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MINISTRY OF NATURAL RESOURCES AND TOURISM WILD LIFE DIVISION

BASELINE STUDY FOR THE PROPOSED PILOT WILDLIFE MANAGEMENT AREAS (WMAS)

MAIN REPORT

By

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ABBREVIATIONS

AA	-	Authorized Association
AWF	-	African Wildlife Foundation
CAMPFIRE	-	Communal Areas Management Programme for Indigenous Resources
CBO	-	Community Based Organization.
CBPP	-	Contagious Bovine Pleuro-Pneumonia
CRT	-	TAZAMA – Community Resource Team
DC	-	District Commissioner
DED	-	District Executive Director
ECF	-	East Coast Fever
ECF	-	East Cost Fever
F & MD	-	food and Mouth Disease
FZS	-	Frankfurt Zoological Society
GCA	-	Game Controlled Area
IGA	-	Income Generating Activities
IKONA	-	Ikoma-Natta (Wildlife Management Area)
LADO	-	Laramatak Development Organization
LAMP	-	Land Management Programme
LMNP	-	Lake Manyara National Park
LUP	-	Land Use Plans
M.NR &T	-	Ministry of Natural Resources and Tourism
MCF	-	Malignant Catarah Fever
NCA	-	Ngorongoro Conservation Area
NCAA	-	Ngorongoro Conservation Area Authority
OAs	-	Open Areas
PAs	-	Protected Areas
PRA	-	Participatory Rural Appraisal
PWC	-	Pastoralism Women Council
SNP	-	Serengeti National Park
SRCP	-	Serengeti Regional Conservation Program
SRCS	-	Serengeti Regional Conservation Strategy
TANAPA	-	Tanzania National Parks
TASAF	-	Tanzania Social Action Fund
TAWIRI	-	Tanzania Wildlife Research Institute
TNP	-	Tarangire National Park
TWCM	-	Tanzania Wildlife Conservation Monitoring
USAID	-	United States
VGS	-	Village Game Scouts
VNRC	-	Village Natural Resources Committee
VPI	-	Villager’s perception Index
W.D.	-	Wildlife Division
WCA	-	Wildlife Conservation Act
WMA	-	Wildlife Management Area
WMA	-	Wildlife Management Area

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The Baseline study for the proposed Wildlife Management Areas (WMAs) initiated by the Wildlife Division (WD) in the Ministry of Natural Resources and Tourism (MNR&T) in collaboration with various donors, Non-governmental Organisations (NGOs) and local communities. The study has been conducted countrywide in 16 proposed pilot wildlife management areas. This team was charged with the responsibility of conducting the study for the Northern Working Area or Northern Zone which included the districts of Monduli, Kiteto, Babati, Ngorongoro, Serengeti and Tarime. Quite a number of people have therefore been involved in facilitating the completion of this study.

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EXECUTIVE SUMMARY

The Wildlife Division (WD) in the Ministry of Natural Resources and Tourism (MNR&T) in collaboration with various donors, Non-governmental Organisations (NGOs) and local communities has been supporting the implementation of Community Based Conservation (CBC) activities in areas adjacent to the Game Reserves or in Game Controlled Areas for over a decade now. Most of the CBC activities in these areas relate to the utilisation of wildlife and forest resources for tourism and domestic use. Other activities include tourism-related handicrafts and several community-based ventures or small and macro enterprises

Although there are several CBC initiatives going on in the country, the Wildlife Division has identified 16 sites that will implement WMAs on a pilot basis for a period of three years. An extensive and detailed assessment of the effectiveness and success or failure of the WMAs will be conducted after the initial three-year period. The outcome of this assessment will be very critical in informing policy makers, practitioners and other stakeholders about the future of the WMAs in Tanzania. In order to come up with a sound assessment of these pilot WMAs, it is first necessary to establish the social, economic, and ecological conditions in these pilot areas on the basis of some predetermined monitoring indicators. This report covers the baseline information collected, analyzed and compiled from the six WMAs in the northern zone of Tanzania, namely, Enduimet (Monduli district), Makami (Kiteto District), Burunge (Babati District), Loliondo (Ngorongoro District), IKONA (Serengeti District) and Tarime (Tarime District).

This report reviews various policies and regulations related to the conservation of the environment and natural resources. These policies which require collaboration and co-ordination across various sectors related to land use in the implementation and administration of natural resources and environmental programs are briefly discussed. These policies also acknowledge that creating a relatively autonomous realm of authority, responsibility and entitlement, with primary accountability to communities could be the best approach that may guarantee sustainable conservation of natural resources whilst ensuring benefits to local communities. These include the Wildlife Policy of Tanzania which acknowledges that " the vision of the Wildlife Sector for the next 20 years conforms with the development vision 2025 for Tanzania on environmental sustainability and socio-economic transformation." The other is the Forestry Policy of Tanzania (FPT) which puts clear its management goal that is to enhance the contribution of forest sector to the sustainable development of Tanzania and the conservation of and management of her natural resources for the benefit of present and future generations. The formulation of a Bee-keeping Policy took into account the role of inter-sectoral co-operation and co-ordination, which will enhance the sustainable management of bee and bee-fodder resources around agricultural farms, forest and wildlife protected areas. The National Tourism Policy recognises problems facing protected areas being among others poaching, human pressures due to uncontrolled population increase, wild fires and deforestation, which may destroy catchment and suitable habitats for animals. Section 4.2.1 of National Land Policy states that "*mechanisms for protecting sensitive areas will be created.* The

National Environmental Policy has among its objectives to raise awareness and understanding of the essential linkages between environment and development and promote individual and community participation in environmental action. Other policies and regulations reviewed include the National Agriculture and Livestock Policy of 1995, The Energy Policy of 1992, Wildlife Conservation Act of 1974, National Water Policy, The National Parks Ordinance of 1959, Ngorongoro Area Ordinance of 1959, Tanzania Wildlife Research Institute Act of 1980, Village Land Act, The Mining Act 1998, The Local Government Act (District Authorities) 1982.

The review of the change of paradigm literature reveals three arguments, which have been used to argue for more popular participation in natural resource management. The first is the Ethical argument which points out that, “excluding people who live adjacent to protected areas from the use of resources, without providing them with alternatives, is increasingly viewed as politically infeasible and ethically unjustifiable”, Brandon and Wells (1992:557).

The second argument is that of indigenous knowledge. In this argument it is asserted that Traditional forest management systems and other common property regimes, including wildlife, are emphasised as effective institutions for sustainable resource use (Ostrom, 1990). The third argument is that of Declining Government Capacity. The problem of declining capacity for governments to protect natural resources is a common problem throughout Africa and indeed much of the third world. For example, it was not until the Indian Government found it had employed more than 100,000 forest guards and yet the natural forests were still disappearing that the government began to look for new strategies (Wily, 1995).

Beginning in the 1980s, the interdependence of conservation and development goals came to be recognised by a large number of writers. It was argued that for development activities to lead to sustainable improvement in the quality of life, these developments must not destroy the resource base on which they depend. Similarly, there was a growing body of evidence that the attainment of some specific conservation objectives was hampered by underdevelopment, while higher levels of education and income in fact enhanced appreciation for conservation (Bio-diversity Support Program, 1993; Gamassa and Sariko, 1993). As a result of this evolution in thinking, many conservationists began to look beyond the boundaries of protected areas and to see conservation within the broader goals of sustainable development. The growing emphasis on the participation of local people in conservation has caused a number of writers to question the contemporary relevance of national parks. National parks in Africa have been described as based on an inappropriate model imported from North America (Cumming, 1990). For this reason different countries in Africa have conceived different conservation strategies of wildlife while taking aboard the above concerns

The current exercise has dual purposes, one is to provide a situation analysis of what is on the ground as baseline for future comparison, and the other is to obtain data for facilitating monitoring and drawing of management plans for the pilot WMAs. This report discusses monitoring indicators where it is argued that in order to monitor performance, progress, or change for that matter we need indicators to measure the changes. After identifying the most important indicators, we then need to determine how these indicators will be measured, since one of the most important properties of indicators apart from being simple

and consistent, is its measurability. The individual WMA reports provide data on the identified indicators, which are to be used to formulate monitoring indicators for those areas.

The summary of findings reveals that economically, most of the districts enjoy a high contribution to its incomes from natural resources sector. However, most villages (more than 60%) located in the proposed pilot WMAs have poor level of development due to their inhabitants having low incomes. Accessibility to economic services is also poor while they have in their vicinity ample natural resources. Productivity is poor and production of mainly agricultural crops is low, while at the same time huge amount of wealth in the form of livestock is just accumulated for storing wealth and social status motives.

Social aspects covered here include population characteristics, institutions that have a bearing in the use and conservation of natural resources, conflicts related to the same, and social facilities available in each of the six WMAs. Population characteristics here include ethnic composition and population dynamics particularly migration patterns. The report also covers both traditional and modern institutions that have direct influence on natural resources.

Conflicts have profound influence in the development process. For this reason, conflicts are covered in terms of their nature and how they are managed. Finally an assessment of the current status of the social services such as education and medical facilities, and the water supply situation in each WMA is given.

The six pilot WMAs are relatively rich in wildlife with more than 50 species of large mammals recorded from these areas. Diverse habitat types of which the WMAs offer and the presence of Maasai people who traditionally did not eat probably contribute this and they as a consequence lived with them in harmony until recently when their feeding habits have progressively started to change. All the WMAs are not isolated from other protected areas there are a number of migration routes, which ensure seasonal movement between them, core protected areas or into dispersal areas. Over hunting from legal operators and poaching are attributable to declining trend of some wildlife species in the WMAs. With the exception of IKONA, Tarime and in some of the villages at Babati whose residents traditionally hunt wildlife for their consumption, poaching is mostly done by outsiders and sometimes it looks to be organized because in some areas government staff who use government vehicles and firearms are involved.

Vegetation in all the six WMAs has more or less similar characteristics dominated by open grassland, wooded grassland, woodlands, bushed grassland, riverine forests, flood plains and evergreen forests in small patches. At low altitudes are found acacia-comiphora woodland, combretum, and balanite, dalbergia woodland, occasional baobab and rock hills interspersed mainly by *Digitaria macroblephara*, *Cynodon dactylon*, *Panicum colaratum* and *Pennisetum mezianum* and *Themeda triandra*. In area dominated by *T. triandra* signifies that occurrence of fires is frequent.

Many villages that comprise the WMAs in the northern part of the country are faced with acute shortage of water supply both for domestic use and livestock. While wildlife migrate seasonally from one area to another in search of pasture and water, human beings and

cattle suffer the consequences unless a village has underground water which provides for the construction of bore holes.

Issues emerging from the survey include those of Governance (lack of openness / transparency), Lack of Capacity for Contracting and other skills, Benefit sharing modalities, Lack of understanding of the WMA concept, Land use disputes, Communication breakdowns between Government Institutions and Communities, Conflicting and therefore Confusing statements between government technocrats and politicians, Insufficient Community participation in preparation of guidelines, Water scarcity, Crop destruction by wild animals, Insufficient capacity for WMA sensitisation at the district level, Existence of different curricula for VGS training.

The way forward is then suggested in terms of resolving the aforementioned issues above through; allocation of more time for Project Implementation, providing Civic Education as an entry point to project implementation, providing Capacity Building, Technical Backstopping, Curbing Mis-informers particularly in Ngorongoro and Tarime districts, Land Use Disputes, water scarcity, harmonising VGS training, Improving relations through re-orienting TANAPA field staff training in terms of community relations and communication skills and harmonisation of traditional and modern institutions towards the management of natural resources.

1.0 INTRODUCTION

1.1 Background

The government of Tanzania is committed to effectively manage the wildlife resources for the benefit of its citizens. In 1998 the Government adopted the National Wildlife Policy of Tanzania (WPT). The WPT urges the adoption of best practices (sustainable development) for wildlife management in Tanzania.

The Wildlife Division (WD) in the Ministry of Natural Resources and Tourism (MNR&T) in collaboration with various donors, Non-governmental Organizations (NGOs) and local communities has been supporting the implementation of Community Based Conservation (CBC) activities in areas adjacent to the Game Reserves or in Game Controlled Areas. Most of the CBC activities in these areas relate to the utilization of wildlife and forest resources for tourism and domestic use. Other activities include tourism related handicrafts and several community-based ventures or small and macro enterprises.

The Government is aware that effective implementation of the CBC activities would greatly increase community participation in the protection and conservation of natural resources. CBC is not new in Tanzania, as there are several initiatives with more than a decade of experience. It is apparent that these initiatives are expected to contribute to improved natural resource management and planning process and strengthen local level governance and generate tangible social and economic benefits directly to communities.

It is in the light of this recognition that the WPT is advocating the establishment of Wildlife Management Areas (WMAs) as a means to effectively implement CBC activities in Tanzania. The WPT objective is to foster the involvement of local communities in the management of wildlife through the establishment of WMAs on the village land.

WMAs represent a new wildlife conservation area, which will operate under the Wildlife Conservation Act (WCA) 1974, Village Land Act, 1999, and Local Government Act (District Authorities) 1982. The main stakeholders/collaborators in the management of WMAs include: the respective communities in the pilot WMAs, the Wildlife Division, District Councils, and other wildlife sector institutions such as Tanzania National Parks (TANAPA), Ngorongoro Conservation Area Authority (NCAA), and Tanzania Wildlife Research Institute (TAWIRI). The underlying assumption is that WMAs will be established where there is an optimal population of wildlife or where they can be established, since WMAs, despite their conservation roles will run as business entities parallel to other production systems in the village such as livestock keeping or crop production, as will be determined by the land use plan.

Although there are several CBC initiatives going on in the country, the Wildlife Division has identified 16 sites that will implement WMAs on a pilot basis for a period of three years. An extensive and detailed assessment of the effectiveness and success or failure of the WMAs will be conducted after the initial three-year period. The outcome of this assessment will be very critical in informing policy makers, practitioners and other stakeholders about the future of the WMAs in Tanzania. In order to come up with a sound assessment of these pilot WMAs, it is first necessary to establish the social, economic, and ecological conditions in these pilot areas on the basis of some

predetermined monitoring indicators. This report covers the baseline information collected, analyzed and compiled from the six WMAs in the northern zone of Tanzania, namely, Enduimet (Monduli district), Makami (Kiteto District), Burunge (Babati District), Loliondo (Ngorongoro District), IKONA (Serengeti District) and Tarime (Tarime District).

1.2 National Policies, Legislation And Guidelines Relevant To The Reconciliation Of Natural Resources Conservation And Human Development

Preamble

Effective management of natural resources in Tanzania is of great importance for the purpose of ensuring their sustainability while benefiting people who bear the costs of conserving them. Late in 1980s most of the institutions mandated to conserve natural resources in the country started to recognise that the policing approach that was introduced by colonial administration and which alienated people from resources could not guarantee sustainable conservation. In the process of making sure that natural resources are conserved for the benefit of the communities, the community-based conservation (CBC) was initiated early in 1900s. In order to have legal back up of local people's involvement in natural resources conservation, national policies related to natural resources and environmental conservation were prepared in late 1990s. These policies which require collaboration and co-ordination across various sectors related to land use in the implementation and administration of natural resources and environmental programs are briefly discussed in this section. These policies also acknowledge that creating a relatively autonomous realm of authority, responsibility and entitlement, with primary accountability to communities could be the best approach that may guarantee sustainable conservation of natural resources whilst ensuring benefits to local communities.

The Wildlife Conservation Act (WCA) 1974, Village Land Act, 1999 and Local Government Act (District Authorities) 1982 and those which establish TANAPA, NCAA and TAWIRI are also briefly discussed in this section. This is because WPT advocates that the established WMAs will operate under these legislation in collaboration with the Wildlife Division, District Councils, TANAPA, NCAA and TAWIRI

1.2.1 National Wildlife Policy of 1998

The Wildlife Policy of Tanzania acknowledges that " the vision of the Wildlife Sector for the next 20 years conforms with the development vision 2025 for Tanzania on environmental sustainability and socio-economic transformation." The vision of the Wildlife Sector that includes the Wildlife Division, TANAPA, NCAA, TAWIRI and the College of African Wildlife Management (CAWM), recognises that wildlife is a natural resource of great biological, economical, environmental and nutritional importance that must be conserved. It further recognises that due to the dynamic and complex nature of the wildlife resource and the challenges ahead on conserving the same, involvement of a broader section of the society in wildlife conservation particularly the rural communities and private sector is crucial. One of the strategies set in the WPT to attaining the above goal is the establishment and transferring of WMAs to local communities so that wildlife resources outside core protected areas are properly taken care of while making sure that local communities obtain substantial tangible benefits from this resources.

1.2.2 National Forestry Policy of 1998

The Forest Reserves (FRs) cover approximately 15% of the Tanzania territory and about 45% of this area is closed to timber protection. Although management and use of all other forest resources fall under the jurisdiction of the Forest Division, management and utilisation of all mammals and birds are governed by the WCA of 1974.

The Forestry Policy of Tanzania (FPT) puts clear its management goal that is to enhance the contribution of forest sector to the sustainable development of Tanzania and the conservation of and management of her natural resources for the benefit of present and future generations. The recent *Forest Act of 2002* backs this policy by providing a section that requires the forest sector to encourage community and private involvement in forestry conservation and consequently benefiting from such participation.

1.2.3 National Bee-keeping Policy of 1998

The formulation of a Bee-keeping Policy took into account the role of inter-sectoral co-operation and co-ordination, which will enhance the sustainable management of bee and bee-fodder resources around agricultural farms, forest and wildlife protected areas. The overall goal of the National Bee-keeping Policy is to enhance the contribution of the beekeeping sector to the sustainable development of Tanzania and conservation and management of her natural resources for the benefit of the present and future generations (URT, 1998). This policy is relevant to WMAs because according to the definition of wildlife, bees fall under this category (URT, 1998) and bee keeping is identified as one of the potential income generating activities in WMAs.

1.2.4 National Tourism Policy of 1998

The National Tourism Policy realises that poaching, human pressures due to uncontrolled population increase and wild fires and deforestation, which may destroy catchment and suitable habitats for animals, are among the problems that face protected areas. This policy further recognises that among efforts to curb the above problems, the Government uses anti-poaching units. However, it is acknowledged that, campaigns to educate local communities on conservation of wildlife and environment at large are essential and necessary.

1.2.5 National Land Policy of 1995

Section 4.2.1 of National Land Policy states that “*mechanisms for protecting sensitive areas will be created*”. Sensitive areas under this policy include water catchment areas, small islands, border areas, beaches, mountains, forests, national parks, rivers basins and banks, seasonal migration routes of wildlife, national heritage and areas of high biodiversity. This means that this Act recognises the importance of wildlife and habitat conservation.

1.2.6 National Environmental Policy of 1998

The National Environmental Policy defines the environmental policy framework, which is also relevant to other related sectors, including wildlife. The overall objectives of the National Environmental Policy are stipulated as follows:

- To ensure sustainable and equitable use of resources for meeting the basic needs of the present and future generations without degrading the environment or risking health or safety.
- To prevent and control degradation of land, water, vegetation and air which constitute our life support systems.
- To conserve and enhance our natural and man-made heritage, including the biological diversity of the unique ecosystems of Tanzania.
- To improve the condition and productivity of degraded areas including rural and urban settlements in order that all Tanzanians may live in safe, healthy, productive and aesthetically pleasing surroundings
- To raise awareness and understanding of the essential linkages between environment and development and promote individual and community participation in environmental action.
- To promote international co-operation on the environment agenda, and expand our participation and contribution to relevant bilateral, sub-regional, and global organisations and programmes, including implementing of conventions.

1.2.7 National Agriculture and Livestock Policy of 1995

The National Agriculture Policy recognises that most of the Protected Areas (PAs) are threatened by encroachment. Agriculturists and agro-pastoralists have created impoverished environment by depleting the soils and water resources. This and the demand for more land for crop production and livestock grazing in order to meet food demands for ever-increasing human population, has resulted to agriculture moving into fairly virgin lands; the protected areas. Such pressures on protected areas often become politically motivated and difficult to revolve. Tanzania as a nation has stipulated regulations to adopt in order to stop incursions into her protected areas and hence to encourage biodiversity conservation. The strategy is outlined in the National Agricultural and Livestock Policy with an approach through viable land-tenure and land use plans (see URT, 1995).

1.2.8 The Energy Policy of 1992

Like many other national policies, the energy policy was prepared in the view of providing guidance of promoting social and economic development of the citizens of Tanzania. This policy recognises that the availability and quality of energy can determine the success or failure of development aims.

Of the eight major types of energy used in Tanzania, namely, biomass, petroleum, natural gas, electricity, wind, solar, geothermal power and coal; biomass accounted for 92% of final energy consumption in the country in 1989 (URT 1992). The biomass resource which is comprised of fuel-wood and charcoal from both plantation and natural forests,

agricultural residues and animal wastes provide energy for cooking, heating and lighting to many Tanzanians. This is particularly to rural people who account to about 85% of the total population of the country. Since biomass energy will probably continue to dominate the national energy balance for the foreseeable future, the energy policy is of great significance to WMAs because these are the areas where biomass energy is mostly obtained.

1.2.9 National Water Policy of 2002

Water is an important natural resource that is an integral part of the environment. Despite being an input for almost all economic growth such as hydropower generation, irrigation, industries, tourism, mining, livestock, domestic, fisheries, wildlife and forestry activities, water is poorly distributed in time, space, quantity and quality.

The national water policy of Tanzania of 2002 acknowledges that the same policy that was developed in 1991 relatively failed because of social, economical and environmental changes that took place both locally and globally over a period of one decade. Thus, the main objective of the current water policy is to ensure that beneficiaries participate fully in planning, construction, operation, maintenance and management of community based domestic water supply schemes. This approach rectifies the previous one, which emphasised that the central government was a sole investor, implementer and manager of the projects, both in rural and urban areas. The objective of this policy therefore conforms well to the goals of WMAs establishment because most of these areas have water-catchment qualities, which need to be managed by the people themselves.

1.2.10 Wildlife Conservation Act of 1974

The Wildlife Conservation Act of 1974 (WCA, 1974) vests the powers of overseeing all wildlife in the country whether found in National Parks, Ngorongoro Conservation (NCA), Game Reserves GRs), Game Controlled Areas (GCAs) and Open Areas (OAs) to the Director of Wildlife. However, while the day to day activities in NCA and National Parks with respect to wildlife and habitat conservation are overseen by the Conservator and the Director General respectively, the Director of Wildlife manages GRs and GCAs on the day to day basis. Recently a new wildlife conservation area; the Wildlife Management Area (WMA), which is not protected, and therefore not a new category has been established on a trial basis whose effectiveness will be evaluated within three years period with effect from 2003. There is a provision in the WCA (1974) which empowers the Minister responsible for natural resources to make any regulations, which in his/her opinion may promote proper management of wildlife. With this regard, the Minister for natural resources and Tourism on 24th November launched regulations and guidelines for managing 16 pilot sites that were established as WMAs. (URT, 2002).

The aim of establishing the WMAs is to ensure effective implementation of community-based activities (CBC) by fostering community participation in the protection and conservation of natural resources. It is the anticipation of the government that through WMAs wildlife conservation outside core protected areas will effectively be managed but at the same time ensuring that local communities benefit from this resource (ibid.).

1.2.11 The National Parks Ordinance of 1959

The *Tanzania National Parks (TANAPA) Ordinance of 1959* provides for the creation, management and control of national parks (NPs) which are established by a President's decree following an Act of Parliament after approval by the Ministry and regional or district authorities. TANAPA currently is responsible for the policy and management of 12 national parks found throughout the country. Non-consumptive utilisation including wildlife viewing, photographic and walking safaris, research and educational expeditions are the main activities allowed in national parks meaning that these tracks of land are exclusively set aside for conservation purposes. This ordinance which is currently being reviewed aims at incorporating a provision that will require TANAPA to involve local communities surrounding the parks in planning and decision making and eventually ensuring sustainable conservation of resources inside parks while benefiting the communities in their vicinity.

1.2.12 Ngorongoro Area Ordinance of 1959

Ngorongoro Conservation Area (NCA) is managed under the *Ngorongoro Conservation Area Ordinance* Cap. 413 of 1959. NCA is a multiple land use, which unlike national parks, settlement and livestock grazing within its boundaries are allowed by law.

The Ngorongoro Conservation Area Authority (NCAA) is a parastatal organisation with the responsibility of managing the NCA in a manner that the harmonious co-existence of wildlife, livestock and human populations is ensured. The multiple land use approach in the NCA therefore aims at managing the ecological integrity, biological diversity, archaeological resources and the strong traditions of the NCA indigenous residents as basic components of the multiple land-use system. These are essential components to the quality of life for residents and are the heritage of the nation and the world.

1.2.13 Tanzania Wildlife Research Institute Act of 1980

The Tanzania Wildlife Research Institute (TAWIRI) which until 1998 was known as Serengeti Wildlife Research Institute (SWRI) was established by the Act of Parliament No. 4 of 1980. The Institute was established following the recognition by the Government that there was a necessity of having an organ with national mandate on wildlife research, in view of increasing need to generate scientific data and information required in the development of better methods and techniques of wildlife management.

Among the many functions mandated to the Institute, TAWIRI is obliged to carry out research and investigation into various aspects of wildlife for the purpose of establishing, improving or developing modern methods or techniques of wildlife and environmental conservation and management, collection and use of wildlife and wildlife products. This shows that TAWIRI has an important role to play in the newly established WMAs where advises on how local communities may benefit from these areas without compromising their biodiversity integrity.

1.2.14 Village Land Act of 1999

Villages can sublet their title deeds to individual residents.

In order to ensure sustainable land use planning and soil conservation, chapter five recognises that;

- (a) Villages should be given adequate land designed to facilitate easy access to the economic and social activities
- b) Government should endeavour to demarcate the whole country to land use pattern i.e. agriculture, livestock, forestry, mining etc.

1.2.15 The Mining Act of 1998

It suffices to highlight provisions contained in this act with respect to land use because mining is one of the activities that may conflict with natural resources conservation.

The mining Act makes provision for prospecting for minerals, mining and dealing in minerals, and provides for any other matters relevant to mining. The Act extends to and in regard of seabed and subsoil of the continental shelf, as well as the land and land beneath the terrestrial sea, of the United Republic.

Section 27 of the Act empowers the Commissioner of minerals or any person delegated to perform his/her duties to carry out the geological mapping in the country. In the course of doing that, this person is allowed to:

- a) enter upon any land with such number of persons as he may deem necessary, for the purpose of carrying out such mapping,
- b) demarcate the area and carry out any operations, which may be carried out in accordance with this Act and the regulations by the holder of a prospecting licence.

There after, this officer shall state the size of the area of land over which it is sought, and allow the holder of a prospecting license to enter upon the prospecting area, erect camps and temporary buildings and may erect installations in any water forming part of the prospecting area. In accordance with this act, the work of prospecting for minerals can therefore take place anywhere in the continent. Because no provision requires the Commissioner of minerals under this Act to liaise with the Authority concerned in case the prospecting area falls within the wildlife protected area, this situation therefore poses potential conflicts with wildlife conservation.

1.2.16 Local Govt. Act (District Authorities) 1982

The Local Government Act (District Authorities) 1982 empowers District Council to identify and implement economic activities that ensure economic growth and social development of people in their jurisdiction. However, the Act allows District Council to delegate these powers to any registered village government because these are the grassroots organs that are close to local communities. The Act requires the involvement of people in planning, implementation and decision making on matters pertaining to their development. In the light of the above, the devolution of powers to village government in

respect to wildlife conservation through the establishment of WMAs conforms well to this Act.

1.3 Study Rationale and Objective

In order to be able to monitor and gauge success or failure of the pilot project on WMAs, it is instructive that certain necessary pre-requisites be fulfilled. It is proposed that a baseline study be undertaken to provide for the basic information and situation analysis of the selected project pilot areas. The underlying task of this assignment therefore includes the collection, analysis and compilation of baseline to provide relevant information for establishing monitoring programs that will provide the understanding of natural processes and baseline for gauging social, economic and ecological changes thereof following the establishment of WMAs.

The specific objectives of this study as outlined in the Terms of reference require the following to be done in this exercise among others

- (a) Establish an approximate size of the pilot WMAs
- (b) Establish economic activities and analyse the status in each village forming a pilot WMA, to include but not limited to current land uses, production trends and status, incomes and expenditure, natural resource use and markets;
- (c) Describe briefly the interactions between the local people, the economic agencies with a view to demonstrate the strength and possibility for poverty reduction and human development
- (d) Establish ecological status in each pilot WMA forming a single ecosystem. The ecological status will include but not limited to: status, trends and use of wildlife species, habitat/vegetation communities, water resources; temporal wildlife movements; status, trends and use of fisheries, forest, bee keeping (as appropriate) and other biological resources; human-wildlife conflicts; and natural resources use conflicts.
- (e) Establish and comment on poverty levels in each village forming a single WMA
- (f) Suggest viable economic activities that could be undertaken in the pilot WMA

The above objectives will be achieved through the following activities

- (a) Literature survey of the available information on CBC and including that related to developing WMA paradigm shift.
- (b) Consultations sufficiently with the WD, donor organisation and agencies working in the would be WMA to get their views
- (c) Conduct field visits to the pilot WMAs as directed by the categorisation of working areas. (Northern working area which has a total of 29 villages in our case) in order to collect both primary and secondary information.

2.0 EVOLUTION OF COMMUNITY BASED CONSERVATION/WMA: A PARADIGM SHIFT IN NATURAL RESOURCE MANAGEMENT

2.1 Background

There has been a significant transformation of the management regimes of natural resources. At one point, when human settlements were insignificant, management of natural resources was deemed superfluous. As more and more people require space and resources on this planet, more and more rules and regulations are required to supervise individual use of the earth's resources for the common good (Weeks, 1981).

The oldest natural resources management paradigm was that of the government taking the leading role and communities taking the passive role. In Tanzania, this translated into recruiting forest or wildlife rangers who were employed to guard these resources from being relentlessly exploited by the ever-increasing human population with diverse needs. While this paradigm dominated management regimes for quite some time, arguments were raised in favour of more pragmatic approaches to the management of these natural resources. Below is a brief review of some of these arguments.

2.2 Ethical Argument

Many arguments for community-based natural resources management focus on the injustices of protected area system, which displaces and ignores local people from land they have traditionally occupied and depended upon for their livelihood. A wide range of natural and social scientists, indigenous people and human rights activists put this point forward. For example, Dasmann (1976:8) underscores the injustices behind the application of the protected area idea on local people as follows, "for countries that have not yet gone too far along the European-American path, the opportunity is available to follow a different path. They can start with locally-based, decentralized, people-oriented, ecologically sustainable development, which can enrich the lives of all and lead to a new dynamic balance between humanity and the natural world".

Ethical arguments continue to be expressed in the 1990s by mainstream organizations such as the World Bank. For example in a paper based on the World Bank review seminar on "People and Parks", Brandon and Wells (1992:557) state, "excluding people who live adjacent to protected areas from the use of resources, without providing them with alternatives, is increasingly viewed as politically infeasible and ethically unjustifiable". Communities occupying lands adjacent to protected area boundaries frequently bear substantial costs while receiving few benefits in return Kulindwa et. al (2001:91).

2.3 Indigenous Knowledge Argument

Since the mid-eighties, a growing body of evidence has emerged from anthropologists and ethno-botanists working in the tropics, revealing that rural communities have extensive knowledge of and use a wide range of wood and non-wood products supplied by forests

representing considerable biodiversity in many forest regions (Posey, 1985). Communities' knowledge of species and products is considered as an important resource in itself, and there are persuasive arguments to conserve this neglected traditional knowledge, both for its cultural and environmental significance (Richard, 1985; Kajembe, 1994). Traditional forest management systems and other common property regimes, including wildlife, are emphasized as effective institutions for sustainable resource use (Ostrom, 1990).

2.4 Declining Government Capacity Argument

The problem of declining capacity for governments to protect natural resources is a common problem throughout Africa and indeed much of the third world. For example, it was not until the Indian Government found it had employed more than 100,000 forest guards and yet the natural forests were still disappearing that the government began to look for new strategies (Wily, 1995). It has now been realized that after all, with the right conditions, local communities become the strongest and most effective guardians of natural resources (Wily, 1995). Regardless of the governments' resource endowment, it is simply not possible to deploy a soldier or guard behind every tree or animal. In relation to forests, the experiences from the Duru-Haitemba in Babati District are an excellent example of the devolution of power over the management of natural resources (Kajembe and Monela, 2000; Shackleton and Campbell, 2001).

Wildlife management has not been excluded from this transformation. The dominant paradigm in the management of wildlife in many countries has been the creation of National Parks. National parks have traditionally excluded human occupation and exploitation of any form. The highest competent authority of the country has managed these national parks centrally. In the case of Tanzania, the Tanzania National Parks (TANAPA) has the mandate to protect wildlife in designated areas and in some cases this mandate has been stretched to cover nationally and scientifically important plant life such as the Udzungwa National Park.

National parks in Africa have frequently been established and maintained by the forcible exclusion of the traditional inhabitants or seasonal users of the area (Bergin, 1995). Beginning in the 1980s, the interdependence of conservation and development goals came to be recognized by a large number of writers. It was argued that for development activities to lead to sustainable improvement in the quality of life, these developments must not destroy the resource base on which they depend. Similarly, there was a growing body of evidence that the attainment of some specific conservation objectives was hampered by underdevelopment, while higher levels of education and income in fact enhanced appreciation for conservation (Biodiversity Support Program, 1993; Gamassa and Sariko, 1993). As a result of this evolution in thinking, many conservationists began to look beyond the boundaries of protected areas and to see conservation within the broader goals of sustainable development. The growing emphasis on the participation of local people in conservation has caused a number of writers to question the contemporary relevance of national parks. National parks in Africa have been described as based on an inappropriate model imported from North America (Cumming, 1990). For this reason different countries in Africa have conceived different conservation strategies of wildlife while taking aboard the above concerns.

Zimbabwe's community-based wildlife use and management policy is actualised in its CAMPFIRE program. The acronym stands for Communal Areas Management Program for Indigenous Resources. The program therefore, applies to the areas of the country under communal tenure conditions as opposed to private land or land under direct state management. Although a permissive legislative framework was provided in 1982, the development and implementation of the CAMPFIRE program took several years. It was only in late 1988 that two District Councils were first granted Appropriate Authority status. The devolution of management was inseparably linked to the devolution of benefits through full ownership status for wildlife producer units (Murphree, 1996). Similar programs have been implemented in other countries such as Zambia (Lewis et al , 1990; Tilley, 1995), South Africa and Lesotho (Shackleton and Campbell, 2001).

The prevailing idea of Wildlife Management Areas in Tanzania takes into account the experiences from other countries as well as the experiences in relation to forest management particularly Duru-Haitemba in Babati District. Like the CAMPFIRE program in Zimbabwe, the idea of WMAs has been in the making for some time now. In an early draft of the National Wildlife Policy of Tanzania, the idea of WMAs was proposed (Ndolanga, 1996). These WMAs were to replace Game Controlled Areas or Open Areas, but only if they would support significant wildlife populations and /or if villagers wish to manage their land to support wildlife. In this early proposal and subsequently culminating into the 1998 Wildlife Policy of Tanzania, it is stipulated that the aim should first be to give title deeds of land to villages (URT, 1998). Then villagers could decide with appropriate professional advice, which form of land use, compatible with the conservation of natural resources, they wish to pursue, and how they will derive benefits from such management. If villagers do benefit, then a sense of custodianship over wildlife should return, and schemes to employ village scouts should reduce illegal exploitation because it no longer serves the villagers' interests.

According to the 1998 Policy on wildlife conservation and utilization, "Wildlife Management Areas (will be created) in place of Game Controlled Areas where the private sector will be encouraged to set up joint ventures with village communities to utilize wildlife. Furthermore, those village communities and landowners (will be allowed) to manage their wildlife and to retain all benefit from such utilization schemes. In return, the owner or lessee of the land will have to abide by certain regulations governing the development of agriculture and livestock.

In 1999 the process to prepare comprehensive WMA guidelines, using many experiences amongst local communities who were practicing CBC schemes started (Severe, 2003). According to Severe, the drafting of the guidelines went through a very comprehensive and intricate participatory process. In the process of preparing the guidelines, it came out clearly that, guidelines alone would not legally allow communities to conserve and benefit from wildlife resources as the policy proclaims, for needless to say the existing Wildlife Conservation Act No. 12 of 1974 does not support the concept. Simply put, the guidelines can only serve as administrative devices, and cannot therefore, enforce the CBC concept. The guidelines were therefore converted into regulations, taking advantage of the provisions of the Wildlife Conservation Act, which mandates the Minister for Natural Resources and Tourism to do so. Again, with the expertise from relevant sector ministries, academicians, the donor community and NGOs and the business community and

experiences of local community representatives, WMA Regulations were drawn. These Wildlife Management Areas Regulations were officially launched at the Golden Tulip Hotel Dar es Salaam on 24th January 2003.

It was in view of the above that, the Wildlife Division in the Ministry of Natural Resources and Tourism engaged consultants to provide a situational analysis as baseline information from the proposed 16 pilot sites in 18 Districts on Tanzania Mainland for future comparison. The work also aimed at providing data for facilitating monitoring and drawing up management plans for the proposed WMAs. This report covers only the Northern Zone.

3.0 DISCUSSION OF MONITORING INDICATORS

3.1 Preamble

The identification of monitoring indicators is a crucial step before data collection instruments are designed. In order to monitor performance, progress, or change for that matter we need indicators to measure the changes. After identifying the most important indicators, we then need to determine how these indicators will be measured, since one of the most important properties of indicators apart from being simple and consistent, is its measurability. The measurement methods then will determine the type of data to collect in order to feed into the formulas or methods of measurement. The current exercise has dual purposes, one is to provide a situation analysis of what is on the ground as baseline for future comparison, and the other is to obtain data for facilitating monitoring and drawing of management plans for the pilot WMAs. The following is a list of suggested indicators, which can be used to monitor change in and around the WMAs

3.2 Development of Indicators

Prior to establishing the type of data that were collected and the methods employed, the economic, sociological and ecological indicators were developed which are presented in tables 4.1,4.2,4.3 below.

Table 4.1 Identification and Measurements Of Economic Monitoring Indicators

s/n	TYPE OF INDICATOR	MEASUREMENT
1	Use of wildlife resources (access to wildlife resources e.g. firewood, thatch grass, game meat, construction poles, etc; mechanisms used to access these resources.)	(a) whether used (b) amount used
2	Affordability of game meat	(a)Current price level/ kg
3	Increased availability of main basic needs (transport cost, food, medical services, accommodation, clothes, furniture,)	(a) fare per person to the nearest town (b) current costs/unit
4	Change in composition of business activity	(a) absolute numbers (b) investment capital size
5	Change in business persons	Absolute number by gender
6	Increased Variety of goods sold	Varieties by category (food, cosmetics, clothes, stationary, cooking oil, fuel, utensils, electronic goods etc)
7	Businesses expansion (any related to wildlife? Include furniture, blacksmith, etc)	Type and number by category (ordinary shop, small- medium scale enterprises, etc)
8	Income generating activities	(a) Mention type (food vending, charcoal, seasonal wage employment etc)
9	Economic infrastructure development (Roads, Water, Energy, Telecommunication, Financial facilities (Savings and Credit facilities) etc)	(a) Mention existence (b) Note condition (c) Note status
10	Level of Village Income	(a) Amount of income (Type and amount of taxes collected at current prices),
11	Level of Village Expenditures	(a) amount expended
12	Employment creation	(a) Number of employed people (salaried) in the village
13	Change in Consumption pattern of villagers	(a) How many meals a day (b) Main foodstuffs partaken
14	Level of incomes earned by individuals	Average income in sample H/H
15	Change in occupational mix	Type of existing economic activities
16	Wealth status of villagers	Ownership of assets (house, bicycle, radio, TV and Video, hunting gear (gun), livestock, vehicle, furniture, etc
17	Availability and access to markets	Where sold and distance Price trends
18	Productivity of economic activities	(a) How much harvested per acre/year per type of crop (b) How many visitors per month/season (c) How many and type of trophies per month/ season

Table 4.2 Identification and Measurement Of Social Indicators

Social Indicator	Measurement
Ethnic composition	Interviews with village officials
Population composition	Village government records
Migration	Interviews with village officials
Division of labour/specialisation	FGDs
Use of Wildlife resources	PRA/FGDs
Governance	Interviews with village officials/FGDs
Conflicts	Interviews with village officials, ward and divisional offices
Social distance of institutions	Village government interviews, FGD
Stakeholder interactions	Interviews with village officials, NGOs, and Wildlife officials operating in the WMA
Attitude toward WMA	FGDs and interviews with selected individuals
Division of labour/specialisation	FGDs
Education; number and type per village	Interviews with school staff
Medical facilities; number and quality	Interviews with village officials and medical staff if available
Water supply; quantity and safety	Interviews/FGDs/ Physical check
Availability of butcheries and regularity of meat supply	Interviews with village officials
Community solidarity	FGDs/interviews with village officials

Table 4.3: Identification and Measurement of Ecological Indicators

Type of Indicator	Measurement
Size and change in size of the area set aside or wildlife conservation purpose in the village land plan.	Hectares or square kilometers of conservation land set aside increased or decreased
Change in wild animal species composition, numbers, age structure and relative abundance	Count and identification of animals using sample foot/road counts, estimated age using a combination of methods depending on the species type, poaching trends, type and number of species hunted/licensed
Habitat change and plant species composition	PCQ method on woodland/forest habitats to determine species composition and cover, establish control plots to monitor habitat change, quadrant method to measure ground and species composition
Fire incidences	Reported fires in the conservation area, time and frequency control methods etc.
Natural resources use	Which resources are used and type of use, change in the use (increase or decrease being illegal or legal), methods of utilization or harvesting, number and types of license and or permits issued, markets and prices of products. Other sources of protein than those from game meat.
Human- wildlife conflicts	Reported incidences of crop damage and extent, endangering human life and wildlife species involved in both cases, methods used for control, distance of farms from the village wildlife conservation area.
Availability of water for animal use	Availability of water for wildlife use (natural or man-made) in or outside the conservation area. If outside, distance from the village conservation area, other uses, for example, livestock and human beings.
Animal movements	Type of Protected Area (PA) nearby, distance from the village conservation area, existence of a corridor or dispersal area, time of movement in a year and species involved.
Wildlife based non-consumptive uses	Number of visitors per day, attractive tourism products and presence or absence of visitor use facilities and types and number of joint venture or private owned agreements.

4.0 METHODOLOGY

4.1 Choice of Study Areas

The areas covered by the baseline data study were pre-determined by the Wildlife Division. These include 15 proposed pilot WMAs covering 143 villages in 18 Districts. This team was allocated the Northern working area or zone. This area covers Monduli, Kiteto, Babati, Ngorongoro, Serengeti and Tarime. About 28 villages are covered.

4.2 Data type and Sources

The type of data collected was determined by the requirements of the Terms of reference as outlined above and the broader objective for monitoring. These are both qualitative and quantitative data. The sources of data have been both primary and secondary covering the areas of economic, social and ecological data as outlined in the TOR. Focused interviews with village leaders; donors; investors; district leaders in districts involved including District Commissioners, District Executive Directors, Natural Resources Officers, Game Officers, Land Officers, Community Development Officers, and Members of Parliament and Councillors were conducted. Others who were interviewed are NGOs leaders, the Conservator of Ngorongoro Conservation Area and the Principal of Pasiansi Wildlife College in Mwanza. A list of people interviewed is appended.

Types of data that has been collected for each village include population size, structure, trends and migration; division of labour and specialization; use and availability of social services; accessibility; institutional set up and others. The economic data that has been collected include but not limited to current land uses; production status; incomes and expenditure; natural resources use; poverty levels and markets. Also ecological data including status, trends and use of wildlife; habitat/vegetation communities, water resources; wildlife movements; status, trends and use of wildlife, forests resources and other biological resources; human-wildlife conflicts; and, natural resources use conflicts have been collected.

4.3 Primary Data Collection

Primary data collection used several data collection approaches and instruments in order to gather all the necessary data set and facilitate cross checking of responses from various stakeholder groups for accuracy

4.3.1 PRA

At the village level PRA has been undertaken where a plenary session involving all stakeholders has been conducted followed by group discussions (youth, women, men, girls, boys, elders etc). Prior to group discussion and interviews, the purpose of the survey was adequately explained. This session was important for the exercise and it resulted into a lot of interesting questions from the participants in most villages. For those villages whose chairmen attended the WMA inauguration in Dar es Salaam in January 24th and

gave a feedback to the villagers, the team was well received and had easy time explaining the concept and convincing the people of its benefits to the community at large.

4.3.2 Household Questionnaire

A Questionnaire has been used for soliciting baseline information from households whose respondents have been selected by using a random sampling technique. In most villages the minimum number of respondents of 30 for each village was reached with the exception of a few villages where the selected respondents melted away with the crowd. Stratification of the population was done in terms of wealth status, occupational where in most cases two groups emerged of occupation namely farmers and livestock keepers. The Questionnaire is attached in Appendix 1.

4.3.3 Check List

A check list of guiding interview questions has also been used to conducting interviews with village leaders, donors, District leaders in districts involved including Natural Resources Officers, Community Development Officers, and District Executive Directors, Members of Parliament and Councillors. The checklists for economic, sociological and ecological questions are presented in Appendix 2.

4.3.4 Review of Existing Village Land Use Plans

Enquiries were made about the stage at which the land use plans have been reached at both the district level and village level. Responses are discussed in the WMA specific reports.

4.3.5 Geographical Information System (GIS) and Global Positioning System (GPS)

GIS was not used instead Topographical maps have been drawn to locate the villages making up the pilot WMAs.

With the use of hand-held Global Positioning System (GPS) equipment and observation, positions of important features like rivers, forests and boundaries have been recorded. Confirmation of the estimated sizes of WMAs was not done due the lack of boundaries by most villages. Appendix Table 4 shows the monitoring plots for plant species of the 6 WMAs.

4.3.6 Photographs

Photographs of important vegetation types and other biological features have been taken for each WMA as a basis for monitoring changes. These are shown in the specific WMA reports.

4.3.7 Observation

Direct observation in the field-supplemented information obtained from interviews, group discussions and secondary information gathered from the literature. Because of time limitation, where the WMA was close to the village centre, quadrants of the size 25m x 25m were established. In the quadrants tree species were identified and recorded indicating their age class (i. e whether they were mature or immature). Dominant grass species were also identified and recorded. With the use of hand-held Global Positioning System (GPS) equipment, positions of the established quadrants and those were village offices are located were taken in order to easy monitoring. When driving around villages, wildlife and bird species that were sighted were identified, their numbers counted, and recorded. Photographs for the established quadrants and other important sights, which were geo-referenced, were taken.

4.4 Secondary Sources of Data

Documents that are related to CBC and in particular that directed at developing WMAs were reviewed. Publications and reports This information that were obtained from the Wildlife Department at the headquarters and the zonal hunting and CITES office at Arusha, African Wildlife Foundation (AWF) at Arusha, Frankfurt Zoological Society at Seronera, and from the District Councils' Offices at respective districts provided the bulk of information. Other organizations were additional information was obtained include visited villages, Conservation Information Monitoring Unit (CIMU) of the Tanzania Wildlife Research Institute (TAWIRI), the College of African Wildlife Management Mweka, TANAPA, SRCS. Pansiasi Wildlife Training Institute, NCAA, WWF and the Institute of Resource Assessment of the University of Dar-es-Salaam.

- Information gathered using the above approach included:

- Area set-aside for the WMA in each village where this excise is already done.
- Village maps
- Temporal and spatial wildlife species and their numbers, distribution, and seasonal movement within and outside WMA.
- Wildlife utilization (both legal and illegal)
- Water resources
- Vegetation, habitat types, dominant plant species and recorded bird species
- Availability and utilization of fish, forests, bee keeping, mining, medicinal plants and other biological resources.
- Economic activities and potentials
- Socio-cultural aspects of communities in wildlife areas.

4.5 Data Analysis

Both qualitative and quantitative data were analysed by the use of Special Package for Social Sciences (SPSS). Data Analysis

5.0 SUMMARY OF FINDINGS

5.1 Situation analysis with respect to WMA implementation

5.1.1 Main Economic issues

5.1.1.1 Incomes and Expenditures

In all the six proposed WMAs similarities and differences exist from one WMA to the other. In five (5) of the six (6) proposed WMAs, the natural resources sector has been found to contribute significantly to the district and village level economies alike. For instance in Monduli, Kiteto, Babati, Ngorongoro and Serengeti, natural resources did contribute 6.8%, 33% and 22% respectively in the year 2001. However, the amount of resources ploughed back into the sector is less than adequate. In all the cases, the amount put back in the form of annual budget allocations is between 2.8% and 10.7% of the amount they contributed to total district income!. This re-investment of resource rents captured from this important sector is surely not enough to sustain it so that it provides sustainable income and consumption to the local people and the nation as a whole.

In all the areas surveyed, the main economic activities have been found to be Farming and Livestock keeping. Proportions differ between farmers and livestock keepers from place to place. In Monduli, Babati and Serengeti districts the majority of people practice agro-pastoralism, while in Kiteto, Ngorongoro and Tarime districts, the majority are livestock keepers. These activities are undertaken for both subsistence and income generation. In most of the livestock keeping areas, livestock particularly cattle are used as a store of value or wealth so that their use for income generation purposes are limited to emergencies and times of economic hardship.

Natural resource based income is also enjoyed in these areas comparing the villages located in wildlife areas (game especially) with those without this resource, the ones with game resources are better off. The amount of income generated in a year in one village exceeds by far incomes from non-game areas. This is because since the community Based Conservation approach was adopted by the government, villages that are located in wildlife areas have been involved in sharing the costs and benefits of conservation. They participate in conservation through the control of forest fires, poaching and sustainable utilization of the natural resources surrounding them. The benefits accruing to these communities come in the form of tax retention, tourism (hunting and photographic) fees and assistance in priority services of the villagers by those investing in their areas. Furthermore, the National Institution responsible for the country's National parks do also contribute to the development of these communities through community conservation projects.

At the individual level incomes from the main occupation activities are low for the majority of villagers in all proposed pilot WMAs. Between 60% - 75% earning less than a dollar a day⁴.

5.1.1.2 Production and productivity

The main economic activities as mentioned previously in most of the WMA areas include maize, beans and wheat for Monduli, maize, beans, cotton, sorghum and cassava and

⁴ Using last years earnings.

millet in Babati and Serengeti. Kiteto and Tarime also Ngorongoro are not agricultural communities mainly however they do cultivate maize and beans mostly for subsistence purposes. The productivity of crops grown is seen to be below the amount which could potentially be achieved. Results show that maize and beans productivity vary with rain. During the short-rains productivity is lower than during long-rains period⁵.

5.1.1.3 Economic Agents, Infrastructure and Markets

Economic agents considered include producers, distributors and economic services. Economic services and infrastructure are crucial in providing a good basis for efficient production and distribution. Efficient supply of inputs to production and services is vital in facilitating efficiency and therefore incremental benefits while the converse is true. Inputs such as seeds, fertilizers, farming implements, pesticides play an important role in production of food and cash crops. Economic services such as credit, transport and telecommunication also contribute to the conducive environment for facilitating efficient production. All the above services are at a poor level of supply in all the WMA areas we visited with variations. In Monduli district road transport is good for six (6) villages while the remaining three do not have all season passable road. For Babati, Mayoka and Magara are off the main road and not easily accessible during rainy season. This also applies to Ilkiushi-bor and Makami in Kiteto. Serengeti villages are relatively well placed along the road and are accessible throughout the year. In Tarime WMA, most of the way the road is passable throughout the year (using the road from Mugumu to Tarime) except the 15 km stretch from the junction to Gibaso which is not accessible during rainy. The road infrastructure is an important aspect for market access especially with the anticipated potential businesses which may be stimulated by the establishment of WMAs.

Presently, markets for agricultural output are available but not competitive in most areas, thus prices fetched by farmers are low. For cotton growers of Babati and Serengeti, the market prices offered are a disincentive to production. The price of Tshs 140/= a kilogramme of cotton is so low so that one can hardly claim to be even breaking even! Directives from above requiring people to cultivate cotton in Serengeti contravenes the freedom of choice with respect to economic principles. Because given free choice, farmers would rather cultivate or use their time and other resources on a more profitable undertaking⁶.

The state of credit supply in the rural areas visited is poor. Most of the interviewed people indicated that they have borrowed money from relatives and friends mainly for emergency purposes in order to fill in the gap of a consumption short-fall or attend to emergency events of sickness among others. Capital is important in raising productivity which in turn will facilitate poverty alleviation in these areas. Even with the prospective ventures related to WMAs, these communities need to be facilitated in order to properly take advantage of the business opportunities on offer.

5.1.1.4 Natural Resource Uses

Most natural resources have been reported to be used by most people in the local communities. Game meat came out as the least used resource in Monduli, Kiteto, Ngorongoro and Babati districts' proposed pilot WMA areas. In Serengeti and Tarime, game meat use is high due to the tradition of using game meat for food but also hunting being part of the cultural fabric. A man who cannot hunt is looked down upon by the

⁵ Comparison between the mean and mode values of crop harvests showed wide differences implying that close to mean values were attained by few farmers.

⁶ See the IKONA WMA report for profitability of cotton calculations.

community. Realising this, the Serengeti Regional Conservation Strategy put forth a strategy to facilitate wildlife conservation by allowing and facilitating the communities to hunt game for food while involving them in controlling poaching.

While most of the natural resources listed⁷ were not reported to still be in abundance, wildlife and firewood were seen to be declining because of demand pressure and indiscriminate utilization. Apart from the Direct use values of the natural resources around them, villagers in all proposed pilot WMAs recognize some of the non-use values or indirect use values. They identified for instance tree shades, rain catchment and erosion control among others.

5.1.1.5 Poverty Levels

Using several indicators to gauge poverty⁸ in the communities, it was found out that most (>60%) of the communities fell below the poverty line of one US dollar a day. This finding is in line with other previous studies (Wangwe 1996, World Bank 1996, Semboja et al 1999) where poverty is characterized as a pervasive and rural phenomenon.

5.1.1.6 Possible Economic Activities

The list of economic activities which are deemed as potential by people interviewed include small business, wage employment, handcrafts for scale and tourist business (consumptive and non-consumptive as well). These were repetitive in almost every village we visited. Most of these economic activities have good potential and were also identified for the WMAs by the Wildlife Division of the Ministry of Natural Resources and Tourism and USAID/Tanzania, (2000). This study identified 14 activities which include tourist (or safari) and resident hunting, game cropping for meat, hides and other products. Live animal capture and sale, game ranching and farming, photo-tourism, beekeeping and processing, natural forest management for urban fuel markets, among others. Employment was not identified since it is the outcome of other investment activities like tourist camps, hotels, village game scouting, etc.

These activities are most likely to succeed in the medium to long term. For those activities which are already being carried out like tourist hunting and photo-tourism, composites, handcrafts, the prospect is brighter even for the short term due to indicative demand being there. However, local communities need to be empowered to carry out these activities. This process through capacity building will take time, in the meantime, facilitation and backstopping is important for quick take off of the programme.

Although prospects for the success of these activities are good, a whole host of constraints need to be surmounted before success is registered. The main reason is that, this program re-distributes benefits from natural resources (wildlife) in favour of control and benefit by local communities. There is definitely going to be a class of losers who will work hard to retain some of the spoils, whose actions may not necessarily be supportive of the WMA concept.

⁷ Including building poles, thatching grass, game meat, medicinal plants, pottery soil, grazing grass, firewood.

⁸ Include earnings from main occupational activities, earnings from other IGAs, remittance, wealth accumulation and villager perception index of poverty/wealth.

5.1.2 Main Social issues

5.1.2.1 Introduction

Social aspects covered here include population characteristics, institutions that have a bearing in the use and conservation of natural resources, conflicts related to the same, and social facilities available in each of the six WMAs. Population characteristics here include ethnic composition and population dynamics particularly migration patterns. The report also covers both traditional and modern institutions that have direct influence on natural resources.

Conflicts have profound influence in the development process. For this reason, conflicts are covered in terms of their nature and how they are managed. Finally an assessment of the current status of the social services such as education and medical facilities, and the water supply situation in each WMA.

5.1.2.2 Population Characteristics

Population characteristics, both quantitatively and qualitatively, has profound influence in the development process. Population increases lead to increased pressure on natural resources and the manner these resources are used will depend on the diversity of interests of the population in question.

5.1.2.3 Ethnic Composition

The six WMAs, namely Enduimet, Makami, Burunge, Loliondo, Ikona, and Tarime, differ in ethnic composition in varying degrees. Generally, Enduimet, makami and Loliondo communities are more homogenous than the remaining WMAs. The Maasai are the majority constituting up to 99% of the population and the remaining 1% or slightly more constituting other ethnic groups who come to the area primarily because of employment, either as permanent employees or casual labourers. Burunge, Ikona and Tarime WMAs communities are more heterogenous with no one group dominating the rest of the ethnic groups.

5.1.2.4 Migration Patterns

Migration, defined as a permanent change in residence, is an active population process in all WMAs. Migration can either be emigration or immigration. In the context of the WMAs, there has been migration due to either “push” or “pull” factors which include drought, conflicts, soil fertility, pasture, employment, business, and even marriage. In general, there has been a tendency for poor villages to “drive” away residents compared to rich villages or villages with the necessary infrastructure such as water, education, medical facilities, and roads. The latter is reflected in the more heterogeneous composition of the ethnic groups.

5.1.2.5 Institutional and Natural Resources

Both traditional and modern institutions appear to have profound influence in the manner the resources are used. Traditional institutions such as rituals and taboos have proved to be powerful tools in the protection of natural resources. Ritual sites such as hill tops in Enduimet and Ikona, or rivers in Ikona, certain tree species in Makami, Burunge, Ikona, and Tarime are revered by the respective communities and become taboos to community

members. Such sites have remained intact for centuries as individuals fear to use resources from such areas. The same applies to taboos which prescribe the kind of natural resources that a certain clan should not use. This case is particularly evident in the clan or “Milango” system in Ikona where certain clans are prohibited from eating certain types of animals. Yet some of these taboos have been oppressive in some cases as it is the case with the use of certain animal products. It is well known that highly valued foods have been declared taboos to women and children. Thus the eating of eggs, liver, gizzards, among others appear to have been a tradition in almost all WMAs.

Traditional institutions such as “Retongo” or council of elders to the west of Serengeti plains or the “Laigwanan” in Maasai communities have proved to be powerful instruments in regulating the use of natural resources. In some villages, these two have proved to be even more powerful than modern institutions such as the village government. Yet the winds of change due to external influences and religion appear to be eroding the power of traditional institutions.

Modern institutions here refers primarily to the village governments, police, courts, etc. However since village governments are present in every village, their role in natural resource management and its nature are explored in more detail than other forms of institutions. In general most villages are constituted of 25 members. Female members have ranged between three to eleven with most villages maintaining the representation at between five and seven. There is still a lot room to boost representation of women in these institutions.

Capacity building was also seen to be an integral part of WMAs. Much of the capacity building is credited to institutions such as African Wildlife Foundation, Frankfurt Zoological Society, Serengeti Regional Conservation Program, and the District Councils which have done a lot in sensitizing communities on natural resource conservation and WMAs. For this reason, communities appear to have some understanding of what WMAs are all about even through they admit to be educated more.

5.1.2.6 Conflict and Conflict Management

Conflicts are caused by many factors including population pressure, economic activities, legal provisions which spell out the rights, responsibilities, and limits to a certain resource, the shift in the value system, changes in government policy, poverty, and ignorance, among others. Conflicts have been reported to exist in all WMAs with varying magnitudes.

Generally, many of the reported conflicts revolve around the issue of land but involving different parties to the conflict. There are conflicts between neighbours over farm boundaries as reported in Olmolog. There are also conflicts involving individuals but economically power taking land from ordinary farmers as it is the case in Lerangwa and Kitenden in Enduimet WMA, Sangaiwe in Burunge WMA, and Gibaso, in Tarime WMA.

There are also conflicts involving villagers who perform different economic activities. For example, there are conflicts between Wambugwe and other agricultural societies and Wabarbaig with the latter being accused of being too extravagant in the use of natural resources. This is due to the fact that they clear trees to put up their “bomas” only to move to another area and do the same soon after depleting grazing areas.

There are conflicts between villages over boundaries as it is the case with Arash and Piaya in Loliondo, or Kitenden and Irkaswa in Enduimet. The most serious conflicts which are also potentially detrimental to WMAs are those between villages and institutions such as TANAPA. There appears to be a major public relations problem between villages and TANAPA. This is reported in Burunge, Loliondo, Ikona, and Tarime WMAs. In general, TANAPA is accused of caring more for wild animals than human beings. Since TANAPA is government arm, this accusation also encompasses the government and for this reason any government sponsored program such WMAs are received with a deep sense of paranoia. All WMAs where there are such conflicts appear to strongly associate these with past evictions to create room for the expansion of national parks. As one respondent from Ikona said, "...ondoka inaingia Serengeti. Ondoka inaingia Ikorongo na Grumet. Sasa tunatakiwa tuondoke inaingia WMA..." This means they were told to leave the area to make room for Serengeti National Park. Later the same people were told to leave the area to make room for Ikorongo and now Grumet Game Reserves. They will now have to leave the area to make room for WMAs. A lot needs to be done to change these attitudes which are potentially harmful to the concept of WMA.

5.1.2.7 Social Facilities

Social facilities such as education, medicine and water appear to be a major problem in all WMAs. In terms of education, there are inadequate teachers, teachers' houses, desks, and classrooms. This is also reflected in the low enrollment of school age going children. The other related problem is truancy/drop outs particularly in Maasai communities. The drop outs appear to involve more girls than boys due to early marriage. For the boys, the primary reason is to look after cattle.

Medical facilities are also lacking in areas where there are major health problems. The dispensaries are not only ill-equipped to handle illnesses but also serve areas which are too large. Patients have to cover long distances to the dispensaries only to find no room for being admitted when seriously sick.

In general, there are two categories of health problems, those arising due to poor sanitation and those due to poverty. Diseases which are caused by poor sanitation include diarrhea, dysentery, ear and eye infections, skin infections, and worms. Diseases that are due to poverty include Acute Respiratory Infections (due to being scantily dressed), and pneumonia. Problems such as worms could be the result of poor hygiene or due to drinking milk that is not boiled.

Water supply is indeed a major problem in all WMAs but to varying degrees. In some villages such as Elerai, the water problem is so serious to the extent that the residents are contemplating of moving the village to other areas. The problem of water is not only in terms of quantity but also quality. The consequence of this water problem is the prevalence of sanitation related diseases as described above. It can therefore be argued that without solving these very basic problems, the villages will always drive away the residents which will adversely affect the WMAs.

5.1.2 Main Ecological issues

5.1.3.1 Wildlife resources

The six pilot WMAs are relatively rich in wildlife with more than 50 species of large mammals recorded from these areas. Diverse habitat types of which the WMAs offer and the presence of Maasai people who traditionally did not eat wild animals probably contribute to this and they as a consequence lived with them in harmony until recently when their feeding habits have progressively started to change.

All the WMAs are not isolated from other protected areas there are a number of migration routes, which ensure seasonal movement between them, core protected areas or into dispersal areas. In Endumeit for example, the Kitenden corridor is used by migratory species, which venture between the WMA, Kilimanjaro and Arusha national parks in Tanzania and Amboseli National Park in Kenya. At Makami WMA there exists a migratory corridor, which the animals use to move between TNP to Ndedo through Irkishi-bor and Makami villages.

During rainy seasons most of the herbivores leave TNP and spread into a wider area of Maasai Steppe. The main corridor at Burunge WMA which lead the animals into the dispersal areas that include Mto wa Mbu GCA, Lake Manyara National Park, along the Rift Valley escarpment and possibly up to Lake Natron and Ngorongoro Conservation Area (NCA) is the northern route. The Kwa Kuchinja wildlife corridor which is located between Vilima Vitatu and Minjingu villages represents an important buffer zone and is also a corridor that links TNP and Lake Manyara National Park (LMNP). At Loliondo WMA animals move freely between SNP, NCA, Maswa, Ikorongo and Grumeti Game Reserves in Tanzania and Masai-Mara National Reserve in Kenya, which form the Serengeti-Mara ecosystem. However, of late, human settlement and agricultural activities are increasingly endangering the wildlife migratory routes and dispersal areas. Large scale farming at Kiteto, Simanjiro, Hai and Babati districts are example of this threat.

Over hunting from legal operators and poaching are attributable to declining trend of some wildlife species in the WMAs. It was reported that villagers suspect that more animals are hunted than it is permitted. This is a result of game officers who are not faithful and who do not abide to hunting rules and regulations due to inadequacy of game staff and funds which hinders close monitoring and law enforcement.

With the exception of IKONA, Tarime and in some of the villages at Babati whose residents traditionally hunt wildlife for consumption, poaching is mostly done by outsiders and sometimes it looks to be organized because in some areas government staff who use government vehicles and firearms are involved. Due to the fact that VGS are currently not recognized by the legislation and are not used and involved adequately. Furthermore, so long as hunting licenses are issued by the central government and local governments at district level and since the license holders are not introduced to village governments, it becomes difficult for the villagers to distinguish between legal and illegal hunters. In all the WMAs, elephant numbers were reported increasing for the past ten years and this was associated with a ban on ivory trade internationally.

All the WMAs have VNRCs and for those villages where information was available, have a total of 95 and 16 trained and untrained VGS respectively. The formation of VNRCs and the presence of VGS who are now recognised legally through the WMAs regulations signifies future prospects of curbing poaching activities. In view of this, if hunting quotas will continue to base on reliable estimates and if these quotas will be respected, licensed hunting would make wildlife management and utilization as one of the major land uses in WMAs both economically, socially and environmentally.

5.1.3.2 Vegetation

Vegetation in all the six WMAs has more or less similar characteristics dominated by open grassland, wooded grassland, woodlands, bushed grassland, riverine forests, flood plains and evergreen forests in small patches. At low altitudes are found acacia-comiphora woodland, combretum, and balanite, dalbergia woodland, occasional baobab and rock hills interspersed mainly by *Digitaria macrolephara*, *Cynodon dactylon*, *Panicum colaratum* and *Pennisetum mezianum* and *Themeda triandra*. In area dominated by *T. triandra* signifies that occurrence of fires is frequent.

In most of the villages with the exception of those where crop production is a dominant land use such as Mayoka and Magara, forest resources are still relatively intact and productive probably due to traditional Maasai management of forest resources. Furthermore, all the villages forming the six WMAs have draft by-laws in place, which prohibits the utilization of forest resources without, permit. For example unless done against the by-laws, charcoal making, felling of trees for firewood and logging are prohibited. In villages where agriculture dominates, forests are cleared to provide space for crop production and nomadic type of pastoralism practiced by Barbaig who frequently cut down trees for kraal construction in Burunge WMA threatens forest resources. Because the availability of forest products and in particular building poles is increasingly becoming a problem mainly due illegal utilization in order to satisfy demands for the ever-increasing human population, people in Burunge and IKONA WMAs are increasingly using mud bricks for houses construction. Other causes of forests over exploitation include lack of alternatives, inadequate conservation education, and relaxity in law enforcement and insufficient trained.

5.1.3.3 Water Resources

Many villages that comprise the WMAs in the northern part of the country are faced with acute shortage of water supply both for domestic use and livestock. While wildlife migrate seasonally from one area to another in search of pasture and water, human beings and cattle suffer the consequences unless a village has underground water which provides for the construction of bore holes. In most villages during wet seasons distance for water collection becomes relatively short as many people depend on seasonal rivers and streams, dams, natural ditches (Korongos) but this water is always unsafe for human consumption due to the contamination by both domestic and wild animals. In dry periods people have to spend many hours which would otherwise used for other economic activities searching for water. Even in some of the villages, where the presence of perennial rivers would have assured permanent supply of water, people a threatened of loosing these sources which are located in proposed WMAs. There is an understanding among the residents in the WMAs that once areas are set aside for that purpose people will not be allowed to trespass into.

Such worries were noticed in villages comprising IKONA and Tarime WMAs. Other villages that enjoy piped water also face the problem of low levels of water in dry periods for example at Elerai, pipes being broken by elephants for example at Kitenden and insufficient money to purchase fuel for pumping for example at Robanda.

5.1.3.4 Other Natural Resources

Bee keeping: Although not intensive some of the villages have started to engage themselves in bee keeping activities. Bee keeping provides an opportunity for economic diversification especially during this era when climatic changes do not ensure sustainable livestock and crop production. Potential for bee keeping in all WMAs is high due to the presence of tree species like *Julbernadia globiflora* and *Bragestegia spp.* whose flowers attract bees.

Although currently most of the honey is gathered from logs and caves and from traditional beehives the potential of the market for honey in all villages is very high but no bee-wax is prepared. In view of this, villagers are increasingly forming organized groups in order to initiate bee keeping whereby traditional hives will be supplemented by modern ones.

Mining: Many villages reported the potential for minerals in their areas but only Ruby is extracted by few people at Ndedo and Mayoka while Alexander and Emerald are extracted by mainly outsiders at Mayoka and Magara respectively. While only stones, gravel, clay and sand are extracted for construction purposes at Loliondo WMA, mining is done by permit from the government and gold is the only precious mineral resources that is extracted at Nyichoka village. Small-scale mining that is done by residents in the same village involves stones, and red and white lime. At Tarime gold mining is done by both an investor and small miners on a 20 ha piece of land.

Fishing: Fishing is a potential activity at Burunge WMA where there are two lakes, and some rivers and streams. However fishing in the area is reported to be done mainly by outsiders. Non-Maasai do only small-scale fishing in Enduimet, Makami and Loliondo WMAs where the major ethnic group of residents is Maasai. This is because, although some youths have gradually started eating fish, for the Maasai, eating fish is taboo and they equate fish to snakes. Fishing by the Gibaso people is done in Mara River and fish is an important component of food that provides them with protein.

Medicinal resources: Medicinal plants are very important to Maasai and are used intensively in Enduimet, Makami and Loliondo WMAs. Most shrubs and trees make medicine for both humans and livestock. For example, *Olea Africana*, which apart from being used as medicine is also used to sterilize milk gourds, and *Commiphora spp.* which, serves as tick repellent. Because trees and shrubs that provide medicine have special conservation status and in non-Maasai areas are not utilized intensively, their availability is still plenty.

Charcoal making: Charcoal making is prohibited in all WMAs but due to its relatively high price people do it illegally. Patrols that are done by VGS to apprehend those who are engaged in logging and charcoal making; the activities which are against the villages' by laws have proved successful in the recent years.

Intangible benefits: There are a number of intangible benefits which people in the WMAs mentioned as important to their day to day life. Among others is the value of mountain forests, which are used as worshipping centres and as sites for other ceremonies such as initiation of youths (Morans). Also animals like the pangolin (Kakakuona) are considered sacred for the Maasai community such that it is associated with prosperity.

5.1.3.5 Wildlife human interactions

Crop raiding was mentioned as the major conflict between people and wildlife in many villages. This is probably contributed to people settling and cultivating close to wildlife areas and in particular along the migration routes. In areas like Loliondo and Makami WMAs where pastoralism was a predominant land use, land is increasingly put under agriculture and in those areas where cultivation was previously done in small scale like Endumeit and Babati land for crop production has expanded tremendously. Consequently the blockage of migration routes partly contributes to increasing incidences of crop damage. Wildlife species that were mentioned repeatedly, as the main raiders are elephants buffalo zebra, baboon and dikdik and birds.

Predation and injury and loss of life are another conflict. Predators involved are lion, hyena, cheetah and leopard and the type of prey species is cattle, goats, sheep and donkeys

Transmission of disease which is critical when wildlife is in villages is another conflict. Main diseases that people mentioned as a problem include Malignant Catarrh Fever (MCF); a fatal disease that is transmitted to cattle by calving wildebeest. Others are East Coast Fever (ECF), Foot and Mouth Disease (F&MD), Anthrax, Contagious Bovine Pleuro-Pneumonia (CBPP), Brucellosis, Tuberculosis, CBPP and Mange.

6 EMERGING ISSUES

6.1 Governance

In all the villages visited, issues of governance emerged with respect to the relationship between the village government leadership with respect to openness with which the village government operates. In some instances leadership problems of the village chairmen appeared to strangle development. From the household questionnaire in most of the WMA constituent villages, it was revealed that leaders did not give feedback of deliberations from the seminars or conferences they attended.⁹ Some even did not hold the annual general meetings as required by section 141 of the District authority Act (District Councils) number 7 of 1982 which states clearly that the village general meeting is the highest authority organ within the village. This is truly an obstacle if popular participation is a requirement for implementation success.

⁹ A good example is the inauguration conference for the WMA regulations and guidelines, where most village chairmen had not given their people feedback by the time we visited a month later e.g. Makami, Loliondo except Oloirien, and Burunge.

6.2 Contracting

The modern businesses which the WMAs are providing the opportunity to be established are not traditional businesses local communities are accustomed with. These businesses require skill and knowledge of specific trades for their efficient and proper implementation apart from free flow of information about the market. From the example of contracts which some villages had signed with tourism investors in their areas, it was obvious that the village representatives did not have neither the skills, knowledge and information about the costs and benefits of the contract they were signing. Examples of such contracts include that of Ololosokwan village where a contract was signed with Conscop for Tshs 26 million per year for 25,000 hectares of land for 15 years!.

6.3 WMA Land Contribution vs Benefit Sharing

Concern has been raised in most villages we visited. The issue rotates around the question of the size of land a village contributed to the WMA and the modality of benefit sharing. The argument is that for those who have contributed a larger size land relative to its total land show high level of commitment to establishment of WMA and hence they should be rewarded proportionately. Furthermore, a village with many investment ventures should also get proportionate benefit.

6.4 Awareness Creation and Capacity Building

In order to succeed in implementation of the WMA concept, a massive mobilization of communities in terms of proper sensitization and training in terms of how the WMA works and how to run it is necessary. There is a great void in this area in trying to grapple with the WMA concept. Some people think it is a company or NGO and the like, it is still an abstract concept to most people. Some of the people interviewed conceded that initial awareness workshops had been conducted but it was for only few selected individuals.

6.5 Review of By-Laws

The delay in approving the by-laws is a disincentive to WMA members. In order to boost the morale of WMA members, it is paramount that the responsible authorities hasten the process of reviewing and approving these by-laws.

6.6 TANAPA Community Relations

There is a serious public relations problem between TANAPA field staff and communities adjacent to national parks. This is inspite of the institutionalization of TANAPA's community conservation services. There have been frequent conflicts between wardens and game rangers who need to be given training which is "community friendly" (customer care). This is particularly the case in Burunge, Loliondo, and Ikona WMAs.

6.7 Unity in Decision-Making

There is the problem of policy makers and experts to have one stand on issues related to WMAs. It has been noticed in some WMAs where villagers are given different and sometimes contradicting messages from the district authorities. This is sometimes due to personal ideological differences of policy makes and experts. Villagers should be brought into the program when the experts speak with one voice.

6.8 Village Game Scouts

It was reported in all WMAs that the village game scouts (VGS) have been well trained but are ill-equipped to deal with well armed poachers. VGS demand recognition (by being given identity cards), to be provided with weapons and/or radio communication to be able contain poachers amicably.

6.9 Land Use Disputes

Most villages comprising the WMAs reported disputes over land either between neighbouring villages, government institutions or land leased to investors. Examples of such disputes:

- (1) a portion of land belonging to Kitenden corridor which is in Kitenden village but irkanda claims that it is part of their village land. They intend to allocate plots to irkanda villagers in order to establish crop fields.
- (2) At Sangaiwe in Burunge villages, respondents claimed that, the villagers were being harassed by TWP management over the land leased to arises for extracts germstones from an area close to the Park
- (3) The Gibaso village government claimed that the land that was leased to an investor who plans to establish ranch by Mrito villages belongs to the former village. Villages recommended that mechanisms for getting such disputes must be found.

6.10 Water Scarcity

Water is a basic natural resource for socio-economic development. In the northern WMAs water plays an important risk in irrigation, livestock, domestic use, recreation and tourism. However, in most villages that comprise these WMAs water is so scarce that even water for personal hygiene is not easily found. This has apart from exposing the villagers to diseases, more time is spent traveling long distances in search of water. While the time lost result have been wed for other economic activities, women and children's who particularly fetch water in rural areas becomes vulnerable. Livestock which is another in these important resource is concentrated in these sites which are water scarce. This situation motivates livestock migration from one area to another. Consequently, causing conflicts between pastoralists and other water users. When water dry up during dry seasons, elephants break up pipes and water troughs which compounds the economic problems of the villagers as they are required to contribute some money for rehabilitation.

At Elerai the problem is more acute such that if the problem persists may lead to villagers migrating from the village.

6.11 Fencing Against Wild Animals

Kitenden village has proposed to create an electric fence along a stretch of land that borders the land set aside for wildlife conservation in order to protect wild animals from entering into the areas set aside for settlement and farming. This technology is widely used in Kenya where some villagers from Kitenden have already visited to learn from them. Once funds are obtained fence construction start immediately.

6.12 Lack of involvement in the preparation of the guidelines and regulations

There was a wide spread concern that involvement of the beneficiaries in preparing the guidelines and regulations was not enough. Draft guidelines and regulations were not sent to district and village leadership for comments, instead these were kept a secrete until the launching when participants noted that some provisions were not suitable enough to implement the concept effectively. Example of the weakness that was pointed out among others, was the District Commissioner becoming the Chairman of the District Advisory Committee. Because the aim of WMAs is to devolve mandate to local communities, respondents advised that the District Council Chairman who is the representative of communities should have been the chairman of the Committee.

6.13 Insufficient capacity (trained staff and funds) for sensitization and completion of requirements for the registering the WMA

Many tasks including education and awareness, preparation of land use plans, preparation of by-laws and formation of AAs to mention a few, need to be completed before a WMA is registered. These have to be accomplished through the coordination of districts. The capacity of many districts including enough trained and committed staff, funds and equipment is lacking. Furthermore, the time set aside for carrying out the evaluation of WMA performance with effect from when the guidelines and regulation were launched is relatively short. Unless the MNRT in cooperation with NCA, TANAPA and NGOs takes an upper hand, the proposed three years for the pilot sites to be evaluated may not be enough.

6.14 Lack of cooperation by game officers in controlling problem animals

One of the obligations of the game officers in districts is to cooperate with villagers in controlling problem animals. Observations during this study have indicated that this task is given less priority by these officers. Unless more resources and commitment by game officers in districts are given priority, the WMA concept is bound to lack support by local communities a situation that may lead to the failure of the idea.

6.15 Lack of harmonization in VGS training

Two wildlife schools namely Likuyu-Sekamaganga at Songea and Pasiansi in Mwanza offer training for VGS. Each of these schools has own syllabus. At Likuyu the duration of the course is three months while at Pasiansi is one month. Unless VGS training is harmonized, there bound to occur differences between the graduants and eventually create conflicts when performing their tasks.

6.16 Inadequate information on available resources in the WMAs

Although time was limited during this task to completely assess the available resources in including animal populations, boundaries for most of the proposed WMAs are not delineated yet. Conservation Information Monitoring Unit (CIMU) of the Tanzania Wildlife Research Institute (TAWIRI) together with consultants should be contracted to

7.0 WAY FORWARD

The initial stages of introducing the WMA project have achieved some remarkable success in some areas but also this has been a learning period where obstacles to the successful implementation have been identified. In order to successfully implement the pilot Wma phase, these identified impediments have to be removed. Hereunder we present what needs to be done to achieve successful implementation of the pilot stage of WMA.

7.1 Allocate more Time for Project Implementation

First, due to the fact that successful implementation of the pilot WMA phase, clear understanding of the concept and how to implement it is of vital importance. Given the level of understanding the implementation stages most villages have attained, it is imperative that a grace period of at least one year be awarded before counting the three year implementation period. This is important so that after one year it is envisaged that most villages will be in good stage to start.

7.2 Civic Education and Capacity Building

Secondly, the problems of governance discussed earlier need to be resolved by empowering the communities to know and understand their rights and responsibilities so as to facilitate positive action in their communities instead of sitting back and lamenting. On the other hand, civic education and leadership training to village government leaders ought to be provided in order to improve the gravity of leadership and therefore facilitate successful implementation of community projects through community participation.

Capacity building should also include training of the relevant members of the village government and the Authorised Association in different fields of specialization albeit at the basic level of aspects pertaining to Wma operations is instructive. The knowledge required include legal, economic and business knowledge and skills among others.

7.3 Technical Backstopping

In addition to the capacity building aspects above, technical backstopping will have to be made available at the district; regional even at national levels in order to ensure the desired goals are achieved. In this area, monitoring of implementation of the WMA project needs to be done.

On the question of benefit sharing, a well designed benefit sharing mechanism in order not to de-motivate and demoralize the villagers in villages which have contributed large tracts of land and responded positively and enthusiastically initially.

7.4 Curbing Mis-informers

Some of the negative attitudes found in areas like Loliondo and Tarime were to the best part attributed by subversive agents who mis-informed the communities about the concept and objective of the WMA project. Such groups and individuals have to be controlled before they confuse the people further for their own vested interests in the natural resource based business particularly wildlife.

7.5 Fencing Against Wild Animals

The government should evaluate the effectiveness and possibility of using electric fences to tackle the problem of wild animals entering settlement and agricultural land. If found feasible Kitneden village should be assisted both technically and financially and the technology replicated in other areas facing the same problem.

7.6 Land Use Disputes

The wildlife department should liaise with respective organizations such as TANAPA that are involved in land disputes with villages situated in WMAs. With the assistance of respective local governments and the commissioner land, land disputes should be solve through re-surveying and demarcating village boundaries.

7.7 Water Scarcity

As much as possible villages that be advised and assisted to obtain safe and clean water by using the money that will be generated from WMAs.

7.8 Review of By-laws

Although villagers and their facilitators were fairly swift in drawing up by-laws, the district authorities and other responsible organs have been slow in reviewing these by-laws. Efforts should therefore be made to bring this process to a swift conclusion.

7.9 TANAPA Community Relations

There is need to strengthen public relations between TANAPA and adjacent communities. It is therefore necessary to strengthen the role of community conservation services and “de-militarizing” the game rangers.

7.10 Unity in Decision-Making

There is need for policy makers and experts to have one stand on issues related to WMAs. Villagers should be brought into the program when the experts speak with one voice.

7.11 Village Game Scouts

Due to the sense of powerlessness of the village game scouts, it is proposed here that a mechanism be in place to allow them carry weapons while on duty, be given identity cards, and radio communication facilities while on duty.

7.12 Traditional Versus Modern Institutions

The WMAs are “confronted” with dual leadership involving the traditional and modern institutions. Example of traditional institutions include the “Laiganan” in Maasai communities particularly Loliondo, and “Retongo” amongst the Kurya/Ikoma/Nata communities in Serengeti and Tarime districts. In some cases there has been competition for influence between the two.

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APPENDICES

Appendix 1: Household Questionnaire

**UNITED REPUBLIC OF TANZANIA
MINISTRY OF NATURAL RESOURCES AND TOURISM
WILDLIFE DIVISION**

BASELINE SURVEY FOR PILOT WILDLIFE MANAGEMENT AREAS

HOUSEHOLD QUESTIONNAIRE

Questionnaire No. _____

Village _____ Ward _____ Division _____
District - _____ Region _____
Name of Enumerator: _____

Date: _____

Checked by : _____

SECTION A: DEMOGRAPHIC INFORMATION

1. Age _____
2. Sex
_____ 01 male
_____ 02 female
3. How many persons are there in your household (i.e. persons that leave here with you and share this house/room)
4. Size of household
_____ Adult (15+) _____ male _____ females
_____ Children (0-14) _____ male _____ females
_____ Older (61+) _____ male _____ females
_____ Number of Household members
5. Education of the household head
01 _____ None
02 _____ Primary incomplete
03 _____ Primary complete
04 _____ Secondary incomplete
05 _____ Secondary complete
06 _____ Diploma
07 _____ Vocational training
08 _____ University

6. Occupation of head of household
 01 _____ Farmer
 02 _____ Fisher folk
 03 _____ Employed/have permanent work
 04 _____ retired
 05 _____ unemployed
 06 _____ casual worker
 07 _____ livestock keeper
 99 _____ Other
7. Where were you born?
 01 Same village
 02 Same ward different village
 03 Same district different ward
 04 Same region different district
 05 Other regions
8. If not born in this village when did you start living in this village? (Year) _____
9. Which factors influenced your movement to this village?
 01 _____
 02 _____
 03 _____
10. Are there people from your household who have moved out of this village?
 01 Yes
 02 No
11. What is the age and sex characteristics of those who moved out?
- | No | Age | Sex | Reason for moving |
|----|-----|-----|-------------------|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
12. Which factors influenced your movement from that village?
 01 _____
 02 _____
 03 _____
13. Are there people from your household moved in to village?
 01 Yes
 02 No
14. What is the age and sex characteristic of those who moved in?
- | No | Age | Sex | Reason for moving |
|----|-----|-----|-------------------|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |

SECTION B: WATER SOURCES SITUATION

15. Water source table

	15 Which source of water do you use? <i>(Check all that apply)</i>		15.3. Amount that you pay per unit Pay nothing (0) Tshs/m3 or Tshs/20L bucket (please specify)	15.4. Amount of time your household spends collecting water { Minutes/day (including walking and waiting time)}
	15.1 Wet season	15.2 Dry season		
1) Private connection to piped water in house			Tshs/m3	
2) Yard tap (shared connection)				
3) Own source (specify) _____ (well, borehole)				
4) Village well			Tshs/bucket	
5) Water Vendors (specify)----- (Tanker, handcart, other)				
6) Rivers and streams				
7) Spring				
8) Other; specify _____				
TOTAL	100%			

16. Source satisfaction table

	16.1 [Enumerator: Check all sources used in 10.1 and indicate here with an "X"]	How long do you have to queue waiting to get water? (01) <15 min. (02) <30 min , (03) <1 hour (99) >1 hour		16.4. Availability from this source is ...? (01) Poor (02) Fair (03) Good
		16..2 Wet season	16..3 Dry season	
1) Private connection to piped water in house				
2) Yard tap (shared connection)				
3) Own source (specify) _____ (well, borehole)				
4) Village well				
5) Water Vendors (specify)---- ----(tanker, handcart, other)				
6) Rivers and streams				
7) Spring				
8) Other; specify _____				

17. What is the primary method you use to treat your water? [do not prompt]
- _____ (00) None
 - _____ (01) Boiling
 - _____ (02) Filtering
 - _____ (03) Settling
 - _____ (04) Chemical treatment
 - _____ (05) Other, specify _____

SECTION C: SANITATION SITUATION

18. What types of toilet systems does this household usually use?
- _____ (00) No facility
 - _____ (01) Pit Latrine
 - _____ (02) VIP Latrine
 - _____ (03) Pour Flush toilet
 - _____ (04) Public Latrine
 - _____ (05) Other

Solid Waste

19. What is the most commonly used mode of disposing refuse from this household ?
How does your household dispose off most of its refuse?
- _____ (01) dumping in your neighbourhood
 - _____ (02) burning in your compound
 - _____ (03) burying in your compound
 - _____ (04) **indiscriminate disposal (throwing away anyhow?)**
 - _____ (05) local collection system
 - _____ (06) organized community collection system

SECTION D: Natural Resources Use Benefit (Energy, wildlife, forest products)

20. What sources(s) of energy do you use for cooking? *Check all that apply*
- _____ (01) Firewood
 - _____ (02) Charcoal
 - _____ (03) Biogas Stove
 - _____ (04) Kerosene Stove
 - _____ (05) Electric hot plate or cooker
 - _____ (06) Other, Specify _____
21. What natural resource products do you use in your household?
- _____ (01) building poles
 - _____ (02) thatching grass
 - _____ (03) game meat
 - _____ (04) Medicinal plants
 - _____ (05) Pottery soil
 - _____ (06) grazing grass
 - _____ (07) Other, Specify _____

22. How frequently do you use these resources?

Code	Resource use	Daily	Weekly	Monthly	Annually
01	Building poles				
02	Thatching grass				
03	Game meat				
04	Medicinal plants				
05	Pottery soil				
06	Grazing grass				
07	Other, Specify				

23. What is the availability of these resources currently

Code	Resource use	Low	Medium	Plenty
01	Building poles			
02	Thatching grass			
03	Game meat			
04	Medicinal plants			
05	Pottery soil			
06	Grazing grass			
07	Other, Specify			

SECTION C: ECONOMIC PROFILE

Productive Activities and Markets

24. What productive activities do you engage in during the dry season (rank 3 by importance)

- _____ (01) Cash crop farming
- _____ (02) Food crop production (maize, paddy, cassava, etc)
- _____ (03) Small business (food-vending,)
- _____ (04) Wage employment (casual labour)
- _____ (05) Vegetable farming
- _____ (06) handcrafts for sale
- _____ (07) Water vending
- _____ (08) game meat business
- _____ (09) tourist

25. What productive activities do you engage in during the wet/rainy season

- _____ (01) Cash crop farming
- _____ (02) Food crop production (maize, paddy, cassava, etc)
- _____ (03) Small business (food-vending,)
- _____ (04) Wage employment (casual labour)
- _____ (05) Vegetable farming
- _____ (06) handcrafts for sale
- _____ (07) Water vending
- _____ (08) Game meat business
- _____ (09) Tourist guide

26. What are the potential productive activities do you anticipate resulting from the establishment of the new WMA?

- _____ (01) Cash crop farming
- _____ (02) Food crop production (maize, paddy, cassava, etc)
- _____ (03) Small business (food-vending,)
- _____ (04) Wage employment (casual labour)
- _____ (05) Vegetable farming
- _____ (06) handcrafts for sale
- _____ (07) Water vending
- _____ (08) Game meat business
- _____ (09) Tourist guide

27. How much did you earn last season from your economic activities?

- _____ (01) less than 10,000
- _____ (02) Between 10,001 and 20,000
- _____ (03) Between 20,001 and 30,000
- _____ (04) Between 30,001 and 60,000
- _____ (05) Between 60,001 and 100,000
- _____ (06) Between 100,001 and 150,000
- _____ (07) Between 150,001 and 200,000
- _____ (08) Between 200,001 and 300,000
- _____ (09) Between 300,001 and 500,000
- _____ (99) Above 500,000

28. Remittance How much money do you receive as gifts or assistance from your children and others?

- _____ (01) less than 10,000
- _____ (02) Between 10,001 and 20,000
- _____ (03) Between 20,001 and 30,000
- _____ (04) Between 30,001 and 60,000
- _____ (05) Between 60,001 and 100,000
- _____ (06) Between 100,001 and 150,000
- _____ (07) Between 150,001 and 200,000
- _____ (08) Between 200,001 and 300,000
- _____ (09) Between 300,001 and 500,000
- _____ (99) Above 500,000

Income and Expenditures

29. How many members of your household currently earn some income (from a job and/or business and/or part-time work)? _____

30. Do you receive money in terms of gifts or otherwise from other sources (including relatives or friends living outside the village)?

- _____ (00) Yes
- _____ (01) No

31. [If yes] how much money (cash) do you receive per year?

- _____ Tshs
- _____ (99) don't know

32. Does your household receive any other income (agricultural sales, own business, rental, seasonal income, sales of property, etc.)?

Amount per year _____Tshs don't know (99)

33. How many of the following assets are owned by your household?

	Assets	Number	Estimated Value Tshs
01	House		
02	Cart		
03	Hoes		
04	Motorcycle		
05	Boat		
06	Bicycle		
07	Ploughs		
08	Tractor		
09	Sewing machine		
10	Land (acres)		
11	Refrigerator		
12	Generator		
13	Trolley		
14	Kerosene stove		
15	Radio		
16	Water tank		
17	Furniture (tables, chairs, beds)		
18	Improved charcoal stove		
19	Fire arm		
20	Vehicle		

34. Do you have any livestock?

_____ (01) Yes

_____ (00) No

35. Livestock type, number and value

	Animals	Number	Estimated Current Value (Tshs) (mean value)
1	Cattle		
2	Sheep		
3	Goats		
4	Pigs		
5	Rabbits		
6	Chicken and other poultry		
7	Donkey		

36. Do you have a farm?

_____ (00) Yes

_____ (01) No,

37. If yes, indicate the quantities of the crops harvested

	Crops	Acreage		No. of units harvest	
		Short rains	Long rains	Short rains	Long rains
1	Green Vegetables				
2	Tomatoes				
3	Maize				
4	Beans				
5	Onions				
6	Cassava				
7	Rice				
6	Others				

HOUSING and ownership

38. How many rooms does your household have?

_____ No. Of rooms

39. What material(s) were used to build this house? *Check only one primary material for Walls, Floors and Roof.*

- Walls: _____ (01) Cement blocks
 _____ (02) Burnt bricks
 _____ (03) Mud and poles
 _____ (04) Sheet metal
 _____ (05) Wood
 _____ (06) Thatch
 _____ (07) Mud bricks
 _____ (08) Lime and stone
- Floor: _____ (01) Cement and sand
 _____ (02) Earth /Clay
 _____ (03) Other
- Roof: _____ (01) thatching grass/palm thatch
 _____ (02) mud poles and grass
 _____ (03) Mud and straw
 _____ (04) Corrugated iron sheets (aluminium)
 _____ (05) tiles

40. Have you ever-borrowed money

- (01) Yes
 (02) No

41. Where or from whom do you borrow the money? *Check only 1 important source:*

- _____ (01) Family member
 _____ (02) Friend
 _____ (03) Money Lender
 _____ (04) Bank
 _____ (05) other, specify _____
 _____ (99) Don't Know / Not sure

42. How long would it take you to return the borrowed money?
- _____ (01) Less than 3 months
 - _____ (02) 3-6 months
 - _____ (03) 7-12 months
 - _____ (04) 13-18 months
 - _____ (05) More than 18 months
 - _____ (99) Don't Know / Not sure

SECTION D: SOCIAL DIMENSIONS

43. What do you understand by WMA? (Check relevant aspect mentioned)
- a. _____(01) Participation
 - b. _____(02) Benefit sharing
 - c. _____(03) Resource conservation
 - d. _____(04) Follow WMA guidelines and regulations
44. Do you like the idea of WMA? _____(01) Yes _____(02) No
45. If No, why? _____
46. What are your opinions for improvement? _____
47. How many times have you been involved in a village collective activity last year? _____
48. How many village meetings have been called for the past one year _____
49. Does the leadership present the annual income & expenditure report? _ (01) Yes _ (02) No
50. Does the leadership act responsibly and in justice ? _____ (01) Yes _____ (02) No

+++++
++++ +++++

Appendix 2: Checklist of Questions

2.1 Checklist of questions for interview/discussions (Economic Aspects)

1. What occupation existing in the village (farming, livestock, civil servants, business, fishing etc) (VG) Give proportion of villagers in each occupation
2. What is the labour power availability in the village (number or proportion of able bodied villagers) (VG)
3. What are the main natural resources uses in the village (what type; game, wood, fuel, thatch, grass, poles, timber etc)(VG)
4. What is the status of natural resources access by villagers? (Use right to resources)(VG,FGD)
5. What is the average price of game meat in this village? (VG, FGD)
6. Availability of social and economic services (transport (road, waterways, etc), Water, Energy, Medical services, Education, Shops, etc) (mention type and number where applicable). (VG, FGD)
7. What are the costs/prices associated with accessing various basic needs in the village? (E.g. food staffs, medical services, transport, water, energy, education etc).(FGD,VG,OTHER STAKEHOLDERS)
8. What types of business exist in this village? (E.g. shops, Kiosk, butchers, tailors, blacksmith, mechanical shops of garages etc)(VG, FGD, OS)
9. How many people are engaged in this business? (VG, FGD)
10. What types of main goods are sold in this village? (Food staffs, construction, clothes, tools and equipment, kerosene, electronic goods etc)(FGD)
11. Are there natural resources based businesses? Mention them. (VG,FGD)
12. What are the five major incomes generating activities existing in the village today? (VG)
13. What are the potential economic opportunities in the village if the WMAs start operation? (FGD)
14. What is the annual village government income?(VG)
15. What is the annual village government expenditures?(VG)
16. What are the sources of the village government income?(VG,FGD)
17. What is the proportion of natural resources sources in the village government income?(VG)
18. How many people are employed currently who live in this village? (Salaried)(VG, FGD)
19. What is the consumption pattern of people in this village? (What is there staple food? How many times do people eat per day?) VG, FGD)
20. What is wealth status of villages? (Give rough estimate of proportions of poor, middle and rich categories. Also get the criteria for categorization by villagers e.g. number of cows, size of cultivated farm, business, ownership of assets etc)(VG)
21. How is the availability and access to markets? (Do traders come to buy goods in the village or do village traders take goods to outside markets? Do buyers offer good prices; are they enough to exhaust goods in sale?)(FGD, TRADERS/BUSINESSES)
22. How is current productivity of economic activities? (VG, FGD)
 - How much is harvested per acre/year per type of crop?
 - How many visitors/tourists season?
 - How much milk/cow/day
 - How much fish caught per day/per person?
23. How is profitability of business activities (TRADERS,FGD)
 - What is volume of sales/month?
 - What is profit margin on average?
 - Are you able to re- invest some of the proceedings/pro
24. What are the main land use patterns in the village? (VG)

2.2 Checklist of questions for interview/discussions (ecological)

- 1 How many animal species are in the WMA and can you mention the names of these species?
- 2 Of these, which ones are endemic, endangered, threatened or exotic species?
- 3 What are the estimated population sizes or numbers of animals of each species?
- 4 Can you the animal population trends for each species for the last five years?
- 5 Give the distribution of different animals species in the WMA according to different seasons and can you indicate this on the WMA map?
- 6 There animals movements or migrations in the WMA and what species are involved and at what seasons?
- 7 Are there special routes or corridors the animals follow during their seasonal movements or migrations and can you indicate them on the WMA map?
- 8 What is the total area of WMA and do you consider it as an ecosystem?
- 9 Do you have a general management plan (GMP) of the WMA?
- 10 How many habitat types make the WMA and can you mention the animals species found in each habitat type?
- 11 How many plant species are there in the WMA and which species do consider to be endemic, threatened, or exotic in the area?
- 12 Can you the dominant plant species composition of each habitat type in the WMA indicating at least the proportions of each species?
- 13 What are different types of water sources for wild animals and how they distributed over the area?
- 14 Are these water sources permanent or seasonal and do you consider them to be adequate?
- 15 What are some of the human activities cause habitat disturbances in the WMA, for example agriculture, fires and cutting of trees for firewood or charcoal making?
- 16 What is the size of area of the WMA that has been affected by these disturbances?
- 17 What other natural perturbations, for example floods are occurring or have occurred in the WMA and what area has been affected?
- 18 What animal species are hunted in the WMA and for what purpose?
- 19 What is the hunting quota allocated for each species and is the average percent utilization of the quota?
- 20 Are there uses of other natural resources for example bee-keeping or fishing or mining in the WMA? What is the extent of activity?
- 21 Is there any crop raiding by animals in the area, what crops are raided and by what animals?
- 22 Can you estimate the areas of farmed raided and the value of crops the lost through raiding?
- 23 Do animals attack human beings and livestock. If so, what animals are responsible and what is the extent of attacked per year?
- 24 Are diseases that are transmitted between wild animals, livestock and people? If so, what are these diseases and what animals are involved and what is the extent?

2.3 Interview Schedule/Checklist (Social Aspects)

Based on the list of social indicators, the interview guide was drawn that guided the discussions with village government officials, NGOs, and other relevant stakeholders. Since this information requires a bit of probing, it is proposed that the information will not be gathered through questionnaires, rather mainly through interviews by the consultants and Focused Group Discussions facilitated by the consultants.

1. Name of the village, ward, division, and WMA (VILLAGE GOVERNMENT).
2. Total number of residents by sex and age group (VILLAGE GOVERNMENT).
3. The ethnic groups permanently living in this village (VILLAGE GOVERNMENT STAFF).
4. Are some residents permanently/temporarily moving to other areas? If yes, where do they go mainly and why? (VILLAGE GOVERNMENT OFFICIALS/ FGDS/ GOVERNMENT STAFF WORKING IN THE AREA).
5. Are some residents moving into this area? If yes, why do they move in and where do they come from? (SAME AS ABOVE).
6. What are the personal characteristics of those who move out and in? (SAME AS ABOVE).
7. Which natural resources do village residents have access to? (FGDs)
8. Of these, which are used for ritual purposes?
9. What are taboos associated with natural resource use?
10. What are the mechanisms of accessing these resources? (FGDs)
11. What composition of the village government in terms age and sex? (VILLAGE GOVERNMENT).
12. What is the quality of the village government offices (take note by observation)? Did the village residents alone build them? Was there external assistance? (VILLAGE GOVERNMENT STAFF).
13. Which Community Based Organizations exist and for what purpose? (VILLAGE GOVERNMENT / FGDs)
14. Do village residents know about WMAs and what is their role in them? (FGDs).
15. Any training received by officials? (VILLAGE GOVERNMENT OFFICIALS).
16. Have there been court cases involving the village residents against natural resources or individuals against the village government? (VILLAGE GOVERNMENT STAFF, WILDLIFE OFFICIALS, FGDs).
17. How many cases are “Mabaraza ya Usuluhishi ya Kata” resolve per year and of what nature?(VILLAGE GOVERNMENT OFFICIALS/WARD COUNCILOR/ BARAZA LA USULUHISHI LA KATA MEMBERS).
18. How often does the lead Authorised Association meet with other stakeholders and what are the issues discussed? (VILLAGE GOVERNMENT OFFICIALS).
19. Do you regularly meet with Wildlife staff? What issues do you discuss? (VILLAGE GOVERNMENT OFFICIALS).
20. Number and type of educational facilities, enrolment by gender, drop out rates (SCHOOL STAFF).
21. Which medical facilities are present in the village? (MEDICAL STAFF).
22. Water supply by type and quality (COMMUNITY DEVELOPMENT STAFF/ VILLAGE OFFICIALS/OBSERVATIONS)
23. The extent to which the villages have a sense of community (solidarity), as indicated by participation in community activities, stability of the village government, voter complaints, party affiliation, etc.(COMMUNITY DEVELOPMENT STAFF, COMMUNITIES)

Appendix 3: ITINERARY, SCHEDULE OF WORK AND PEOPLE CONSULTED

DATE	ACTIVITY	PLACE
24-31/01/2003	Literature search, preparation of data collection instruments	Arusha/Dar-es-Salaam/Morogoro
2/02/2003	Traveling	Dar to Arusha
3-4/02/2003	Consultations	Arusha
5/02/2003	Travelling and District Consultations - Meet District Game Officer - Meet District Executive Officer - Travel to Namanga	Arusha to Monduli
6/02/2003	Travel to Sinya Interviews/discussions/field work Travel to Sanya Juu	Sinya/Sanya Juu
7/02/2003	Interviews/discussions/field work	Kitenden
7/02/2003	Discussion	Irkaswa
8/02/2003	Interviews/discussions/field work	Lerangwa
9/02/2003	Interviews/discussions/field work	Olmolog
10/02/2003	Interviews/discussions/field work	Elerai
11/02/2003	Travelling to Kiteto and District Consultations - Meet District Game Officer - Meet District Natural Resources Officer	Kiteto
12/02/2003	Interviews/discussions/field work	Irkiu-shibor
13/02/2003	Interviews/discussions/field work	Makami
14/02/2003	Interviews/discussions/field work	Ndedo
16/02/2003	Travelling to Babati	Kiteto to Babati
17/02/2003	District Consultations - Meet District Natural Resources Officer - Meet District Game Officer (Acting) - Meet District Executive Director and District Council Chairman - Meet District Commissioner - Meet LAMP Development Advisor - Meet Divisional Executive Officer Interview/Discussion/field work	Babati/ Magugu/Magara
18/02/2003	Interviews/discussions/field work	Mayoka
19/02/2003	Interviews/discussions/field work	Mwada
19 /02/2003	Interviews/discussions/field work	Sangaiwe
20/02/2003	Interviews/discussions/field work	Vilima Vitatu
21/02/2003	Interviews/discussion/field work and travel to Karatu	Minjingu
22/02/2003	Travel to Ngorongoro - Meet the Chief Conservator of Ngorongoro Conservation Area Authority Travel to Loliondo	Karatu/Ngorongoro/ Loliondo
23/02/2003	District Consultations - Meet District Game Officer - Meet Mrs Tina Timan	Loliondo
24/02/2003	Interviews/discussions/field work	Arash
25/02/2003	Interviews/discussions/field work	Losoiito/Maaloni
25/02/2003	Interviews/discussions/field work	Olorien/Magaiduru

DATE	ACTIVITY	PLACE
26/02/2003	Interviews/discussions/field work	Soitsambu
27/02/2003	Interviews/discussions/field work Travel Seronera	Ololosokwan/Seronera
28/02/2003	Discussions at Frankfurt Zoological Society (Dr Bonner) Discussions with Chief Veterinary Officer of Serengeti National Park Travel to Mugumu, Serengeti District - Meet District Executive Director, District Natural Resources Officer, Game officer, Planning Officer, and Lands Officers - Set up appointments with villages	Ngorongoro-Serengeti
1/03/2003	Interviews/discussions/field work	Robanda
2/03/2003	Interviews/discussions/field work	Nyichoka
3/03/2003	Interviews/discussions/field work	Nyakitono
4/03/2003	Interviews/discussions/field work	Natta-Mbiso
5/02/2003	Debriefing Serengeti District officials Travel to Tarime - Meet District Commissioner, District Planning Officer, and District Game Officer	Mugumu/Tarime
6/03/2003	Interviews/discussions/field work	Gibaso
7/03/2003	Visit Mrito but unable to work due to hostile environment and decide to debrief District authorities in Tarime Travel to Mwanza	Mrito/Tarime
8/03/2003	Hold interviews with Pasiansi Principal	Mwanza
9/03/2003	Travel to Karatu via Seronera	Karatu
10/03/2003	Travel to Arusha - Meet Manyara National Park Chief Warden - Fix appointment with TANAPA Director General	Arusha
11/03/2003	- Meet Acting Director General of TANAPA, Director, Resource Conservation and Ecological Monitoring - Meet Director General, Tanzania Wildlife Research Institute	
12/03/2003	Traveling to Dar es Salaam, Morogoro, and Ngorongoro for data analysis and report writing	

Appendix 4: Plant species identified in the monitoring plots of the proposed WMAs

WMA name	Village name	Location	Tree species and number	Grass species	Photograph number
Longido	Sinya	S 03 ⁰ 14. 768' E035 ⁰ 29. 032'	<i>Acacia tortilis</i> (10) <i>Balanite aegyptiana</i> (8) Oloki (6) <i>Combretum molle</i> (6)	<i>Cynodon dactylon</i> <i>Digitaria spp.</i> <i>Chloris gayana</i>	1
	Elerai	S 02 ⁰ 54. 646' E037 ⁰ 02. 990'	<i>Acacia xanthophloea</i> (7 mature and 3 immature) <i>Acacia drepanolobium</i> (15) <i>Rhus natalensis</i> (1)	<i>Sporobolus ioclodes</i> <i>Themeda triandra</i> <i>Cynodon dactylon</i>	2
Makami	Ilkish-oibor	S 04 ⁰ 47. 575' E 036 ⁰ 23. 556'	<i>Acacia tortilis</i> (3) <i>Commiphora africana</i> (3 mature and 1 immature)	<i>Cynodon dactylon</i> (dominant)	3
	Ndedo	S 04 ⁰ 54. 115' E 036 ⁰ 47. 479'	<i>Commiphora africana</i> (1) Wait a bit (1)	<i>Cynodon dactylon</i>	4
Burunge	Mwada	S 03 ⁰ 42. 508' E 035 ⁰ 43. 867'	<i>Acacia tortilis</i> (10) <i>Commiphora africana</i> (1) <i>Balanite aegyptiana</i> (1) <i>Euphorbia spp.</i> (1) <i>Adansonia digitata</i> (1)	<i>Sporobolus iclodes</i> <i>Sporobolus pyramidalis</i> <i>Chloris gayana</i> <i>Panicum spp.</i> <i>Digitaria macroble</i>	5
	Vilima Vitatu	S 03 ⁰ 48. 196' E 035 ⁰ 53. 548'	<i>Kigelia africana</i> (1) <i>Acacia lahai</i> (1) <i>Acacia xanthophloea</i> (5) <i>Balanite aegyptiana</i> (1) <i>Commiphora africana</i> (1) <i>Phoenix spp.</i> (40 immature)	<i>Panicum maximum</i> <i>Cynodon dactylon</i> <i>Sporobolus pyramidalis</i> <i>Digitaria macroble</i>	6
	Minjingu	S 03 ⁰ 45. 850' E 035 ⁰ 57. 606'	<i>Balanite aegyptiana</i> (1 immature)	<i>Cynodon dactylon</i> <i>Digitaria macroble</i>	7
Loliondo	Losoitto	S 02 ⁰ 14.871' E 035 ⁰ 35. 103'	<i>Acacia tortilis</i> (3) <i>Acacia drepanolobium</i> (26) <i>Acacia nilotica</i> (7 immature)	<i>Themeda triandra</i> <i>Panicum spp.</i> <i>Sporobolus pyramidalis</i> <i>Sporobolus ioclodes</i> <i>Chloris gayana</i> <i>Cyperus petandra (sedge)</i>	8
	Ololosokwan	S 01 ⁰ 52. 678' E 035 ⁰ 20. 148'	<i>Acacia tortilis</i> (5 mature and 40 immature)	<i>Panicum minimum</i> <i>Sporobolus pyramidalis</i> <i>Digitaria macroble</i> <i>Themeda triandra</i> <i>Cynodon dactylon</i>	9
IKONA	Robanda	S 02 ⁰ 09. 496' E 034 ⁰ 37. 637'	<i>Acacia sayel</i> (3) <i>Commiphora africana</i> (2) <i>Acacia drepanolobium</i> (1)	<i>Themeda triandra</i> <i>Panicum spp.</i> <i>Sporobolus spp.</i> <i>Chloris gayana</i>	10
	Nyichoka	S 01 ⁰ 57. 967' E 034 ⁰ 33. 108'	<i>Acacia tortilis</i> (3) Mselemu (3)	<i>Themeda triandra</i> <i>Panicum spp.</i>	