;
- Develop Management Zone Scheme (MZS) and Resource Management Zone Plan (RZMP) for the MWMA;
- Prepare management programs;
- Develop environmental statements; and
- Develop the RZMP implementation framework.

Thus this document is an output of the workshop that was organised by the MBARANG'ANDU AA. The Millinium Chanllenge Account (MCA) through World Wide Fund for Nature-Tanzania Country Office (WWF – TCO) provided financial support to prepare the RZMP whilst technical support was provided by the College of African Wildlife Management, Mweka.

1.2 Vision

The vision of the MWMA is “integrated, well managed and self-financing protected area in which nationally-important biodiversity is protected, essential ecological processes are sustained, and stakeholders fully support and tangibly benefit from wildlife conservation efforts in the area”.

1.3 Importance of the Resource Management Zone Plan

This RZMP is a document that sets for the basic management and development philosophy of the MWMA, provides current image of the reality, defines the desired future of the Mbarang'andu WMA and provides for the means of changing the negative situation and achieving the desired future over a period of five (5) years. The document includes the following major information:

- Analysis of the information data sheet i.e. existing situations (issues, resource values, protected area purposes and significance);
- Desired situation for the protected area (vision, goal and management objectives);
- Rationale for management zone scheme;
- Description of activities that can and cannot occur in each management zone;
- Limits of acceptable change and uses; and
- Environmental statements.

Through the RZMP process, MWMA managers and stakeholders were able to identify problems, envision the future under past trends and existing conditions and develop strategies and a program of actions for achieving desired future conditions. Therefore the RZMP provides managers with a framework for day-to-day operations and management as well as long-term management, thus ensures continuity in management. Also the RZMP would be used as a public relations document to help direct and raise funding for actions identified in the plan. The RZMP provides a framework for rational allocation and the use of limited resources in the ten villages.

Without a RZMP, it would be very difficult to achieve sustainable conservation of the MWMA, because development and use activities would occur on a haphazard basis, often in response to individual interests, political and socio-economic pressures. The results would likely to be lost opportunities and irreversible damage to the MWMA.

1.4 Policy Framework

For the past few years, the Government of Tanzania has been implementing reforms aimed at addressing development problems affecting social and economic conditions of rural populations. In line with this the reforms of local governments are well underway. The local government reforms are implemented under the Local Government Reform Programme (LGRP). The LGRP promotes decentralisation of rights and responsibilities from central to local government levels. The capacity development of the latter, have repeatedly been stated as objectives of local government reform in Tanzania. The first phase of local government reform for 38 reforming districts focused upon building the capacity of district (and municipal) authorities. The reforms are designed directly to improve the capacity at local levels to serve the local population and to support the 'fundamental level of governance in Tanzania i.e. the village governments. The local levels, the district, the ward and especially the village, have become more crucial for socio-economic development, service delivery, representation and management. These are crucial aspects in support of community approach to natural resources management, including the establishment and subsequent management of WMA.

Following the launching of a broad policy framework, Tanzania Development Vision 2025, which stipulates the vision, mission, goals and targets to be achieved with respect to economic growth and poverty eradication by the year 2025, several policies have been formulated for different development sectors. The formulation of Tanzania Development Vision 2025 emanated from the Government realisation that previous development policy were not in consonance with the principles of ongoing local, national, regional and global developments. The following policies and strategies support the principle and practise of WMA.

1.4.1 The Tanzania Development Vision 2025

The Tanzania Development Vision 2025 is an economic and social development vision, which emanates from reforms that have been pursued since 1986. The vision is a result of

public participation in the process, which begun in 1995. The Vision is aimed at three main target areas:

Achievement	Strategies and Characteristics
<i>High quality livelihood</i>	Self sufficiency in food and food security, a high degree of education at all levels, gender equality and feminine empowerment, access to quality health care and safe water, increased life expectancy, reduction in infant and mortality rates and the absence of abject poverty.
<i>Good governance and the rule of law</i>	Tanzanian society should be characterised by moral and cultural uprightness, strong adherence to - and respect for - the law, an absence of corruption and other vices
<i>A strong and competitive economy</i>	A diversified and semi-industrialised economy, macro-economic stability, a growth rate of 8% or more per annum, a physical infrastructure capable of coping with the vision requirements. Finally Tanzania should be an active and competitive player in the regional and world markets.

This document assumes that through good governance of the MWMA and a strong and competitive economy of Mbarang'andu WMA, the residents of the villages forming the MBARANG'ANDU AA will achieve high quality livelihoods.

1.4.2 The National Strategy for Growth and Poverty Reduction

The National Strategy for Growth and Poverty Reduction (NSGRP) or MKUKUTA is a revised version of the Poverty Reduction Strategy of 2000. The Strategy has three main outcomes and number of goals within each of these.

Growth of income and the reduction of poverty	<ul style="list-style-type: none"> • To ensure sound economic management • To promote sustainable and broad-based growth • To improve food availability and accessibility • To reduce income poverty of both men and women in urban areas • To provide reliable and affordable energy to consumers
Improved quality of life and social well-being	<ul style="list-style-type: none"> • To ensure equitable access to quality primary and secondary education for boys and girls, universal literacy among men and women, and expansion of higher, technical and vocational education • To improve the survival, health and well-being of all children and women and of specially vulnerable groups • To ensure access to clean, affordable and safe water, sanitation, decent shelter and a safe and sustainable environment. This will reduce vulnerability to environmental risks • To ensure adequate social protection and the provision of basic needs and services for vulnerable people • To ensure effective systems that allow access for all people to quality and affordable public services
Good governance and accountability	<ul style="list-style-type: none"> • To ensure that structures and systems of governance as well as the rule of law are democratic, participatory, representative, accountable and inclusive • To ensure equitable allocation of public resources - with corruption effectively addressed • To put in place an effective public service framework as a foundation for service delivery improvements and poverty reduction • To ensure that the rights of poor and vulnerable groups are protected and promoted in the justice system • To reduce political and social exclusion and intolerance

	<ul style="list-style-type: none"> • To improve personal and material security, reduce crime and eliminate sexual abuse and domestic violence • To enhance and promote national cultural identities
--	---

This document assumes that through good governance and accountability of the MBARANG'ANDU AA, poverty of the residents of the villages forming the MBARANG'ANDU AA would be reduced and quality of life and social well-being will be achieved.

1.4.3 Rural Development Strategy

The Rural Development Strategy (RDS) provides policy guidelines for projects aiming at reducing rural poverty. Like the PRSP, the Rural Development Strategy recognises decentralised government and democratisation as important elements of society. Rural men and women should be empowered to manage natural resources for their own benefit. Gender equity shall be upheld during the implementation and management of the MWMA.

1.4.4 Community Development Policy (1996)

The Community Development Policy (CDP) encourages individuals, families, groups and associations to undertake development activities in order to contribute to the pronounced government objectives of self-reliance. To provide advice and train families etc. is seen as an important in reaching poverty alleviation. Individuals, families, groups and associations within the Namtumbo district shall be encouraged to participate in the management of the WMA.

1.4.5 The National Land Policy (1995)

This promotes land tenure systems, facilitating social and economic development, without upsetting the ecological balance of the environment. It is noted in the policy that wetlands have often been regarded as wastelands and considered useless for social and economic development; the policy seeks to reverse this negative perception by proposing that wetlands are properly studied. The management of the MWMA shall adhere fully to the policy.

1.4.6 The Wildlife Policy (1998) Revised 2007

There are several strategies that promote management of Wildlife Management Area by the local governments. A strategy for conserving and managing wildlife resources clearly states that wildlife management responsibility of the settled and areas outside core protected areas (National Parks, Ngorongoro Conservation Area and Game Reserves) shall be devolved to rural people and private sector. A strategy for protecting wildlife aims at devolving responsibility of containing illegal use of wildlife in WMAs to rural communities. A strategy for protecting biological diversity aims at recognising Wildlife Management Area (WMA) as a new form of Land Use for the purposes of effecting community based conservation. A strategy for ensuring that wildlife conservation competes with other forms of land use aims at involving rural communities and other stakeholders in taking joint responsibility for the sustainable management of wildlife and other natural resources. Strategies for recognising an intrinsic value of wildlife to rural communities aims at encouraging resident hunting which benefit rural communities in WMAs on those land hunting is conducted. The management of the MWMA shall adhere fully to the policy.

1.4.7 The National Tourism Policy (1999)

The policy recognises that most tourist attractions lie within local communities or in their vicinities and in most cases co-exist side by side with the communities in wildlife areas. It is for such reasons that it is imperative for communities living within or around these areas to be fully involved in the development and management of these attractions and in addition, to get a share of the income generated from tourist activities within their areas. Formation and subsequent management of WMA would help communities to participate in the process of tourism management in Tanzania. The management of the MWMA shall adhere fully to the policy.

1.4.8 The National Forest Policy (1998)

It is relevant because of the coverage of Miombo woodland in MWMA and because forests have important functions in water catchments and wildlife conservation in MWMA. It sets out general guidelines for managing forest resources, aimed at ensuring a sustainable supply of forest products and services, and generally acknowledges the need for cross-sectoral regulation. *Mineral Act* (1998) also requires license holders to take all appropriate measures for the protection for the environment including the forests. The management of the MWMA shall adhere fully to this policy.

1.4.9 Beekeeping Policy (1998)

This policy from 1998 has the objective of enhancing sustainable contribution to the sector for socio-economic development and environmental conservation, covering honeybees. MWMA with extensive Miombo woodland has a high potential of honey production with beekeeping projects ongoing. The management of the MWMA shall adhere fully to the policy.

1.4.10 Small and Medium Enterprise Development Policy (2003)

Small and Medium Enterprise Development Policy of 2003 was prepared in a participatory basis covering a wide spectrum of entrepreneurs and government officials. The Policy is designed to empower SMEs in rural as well as urban areas to boost the contribution to the national economy. The investments to be done in MWMA is in spectrum of this policy and the management of the MWMA shall adhere fully to the policy.

1.5 Planning Process and Constraints

1.5.1 Planning Process

Through a support from the Namtumbo District Wildlife Office, the Authorised Association (MBARANG'ANDU AA) of seven villages (Kitanda, Nambecha, Likuyu Sekamaganga, Kilimasera, Songambebe, Mchomoro, and Mtelawamwahi) responsible for the MWMA identified a need to develop a RZMP. Due to resources constraints the MBARANG'ANDU AA could not afford to develop a WMA General Management Plan (GMP) as required by the Wildlife Conservation (Wildlife Management Areas) Regulations, 2002, MBARANG'ANDU AA opted for the development of RZMP which is at the same level of acceptance as GMP for establishment of WMA.

Through the use of baseline data of the MWMA and a series of consultative meetings, the MBARANG'ANDU AA analysed the situation of the area. The analysis provided information on the following aspects:

- Issues, concerns and problems facing MWMA;
- Policy and legal frameworks that govern the WMAs; and
- Constraints to the implementation of the RZMP.

Subsequently the MBARANG'ANDU AA organized technical workshop comprising of the district government officials and the MBARANG'ANDU AA members between on 14th and 15th June 2009 to develop the RZMP for the MWMA. Also representatives from the local government, Non Governmental Organisations (NGOs) and other stakeholders participated in the workshops. The RZMP was the major output of the workshops.

Another workshop to present and approve the RZMP by the MBARABG"ANDU AA was conducted on 5th September 2009.

1.5.2 Planning Constraints

Before defining the specific management objectives for the MWMA the constraints on its management and any other major threats to the area's values was identified. Constraints may take different forms such as legal obligations, constraints of tenure, prior usage of land, health and safety considerations, managerial constraints, obligations to neighbors and visitors, international obligations and other policy considerations.

The planning process recognized and took into account the constraints of developing and subsequent implementation of the RZMP. The Chapter on Plan of Actions has proposed mechanisms that would reduce the adverse effects of these limitations. These mechanisms would minimize the risks and threats that may lead to failure in implementing the RZMP.

- The Wildlife Conservation (Wildlife Management Areas) Regulation, 2002

The Wildlife Conservation (Wildlife Management Areas) Regulation, 2002 provide the legal framework that shall apply to village land set aside for wildlife conservation. The Regulations provides the legal framework for the establishment and subsequent management of Wildlife Management Areas. Eighth Schedule of the Regulations (Made under Regulation 36(3)) outlines the process and the format for the Resource Management Zone Plan (RZMP). Thus the process and the format of this RZMP were guided by these Regulations.

- The Guidelines for Designation and Management of Wildlife Management Areas (2002)

The Guidelines define Wildlife Management Areas as areas declared by the Minister to be so and set aside by village government for the purpose of biological natural resource conservation.

- A joint Village Land Use Plan (VLUP)

Preparation of a joint Village Land Use Plans (VLUP) is a prerequisite to the establishment of Wildlife Management Area. A joint VLUP would help to solve or avoid land use conflicts between two or more neighbouring villages, and to improve the management of the shared areas. Part IV of the Regulations clearly states that each application for designating a Wildlife Management Area shall be accompanied by a land Use plan approved by the Village Assembly. Thus the existing VLUP guided the development of the RZMP.

- The Village Land Act (1999)

This Act is essential in terms of land-use planning processes and land-use management. All land is basically vested in the President, within the categories of village land (catered for in the *Village Land Act* 1999), general land and reserved land. Participatory guidelines have been developed for implementation of the Village Land Act through land-use specification, planning and demarcation.

- The Wildlife Conservation Act (2009)

The Wildlife Conservation Act (2009), together with WMA Regulations (2002) and Guidelines (2002) provided the legal framework on which this plan is based.

- Socio-economic constraints

Previously each of the seven villages forming the MBARANG'ANDU AA had a quota for resident hunting. With the RZMP resident hunting is prohibited and all the villages will have to find an alternative source of the meat they used to get from resident hunting. Uranium prospecting and subsequent mining was identified as a constraint to the management of the MWMA, if not managed properly.

- Other legal constraints that shaped the RZMP proposals are various provisions in WMA Regulation (2002)
 - ▶ Hunting for meat under Regulation 51;
 - ▶ Resident hunting under Regulation 52;
 - ▶ Tourist hunting under Regulation 53;
 - ▶ Live animal capture under Regulation 56; and
 - ▶ Non-consumptive tourism under Regulation 61.

The following are conditional types of resource utilization in a WMA that allows MBARANG'ANDU AA to issue permit for utilisation of the following resource types subject to licences issued by the responsible authorities:

- ▶ Forestry products (trees) under Regulation 55 (Forestry Act 2002);
- ▶ Bee resources under Regulation 59 (Beekeeping Act 2002); and
- ▶ Fish resources under Regulation 60 (Fisheries Act 1970 and 2003).

The following are restricted types of resource utilisation in WMA;

- ▶ Mining, subject to Regulation 62 (Mining Act, 1998);
- ▶ Wildlife cropping; and
- ▶ Wildlife farming and ranching.

2. ANALYSIS OF THE INFORMATION DATA SHEET

This chapter presents results of the examination of the information data sheet of the prospective Mbarang'andu Wildlife Management Area. The analyses of existing socio-economic and natural resources data of the area were conducted using different fora and methodologies. Results of the analyses are presented in the form of existing conditions in the MWMA. The existing conditions are described in terms of the following aspects:

- Background information about MWMA;
- Problems, concerns or issues;
- Outstanding resources and values of the MWMA;
- Existing purposes of the MWMA; and
- Existing significance of the MWMA.

2.1 Background Information

2.1.1 Location and Topography

Mbarang'andu WMA is located between 9° 53' - 11° 8' S and 35° 42' - 36° 41' E in Namtumbo district, Ruvuma region in southern part of Tanzania. The Namtumbo District is administratively divided into thirteen (13) wards namely Kitanda, Liger, Luchili, Luegu, Lusewa, Magazini and Matimira. Other wards are Mgombasi, Mkongo, Msindo, Namabengo, Namtumbo, and Rwinga.

The wards that allocated land for and forming the MWMA are:

- Kitanda (Kitanda village);
- Mgombasi ward (Nambecha and Likuyu Sekamaganga villages);
- Namtumbo ward (Songambe, Mchomoro and Kilimasera villages); and
- Liger ward (Mtelawamwahi village).

The proposed/Pilot Mbarang'andu WMA is part of the Selous-Niassa Wildlife Corridor and comprises an area of about 2318.24 km². The area borders Selous Game Reserve and Northern Undendeule forest to the north and Liulinde forest to the south. Generally the land is relatively undulated with gentle slope in the southern part making the area not very prone to erosion. The area is intercepted by a number of rivers, the main ones being Mtimbira, Likimwa, Litelimo, Namawala and Ligombe.

Table 1 summarizes sizes of areas set aside by each village for the MWMA.

Name of the village	Size (km ²)	Proportion of the land contribution
Kitanda	375.35	16.19 %
Nambecha	124.76	5.38 %
Likuyu Sekamaganga	405.67	17.50 %
Mchomoro	779.81	33.64 %
Kilimasera	54.75	2.36 %
Songambe	177.90	7.67 %
Mtelawamwahi	400.00	17.25 %
Total	2318.24	100.00 %

2.1.2 Climate

The area has single rain season, November to May with annual average of 1200 mm. This rainfall pattern only changed in 1994 where the rains started mid February to June. Warm months are September to May with average of 25°C with highest temperature being 29°C and the lowest is 22°C.

2.1.3 Land Uses

The main land uses in the area are agriculture, human settlements, hunting and lumbering. The main crops are Cashew nut, maize, cassava, simsim, beans, rice and pigeon peas.

2.1.4 Human Population

Table 2 provides a summary of human population in the area based on national census that was conducted in 2002.

Table 2: Human population

Ward	No. of House holds (H.H)	Average. H.H	Male	Female	Total
Kitanda	3042	6.6	9948	10134	20082
Mgombasi	4038	5.6	10258	10223	22702
Namtumbo	4038	5.6	11130	11572	22481
Ligera	1901	5.2	4929	4976	9905

Source: National Bureau of Statistics (NBS) (2003)

2.1.5 Vegetation

The vegetation of the area is mainly deciduous Miombo woodland with *Brachystegia spp*, *Julbernardia globiflora*, *Pterocarpus angolensis*, *Terminalia spinosa* and *Combretum spp*, being the major vegetation type which is maintained by frequent fires. Other areas are covered by dense thickets, riverine and ground water forest.

2.1.6 Wildlife

The area has high degree of habitat heterogeneity and eventually inhabiting variety of wild animals. Common animals in the area are Elephant, Hippopotamus, Leopard, Buffalo, Lion, Hyena, Zebra, Bush pig, Warthog, Hartebeest, Wildebeest, Sable Antelope, Reedbuck, Wild Dog, Aardvark, Silver Backed Jackal, Python, variety of small mammals, variety of reptiles, amphibians and birds.

2.2 Analysis of Problems, Issues and Concerns

The first step in any planning process is to identify the planning and management issues that would be addressed in the RZMP. In this document words issues, problems and concerns are used synonymously. Identifying issues is one of the most important steps in the process because it provides focus for the rest of the planning and zoning efforts.

The area is generally facing severe threats to its continued existence. Such threats if left unattended will block this important ecological link of Selous and Niassa reserves. Those threats are the uncontrolled and unplanned conversion of land for agricultural use, ribbon development along the major roads, the unsustainable and illegal use of natural resources including the high value poaching of ivory across the national boundaries and uncontrolled fires.

Heavy encroachment by agriculture and destruction due to conversion of forest for farming and settlement are already taking place in most part of this area. With the high human population growth rate and its impact on the mostly still intact natural habitat, the area is predicted to be destroyed unless adequately managed.

Workshop participants identified specific issues facing proposed Mbarang'andu Wildlife Management Area. Since management and resource protection issues are not always confined to WMA boundaries, participants identified external issues as well. Therefore analysis of the information data sheet and stakeholder workshop resulted in the identification of the following problems, in terms of priority:

- **Increased property damage by wildlife**

Local community properties, mostly crops, were being frequently raided by wildlife from MWMA or nearby conservation areas. Elephant is the major wildlife species which causes crop damage. Buffaloes, Water Buck, Eland, Vervet Monkeys, Olive Baboons, Warthog and birds of different kinds also cause crop loss in areas adjacent MWMA. Major crops that were being affected by wildlife include Beans, Rice, Bananas, Cassava, Millet, Soghum and Maize. Many agricultural landowners in the area believe that they are experiencing reduced crop yield and quality as a result of wildlife damage.

Human attack by wild animals specifically Lions, Elephants and Buffaloes were very common on areas adjacent to the proposed MWMA. Incidences of Lions causing damages to livestock in areas around the MWMA were also reported. Property damage by wildlife is the most important cause of conflicts between wildlife management and other land uses in the area. Conflicts create antipathy of the local people towards wildlife conservation and management.

- **Shifting agriculture and encroachment of agriculture into wildlife areas**

In this agricultural system, a patch of land is cleared, crops are grown, and the patch is then deserted until the soil regains its fertility. There are many varieties of shifting cultivation, but as a rule it is characterized by a large diversity in crops. In Namtumbo district the crops grown by shifting cultivators include bananas, pigeon peas, cassava, beans, rice, maize, and millet. Since the nutrient supply is constantly decreasing under cultivation, yields decrease with time, and eventually the farmers must clear and cultivate new land to meet their basic needs. In these areas, the usual period of cultivation is from two to four years, and, depending on the properties of the soil, a fallow period of eight to ten years is required to regenerate soil fertility. Shifting cultivation systems are perceived both by numerous scientists as well as the general public, as wasteful, unproductive, and exploitative and the cause of widespread environmental degradation. Shifting cultivators are blamed for the destruction of much of the world's tropical forests, land degradation, atmospheric pollution and global climatic change. This kind of agriculture has become one of the major sources of economy for the people around MWMA. This kind of agriculture causes expansion of agricultural farms and encroachment into wildlife areas. Coupled with increased human population, shifting agriculture is major cause and source of conflicts between humans and wildlife in these areas. Crop damage by wildlife in many instances is due encroachment of agriculture into wildlife dominated areas.

- **Deforestation in the area**

Trees are the most important source of building materials and energy for the local communities of the ten villages. Regeneration of trees in the MWMA is slowed due to excessive tree felling associated with shifting agriculture. Demands for trees have also increased as a result of lack of alternative sources of energy and building materials. The major problems are shifting cultivation, building materials, charcoal and the biggest is unsustainable lumbering in the area.

- **Poaching**

Illegal harvest of wildlife in the area is very common. Main species that suffer from poaching are Elephant (for ivory) and Buffalo (for meat). Animals that are poached are most likely to become extinct or endangered. If one animal dies then many other animals will to. Poaching causes decline of wildlife population and interruption of their social organization. For instance, poaching of elephants caused many family groups of Elephants to lose their matriarchs, compromising their social, competitive and physiological functioning. Continued declining of elephant (key species) population in the area might disrupt the ecology of Songea WMA with some serious devastating effects.

- **Inadequate working tools**

Vehicles, tents, uniforms, firearms and other wildlife management tools are inadequate or lacking for wildlife management duties in the Namtumbo district. Wildlife management activities are seriously constrained due to lack of necessary tools. Destruction of wildlife resources have been going unabated in and outside the MWMA due to lack of necessary working tools.

- **Inadequate income from wildlife**

Funding for management of the MWMA is inadequate. Income that is generated from the Licences Fees and 25% Game Fees is inadequate to support WMA operations and support village developments. Revenue that is generated from wildlife utilisation in the district is shared amongst the villages in the entire district making the revenue retained to focus in wildlife protection in MWMA insufficient. Other tourism initiatives that are being exercised in the MWMA do not produce tangible benefits due to inadequate wildlife entrepreneurial skills, knowledge and attitudes of the village governments. Local people feel that investments in the tourist hunting in the MWMA do not benefit them enough. They also feel that they were not involved in the current mining prospecting efforts undergoing in the area, and may not benefit from potential mining of Uranium in the area.

- **Unskilled labour**

Successful wildlife management requires specialised knowledge, skills and right attitudes. Wildlife population in the MWMA is declining partly due to lack of skilled labour in the village governments. The implementation of the RZMP also may not succeed without proper training of the managers of MWMA. Skills in resource inventory, resource protection and wildlife entrepreneurship would be necessary for the successful management of MWMA.

- **Wildfires**

Wildfires occur frequently inside the MWMA. The major causes of wildfires in the areas are charcoal producers and honey gatherers. Less often tourist in the areas surrounding the MWMA and people passing through the Songea-Tunduru main road accidentally cause wildfires. Wildfires have overwhelming effects on the biodiversity and ecology of the MWMA when occur at wrong season and magnitude.

- **Poverty and ignorance**

Poverty of all kinds is evident in the area. Income poverty, diseases and hunger force the local people in the area to engage in illegal wildlife exploitation for food and income. Ignorance is also common in the area. Inadequate knowledge on values of conservation necessitates certain people to cause unnecessary problems to the wildlife conservation authorities in the area.

- **Side-effects of mining Uranium in the MWMA**

Uranium prospecting conducted by Mantra Resources Limited of Australia, Western Metal Company and Uranex Company have indicated the area to be rich in Uranium deposit which can be commercially extracted. Members of the MBARANG'ANDU AA have concern on the health hazards resulting radiation due to Uranium mining in the MWMA or the surrounding area. They also felt that mining Uranium might negatively affect the environment of MWMA. Questions were also raised on how will the Mbarang'andu people benefit from mining of Uranium in the area? Experiences from oil rich state of Ogoni in Nigeria were discussed in the workshop. They perceived that benefits accrued for mining these resources might not trickle down to the local people of the villages making up Mbarang'andu AA.

2.3 Analysis of Outstanding Resources and Values

In any protected area there are many important resources and values. For planning purposes, the stakeholders agreed to focus on what was termed as outstanding resource values. The term “outstanding” was used to mean extraordinary, exceptional or unique. Outstanding resource values were defined as resources that capture the essence why the protected areas were created and exist, because they helped maintain the integrity of the protected areas system. These could be intangible or tangible resources. These resources are not limited to the boundaries of protected areas. Due to resources (time, staff and money) limitation, protected areas needed a management priority for protecting natural and cultural resources.

The following criteria were developed and used in the identification of outstanding resources and values for the MWMA:

- Unique biological attributes, vegetation types and land forms;
- Outstanding natural and physical features;
- Critical for maintaining the integrity of the protected areas;
- Rare, endemic, endangered, threatened plants and animals;
- Sensitive biological and physical resources;
- Major cultural, historical and archaeological sites; and
- Resources with worldwide recognition.

Experiences of stakeholders, information data sheet and existing documents on Selous and Niassa Game Reserves were the major sources of information in the identification of the following outstanding resources values of the MWMA:

- Variety of wildlife

The area supports a large number of globally significant, threatened and CITES listed large mammal species. Variety of wildlife species exist in the area. Birds, reptiles, and mammals of different kind exist in the MWMA. This area is part of the corridor connecting Selous Game Reserve in Tanzania and Niassa Reserve in Mozambique, making it important in trans-boundary conservation. Significant wildlife species include Elephant, Lion, Leopard, Zebra, Buffaloes, Eland, Hartebeest and Wildebeest. Rare and threatened wildlife species include Pangolin, Wild Dogs and Greater Kudu.

The identification of exceptional resource and values would allow planners, managers, and decision makers to focus their efforts, limited resources and staff on these most important resources. These exceptional resource and values were integral in determining the MWMA purposes and significance, formed the basis for identifying the area's primary interpretive themes, and helped set the parameters for developing management zones.

There is unconfirmed information, that Rhinos are seen in the area regularly. Birdlife diversity is also evident in the area.

- Mineral wealth

It has been confirmed that MWMA had huge deposits of Uranium. Uranium is a silvery-white metallic chemical element. Uranium has the highest atomic weight of the naturally occurring elements. Uranium is approximately 70% denser than lead, but not as dense as Gold or Tungsten. It occurs naturally in low concentrations (a few parts per million) in soil, rock and water, and is commercially extracted from uranium-bearing minerals such as uraninite. Many contemporary uses of uranium exploit its unique nuclear properties. Uranium provides the fissile material for nuclear weapons and nuclear power generators. It is also used as a colorant in uranium glass, producing orange-red to lemon yellow hues. It was also used for tinting and shading in early photography. Due to these values, Mbarang'andu AA members

see that the Government of Tanzania might opt to mine Uranium which may have both negative and positive effects on wildlife and local economies of the Namtumbo residents.

- Natural dams

Dams are important natural phenomena. Dams increase biodiversity and improves overall environmental quality. Under normal circumstances positive effects brought by dams are radically diminished if they are eradicated from an area. Modern societies have recently begun to realize the benefits of dams thus protect wetlands. Kapera, Nandondo, Nondole, Chachu, Ngwahe, Kitanda, Kahunde, Howaye, Njengo, Litihe, Nolele are some of the significant natural dams in the area which upon proper utilization may generate great benefits to the MWMA.

- Rivers and river systems

The rivers in this area play an important role in the ecology and socioeconomy of the Namtumbo people. The river systems provide water for irrigation, potable water, cheap transportation, electricity, as well as provide livelihoods for a large number of people all over the Ruvuma and adjacent regions. This easily explains why nearly all the major villages of the Ruvuma villages are located by the banks of some major rivers that either go through the MWMA or originate from it. The survival of wildlife of the area is highly dependent on these rivers and river system of the area. The rivers also have an important role in mythology of the people of Namtumbo and are considered holy by all many people in the country. Seven major rivers along with their numerous tributaries make up the river system of Mbarang'andu. These rivers are Lukimwa, Litetelimo, Liwoyowoyo, Luegu and Mtimbira.

- Mountains and hills

The mountains and hills in Mbarang'andu provide scenic beauty and add significant tourism values of the area. Kirunga, Mtungwe, Lihowela, Viteo vya Matanga, Unyama, Lingondimba, Kanisa, Kilima Tembo are some of the significant mountains that are potentially the main source of beauty and tourism for the area.

- Stones and valleys

Geomorphically, the MWMA is a depression with predominant extent in one direction. A very deep river valley may be called a canyon or gorge. The terms U-shaped and V-shaped are descriptive terms of geography to characterize the form of valleys. Most valleys belong to one of these two main types or a mixture of them, at least with respect of the cross section of the slopes or hillsides. Valleys provide unique features for tourism. Chatamila and Likembamwale valleys provide unique tourism values and unique habitat for wildlife. Litundandilo stone, with buffalo foot print, is another natural features that add values of the Mbarang'andu Wildlife Management Area.

- Forest

Liulinde forest in the south and Northern Undendeule forest in the north of the MWMA form part of the major tourism attractions of the area. The two forests are provide unique area for bird watching, photographing and bush crafting.

- Falls and springs

MWMA has springs called Hiyogo that are attractive for tourism and support wildlife and people in the area. Ndilima water falls (along Luegu river) and Nnahenyumu water falls provide unique values in terms of tourist attraction and ecology of the area and additionally Ndilima water fall has a potential for hydropower.

- Part of the selous-niassa wildlife corridor

The area is part of the Selous - Niassa wildlife corridor which is a landscape linkage between Africa's largest protected areas: The Selous Game Reserve of Tanzania, acknowledged as a World Heritage Site and home to Africa's largest elephant, buffalo, sable and other wildlife populations; and the Niassa Game Reserve of Mozambique, well renowned for its large elephant population. The area consists of natural miombo woodland; it encompasses a wide variety of wildlife habitats with wooded grassland, substantial areas of open savannah, granite inselbergs, seasonal and permanent wetland, and riverine forests along numerous rivers and streams draining either towards the Rufiji or Ruvuma rivers. The area is part of the corridor that allows the largest herbivore, the African elephant to migrate between the two largest elephant ranges of the world.

- Forests and trees (Names in Vernacular)

Unique and abundance of forests and tree species give MWMA unique scenic values. Vernacularly named; Mninga, Mbambakofi, Mgwina, Muwawa, Mininga maji, Mnyenye, Muwanga, Mpuga, Nchenga, Muyombo, Mgelagela, Mtonga, Mpembu, Msuku, Mdala mwezi, Mtetereka, Nyangandembu, and Mchinji are dominant plant species in the MWMA.

- Medicinal trees (Names in Vernacular)

The table below provides a summary of some of the trees and shrubs with medicinal values, with specific cures they provide.

Name of plants	Specific cure
Mdawa	Tooth and gum bacterial infection
Mbuni	Ear infection
Mtomoni	Importancy, Malaria, Excessive menstrual bleeding
Ngelekana	Inhance fertility in both human and livestock
Uhoru	Ear infection
Lughuruka	Gonorrhea, Syphilis
Msangusangu	Stomachache/Stomach bacterial infection
Mjoka	Anti-venom
Kihondoka	Ear infection
Mpinji	Gonorrhea, Bilhazia

Other useful trees include Mpingo (for curving), Mianzi Pori (for construction), Mkwaju (fruits for both human and wild animals like Baboon and Velvet monkey).

- Revenue from tourism, photographic and hunting activities

There area has great financial and economic potentials if it is exploited for wildlife tourism, photographic and hunting activities.

2.4 Analysis of MWMA Significance

The area's significance was defined as the area's importance to our natural and/or cultural heritage. Significance was summarized in statements that describe the reasons the area is important to natural or cultural heritage. Such statements expanded upon the identification of exceptional resource values by adding unique qualifiers and placing the protected area within the context of a region, national, and international importance.

Together with problems and outstanding resource values, significance established the framework on which the RZMP was based. An understanding of significance of the area was particularly important in identifying resource management and interpretation priorities and in determining the type of visitor experience most appropriate to the area.

Stakeholders analysed the information data sheet and developed the following significance statements for the MWMA:

- MWMA is one of the key area in protecting the Selous-Niassa corridor;
- MWMA is one of then few areas in the Selous-Niassa wildlife corridor that is not fully protected
- MWMA is one of the most important WMA in Tanzania with significant potentials to generate revenue from tourism, photographic and hunting activities for the development of the villages;
- MWMA is the only WMA with Rhinos in Tanzania;
- MWMA is one of the biggest WMA in Tanzania;
- It is the only area in the Namtumbo District with highest concentration of wildlife; and
- MWMA is one of the WMA with highest density of Elephants and Buffaloes in Ruvuma region.

MANAGEMENT ZONE SCHEME

Management zoning is defined as a planning technique used for appraising and categorizing protected area or conservation area lands. The management zoning scheme that is proposed for the MWMA assigning where various management actions or interventions will best resolve existing problems facing the Mbarang'andu Wildlife Management Area complex, protect outstanding resource values and accomplish defined management objectives by defining what can and what cannot be done in different areas of the MWMA. The difference in the types and levels of use as well as the types and levels of physical development makes a distinction of one management zone from another.

During the development of management zone scheme, Mbarang'ANDU AA and stakeholders used no scientifically proven formula. They used best available information, professional judgments and their experiences to determine the appropriate zoning scheme for the MWMA.

Land use capability and suitability to support different types and levels of use and physical developments were important determinants and they were used to determine the best and practical management zone scheme for the MWMA. Locations of existing facilities, existing patterns of use and existing resource conditions did not necessarily influence the process of developing the management zone scheme.

The zoning designations defined in this Resource Zone Management Plan are based on different management importance. During the development of the management zone scheme, primary consideration was given but not limited to the following criteria:

- Land use sustainability;
- On-site identifiable land units or management zones;
- Introduction of uses and developments that resolve existing management conflicts;
- Elimination of uses and developments that either damage resources or create undue burden on MWMA management;
- Sustainability of the MWMA;
- Protection of outstanding resource values of the MWMA;
- Enhancing MWMA significance;
- Constraints imposed by landscape and ecological determinants;
- Provision of diverse range of appropriate visitor experiences;
- Zone scheme that would increase revenue of the MWMA;
- Land/environmental capability and suitability to support proposed or existing use and physical developments;
- Cultural sustainability;
- Use of already impacted areas and resources; and
- Increased contribution to local economies and enhance inter-village relations.

The following five management zones for the MWMA (Figure 1):

- Ruhila Tourist Hunting Zone;
- Beekeeping Zone; and
- Mbarang'andu Tourist Hunting Zone.

Below is a description of each management zone of the MWMA. The description includes the following important aspects:

- Description of specific boundary;
- Rationale or justification for each management zone;
- Permissible activities and limits types and levels of uses and physical development that are acceptable in each management zone;
- Prohibited uses and physical developments in each management zone; and
- Necessary or other conditions for the implementation of each management zone.

Only permissible and prohibited activities were outlined for each zone.

4.1. Ruhila Tourist Hunting Zone (745.83 km²)

Rationale for the zoning	To protect outstanding resources values and generate income from tourist hunting activities and other forms of non consumptive tourism that are compatible with tourist hunting.	
Resources and value	There is variety of wildlife in this area that makes the zone suitable for hunting and photographic safaris. Beautiful flowering plants and attractive features like rivers (Luegu, Mtimbira, Mumbi, Pitu), attractive mountains (Unyama, Lingondimba and Kanisa) and exceptional natural dams (Kapera, Nandolo, Chachu, Kitanda, Kahunde, Howaye, Njengo, Litihe and Nolele). Chatamila, Litundandilo and Likembamwale valleys add spectacular view of the area and provide safe refuge of wildlife throughout the seasons. Liulinde forest harbor majority of forest wildlife of the area. Water falls at Ndilima and Nnahenyumu provide special site for would game viewers in the area.	
Description of Boundaries	On the east, the zone is separated from Mbarang'andu Tourist Hunting Zone by the road from Namtumbo-Likuyu-Mbarangandu.	
Allowed Uses	Uses	Limits of Acceptable Use
	1.Bush Crafting or Wilderness Skills	1 st January – 30 th June
	2.Photographic safari	1 safari, 1 st January – 30 th June
	3.Fishing	1 st January – 30 th June (at fish camps designated sites)
	4.Walking safaris	1 st January- 30 th June
	5.Permanent hunting camp along the Luegu river	
	6. Flying camp at Pitu	
	7.Tourist hunting	1 st July – 31 st December, maximum of 2 hunting camps
Prohibited Uses	1.Mining, subject to Mining Act 1998	
	2.Tree cutting	
	3.Human temporary or permanent settlement	
	4.Beekeeping	
	5. Charcoal burning	
	6.Agriculture	
	7.Resident hunting	
Other Conditions	<ul style="list-style-type: none"> All conditions imposed by the Wildlife Management Area Regulations and Wildlife Conservation Act, Forest Act, Beekeeping Act, Tourism Act, Mining Act All conditions imposed by bylaws 	

4.2. Mbarang'andu Tourist Hunting Zone (1280.93 km²)

Rationale for the zoning	To protect outstanding resources values and generate income from tourist hunting activities and other forms of non consumptive tourism that are compatible with tourist hunting.
Resources and value	There is variety of wildlife in this area that makes the zone suitable for hunting and photographic safaris. Beautiful flowering plants and attractive features like rivers (Mkundi, Msawati, Mbarangandu, Likimwa, Litetelimo and Liwoyowoyo) and mountains (Mtungwe, Lohowela, Viteo vya Matanda, Kirunga and Kilima Temba). The area is bordering Selous Game Reserve. Most attractive natural dams in the area include Ndongole and Ngwahe. Water falls along Mbarang'andu river provides unique attraction in the area.
Description of Boundaries	On the west, the zone is separated from Ruhila Tourist Hunting Zone by the road from Namtumbo-Likuyu-Mbarangandu.

Allowed Uses	Uses	Limits of Acceptable Use
	1. Bush Crafting	1 st January – 30 th June
	2. Photographic safari	1 safari, 1 st January – 30 th June
	3. Fishing	1 st January – 30 th June (fishing camps at designated sites)
	4. Walking safaris	1 st January- 30 th June
	5. Permanent hunting camp at Mbarang'andu	
	6. Flying Hunting Camp at Kilimatambo	
	7. Tourist hunting	1 st July – 31 st December, maximum of 2 hunting camp
Prohibited Uses	1. Mining, subject to Mining Act 1998	
	2. Fishing	
	3. Charcoal burning	
	4. Human temporary or permanent settlement	
	5. Tree felling	
	6. Resident hunting	
	7. Agriculture	
	8. Beekeeping	
Other Conditions	<ul style="list-style-type: none"> All conditions imposed by the Wildlife Management Area Regulations and Wildlife Conservation Act, Forest Act, Beekeeping Act, Tourism Act, Mining Act All conditions imposed by bylaws 	

4.3. Beekeeping Zone (291.48 km²)

Rationale for the zoning	Beekeeping is a unique primary industry. It depends on floral resources, nectar and pollen, about 80% of which are produced from native flora. The apiary industry has its economic impact via direct effects (the gross value of production), indirect effects (demand stimulated in linked sectors) and plant pollination services. The gross value of production over all sectors of the industry could be massive if it is properly managed. Major items of expenditure for the industry are labour and transport. It is estimated that around 80% of income (turnover) is spent on costs of production, which means that much of the income generated by the sale of honey and other products remains in rural areas of Namtumbo. This area has suitable habitats for beekeeping. It is also accessible from all villages forms Mbarang'andu WMA.	
Resources and value	Suitable habitat for beekeeping and wildlife.	
Description of Boundaries	5km strip of land along the southern part of the WMA. Sign post to be erected to demarcate this strip.	
Allowed Uses	Uses	Limits of Acceptable Uses
	1. Walking safaris	Maximum of 4 groups at a time
	2. Camping	1 camp site at Kaunde natural dam
	3. Fishing	Fishing camps at designated sites
	4. Bee keeping	Within 5km strip of land southern of the WMA
Prohibited Uses	1. Mining, subject to the Mining Act, 1998	
	2. Charcoal burning	
	3. Human settlements	
	4. Tree felling	
	5. Tourist hunting	
	6. Resident hunting	
	7. Agriculture	
	8. Wildfire	
Other Conditions	<ul style="list-style-type: none"> All conditions imposed by the Wildlife Management Area Regulations All conditions imposed by bylaws 	

4.4. Identification and Implementation of Zones on the Ground

Boundaries were identified based on distinct physical features on the ground. The use of physical features on the ground will facilitate implementation of the zones, except in the identification of Beekeeping Zone where sign posts will be erected along the borders. Law enforcement officers would be familiarised with these features that distinguish one zone from another. Beacons shall be installed in areas where distinct physical features could not be established or for ensuring awareness of the zoning during natural resource utilization.

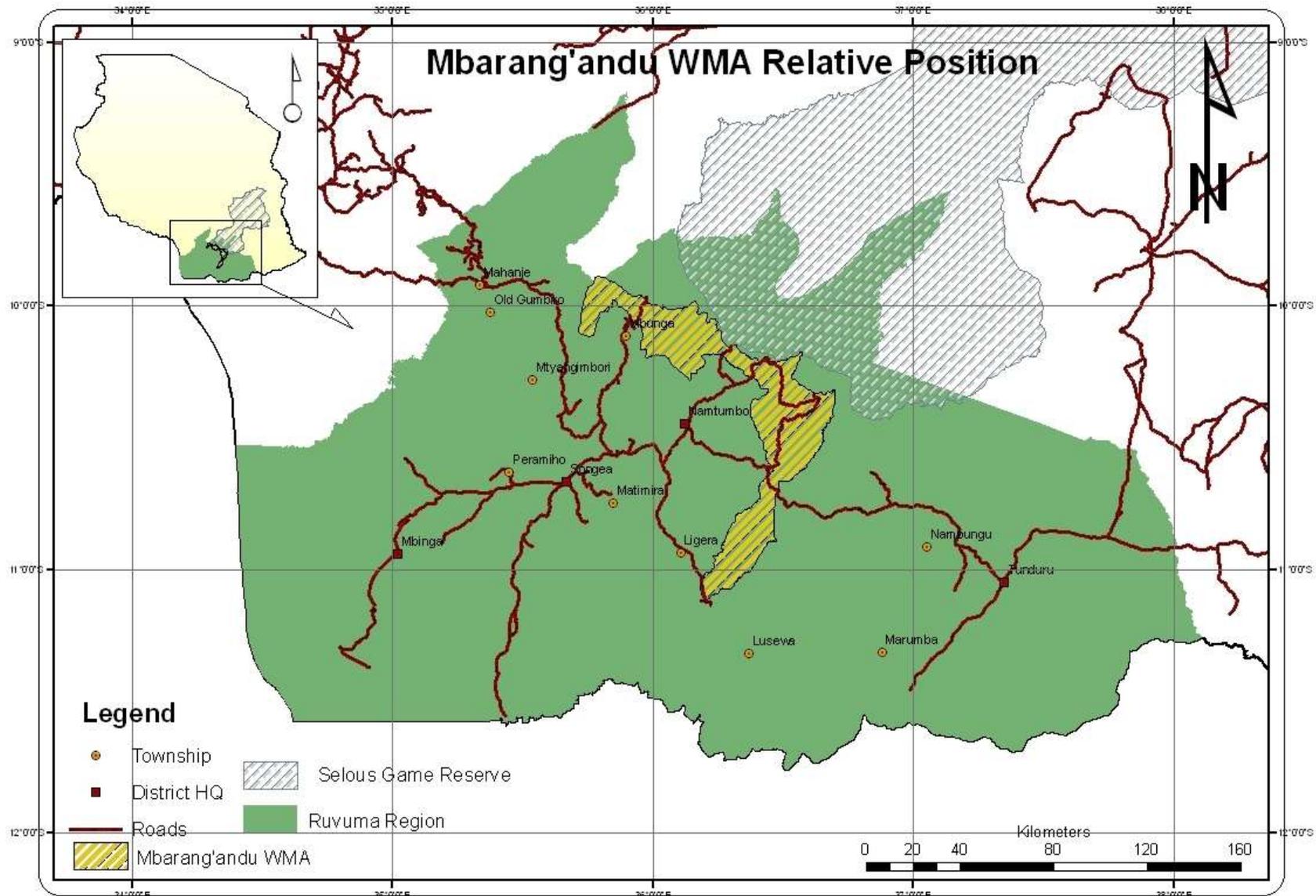


Figure 1: The Position of Mbarang'andu WMA Relative to Tanzania and Selous Game Reserve

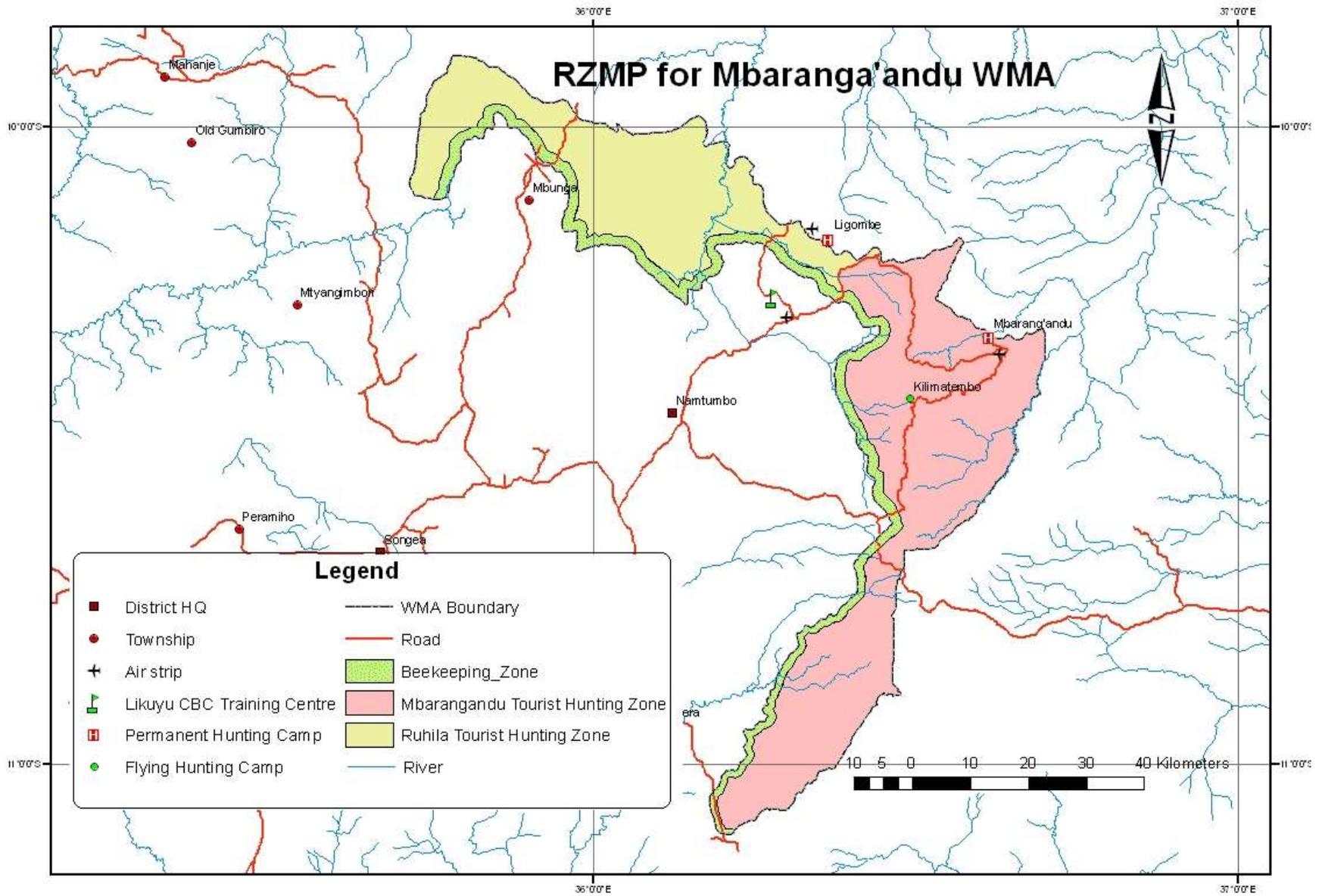


Figure 2: RZMP for Mbarang'andu WMA

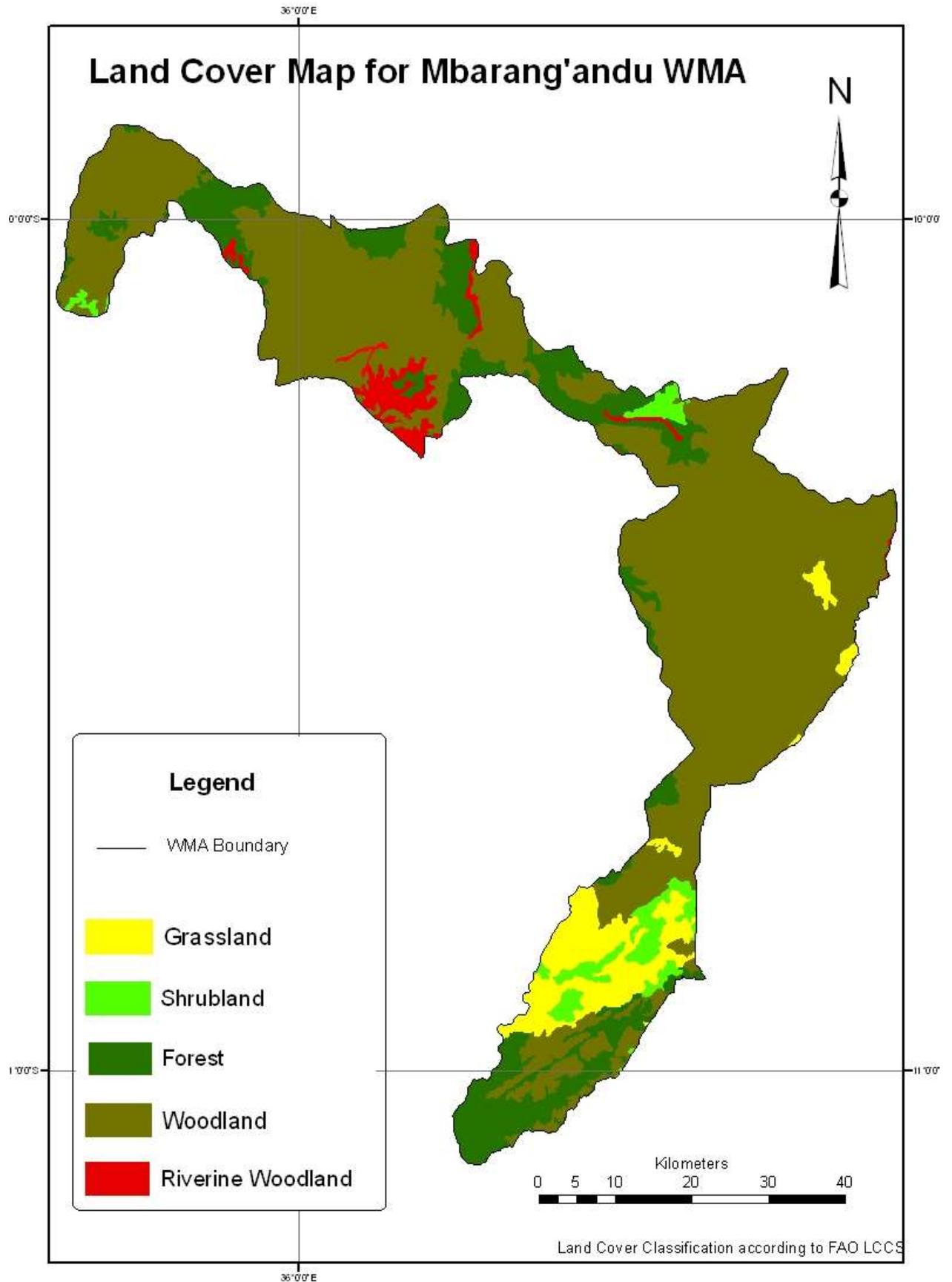


Figure 3: Land Cover Map for Mbarang'andu WMA

4. PROGRAMS

This chapter describes specific management programs, principles, objectives and actions to be undertaken to achieve objectives of the RZMP and implement the management zone scheme. The activities proposed in this RZMP do not repeat description of management zone scheme but reinforces it by defining specific and practical actions that would help to minimise identified problems, protect outstanding resources and significant area values, and help achieve protected area purposes.

The chapter outlines major RZMP activities i.e. strategic activities with significant contribution to the vision and goal of MWMA. The MWMA management shall continue to identify strategic activities as the implementation of the RZMP unfolds and as circumstances dictate. Routine operations and other activities relevant to the RZMP issues and objectives shall be identified or improved continuously through the development and implementation of Annual Operation Plans and Budgets (AOPB).

The MWMA stakeholders considered and included actions that would be feasible within the village set-up, and policy and legal frameworks. Also the stakeholders described the activities in terms of what needs to be done, and not how and when these activities will be implemented. Details on how and when these activities will be conducted shall be contained in the AOPB. More commonly, the information in this section may not be detailed (Thomas & Middleton, 2003). Detailed description of the management programs assist on-site MWMA managers in better understanding of what the RZMP demands from them over a period of five years. Also detailed description of the program normally helps ease development and implementation of AOPB. AOPB shall contain detailed annual activities and financial plans or budgets. However detailed description of activities, in terms of how and when each activity shall be implemented, will be considered during the development and implementation of a General Management Plan (GMP).

4.1. Visitor Use, Development and Revenue Program (VUDRP)

4.1.1 Program Purpose

The purpose of this program is to enhance visitor enjoyment and satisfaction and generate revenue that would raise and sustain funding for MWMA through non-consumptive and consumptive tourism, through rational use and allocation of revenue generated from the area and through sustained support from stakeholders.

4.1.2 Tourism Development and Revenue Principles

In the next five years the MWMA shall implement VUDRP whilst adhering to the following main principles:

- Principle of integrating tourism into sustainable development programs

The MWMA shall strive to ensure that national policies and strategies on sustainable development are integrated into the implementation of VUDRP. Also efforts to reconcile conflicting resource uses inside the WMA shall be speeded up and strengthened in order to ensure sustainable visitor development.

- Principle of development and management of sustainable tourism

Planning is the key to the sustainable tourism. In the next five years the MWMA management shall endeavour to ensure that tourism and ecotourism products are accurately identified and tourism plans are designed, appraised, monitored and evaluated for sustainability. Environmental Impact Assessment (EIA) shall be part and parcel of the development of tourism in the MWMA. Also tourism and ecotourism developments shall take into account the developments and land uses at sub-regional and sub-national levels. Care shall always be taken to make sure that development of tourism in the sub region complies with Government

laws and regulations. Use of technology shall be encouraged to ensure that efficiency and effectiveness in managing tourism is guaranteed.

- Principle of sustainable tourism program

In order to succeed in the implementation of the VUDRP involvement of key stakeholders, information exchange and capacity to manage tourism is the key. The MWMA shall endeavour to involve key stakeholders at every stage of development and implementation of VUDRP. Also the MWMA shall strive to build and maintain the capacity to manage VUDRP. Information exchange on lesson learned would be encouraged in order to improve the implementation of VUDRP.

- Sustainable funding and equity in the distribution of revenue

Sustainable funding is simply the amount of money MWMA need to provide and sustain a particular level of conservation and community development services over time. It is important to appreciate that sustainable funding does not mean enough money to publicly fund all the community development services that WMA should be providing. It is the responsibility of local community to establish what they believe is an appropriate and affordable level of publicly funded services and then to work out how much money is required over time to sustain that particular level. Also local government would need to make sure that the community understood and appreciated that the need to set a funding level inevitably would result in a degree of rationing, the extent of which would be determined by the level at which the sustainable funding path was set. Likewise any policy would need to provide the MBARANG'ANDU AA with a mechanism to cope with pressures on funding, reacting to those pressures in a planned, rather than an unplanned, manner and any policy would need to provide confidence to the MBARANG'ANDU AA and local communities that the policy settings were appropriate and able to be met within the parameters set by the sustainable funding framework.

It is also important for the village governments and local communities to understand that what determines the level of income to be accrued from the WMA by each village from the WMA is not necessarily the size of the area each village contributed to the formation of the WMA. The village governments may need to develop a system to distribute revenue that ensures equity. This is because distribution and abundance of natural resources, particularly wildlife, are not necessarily determined by the size of the area.

4.1.3 Program Objectives, Targets and Activities

This sub chapter outlines a summary of VUDRP objectives, targets and activities.

Objective 1: To increase and sustain financial contribution of the MWMA to the village governments by 400% by 2013	
Target 1.1 Income from ecotourism, including hunting, stand at Tshs 200,000,000 per annum by 2013	Activity 1.1.1 Develop a framework for concessions and contracts for tourism and extraction of any resources (including mining) from the area
	Activity 1.1.2 Develop and implement ecotourism entrepreneurial Plan and business plan
	Activity 1.1.3 Recruit and train project and ecotourism manager to operate VUDRP
	Activity 1.1.4 Introduce ecotourism opportunities based on the management zone scheme
	Activity 1.1.5 Develop and implement marketing plan
Target 1.2 Income from non ecotourism sources stand at Tshs 150,000,000 per annum by 2013	Activity 1.2.1 Design and implement conservation projects and funding projects for MWMA
	Activity 1.2.2 Recruit and train project and ecotourism manager to implement conservation projects
	Activity 1.2.3 Develop and implement financial monitoring and evaluation plan

	Activity 1.2.4 Develop and implement financial regulation and procedures manual, include mechanisms to ensure equity distribution of income for villages
Objective 2: To help tourists achieve highest possible degree of satisfaction by 2014	
Target 2.1 Tourist feedback framework developed by June 2011	Activity 2.1.1 Develop tourism satisfaction indicators
	Activity 2.1.2 Develop and implement visitor satisfaction plan
	Activity 2.1.3 Develop and implement procedures for reviewing and improving tourist programs
Objective 3: To ensure that ecotourism developments, including hunting, are designed, appraised, monitored and evaluated for sustainability by 2014	
Target 3.1 Environmental impact management mechanisms developed/adopted by June 2011	Activity 3.1.1 Review and implement village land use plans
	Activity 3.1.2 Develop database on impact of land uses inside the MWMA
	Activity 3.1.3 Undertake training on EIA
	Activity 3.1.4 Develop and implement practical EIA procedures to be use by village governments

4.2 Administration and Operations Program (AOP)

4.2.1 Program Purpose

The purpose of this program is to boost efficiency and effectiveness of the MWMA operations through the provision of relevant facilities, infrastructure and training to MWMA staff and management capacity. Also the programs shall implement activities that coordinate the implementation of the RZMP.

4.2.2 Administration and WMA Operations Principles

In the next five years the MWMA shall implement AOPB while sticking to the following main principles:

- Professional guidance on the management of MWMA

In the next five years the MBARANG'ANDU AA and village leadership shall listen to and use professional guidance in the management of the MWMA. Decisions in key management areas shall strictly follow government regulations and professional guidance. However care shall be taken to ensure that guidance provided by various professionals is appropriate to MWMA real needs, in achieving results through gradual accumulation.

- Adaptive and planned management and collaboration

During the RZMP implementation period and beyond, the MBARANG'ANDU AA shall aim at providing services across the board, acting decisively and responding rapidly to changing management needs and circumstances. MBARANG'ANDU AA shall collaborate closely with other central government agencies, with local government and with specialist service agencies and other relevant authorities to ensure efficiency and effectiveness of WMA administration and operations. Also the MBARANG'ANDU AA shall implement its operations and programs through the development and implementation of AOPB. AOPB shall contain clear annual objectives, targets and activities. MBARANG'ANDU AA shall be reviewing AOPB on a regular basis to cope with changing policy, legal, administration and operations needs.

- Use of local and external resources for synergy

The MBARANG'ANDU AA shall encourage making effective use of both internal and external resources to achieve synergy in administering operations of the MWMA. The MBARANG'ANDU AA shall be open to ideas and innovations from within or outside the MBARANG'ANDU AA.

4.2.3 Program objectives, targets and activities

This sub chapter outlines a summary of AOPB objectives, targets and activities.

Objective 1: To ensure that operations of the MWMA are efficient and effective by 2013	
Target 1.1 Human resources management framework in place by June 2011`	Activity 1.1.1 Develop and operationalise organisation structure to administer the MWMA
	Activity 1.1.2 Develop and implement comprehensive Schemes of Services for staff working with the MWMA
	Activity 1.1.3 Develop and implement a comprehensive Human Resource Development plan
	Activity 1.1.4 Develop and implement staff performance evaluation
	Activity 1.1.5 Recruit and deploy appropriate staff
	Activity 1.1.6 Develop and implement Human Resources Policy And Procedures
	Activity 1.1.6 Develop HIV/AIDS Operational Procedures and Action Plan.
	Activity 1.1.7 Develop General Management Plan (GMP)
Target 1.2 Anti-poaching management framework developed by June 2011	Activity 1.2.1 Identify law enforcement staff and material resources Need
	Activity 1.2.2 Recruit Community Willdife Scouts based on Scheme of Service
	Activity 1.2.3 Develop and implement scout training plan
	Activity 1.2.4 Develop and implement Memorandum of Understanding (MoU) to establish law enforcement network with adjacent authorities, especially the Selous Game Reserve and Songea WMA
	Activity 1.2.5 Provide law enforcement equipment and facilities
	Activity 1.2.6 Develop and implement anti-poaching schedule
Objective 2: To ensure that facilities and infrastructure for MWMA operations exist and properly maintained by 2013	
Target 2.1 Facility and infrastructure management framework developed by June 2011	Activity 2.1.1 Develop facility replacement and infrastructure management policy and procedures
	Activity 2.1.2 Develop and implement facility and infrastructure maintenance budget and schedules
Target 2.2 Adequate administration facility acquired by June 2010	Activity 2.2.1 Develop a list and prepare a budget of equipment required for efficient MWMA administration and operations
	Activity 2.2.2 Develop and submit a funding proposal to secure the needed equipment
Target 2.3 Relevant infrastructure in place and maintained by June 2013	Activity 2.2.1 Develop a list and prepare a budget of infrastructure required for efficient and effective MWMA administration and operations
	Activity 2.2.2 Develop and submit a funding proposal to secure and maintained required infrastructure
	Activity 2.2.3 Mark WMA boundaries including beekeeping zone
Objective 3: Ensure that RZMP is approved and AOPB is developed and fully implemented annually by December 2009	
Target 3.1 AOPB framework developed by October 2009	Activity 3.1.1 Tables the draft RZMP to the Director of Wildlife for Endorsement
	Activity 3.1.2 Develop AOPB format
	Activity 3.1.3 Develop and implement Annual Operation Plan and Budget to implement the RZMP
	Activity 3.1.4 Form and operationalise RZMP implementation team
	Activity 3.1.5 Develop and implement a monitoring plan

4.3 Wildlife-People Relations Program (WPPRP)

4.3.1 Program Purpose

The program aims at supporting community livelihoods in order to ensure that the relationships between people and wildlife are improved and maintain. Improved relationship would guarantee sustained wildlife conservation support from the local people of the seven villages. Also good neighbourhood would ensure that indigenous knowledge is mainstreamed into sustainable management of the MWMA.

4.3.2 Local People Relation Principles

In the next five years the MBARANG'ANDU AA shall strive to implement the RZMP through maintaining the following key principles:

- Integrate traditional structures in the management of the MWMA

Whenever necessary the MBARANG'ANDU AA shall work through the use of tribal systems to ensure strong leadership, management skills, and the election of successful management committees. Also the MBARANG'ANDU AA shall work with community and local government to create a community-elected management body. Clear regulations on how to work with traditional structures are necessary and shall be promoted. The traditional roles and responsibilities in the management of MWMA shall be regularly reviewed and adapted to changing conditions.

- Ecology of MWMA

The MBARANG'ANDU AA shall strive to ensure that any community action takes into account the ecology of the area. Also biological and ecological monitoring is necessary and shall be community-based. Planning, monitoring, and evaluation should be done regularly and by the local community or using local mechanisms. Information from monitoring should be shared with all the community and used to take community-based actions.

- Recognising existing uses

When implementing the RZMP the need for the local people to continue subsistence harvesting must be recognized and accommodated. Where possible the MBARANG'ANDU AA shall strive to ensure that existing land and resource use by communities is accommodated in the RZMP or GMP management process.

- Addressing causes of people-wildlife conflicts

During the implementation of the RZMP or GMP for MWMA efforts shall be made to make sure that causes of people-wildlife conflicts are identified to form the basis for conflict resolution process. Addressing causes of conflicts is a key in improving and sustaining good relationship between people and wildlife and key in sustaining wildlife of the MWMA and the ecosystem at large.

4.3.3 Program Objectives, Targets and Activities

This sub chapter outlines a summary of WPRP objectives, targets and activities.

Objective 1: Conflicts between people and wildlife reduced by 50% by 2013	
Target 1.1 Conflicts resolution framework developed by June 2013	Activity 1.1.1 Develop wildlife-community conflicts profile
	Activity 1.1.2 Establish and operationalise Mbarang'andu stakeholder forum
	Activity 1.1.3 Review and implement land use plans
	Activity 1.1.4 Develop and implement conflict management plan and conflict monitoring plan

	Activity 1.1.5 Develop and implement policy, procedures, guidelines and bye laws on human settlements and movement of people and livestock in the area
	Activity 1.1.6 Provide voter education to ensure election of best leaders who can assist in resolving conflicts, and they are not causes of conflicts
Target 1.2 Property damage by wildlife minimized by June 2013	Activity 1.2.1 Develop profile on damage caused by wildlife on local community
	Activity 1.2.2 Review and implement land use plans
	Activity 1.2.3 Develop local policy and operational procedures on minimizing damage and impacts caused by wildlife on people's properties
	Activity 1.2.4 Establish mechanisms to minimize property damage by wildlife
	Activity 1.2.5 Monitor incidences of wildlife damages to local people profile.
Target 1.3 Livestock-wildlife disease incidences reduced by 30% by June 2013	Activity 1.3.1 Develop profile on livestock-wildlife diseases incidences in the area
	Activity 1.3.2 Review and implement land use plans
	Activity 1.3.3 Develop and operationalise a local policy, procedures and guidelines on livestock keeping
	Activity 1.3.4 Monitor livestock-wildlife disease incidences
Objective 2: Attitudes of local people towards wildlife improved by June 2013	
Target 2.1 75% of the local population is willing to support conservation by June 2013	Activity 2.1.1 Study and develop profile on local people attitudes towards wildlife
	Activity 2.1.2 Review and implement land use plans
	Activity 2.1.3 Develop and implement ways of improving local people attitudes towards wildlife
	Activity 2.1.4 Monitor attitudes of local people towards wildlife
Objective 3: Local people incomes increase by 20% and social conditions improve by June 2013	
Target 3.1 Income of each resident stand at US\$ 1 a day by June 2013	Activity 3.1.1 Study and develop income profile of local people in the three/four villages
	Activity 3.1.2 Develop and implement natural resources utilisation policy, procedures, guidelines and bye laws
	Activity 3.1.3 Establish and operationalise Community Conservation and Development Bank (CCDB)
	Activity 3.1.4 Provide training on wildlife entrepreneurial skills and project planning
	Activity 3.1.5 Monitor incomes of local people
Target 3.2 Social conditions of the local people reach United Nation Development Program (UNDP) standards by June 2013	Activity 3.2.1 Study and develop social condition profile of the local people
	Activity 3.2.2 Develop and implement health improvement and HIV/AIDS strategy
	Activity 3.2.3 Monitor health conditions of local people
	Activity 3.2.4 Support primary, secondary and tertiary education and training programs
	Activity 3.2.5 Improve agriculture for sustainable conservation
Objective 4: Indigenous knowledge and traditional systems integrated into planning and management of MWMA by June 2013	
Target 4.1 Framework for integrating local knowledge in MWMA management process in place and operational by June 2013	Activity 4.1.1 Establish and operationalise indigenous knowledge local policy, procedures and guidelines
	Activity 4.1.2 Monitor use of relevant local knowledge in the MWMA management process
	Activity 4.1.3 Study and document local knowledge relevant to MWMA management process

4.4. Natural Resources Management Program (NRMP)

4.4.1 Program Purpose

Natural resource management program purpose is to protect biodiversity and the Selous-Niassa ecosystem for sustainable livelihoods. Also the program is aimed at ensuring that natural resource data is available for rational decisions on management of MWMA.

4.4.2 Natural Resources Management Principles

In the next five years the MBARANG'ANDU AA shall strive to manage the MWMA based on the following key natural resources management principles:

- Economic principle

Full-cost pricing of the natural resources is the essence of economic principle. The MBARANG'ANDU AA shall ensure that there is no price distortion by removing government subsidies for resource use. Also costs shall be internalised by ensuring that resource users pay for the external effects. The MBARANG'ANDU AA shall ensure that there is constant income from natural resource by estimating and investing in user costs to maintain and sustain income-generating capacity of natural resources.

- Sustainability principle

The MBARANG'ANDU AA shall ensure that there is sustainable harvest and constant stock by increasing renewable resources to make up for loss on non-renewable resources. Precautionary principle to safeguard ecological functions in the face of uncertainty would be observed during the implementation of the RZMP. Also the MBARANG'ANDU AA would encourage use of natural resources in ways that ensure non-declining stream of benefits for all, and without weakening ecological functions of the resources.

- Social principle

The MBARANG'ANDU AA shall ensure that there is equitable distribution of natural resources property and user rights i.e. distribute secure property rights or use rights to those that are in dire need. Community management of natural resources shall be encouraged and rely on relevant community institutions for managing common resources for sustainability. Critical support shall be given to community institutions and information, technology, training and credits to enable sound resource management by them.

- Ecosystem principle

The MBARANG'ANDU AA shall strive to ensure that all natural resource management decisions are made to safeguard the Selous-Mbarang'andu-Niassa ecosystem. Thus principles of ecosystem planning and management shall be adhered in the implementation of the NRMP and RZMP/GMP.

4.4.3 Program Objectives, Targets and Activities

Objective 1: Wildfire reduced to an ecologically acceptable level by June 2013	
Target 1.1 Incidences of wildfire reduced by 40% by June 2013	Activity 1.1.1 Study and develop wildfire profile
	Activity 1.1.2 Develop and implement Fire Technical Detailed Management Plan
	Activity 1.1.3 Develop and operationalise policy, procedures, guidelines and bye laws on the use and management of fire in the area
	Activity 1.1.4 Monitor incidences and extent of wildfire
	Activity 1.1.5 Establish wildfire database

Objective 2: Wildlife populations maintained at ecologically acceptable levels by June 2013	
Target 2.1 Wildlife-livestock disease incidences reduced by 50% by June 2013	Activity 2.1.1 Study and develop wildlife-livestock disease incidence profile in the area
	Activity 2.1.2 Review and implement land use plans
	Activity 2.1.3 Develop and implement technical detailed disease Management plan
	Activity 2.1.4 Monitor disease incidences in the area
	Activity 2.1.5 Establish disease database
Target 2.2 Wildlife habitat management framework established by June 2011	Activity 2.2.1 Study and develop wildlife-livestock habitat profile
	Activity 2.2.2 Develop and implement wildlife-livestock habitat technical detailed management plan
	Activity 2.2.3 Monitor habitat condition and use by wildlife and Livestock
	Activity 2.2.4 Develop habitat condition and use database
	Activity 2.2.5 Improve wildlife-livestock habitat including water availability for wildlife and livestock
Target 2.3 Wildlife monitoring framework in place by June 2011	Activity 2.3.1 Study and develop wildlife species profile
	Activity 2.3.2 Undertake annual counts of numbers of key wildlife Species
	Activity 2.3.3 Develop wildlife database
	Activity 2.3.4 Monitor wildlife populations
	Activity 2.3.5 Use census data to determine annual wildlife utilisation quotas
Target 2.4 Illegal harvest controlled by June 2011	Activity 2.4.1 Study and develop profile on illegal harvest of natural resources in the area
	Activity 2.4.2 Develop mechanisms for sustainable utilisation of Wildlife resources
	Activity 2.4.3 Develop mechanisms to combat illegal harvest of wildlife resources
	Activity 2.4.4 Develop policy, procedures, guidelines and bye laws on wildlife resource utilisation
	Activity 2.4.5 Develop and operationalise database on illegal Harvest of wildlife resources
Target 2.5 Wildlife database established by June 2011	Activity 2.5.1 Develop database format (manual database)
	Activity 2.5.2 Train local people on the management of manual Database
	Activity 2.5.3 Purchase necessary equipment and operationalise natural resources database
Target 2.6 Framework for guaranteed sustainable benefits from Uranium mining in place by June 2011	Activity 2.6.1 Establish rapport with Government and mining companies in the area
	Activity 2.6.2 Engage consultant to help draft a contract that itemizes benefits to Mbarang'andu AA
	Activity 2.6.3 Sign contract with mining companies on benefits and support to Mbarang'andu AA
	Activity 2.6.4 Engage consultant to help ensure that mining of Uranium has acceptable impacts on MWMA

5. ENVIRONMENTAL STATEMENTS

Environmental impact focuses on change in condition of the resource or environment due to the proposals in the RZMP (including non-action alternative, or continuation of existing action). Environmental assessment (EA) examines potential impacts of proposed actions in order to propose measures that insure that environmental quality is maintained, restored, and enhanced. EA is a planning tool that assists planners and managers do a better job. The EA will help the technical people of the Namtumbo district to achieve the following:

- Recommend actions with positive environmental effects and where there were negative effects, the least possible negative impacts were considered;
- Recommend actions to resolve existing problem by not creating a series of other problems;
- Identify mitigation actions to reduce, eliminate or offset adverse effects and incorporate these actions directly into the RZMP process; and
- Make informed decisions with full understanding of the potential consequences.

It was not possible for the technical people to examine the effects of all the RZMP proposals on the MWMA environments. Thus the technical staff of the district selected the following eight major proposals for the assessment:

- Dissallowing resident hunting and photographic safari inside the MWMA;
- Allowing mining of Uranium inside the MWMA, basing on Mining Act of 1998;
- Develop and implement framework for ecotourism concessions and contracts; and
- Implementation of zoning scheme.

The technical staff defined the environment to mean physical, biological, cultural, socio-economic aspects and their interrelationships. Based on this definition the planning teams identified the following important environments for environmental assessment:

- Local economy and revenue;
- Local communities social conditions;
- Wildlife and biodiversity conservation; and
- Ecosystem maintenance and ecological integrity.

In a short-term, the MWMA local economy and revenue, biodiversity and the ecosystem would be adversely affected by the implementation of the RZMP proposed programs. The implementation of the RZMP would require heavy initial financial investments. This will have short-term adverse effects on financial resources and the budgets of the village governments. However, in the long-term, the MWMA shall benefit financially from increased income resulting from the introduction of ecotourism programs and tourist hunting receipts that were channelled to the central government. Also, in a short-term, establishment of campsites shall adversely affect the biophysical resources and the entire ecosystem. The RZMP proposes Environmental Impacts Assessment (EIA) for all new physical developments in the MWMA, as a direct mitigation measure. Also the RZMP recommends studies before the implementation of some physical developments, as feedback mitigation measures.

Dissallowing resident hunting and photographic safari in the WMA, would deny local people wildlife meat and some income from photography. This might encourage local communities to participate in illegal hunting in other zones. The MBARANG'ANDU WMA should find solution to this problem, by providing alternatives to wildlife meat. Dissallowing photography provided an opportunity to create two hunting blocks. Loss of income from photography would be sufficiently mitigated by the decision to create two tourist hunting zones.

Specific environmental statements are summarized below.

5.1 Impacts on Local Economy and Revenue

<i>Description</i>	One of the objectives of the MWMA is to ensure that revenue operational and development costs are met. This could be achieved through rationalizing operational costs and increasing income through a variety of means, including development and implementation of financial regulation and procedures manuals. Local economy and revenue could as well be improved through the implementation of tourism and local community programs.
<i>Plan elements affecting topic</i>	Hunting and ecotourism developments, marketing MWMA locally and internationally, establishment of new visitor facilities, and protecting wildlife of the MWMA.
<i>Impacts if plan is implemented</i>	Diversifying visitor opportunities, improving visitor facilities and infrastructure, protecting all attractions of the MWMA and marketing the MWMA will increase the number of visitors, thus boost the revenue. Increased expenditures on operations will ensure efficiency and effectiveness.
<i>Impacts if plan not implemented</i>	MWMA and the community will continue to face financial problems, thus continue to drain financial resources from tax payers that could be available for alternative development projects elsewhere in the villages. MWMA would fail to undertake its operations thus fail to protect outstanding resources values of the area.
<i>Comments</i>	Marketing efforts intensified and access to the park eased. Running costs rationalized. Self-financing proposed mechanisms implemented

5.2 Local Communities Social Conditions

<i>Description</i>	This RZMP seeks to ensure good working relationship between MWMA and all relevant stakeholders, reduce illegal activities and increase support from the neighbouring human communities. But also the RZMP intends to improve social conditions of the local people in the area.
<i>Plan elements affecting topic</i>	Community conservation promoted, human-wildlife conflicts minimised and sustainable land uses adjacent the MWMA promoted. Also establishment of entrepreneurial programs, ecotourism and hunting programs would boost the income of villages thus provide opportunity for improved social programs.
<i>Impacts if plan is implemented</i>	Local people knowledge and attitude enhanced. Local economies stimulated by increased visitors' activities in the MWMA. Wildlife-people relations improved. Support to the MWMA from stakeholders will be increased and effects of high human density on MWMA reduced. Entrepreneurial programs established and social programs supported.
<i>Impacts if plan not implemented</i>	Ignorance on conservation issues and poverty will increase resentment of local people and encroachment into MWMA. Support from local people will be difficult as well. Poverty will increase thus more use and destruction of natural resources.
<i>Comments</i>	Providing support to community initiated projects, developing stakeholder forum and enhance extension services will reduce the dependence of neighbouring human communities on MWMA resources and reduce the conflicts of use. Tourism and social programs will reduce poverty hence reduce dependency on use of natural resources.

5.3 Wildlife and Biodiversity Conservation

<i>Description</i>	MWMA is one of the sites with high concentration of wildlife and high biodiversity values in the district and northern Tanzania.
<i>Plan elements affecting topic</i>	Increased law enforcement activities, providing law enforcement facilities and infrastructure, research and monitoring, carrying out EIA on any new introductions, reduce human-wildlife conflicts.
<i>Impacts if plan is implemented</i>	Joint patrols, increased number of Range Posts, improve the relationship between the MWMA and surrounding human communities will increase

	protection of Biodiversity. Research and monitoring will provide adequate management information for biodiversity. Carrying out EIA of any introduction will help secure biodiversity value of MWMA.
<i>Impacts if plan not implemented</i>	Loss of wildlife species and biodiversity and loss of wilderness character. Tourism will deteriorate and revenue adversely affected. Ecological imbalances are evident if wildlife and biodiversity deteriorates.
<i>Comments</i>	Ensure that the management zone scheme is implemented and all physical developments are subjected to EIA.

5.4 Ecosystem Maintenance and Ecological Integrity

<i>Description</i>	Maintenance of ecological integrity is a key in minimizing chances of extinction of the species of the MWMA and protected areas adjacent to it.
<i>Plan elements affecting topic</i>	Joint development and implementation of the ecosystem management plan, increased number of Ranger Posts and support review and implementation of land use plan in areas surrounding MWMA
<i>Impacts if plan is implemented</i>	Free movement of genetic materials.
<i>Impacts if plan not implemented</i>	Increased poaching and incompatible activities and subsequent blockage of migratory routes and extinction of certain species.
<i>Comments</i>	Ensure that the ecosystem-wide management plan is developed and implemented

6. IMPLEMENTATION OF THE RZMP

6.1 Implementation Framework

Implementation is the most difficult and possibly the weakest stage of Resource Zona Management cycle. Clear strategies and defined processes are keys in ensuring effective and efficient implementation of the GMP. This chapter describes the strategy and process for implementing the RZMP.

The first strategy was to annotate each initiative in the strategic plan by stating six crucial points:

- Why;
- Where;
- What;
- When;
- Who; and
- Resources needed.

The key issues, resources values, significance statements, vision and mission described in the RZMP answer the first question on why the RZMP is needed. Key Results Areas, Strategic Objectives, Strategies, Targets and Activities respond to the questions where the NWMA wants to be in future and what needs to be done to achieve the desired future. Timing is enshrined on the targets and strategic objectives. Who shall do what and resources needed shall be outlined on the Annual Operation Plans and Budgets (AOPB).

The AOPB shall prioritize the targets and subsequent activities and set a realistic timetable. Plans commonly are written to cover a period of three, four, or five years or ten years. This RZMP is a multi-year plan and everything cannot be tackled in the first year. AOPB shall be developed each year in order to avoid being overloaded or overwhelmed.

In a nutshell, the following strategies shall support the implementation of the RZMP over the period of 5 years:

- The formation of a RZMP Implementation Team (RZMPIT);
- Preparation of Annual Operation Plan and Budget (AOPB);
- Development and implementation of a monitoring plan, with objectively verifiable performance indicators;
- Purchase of essential movable and fixed assets; and
- Filling the staff workloads gaps resulting from RZMP activities.

6.2 Annual Operation Plan and Budget

Annual Operation Plan and Budget (AOPB) is a yearly administrative plan prepared by the RZMPIT detailing specific activities that will be undertaken during the fiscal year. Information for the AOPB can be taken directly from the RZMP. The AOPB should delineate the specific activities, associated resources and amount of money that needs to be disbursed each year to implement the RZMP.

6.3 RZMP Implementation Team (RZMPIT)

The RZMPIT shall comprise the AA members. The AA many decide to toco-opt members from the village government, NGOs or the district authority.

6.4 Monitoring and Evaluation Framework

Monitoring and evaluation are essential management functions that are interactive and mutually supportive. Monitoring is an ongoing process of collection, storage and analysis of data for improved RZMP implementation. The following are objectives of monitoring the GMP:

- Compliance with Wildlife Policy (2007), WCA (2009) and other relevant policies and legislation;
- Provide early indicators of progress, or lack thereof, in the implementation of RZMP;
- Identify risks and adverse environmental impacts of implementing the RZMP;
- Control and improve the RZMP on the basis of practical information; and
- Assess whether or not the GMP continues to be relevant as implementation unfolds.

Monitoring and Evaluation Plan Framework shall be completed and coordinated by the RZMPIT. The plan contains the following information:

- Strategic objectives, as envisaged by the RZMP;
- Targets;
- Verifiable indicators;
- Monitoring frequency
- Means and sources of verification; and
- Roles and responsibilities for collection and management of collected data.

On the other hand, evaluation is a time-bound exercise that attempts to assess, systematically and objectively, the impacts, effectiveness, efficiency and relevance of an ongoing or completed RZMP. Evaluation can take place:

- When the GMP is still underway (mid-term);
- On completion of the GMP (end-of-the plan); and
- A number of years after completion of the GMP (ex-post evaluation).

Once the RZMP is partially or completely implemented, it would be useful to look back over what took place, to compare actual progress with the plans, and judge whether the decisions and actions taken were reasonable and useful. This kind of analysis would help not only in the management of the RZMP during and after the initial implementation phase, but would also help in preparation of future RZMP and in the review of current conservation planning and management policies, practices and legislation.

Therefore it would be important for the RZMPIT to draw TOR and contract an independent Consultant to carry out mid-term, end-of-the plan and ex-post evaluation exercises. Monitoring and Evaluation Plan Framework would help the Consultant in the assessment of impacts, relevance, efficient and effectiveness of the RZMP.

6.5 Implementation risks

Before defining the specific management objectives for MWMA, the constraints on its management and any other major threats to the area's values should be identified. Constraints may take different forms such as legal obligations, constraints of tenure, prior usage of land, health and safety considerations, managerial constraints, obligations to neighbours and visitors, international obligations and other policy considerations.

The planning team recognized and took into account the constraints to the development and subsequent implementation of the RZMP. The Chapter on Plan of Actions has proposed mechanisms that would reduce the adverse effects of these limitations. These mechanisms would minimize the risks and threats that may lead to failure in implementing the RZMP. Some of the risks are:

- Leadership;
- Continued influx of people in the district;
- Continued expansion of agriculture;
- Mining in the area; and
- Failure to implement land use plans.

REFERENCES

- National Bureau of Statistics (NBS) (2003). *2002 Tanzania Human Population Census*, Tanzania Government Printers, Dar-es-Salaam
- The Government of Tanzania (2002). *Guidelines for Designation and Management of Wildlife Management Areas*, Tanzania Government Printers, Dar-es-Salaam
- The Wildlife Conservation Act (1974). *The Wildlife Conservation (Wildlife Management Areas) Regulations, 2005*, Tanzania Government Printers, Dar-es-Salaam
- Thomas, Lee and Middleton, Julie (2003). *Guidelines for Management Planning of Protected Areas*. IUCN, Gland, Switzerland and Cambridge

ANNEX 1: PLANNING PARTICIPANTS

Serial Number	Name	Designation
1.	David Mgalla	Chairman, Mbarang'andu AA
2.	Ally Kombo	Secretary, Mbarang'andu AA
3.	Kiyungi Mohamed Kiyungi	DLNRO-Namtumbo District
4.	Issa H. Ndomondo	DGO-Namtumbo District
5.	Filbert Nchimbi	
6.	Samwel Mgela	
7.	Neema Lauwo	Wildlife Officer-Namtumbo
8.	Hezron Jobu	
9.	Mohamed Nyoni	
10.	Leo A. Satu	
11.	Faraji Malukuta	AA Member
12.	Salumu Mpira	AA Member
13.	William Swai	ADAP Coordinator
14.	Yusuf D.Mbiro	WEO-Namtumbo Ward
15.	Jamal Ngonyani	AA Member
16.	Imamu A.Ngerangera	AA Member
17.	M.A.Stambuli	AA Member
18.	Faraji A. Mpumbe	AA Member
19.	Hassan S.Newa	AA Member
20.	Twaha S.Ng'ombeke	AA Member
21.	Juma Nyakasea	
22.	Jahussen H. Tusi	AA Member
23.	Abdalah A. Manianga	
24.	Mario F. Mwageni	
25.	Aidani Ponera	AA Member
26.	Issa Salumu Malamaye	AA Member
27.	Athumani R. Mpumbe	AA Member
28.	Saiba Sanane	AA Member
29.	Mohamedi R. Mbegambega	AA Member
30.	Riziwani J. Luambano	AA Member
31.	Anifa Magazini	AA Member
32.	Kasimu Howaga	AA Member
33.	Rajabu Miiko	AA Member
34.	Victor R. Ndundu	
35.	Hapakaliki A. Chandarua	AA Member
36.	Atibu Abdala	AA Member
37.	Ali N. Mbawa	AA Member
38.	Saidi Chikaula	AA Member
39.	Chalamanda A. Awasi	
40.	Upendo J. Machuza	AA Member
41.	Esta S. Mgala	AA Member
42.	Zamda Gama	AA Member
43.	Siaba Hega	AA Member
44.	Mgomba R. Sinkara	AA Member
45.	Ramadhani A. Makumba	AA Member
46.	Biasha Kunguru	AA Member
47.	Tumaini Ngonyani	AA Member
48.	Fatuma Ally	AA Member
49.	Irene Charles Mbonde	ADAP Program Officer

50.	Biesha Chenge	AA Member
51.	Haji Ngonyani	AA Member
52.	Orestus Newa	
53.	Halipha H. Nally	
54.	Davis Mbembela	
55.	Gorge Mrisho	
56.	Freddy Manongi	Chuo Cha Mweka
57.	Alex Kisingo	Chuo Cha Mweka
58.	Frank Mawi	WWF
59.	Amasi Rajabu	Selous Game Reserve

ANNEX 2: THE PROCESS OF PREPARING A WMA-RZMP

The process was copied from the Wildlife Conservation Act (1974) (Wildlife Management Areas) Regulations, 2005 (G.N. No. 283 published on 16/9/2005).

1. Conduct a technical workshop comprising of planning team and the MBARANG'ANDU AA which shall:
 - (a) Analyse the information data sheet of the prospective Wildlife Management Area
 - (b) Undertake technical decisions on zoning, based o the Information data sheet
 - (c) Describe activities that can and cannot occur in each zone
 - (d) Set limits of use or acceptable change
 - (e) Describe the rationale for existing and proposed development activities in each zone
 - (f) Provide environmental statement on proposed actions
2. Tables the draft Resource Management Zone Plan to the Director for endorsement

**This Plan was Discussed and Accepted by the District Authority and the Mbarang'andu
Authorised Association**

.....
District Executive Director **Signature** **Date**
Namtumbo District

SIGNED INFRONT OF ME, Today..... Month.....Year.....

NAME:.....

DESIGNATION:.....

SIGNATURE:.....