



**MINISTRY OF NATURAL RESOURCES AND TOURISM**

**WILDLIFE DIVISION**

**APPENDIX TO THE INDICATORS AND MONITORING PLAN DOCUMENT**

**SECTION 1: ANALYSIS OF BASELINE INFORMATION FOR pWMA<sub>s</sub> FOR  
DEVELOPMENT OF MONITORING INDICATORS**

**SECTION 2: ANALYSIS OF THE REQUIREMENTS OF THE REGULATIONS FOR  
DEVELOPMENT OF MONITORING INDICATORS**



USAID TANZANIA



WWF TANZANIA PROGRAM

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## SECTION 1: ANALYSIS OF BASELINE INFORMATION FOR pWMA<sub>s</sub> FOR DEVELOPMENT OF MONITORING INDICATORS

### IKONA pWMA

Aspect	Key issues	Current status
Ecological	<ul style="list-style-type: none"> <li>Ecological significance</li> </ul>	<ul style="list-style-type: none"> <li>The Pilot WMA serves as a migratory route for wildlife in the Maasai Mara Serengeti ecosystem. The animal movements give the IKONA Pilot WMA its ecological significance</li> <li>Wildebeest, Zebra, Thomson Gazelle, Duiker and Buffalo are recorded to be very abundant and migrate seasonally.</li> </ul>
	<ul style="list-style-type: none"> <li>Species richness</li> </ul>	<ul style="list-style-type: none"> <li>Wildlife population estimates do exist for the whole ecosystem but they are not specific to the pilot WMA</li> </ul>
	<ul style="list-style-type: none"> <li>Wildlife population</li> </ul>	<ul style="list-style-type: none"> <li>Total numbers of wildlife species reported include 28 mammals and 31 birds.</li> <li>Animals recorded to be very few are Reedbuck, Topi, Golden Jackal, Velvet Monkey, Hippopotamus, Bush pig, Bushbuck and Cheetah.</li> </ul>
	<ul style="list-style-type: none"> <li>Habitat type and quality</li> </ul>	<ul style="list-style-type: none"> <li>Acacia woodland savanna is the major vegetation type with few areas of open grassland. The woodlands are mainly composed of Combretum spp., Acacia drepanolobium, A. gerrardii, and A. seyal and A. Lahai species.</li> </ul>
	<ul style="list-style-type: none"> <li>Water sources</li> </ul>	<ul style="list-style-type: none"> <li>Water availability is a critical problem in Nyichoka, Nyakitono and Nata Mbisho villages. Robanda village has pump water system with 13-tap station.</li> <li>Water sources include dams, village wells and rivers. Most important rivers are Grumeti, Lomoti, Rubana and Malulu. Volumes of water from these sources are reported to decline in the dry season.</li> </ul>
	<ul style="list-style-type: none"> <li>Quota utilisation</li> </ul>	<ul style="list-style-type: none"> <li>Tourist hunting is conducted by V.I.P Hunting Safaris</li> <li>Wildlife quota utilisation by V.I.P Hunting Safaris has been declining from 21% in 1998 to 6% in 2002</li> <li>On average subsistence quota utilisation is above 50% for most of the species. Over 100% utilisation has been reported for wildebeest and hartebeest in year 2001.</li> </ul>
	<ul style="list-style-type: none"> <li>Crop damage, livestock predation and human injuries/deaths</li> </ul>	<ul style="list-style-type: none"> <li>50% of the expected crop harvest is destroyed by wildlife. Main animals involved in the crop raiding are Elephants, Baboon, Monkey, Zebra, Hippopotamus, Bushpig, and Quelea quelea.</li> <li>In Robanda village about 200 of the small stock (Goats and sheep) are killed every year. In Nyichoka village Lions, hyenas and leopard kill 25 cattle and 250 of the small stock. Nyakitono village, Hyenas, Cheetah and Leopard kill 250 goats and Nata Mbiso village, Hyenas kill 200 small stock and cattle.</li> </ul>
	<ul style="list-style-type: none"> <li>Utilisation of Other natural resources</li> </ul>	<ul style="list-style-type: none"> <li>Charcoal making is prohibited by village bylaws.</li> <li>Only Catfish is fished in Nata Mbiso dam in a very small scale.</li> <li>Bee keeping is practised mainly by use of traditional beehives and formation of beeping groups has been reported.</li> <li>The total numbers of beehives recorded include 100 in Nyichoka, 19 in Nyakitono, 2 in Nata Mbiso.</li> </ul>

Aspect	Key issues	Current status
		<ul style="list-style-type: none"> <li>• Mining is practised in Nyichoka village where gold is found.</li> </ul>
	<ul style="list-style-type: none"> <li>• Diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Important Zoonotic diseases are sleeping sickness in people and Trypanosomiasis in livestock and Anthrax.</li> <li>• Other livestock diseases Malignant Catarrhal Fever, Mange, East Coast Fever and Foot and Mouth Diseases</li> </ul>
	<ul style="list-style-type: none"> <li>• Poaching</li> </ul>	<ul style="list-style-type: none"> <li>• Poaching is reported to be a problem in the area although not quantified. Numbers of most animal species are reported to be declining.</li> <li>• Poaching incidences are reported to be declining due to instituted controls by Village Natural Resources Committees.</li> </ul>
Economical	<ul style="list-style-type: none"> <li>• Contribution of natural resources</li> </ul>	<ul style="list-style-type: none"> <li>• Contribution of natural resources to District income is rated at 12 - 22% mostly from tourist hotels and tourist hunting levy, which contributes about 44%.</li> </ul>
	<ul style="list-style-type: none"> <li>• Financial resources allocation.</li> </ul>	<ul style="list-style-type: none"> <li>• Allocation of financial resources at District level to the Natural Resources Department is less than 3% of the total District expenditure.</li> </ul>
	<ul style="list-style-type: none"> <li>• Economic activities</li> </ul>	<ul style="list-style-type: none"> <li>• Main economic activities are agriculture, livestock keeping, small business and tourism.</li> <li>• Tourism is the main income generating activity in 2 out of the 3 villages contributing 48.6% (Nyichoka), 66.3% (Nyakitono) and 32.1% (Nata Mbiso).</li> </ul>
	<ul style="list-style-type: none"> <li>• Access to credit</li> </ul>	<ul style="list-style-type: none"> <li>• No access to formal credit</li> </ul>
	<ul style="list-style-type: none"> <li>• Household income</li> </ul>	<ul style="list-style-type: none"> <li>• 67.3% of the households earn less than 30,000</li> </ul>
	<ul style="list-style-type: none"> <li>• Productivity per unit area</li> </ul>	<ul style="list-style-type: none"> <li>• Agricultural productivity is relatively low whereby production per Acre is 5 bags for maize, 3 bags for beans and cassava around 35 bags.</li> </ul>
	<ul style="list-style-type: none"> <li>• Dependence on natural resources</li> </ul>	<ul style="list-style-type: none"> <li>• Dependence on building poles, (74%) thatching grass (90%) and fuel wood (100%)</li> <li>• Dependence on game meat is 98% and medicinal plants is around 47%</li> <li>• Availability of natural resources products is perceived to be high but wildlife animal numbers have been reported to be declining.</li> </ul>
	<ul style="list-style-type: none"> <li>• Economic potential.</li> </ul>	<ul style="list-style-type: none"> <li>• Potential economic opportunities are crop cultivation, wage employment, vegetable cultivation, game meat, handcraft, tourism and small business, the later perceived to have the highest potential by 25% of the villagers.</li> </ul>
Sociological	<ul style="list-style-type: none"> <li>• Ethnic composition</li> </ul>	<ul style="list-style-type: none"> <li>• Wide diverse in ethnic composition – on the average more than 9 ethnic groups</li> <li>• Immigration is rated at 26% for the immigrants coming from outside the District.</li> <li>• Reasons for immigration are to explore farming opportunities (22%), Livestock keeping (14%), marriage (14%). and business (11%),</li> </ul>
	<ul style="list-style-type: none"> <li>• Access to water facility</li> </ul>	<ul style="list-style-type: none"> <li>• Water quality and quantity is said to be the main problem in the villages. Main sources of water include taps, well, rivers, streams and springs.</li> <li>• 43% of the villagers rely on village wells. Tap water is serves 30% of the villagers. Rivers and streams</li> </ul>

Aspect	Key issues	Current status
		serve 17% of the villagers
	<ul style="list-style-type: none"> <li>• Access to health facility</li> </ul>	<ul style="list-style-type: none"> <li>• Medical facilities reported to be inadequate. However all village have a dispensary and Nata Mbiso village has a Health Centre with a capacity of 18 beds.</li> </ul>
	<ul style="list-style-type: none"> <li>• Human diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Most dominant diseases are water/sanitation related and Malaria. Other diseases are either air borne, sex related or originate from worm infestation.</li> </ul>
	<ul style="list-style-type: none"> <li>• Education facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Each village has a primary school.</li> <li>• Deficits in classrooms and desks were reported though not quantified.</li> </ul>
	<ul style="list-style-type: none"> <li>• Institutional set up</li> </ul>	<ul style="list-style-type: none"> <li>• Ritual sites and Taboos exist as traditional institutions</li> <li>• Gender representation in village governments was averaged at 6 out of 25 members, Nata Mbiso village having the highest representation of 8 of the 25 members.</li> </ul>
	<ul style="list-style-type: none"> <li>• WMA establishment development</li> </ul>	<ul style="list-style-type: none"> <li>• All villages have developed bylaws for WMA but have not prepared land use plans</li> </ul>
	<ul style="list-style-type: none"> <li>• Land disputes and conflicts</li> </ul>	<ul style="list-style-type: none"> <li>• Land use conflicts are reported in 2 (Robanda and Nyakitono villages) out of the 4 villages.</li> <li>• Most conflicts are related to village boundaries, wild animal attacks and crops, and between villagers and the local investors (V.I. P).</li> <li>• Conflict resolution mechanism is achieved through traditional institutions (Retongo – Council of Elders) and village governments. The court system is poorly equipped to serve in that capacity (e.g. no manpower)..</li> </ul>

## BURUNGE pWMA

Aspect	Key issues	Current status
Ecological	<ul style="list-style-type: none"> <li>Species richness</li> <li>Wildlife population</li> </ul>	<ul style="list-style-type: none"> <li>The Pilot WMA serves as a dispersal area for wildlife from the Tarangire National Park. The <b>Kwakuchinja</b> migratory route serves as buffer zone and northern corridor Linking Tarangire and Manyara NPs.</li> <li>The Burunge Pilot WMA has an area of 400 Km<sup>2</sup>.</li> <li>Total number of wildlife species reported include 37 mammals and 21 bird</li> <li>Wildebeest Zebra and Buffalo are recorded to be very abundant and migrate seasonally</li> <li>Animals recorded to be very few are Greater Kudu, Gerenuk, and Wild dog, Steinbok, Bush pig, Aardvark, Klipspringer, Pangolin and Cheetah.</li> <li>A declining trend in numbers of large mammals has been reported for Giraffes, Hartebeest, Wildebeest and Zebra.</li> <li>.</li> </ul>
	<ul style="list-style-type: none"> <li>Habitat quality</li> </ul>	<ul style="list-style-type: none"> <li>Four major habitat types recorded Riverine forest, bushed grassland, open woodland and flood plains</li> <li>Charcoal making is prohibited by village bylaws but agricultural expansion, overgrazing, wild fires and settlement propel deforestation.</li> </ul>
	<ul style="list-style-type: none"> <li>Water sources</li> </ul>	<ul style="list-style-type: none"> <li>Main water sources are lake Manyara, Lake Burunge and Tarangire River.</li> <li>Other water sources are small natural dams and rivers but many of them are seasonal</li> <li>Water related conflicts reported resulting from increased demand (domestic use and irrigation) and limited supply.</li> </ul>
	<ul style="list-style-type: none"> <li>Quota utilisation</li> </ul>	<ul style="list-style-type: none"> <li>Northern Hunting Enterprise conducts tourist hunting while photo tourism is conducted by Kibo Safaris.</li> <li>Wildlife quota utilisation by Northern Hunting Enterprises ranges from 20% to 28%.</li> </ul>
	Crop damage, livestock predation and human attack	<ul style="list-style-type: none"> <li>In all the villages visited expressed existence of wildlife attacks to people</li> <li>Loss of human life due to wildlife attacks is averaged at 3 persons per year with a maximum of 8 and a minimum of 1</li> <li>25% of the expected crop harvest is destroyed by wildlife. Main animals involved in the crop raiding are Elephants, porcupine, Baboon, Monkey, Warthog, Zebra, Buffalo and Quelea quelea.</li> <li>In Mayoka village Lion kill about 15 cattle and 15 goats each year while in Sangaiwe village Leopard about 200 of the small stock and in Vilima Vitatu village Lions kill 50 cattle with Hyena and leopard killing 100 of the small stock. In Minjingu village, lions kill an average of 350 small stock and 70 cattle annually.</li> </ul>
	<ul style="list-style-type: none"> <li>Other natural resources</li> </ul>	<ul style="list-style-type: none"> <li>Other activities involving natural resources utilisation include bee keeping, mining, charcoal making, fishing and medicinal resources</li> <li>Bee keeping is practised using both traditional and modern bee keeping</li> <li>The total number of bee hives per village range between 18 in Vilima -Vitatu and 103 in Sangaiwe.</li> </ul>

		<ul style="list-style-type: none"> <li>• Mining is practised in Sangaiwe, Magara, Minjingu and Mayoka villages</li> <li>• Minerals found include Ruby, Alexandria and Emerald.</li> <li>• Outsiders (80%) do fishing in Lake Manyara and Burunge.</li> <li>• Village government do not realise any revenues from the fishery activity due to institutional conflicts between Village Government and District Council Authorities</li> </ul>
	<ul style="list-style-type: none"> <li>• Diseases</li> </ul>	<ul style="list-style-type: none"> <li>• Important Zoonotic diseases are sleeping sickness in people and Trypanosomiasis in livestock, and Anthrax</li> <li>• Other livestock diseases Malignant Catarrhal Fever, CBPP, East Coast Fever and Foot and Mouth Diseases</li> </ul>
	<ul style="list-style-type: none"> <li>• Poaching</li> </ul>	<ul style="list-style-type: none"> <li>• Poaching is reported to be a problem in the area and is mainly done in Minjingu, Vilima -Vitatu, Mwada and Mayoka villages.</li> <li>• Number of poachers arrested and convicted increased from 10 in 1995 to 28 in 1998 but since then it has been decreasing following control by the village government. Only 2 poachers were caught in year 2002 in Vilima-Vitatu village.</li> <li>• Boundary conflicts between villages, Tarangire National Park and Mining Companies have been reported.</li> </ul>
Economic	<ul style="list-style-type: none"> <li>• Contribution of the natural resources to District income</li> <li>• Village government and Household income</li> </ul>	<ul style="list-style-type: none"> <li>• Contribution of natural resources to District income is rated at 6% mostly from tourist hotels levy and tourist hunting.</li> <li>• Village government income ranges from about TZS 1m. in Sangaiwe to over TZS 10m. in Mwada village.</li> <li>• At Village level tourist hunting generates about 50% to 79% of the total village income.</li> <li>• 70% of all villagers earn less than 1\$ a day.</li> <li>• No access to formal credit</li> <li>• 70% of the households earn less than 30,000</li> </ul>
	<ul style="list-style-type: none"> <li>• Economic activities</li> </ul>	<ul style="list-style-type: none"> <li>• Main economic activities are agriculture, livestock keeping, small business fishing and tourism.</li> </ul>
	<ul style="list-style-type: none"> <li>• Productivity per unit area</li> </ul>	<ul style="list-style-type: none"> <li>• Productivity is rated highest for cotton in Minjingu village (1,000 Kg/acre) and maize 12 bags per acre. On the average maize is reported to be 8 bags per acre. Beans 4 bags per acre,</li> <li>• Farm crop productivity vary greatly from one village to the other</li> <li>• Sangaiwe, Mayoka and Minjingu harvest 10 to 12 bags per acre.</li> <li>• Mwada and Vilima Vitatu harvest 3 to 5 bags per acre.</li> </ul>
	<ul style="list-style-type: none"> <li>• Wealth</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
	<ul style="list-style-type: none"> <li>• Markets</li> </ul>	<ul style="list-style-type: none"> <li>• Markets reported to be satisfactory except for cotton. Buyers come to buy in the villages.</li> </ul>
	<ul style="list-style-type: none"> <li>• Dependence on natural resources</li> </ul>	<ul style="list-style-type: none"> <li>• Dependence on building poles, thatching grass and fuel wood is over 80%</li> <li>• Dependence on game meat and medicinal plants is around 25%.</li> <li>• Potential economic opportunities are crop cultivation, wage employment, small business, vegetable cultivation, game meat, handcraft and tourism. Handcraft scored the highest perception in potentiality (36% of the villagers)</li> <li>• Availability of game meat is reported to be declining and described to be low by 77% of the villagers. Main reasons given include declining of wildlife populations.</li> </ul>
	<ul style="list-style-type: none"> <li>• Economic</li> </ul>	<ul style="list-style-type: none"> <li>• Potential economic opportunities are crop cultivation, wage employment, small business, vegetable cultivation,</li> </ul>

	potentials	game meat, handcraft and tourism. Handcraft scored the highest perception in potentiality (36% of the villagers)
Social	<ul style="list-style-type: none"> <li>Ethnic composition</li> </ul>	<ul style="list-style-type: none"> <li>Wide diverse in ethnic composition – on the average more than 11 ethnic groups except for Sangaiwe which have 7.</li> <li>Main occupations in the village are crop cultivation, Livestock keeping, agro-pastoralism and business</li> <li>Livestock keepers are mainly Maasai and Barbaig who are nomadic</li> <li>Most of the other groups keep a few animals and cultivate crops.</li> <li>Those who are mainly involved in business are the fisherpersons</li> <li>High immigration rated with 23% of the immigrants coming from outside the District.</li> <li>Reasons for immigration are to explore farming opportunities (45%), employment (18%) and livestock keeping (9%). Others include villagelisation, education and business.</li> <li>Ritual sites and Taboos exist as traditional institutions at Mlima Almasi but due to the heterogeneity of the society these institutions are not strong.</li> <li>78% of the villagers perceive WMA concept simply as participation while 20% perceived it as benefit sharing.</li> </ul>
	<ul style="list-style-type: none"> <li>Population.</li> </ul>	<ul style="list-style-type: none"> <li>Total population size is reported to be 16,437 persons with Vilima Vitatu and Sangaiwe population below 1,500 and Minjingu and Mwada having over 5,000 persons.</li> </ul>
	<ul style="list-style-type: none"> <li>Access to market</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
	<ul style="list-style-type: none"> <li>Access to water facility</li> </ul>	<ul style="list-style-type: none"> <li>Water quality and quantity is said to be the main problem in the villages with the intensity of the problem varying with season being severe in the dry season.</li> <li>Mains sources of water include taps, well, rivers, streams and springs.</li> <li>Over 50% of the villagers rely on village wells. Tap water is only available at Mayoka village and serves 18% of the villagers. About 13% of the villagers have dug their own wells</li> </ul>
	<ul style="list-style-type: none"> <li>Accessibility and transport</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
	<ul style="list-style-type: none"> <li>Access to health facility</li> </ul>	<ul style="list-style-type: none"> <li>Medical facilities reported to be inadequate. However Mayoka and Vilima Vitatu each has a dispensary run by religious institution.</li> <li>Mwada has one dispensary with a capacity of 5 birds.</li> <li>Most dominant diseases are water/sanitation related. Other diseases are either air borne, sex related or originate from worm infestation.</li> </ul>
	<ul style="list-style-type: none"> <li>Education facilities</li> </ul>	<ul style="list-style-type: none"> <li></li> <li>Each village has a primary school and there is one secondary school.</li> <li>Deficits in classrooms and desks were reported though not quantified.</li> </ul>
	<ul style="list-style-type: none"> <li>Governance</li> </ul>	<ul style="list-style-type: none"> <li>About 82% of the villagers are satisfied on the performance of the village government.</li> <li>Regular reporting of financial matters by the village leadership was confirmed by 92% of the villagers.</li> <li>Gender representation in village governments was averaged at 6 out of 25 members, Sangaiwe village having the highest representation of 11 of the 25 members.</li> </ul>

	<ul style="list-style-type: none"> <li>• Land disputes and conflicts</li> </ul>	<ul style="list-style-type: none"> <li>• All villages have developed bylaws for WMA which await approval by the District Authority (delay to be monitored)</li> <li>• Natural resources related conflicts are reported to be high due to the heterogeneity of the society.</li> <li>• Most conflicts relate to farm boundaries, farming and livestock keeping and between institutions such as village governments and TANAPA.</li> <li>• Conflict resolution mechanism is achieved through traditional institutions (Elders), village governments, ward councils and the court system.</li> <li>• Simple conflicts are resolved at village level while the courts handle the most complex ones.</li> <li>•</li> </ul>
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## IPOLE PILOT pWMA

	Key Issues	Current status
Ecological	-Wildlife species richness	-19 large mammal species -During wet season the WMA is rich in avifauna.
	Other natural resources	-Large reserve of honeybee
	Migration and dispersal areas	-Is a dry season habitat which is shared by wildlife from Ugalla Game Reserve
	Humans-wildlife interactions	-Crop damage from elephants, wild pigs and monkeys is rated at 75% to 100% for Msuva and Ipole villages
	Habitat destruction	-Habitat destruction results from illegal timber harvesting at Ipole
	- Water sources for wildlife	-Ugalla River which is permanent and seasonal water holes
Economical	-Economic activities	-Farming is the major economic activities practised by 100% households. It is followed by bee keeping, which is practised by an average of 30% of all households in the WMA, livestock beeping which important at Idekamiso (75% of all households). Fishing is important at Msuva (20%). Timber production at Ipole and Msuva (20%)
	-Other sources of income	-Non-timber forest products particularly honey acts as source of income with 9 modern beehives in Ipole village - At Utimule village, use of improved beehives is practised
	-Transport and communication	-Daily bus services from Ipole to Sikonge and Tabora. All other villagers have to either walk or use bicycles to Ipole to catch bus services. -Within and between villages, bicycle is the main means of transport. -In each village Between 70% and 80% of households own bicycles -Price of hiring a bicycle is in the range of 500 to 1000 TZS for self and 2500 TZS if a drive is required if one is to travel from Utimule to Ipole.
	-Expenditure	-Average expenditure on food items averages 65% of the income, 16% on medical services and 7% on clothes, There is insignificant expenditure on education, which accounts for 5% at Utimule. At Idekamiso 30% of the income is spent on buying cattle and livestock drugs. -Price for cattle dipping per animal is 50 TZS -The most demanded commodities include sugar, rice, beans, cooking oil, soap, kerosene, bicycle spare parts and oil for skin softening. -Market for land is emerging at Ipole where land rent per season is 2000 TZS per season per acre and bought at 10,000/= per acre

	-Access to markets	-There is no formal market places in all villages, however, all villages sell products to middlemen at Ipole and Msuva -There is a livestock market at Idekamiso.
	-Utilisation of natural resources	-Commonly used natural resources for commercial purposes include timber, fish, bee keeping and grass for making mats and baskets
	- Village income	- Data available on sources of income for village government is for Utimule and include contribution from villages (100,000/=), crop fees (47,720/=), market tax (27,000/=) and others (100,000/=) for year 2002.
	- Village expenditure	-Main expenditure areas for the same village are construction of classrooms (89,200), office expenses (18,200/=), hospitality for visitors (17,600/=), allowances (12,700/=) and debt settlements (69,000/=).
	Land use plans	-All villages have land use plans but without title deeds
Sociological	Ethnic groups	Dominant ethnic groups are Wanyamwezi, Wasukuma, Wanyaturu, Waha and Wafipa. - Wasukuma comprises 75% of the total population in Idekamiso village.
	Migration	-Forces for immigration includes search for pasture and crop production for Wasukuma while others move in to provide labour.
	-Demography	-Total number of households is 1396 with a population of 6965 in four villages (Year not mentioned).
	-Institutional set up	-Traditional institutions (taboos and rituals) are used to regulate natural resources use. At Mpuya, trees are not cut in an area, which used to be burial place for chiefs. -Each village has a lands, natural resources and environment development committee, which regulates the use of natural resources.
	-Facilitators	-A CBO called Hifadhi Mazingira Utimule, Msuva, Ipole and Idekamiso (HIMAUMII) is in place but not yet registered. -Existing Facilitators are Africare, TASAF and MEMEM.
	-Knowledge on the WMA Concept	-There is high level of awareness of the WMA concept
	-Capacity building	-A total of 32 VGSs have been trained and are involved in patrols -Village leaders have received training in leadership through seminars and study tours -All villages have no village government offices.
	-Conflicts and conflict management	- Boundary conflicts between villages were reported at Ipole, Idekamiso and Utimule -The actively used organ in settling natural resources related conflicts is the village reconciliation committee
	-Education	-Ipole, Msuva and Utimule each has one primary school and there is no school at Idekamiso -There are no teacher houses at Msuva and Utimule primary schools

	-Health	-There is only one dispensary situated at Ipole village which serves all the villages
	-Water for domestic use	-Source of water for domestic use in all villages is traditional wells, shallow wells and charco dams. There is pipe system water supply water at Ipole but it is not functioning due to lack of money to purchase fuel.
	-Governance	-Mechanism of collaboration is through regular meetings with stakeholders. -Poor record keeping and management of village government financial resources. - -Females account for 30% at Msuva, 38% at Ipole, 40% Idekamiso to 43% at Utimule of the total members of the committees
	-Community solidarity	-Community solidarity at Ipole, Utimule Idekamiso villages is high but poor at Msuva

## TARIME pWMA

ASPECTS	KEY ISSUES	CURRENT STATUS
ECOLOGICAL	<p>Species richness</p> <p>Habitat quality</p> <p>Source of water for wildlife</p> <p>Natural resources utilisation</p> <p>Human/livestock – wildlife conflicts</p>	<ul style="list-style-type: none"> <li>○ There are 22 animal(very abundant include wildebeest, zebra, Thompson Gazelle and buffalo</li> <li>○ 15 species of birds</li> <li>○ Vegetation communities include woodland, grassland vegetation</li> <li>○ Mara River, which is permanent, serves the two villages. Another river Gongo’la is an additional source for Gibaso village</li> <li>○ Use of resources as following: Building poles 58.5%, Grass thatch 100%Game meat 58.6, Medicinal plants 48.2, Pottery soil 6.9,grazing grass 89.6,firewood 85.5%,charcoal 14.7%</li> <li>○ There are organised bee keeping groups with 15 modern and 33 traditional beehives</li> <li>○ Gold mining on a 20 ha piece of land</li> <li>○ Subsistence fishing in Mara river</li>   <li>○ Destruction of environment through tree cutting, subsistence charcoal making, poaching of wildlife .</li> <li>○ Loss of food crops reported with the elephants the most destructive. Destruction rated at 50 between and 100% of the expected yield year per annum.</li> <li>○ No data on livestock loss.</li> <li>○ Common livestock transmitted by wildlife include: F&amp;MD, Rift Valley fever and rabies, and Dysentery.</li> </ul>
ECONOMICAL	<p>Source of income</p> <p>Access to markets</p> <p>Other economic activities</p> <p>Potential for other economic activities.</p>	<p>Major source of village income Tax retention 300,000 per year</p> <ul style="list-style-type: none"> <li>○ Major occupations: Crop production and Pastoralism the latter being dominant (93.1%)</li> <li>○ Petty businesses identifies shops 3, Kiosks 10, Butcher 1, Tailors 3 and Blacksmiths 3</li> <li>○ Household income also include Remittances for 47.4% of households to the tune of 99,000 per year</li> <li>○ Transport poor. 15 km. From the main road</li> <li>○ Access to markets difficult owing to poor transport</li> <li>○ A village land use plan in place in place</li> </ul>

		<ul style="list-style-type: none"> <li>○ Type of houses Cement blocks 6.9%, burnt 24.1, Mud +Poles 44.8, mud bricks 24.1</li> <li>○ Cement and sand 10.3, Earth and clay 89.7%.Roof 41.4,grass 58.6.</li> <li>○ Average house value 30,000</li> <li>○ Opportunities for economic activities include Tourist photograph and cultural Boma</li> <li>○ No formal credit facilities.</li> </ul>
SOCIOLOGICAL	<p>Common human diseases</p> <p>Demography</p> <p>Ethnicity</p> <p>Social services</p> <p>Migration</p> <p>Institutional set up</p> <p>Governance</p> <p>Understanding of the WMA Concept</p>	<ul style="list-style-type: none"> <li>○ Common diseases: Malaria, pneumonia, intestinal worms, STIs, ARI and diarrhoea.</li> <li>○ Kurya constitute 99% of the population in Gibaso The other 1% is made up of the Wagogo, Waha, Wasukuma, Wajaluo Wahehe and Wajita</li> <li>○ Total population in the two villages is 12681 (Gibaso 8458 and Mrito 4123) There are 641 and 1690 households in Merit and Gibaso respectively</li> <li>○ Average HH is 6.4 in Merit and 5 in Gibaso</li> <li>○ In and out migration is very insignificant. 85% were born and raised in the ward while 13% come from another ward in the same district</li> <li>○ Two primary schools in Gibaso village boys 663 and girls 514. Shortage of teachers one school 798 pupils (4) out of 14 teachers the other 379 (4 teachers)</li> <li>○ Literacy low 34.5.5 no education and 44,8 Primary</li> <li>○ Water supply from River Mara, which is permanent. Other source is boreholes which dries up during dry season. Percentages: Village Kiosk 22%, Own source 7.4 Village well 24.1 Rivers and streams 46.3, ponds and dams 1.8, Spring 5.4</li> <li>○ One dispensary in Gibaso</li> <li>○ Traditional institutions for ritual purposes.</li> <li>○ Village government constituting of 25 members. Committees include Defence and security, Finance and planning, Community development and social services and Village natural resources Committee</li> <li>○ No CBOs but there is a church based women group</li> <li>○ Only few aspect of WMA understood community participation 28.6, Benefit sharing 40.8,resourcesconservation 30.6.</li> <li>○ Poor office building</li> <li>○ By Laws in place</li> <li>○ No CBO except for a woman group which is church based</li> <li>○ Conflict exist e. g. farm boundaries between households, between villagers and a miner who has taken 600ha and suspected to have bribed the village chairman</li> <li>○ Villagers do not have faith on the government because of the above</li> <li>○ Conflict resolved through “RETONGO” council of elders, village government</li> </ul>

## TWATWATWA pWMA

ASPECTS	KEY ISSUES	CURRENT STATUS
ECOLOGICAL	Species richness	<ul style="list-style-type: none"> <li>○ There are 22 animal species and 39 species of bird.</li> </ul>
	- Habitat quality	-Vegetation communities dominated by woodland, open grassland and riverine vegetation
	- Source of water for wildlife	- There are two perennial rivers namely Mkata and Wami, one seasonal river (Mgomberenga River), four man-made water dams (Ngoisani, Twatwatwa, Manzi Mmoja and Sangarami)
	- Natural resources utilisation	<ul style="list-style-type: none"> <li>- Use of forest resources is for firewood, building poles, medicinal plants, thatch grass, honey collection, game meat, fruits and construction of bomas</li> <li>-Destruction of environment through tree cutting, subsistence charcoal making, poaching of wildlife and destructive fishing is on the rise in and around the pWMA.</li> </ul>
	- Human/livestock – wildlife conflicts	<ul style="list-style-type: none"> <li>-Loss of food crops from Baboons, velvet monkey, elephants, wild-pig is rated at 50 hectares per annum.</li> <li>-Livestock loss for the past three years (2001 –2003) is 26 cows and 27 small stocks.</li> <li>-Common livestock disease are: FMD, ECF, and Dysentery</li> </ul>
Economical	- Source of income	<ul style="list-style-type: none"> <li>-The village gets income from village levy, fines, cess from petty trade and donor support. Income in 2002 stood at TZS 11,700.000/=</li> <li>- There is insignificant income contribution from the natural resource sector</li> </ul>
	- Access to markets	<ul style="list-style-type: none"> <li>- Transport infrastructure is poor</li> <li>-Therefore, access to markets is a constraint to villagers</li> </ul>
	- Economic activities	<ul style="list-style-type: none"> <li>-Main occupation of the people is livestock keeping (cattle, goat and sheep</li> <li>- Cultivation uses oxen ploughing technology</li> <li>- Petty business involves two kiosks, milk selling and beads weaving/selling</li> </ul>
	Development initiatives	- A village development plan is in place
	Potential for other economic activities.	-Opportunities for economic activities includes: tourist and resident hunting, bee keeping, live animal capture for sale, and fish farming.
SOCIOLOGICAL	Demography	<ul style="list-style-type: none"> <li>○ Population trend shows a positive change. By 2002 there were: 6,814 males, 7,082 females and 3.133 HHs.</li> <li>○ Average HH size is 4.4 persons</li> </ul>
	- Migration	<ul style="list-style-type: none"> <li>○ - There are few in and out migration. Seasonal movements in search of pasture takes place in the dry season</li> </ul>
	- Ethnicity	- The pastoral Maasai are the dominant ethnic group
	- Institutional set up	<ul style="list-style-type: none"> <li>○ – Traditional institutions are still strong and applied in the decision making in grazing and range management</li> </ul>

		<ul style="list-style-type: none"> <li>○ The standard Village government is functional with established village committees including the environment and natural resources committee.</li> </ul>
	- Progress toward establishing a WMA	<ul style="list-style-type: none"> <li>○ A CBO exists that deals with project planning and implementation at village level</li> </ul>
	- Understanding of the WMA Concept	<ul style="list-style-type: none"> <li>○ Enthusiasm about WMA concept by communities is very high (90.9% of the respondents in favour)</li> <li>○ WMA concept however not well understood.</li> </ul>
	- Governance	<ul style="list-style-type: none"> <li>○ – Meetings are regularly being called and reports on income and expenditure are presented to the village assembly</li> <li>○ Attitude of solidarity and participation in community development initiatives is very high</li> </ul>
	- Common human diseases	-Top four diseases include: Malaria, coughing, diarrhoea, and d dysentery.

#### TUNDURU PWMA

	Key Issues	Current status
Ecological	-Extent and size of the PWMA	<ul style="list-style-type: none"> <li>- Comprises 10 villages with an estimated area of more than 848 Km<sup>2</sup></li> <li>- Villages are not surveyed</li> <li>- According to villagers there are 39 animal species</li> </ul>
	-Wildlife species richness	- No information on animal populations and hence difficulty in establishing trends
	-Wildlife movements	- Nine mammal species are reported to migrate which include elephant, buffalo, sable antelope, lion, wild dog, eland hippo, wildebeest and zebra but this migration does not specify whether local or seasonal
	-Habitat types and quality	- Vegetation types include forest, woodland, grassland and aquatic vegetation but their percent not indicated
	-Water sources for animals	- Main water sources for wildlife are Rivers springs and ponds/dams – most of which are permanent.
	- Natural resources utilisation	<ul style="list-style-type: none"> <li>- Natural resources use includes tourist hunting, hunting for meat subsistence fishing and firewood for tobacco curing. 1 m<sup>3</sup> of fuel wood is estimated to cure tobacco from an area of 0.5 acres.</li> <li>- Quota is 100% for buffalo, hartebeest and eland. It is very low for pigs and warthog.</li> <li>- Threat to habitat emanate from cutting for firewood and timber, clearing land for agriculture and unplanned fires from poachers and honey gatherers</li> </ul>

	- Wildlife-human interaction	<ul style="list-style-type: none"> <li>- Crop damage is a problem in all villages which is as high as 50% crop loss and major raiders are elephants, yellow boon and bush pig</li> <li>- Frequency of incidences for human deaths from lions, leopard, crocodiles, buffalo, hippo, hyena, elephant and jackal range between 2 to 3 per village per year</li> <li>- Frequencies of livestock attack incidences from wildlife are highest at Hulia, which ranges between 10 and 20 for hyena and leopard.</li> <li>- Rabies is the only zoonotic diseases reported in the area and is said to be transmitted from jackals.</li> </ul>
	-Poaching	<ul style="list-style-type: none"> <li>- Both subsistence and commercial poaching are at low level. Wire snares and ropes are used in subsistence poaching.</li> <li>- 257 pieces of snares were collected at Hulia, Mbungulaji and Ndenyembe and 10 kg at Namwinyu village by VGS</li> </ul>
Sociological	- Demography	<ul style="list-style-type: none"> <li>- Average size of households is 7 persons</li> <li>- Females head 6% of Households.</li> </ul>
	- Occupation	<ul style="list-style-type: none"> <li>- 94% are farmers, casual labourers and 1% bee keepers</li> </ul>
	- Other social services	<ul style="list-style-type: none"> <li>- Hulia, Namakungwa, Namwinyu and Daraja Mbili have access to public service transport served 7 times per week during dry seasons</li> <li>- Every village has at least one mosque and 2 shops/kiosks.</li> </ul>
	- Education	<ul style="list-style-type: none"> <li>- Each of the 10 villages forming a PWMA has a primary school</li> <li>- Education profile for household heads is 27% no formal education, 18% not completed primary education, 51% completed primary education, 2% secondary and 1% completed vocational training.</li> <li>- Primary enrolment ranges from 107 pupils at 572.</li> <li>- Ratio of boys and girls is 1:1</li> <li>- Deficit of teachers ranges from 1 to 7.</li> <li>- Classroom deficit ranges from 1 to 7.</li> <li>- Desk deficit ranges from 8 to 119.</li> </ul>
	- Health services	<ul style="list-style-type: none"> <li>- Health services either a dispensary or health centre is available only at Ndenyende, Hulia and Namwinyu villages.</li> </ul>
	- Source water for domestic uses	<ul style="list-style-type: none"> <li>- About 61% of all households get water from rivers for domestic uses from rivers and streams.</li> <li>- Another source of water for domestic use is wells.</li> </ul>
	- Ethnic groups	<ul style="list-style-type: none"> <li>- Wayao and Wandendeule are the major ethnic groups. Wangoni are reported at Hulia and Twende Mbele.</li> </ul>
	- Migration status	<ul style="list-style-type: none"> <li>- Migration is confined to movement within respective region, districts and wards</li> <li>- Both immigration and out-migration involve whole family and not individuals. Migrating families are those headed by relatively young males.</li> <li>- Migration rate ranges from 2 to 10%.</li> </ul>

	- Governance	<ul style="list-style-type: none"> <li>- All village governments have all the committees and both females and males and young and old comprise these committees.</li> <li>- The number of females in the village government varies from 2 at Raha Leo to 7 Hulia.</li> <li>- Village assembly meetings range from one to three while village government committee meetings vary from 2 to 8.</li> <li>- 33%, 17%, 33% and 17% of total households respondents Village Governments' Performance is very good, good, moderate and not good respectively.</li> <li>- 33% 17%, 17% and 33% responded that Finance Management is very good, good, moderate and not good respectively.</li> <li>- 0%, 67%, 17%, and 17% of all households rated the natural resources committee as very good, good, moderate and not good respectively.</li> </ul>
	- Awareness of WMA concept	<ul style="list-style-type: none"> <li>- Awareness on WMA concept by the villagers is high.</li> </ul>
	-Natural resources conflicts and conflict management	<ul style="list-style-type: none"> <li>- Natural resources accessed are land, forest, game, fisheries (6 out of 10 villages), and bee keeping (3 out 10 villages).</li> <li>- Many conflicts on resources are resolved by elders, village government and rarely in courts of law.</li> <li>- Acquisition of land is through village authority for building plots and host family for farming land.</li> </ul>
Economical	-Main sources of income	<ul style="list-style-type: none"> <li>- Agriculture (78.5%), small business (11.1%) wages employment (7.0%) and handicraft for sale (3.0%).</li> <li>- Agricultural crops are maize, rice, beans, cassava and cashew nut.</li> <li>- Farming is shifting cultivation is rain-fed, use of hand hoe, low level fertiliser application</li> <li>- Engagement in these activities change according to seasons whereby more allocated to agriculture during wet season.</li> </ul>
	-Other sources of income	<ul style="list-style-type: none"> <li>- Small business includes running of kiosks, food vending, butchery, tailoring and shops.</li> <li>- Prices for crops are 7400/= per bag for maize, cassava is 4,000/= per bag, rice is 7,200/= per bag, cashew nut 18,000/= per bag and tobacco is 528/= per Kg.</li> <li>- Private traders buy entire crops both cash and food crops in villages</li> <li>- Business/jobs and or part time work contributed to an average of 17,920 TZS with the lowest being 10,000 TZS and highest 60,000 TZS (n=9) per year.</li> <li>- 17.6% of respondents receive money in form of gifts/remittances</li> </ul>
	-Households earning	<ul style="list-style-type: none"> <li>- Earnings for majority is between 30,000 to over 200,000 TZS and higher income levels are between 200,000 and above 500,000 TZS per year.</li> </ul>

	-Credit /Bank facilities	- No bank facilities, the nearest is located at Tunduru town, which is 60 km away over the poor road system. - Credit is in form of informal sources such as friends and business people.
	Transport and communication	- 80% of the villages complain that road and transport infrastructure is poor.
	-Access to markets	- More than 80% indicated that the markets are available but not readily accessible.
	-Houses as proxy for livelihood	- Most of the houses are of low quality constructed from mud and poles, thatched with grass. Use of burned bricks is low.
	-Natural resources values	- Importance of natural resources is ranked as forest being the highest, followed by wildlife and then agricultural land. - Utilisation of these natural resources is in the order of game meat (26.7%), thatch grass (25.5), building poles (22.8%), medicinal plants (11.9%), grassing grass (8.9%) and pottery soil (3.9).

#### WAMI-MBIKI PILOT pWMA

	Key Issues	Current status
Ecological	Size and status of PWMA	-PWMA comprises 24 villages
	Wildlife species richness	- 22 wildlife species are reported
	Wildlife populations	- 280 buffaloes - 820 Greater Kudu - 500 elephants - 1,035 Giraffe - 13404 Impala - 814 Zebra - 763 Waterbuck - 200 Eland - 4410 Hartebeest - 300 Sable antelope - 1,076 Southern reedbuck - 603 Bushbuck - 1,665 Stein buck - 2,877 Warthog
	Migration patterns	Seven wildlife species including Greater Kudu, Elephant, Eland, Buffalo, Hippopotamus, Giraffe and Zebra migrate seasonally
	Poaching	- Reports on illegal hunting and overexploitation of wildlife species and fisheries
	Habitat quality	Miombo woodlands, forests, wooded grassland and riverine vegetation
	Habitat destruction	- Bush fires are rampant
	Human-livestock-wildlife interactions	- 25-50% of expected harvests per season are damaged by wildlife and mainly by wild pigs and bush buck

	Natural resources utilisation	Firewood, thatch grass, poles, ropes, medicinal plants, timber, honey, grass for mats and baskets, mushrooms, wild vegetables and fruits, fish, water, pastures and charcoal
	- Water sources for wildlife	-Wami River is a permanent and Mbiki River is seasonal.
Economical	-Major sources of income	-Farming, charcoal making, livestock keeping, salaried employment, fishing, bee keeping and timber harvesting
	-Market and transport infrastructure	- Seven villages are serviced by seasonal road, five are connected with all weather road and 4 villages lie along or close to a tarmac road. Six villages have daily bus service while 2 villages are served with irregular bus services.
	Wealth status	205 households are ranked to rich category, 1281 middle and 936 as poor.
	-Other economic activities	Petty trade is a minor economic activity and the major activities in this group are shop keeping, kiosks and food vending.
	Potential for other economic activities	<ul style="list-style-type: none"> <li>- Photographic tourism</li> <li>- Bee keeping (honey and wax)</li> <li>- Eco-tourism</li> <li>- Resident hunting</li> </ul>
Sociological	Ethnic group composition	There are 13 main ethnic groups namely, Wazigua, Wakwere, Waluguru, Wamasai, Wagogo, Wanyakyusa, Wangoni, Wahehe, Wapare, Wandengereko, Wakaguru, Wayao and Wachaga.
	Human population	- Total population is 26,766 divided into 13, 942 females and 12,826 males.
	Migration patterns	In migration is high from Dodoma, Arusha, Iringa and Mbeya regions.
	Social facilities	<ul style="list-style-type: none"> <li>-Every village has a primary school except Kinzagu and Mkono wa Mara villages</li> <li>-Only three villages have dispensaries</li> <li>- A few villages have no government offices. Some have offices of poor quality built with mud and grass thatched. Few villages have good offices.</li> </ul>
	Water sources for humans and livestock	<ul style="list-style-type: none"> <li>-Most villages use shallow wells (in all 21 wells).</li> <li>- There are also 5 dams, Mziha River and a borehole with piped network in one village.</li> </ul>
	-Conflicts and conflict management	<ul style="list-style-type: none"> <li>- Conflicts exist between Mtibwa Sugar Company and farmers, livestock keepers and cultivators, distribution of defunct Dakawa NAFCO assets, farm boundaries among people and among villages.</li> <li>-Natural resources related conflicts are resolved by the natural resources and environmental committees also the Ward tribunal exists.</li> </ul>
	Facilitators	<ul style="list-style-type: none"> <li>-Wami-Mbiki Community Based Organisation.</li> <li>- TASAF, DANIDA, STOAS (a catholic foundation), Danish Hunters Association.</li> </ul>
	Institutional set up	<ul style="list-style-type: none"> <li>-Traditional institutions/taboo existing for rituals</li> <li>- There is a village government with three main committees in all the villages. The village assembly is also held as per schedule.</li> <li>-By laws are in place. However there are no land use plans in all villages.</li> <li>- There are trained villages scouts.</li> </ul>

	Credit facilities	-One Micro finance institution known as Foundation for International Community Assistance exists (FINCA).
	Awareness and knowledge of the WMA	- Generally the villagers have an idea about WMA

### ENDUIMET PILOT WMA

	Key Issues	Current status
Ecological	Wildlife species richness	-31 large mammal species reported and 20 bird species sighted.
	Wildlife populations	-Numbers are not available but 11 wildlife species are reported to be abundant in particular during wet seasons
	Wildlife migration patterns	- About 11 animal species seasonally migrate within and across the 8 villages forming the PWMA and most of the migratory species are still intact.
	Habitat types	- Five habitat types identified are: grassland, wooded grassland, woodland, bushed grassland and montane forest. - Data on size of each habitat type not available
	Water sources for wildlife	- 1 permanent dam, two water troughs and 6 seasonal rivers.
	Utilisation of other natural resources	- Fire wood and poles are collected after obtaining a permit from the village government - Charcoal making in two villages; Tingatinga and Ngereiyen but controlled by Village Government - Traditional bee keeping is practised in two villages with about 80 beehives. Training on modern bee keeping is going on at Kitenden and Lerangwa - Fish farming is practised in dams at Sinya and Kitenden villages - Shrubs and trees are used as medicine for both humans and livestock
	Wildlife-humans interactions	-Between 50% and 60% of expected maize, beans and wheat harvests are damaged yearly and animals involved are elephants, buffalo, zebra, eland, baboon, porcupine and dikdik. - Leopard, lion, hyena and cheetah killed about 75 cows and 1060 small stock in year 2002. - Two human deaths and 20 injuries were caused by elephants in 2002 - Diseases transmitted between wildlife and livestock include ECF, F&MD Anthrax, MCF, CBPP, Brucellosis, Tuberculosis and Mange,
Economical	Main economic activities	-Livestock keeping, crop production, petty business and tourism related activities.

	Household income	-Average household earnings per month is estimated at less than 30,000 TZS while 20% earn more than 30,000 TZS.
	Village income	- Tourist hunting and photographic safaris are among the tourist related activities in the area. In three villages (Lerangwa, Olmolok and Sinya) tourism contributed 44.4%, 27% and 100% respectively of the total income of the village.
	Land productivity per unit area	-Productivity of agricultural output is 7 bags of maize and 3 bags of beans per acre.
	Access to markets	-No data for existence of markets.
	Transport and communication	- Roads in 6 villages are accessible throughout the year. In the two villages the roads are accessible only during dry seasons.
	Credit facilities	-There are no formal credit facilities in all villages.
	Economic potential	-Tourist hunting and photographic safaris appeared to be major potential economic activities in the area. Others include wage employment and sale of handicraft.
Sociological	Ethnic groups	-Maasai are the majority with more than 90% in two villages. Other tribes include Wachaga, Wameru, Wapare, Warangi, Wanyiramba and Wambulu.
	Migration patterns	-Emigration of youths into urban areas in search of moneymaking activities was reported. - Other Maasai have emigrated to search for water and pasture or both. - Migration is not a serious issue as 75.4% of population indicate to be born in the area.
	Institutional Set up	-There is traditional and modern institutions. Traditional ones include ritual sites for example, Endumeit hilltop. Some trees are also used for ritual purposes. - Taboos are reported as an effective traditional institution by the Maasai society - Modern institutions include Village Governments
	Facilitators	-There is one women CBO and other facilitating institutions include WISDOM, World Vision and AWF.
	Social facilities	- Every village has a primary school and there are 8 of them in total - Shortage of classrooms in some villages, for example, Lerangwa registered only 54 pupils instead of 90 due to lack of space. - Five villages have dispensaries - The most common diseases are Malaria, diarrhoea, pneumonia, eye infection, dysentery and ARI

	-Conflicts and conflict management	<ul style="list-style-type: none"> <li>- Existing conflicts in the area include: Villagers versus investors on natural resources use in Sinya village, farm boundaries in Olmolog and village boundary in the wildlife corridor between Kitenden and Irkaswa villages. Others are conflict over hunting permit-issuing system in Tingatinga and land designation conflict between Ngereiyan village government and villagers.</li> <li>- Conflict resolution mechanism is the use of traditional leaders/elders village government, ward tribunals and the court system.</li> <li>- Natural resources related the natural resources committee and village game scouts deal with conflicts by using draft by laws.</li> </ul>
	Awareness of WMA concept	-94% of respondents see WMA being about participation, benefit sharing and resources conservation
	Sources of water for domestic use	-Main sources of water include: tap water, rivers, ponds/dams and shallow wells
	-Governance	<ul style="list-style-type: none"> <li>-Village governments are assessed as good because people say that leaders are transparent especially with management of funds.</li> <li>- Gender representation in the village governments is prejudiced against women. Out of 125 in all the villages, there are only 27 women.</li> </ul>

## IDODI-PAWAGA PILOT WMA

	Key Issues	Current status
Ecological	Wildlife species richness	- Wildlife species found include; buffalo, impala, zebra giraffe, elephant, Kudu, hartebeest, sable antelope, warthog, Waterbuck, hippopotamus, monkey wild pig, lion, wild dog, baboon, jackal, dikdik, crocodile, ostrich, hyena, leopard and cheetah.
	Other natural resources utilisation	-Access to natural resources for domestic use is without permit but utilisation for business, permit is issued by the Village Council and for hunting and logging licenses are obtained from the District Council - Fire wood is used by 78% of total households, charcoal by 8%, building poles, timber and thatch grass by 8%. Other resources utilised include wild vegetables, ropes, medicine, honey and fruits.
	Humans-wildlife interactions	- Crop raiding is a problem in all villages. About 25% of the crops cultivated are destroyed.
	Hunting quota utilisation	- There is no tourist hunting and data on domestic hunting are not available. However, MBOMIPA has developed a system for tracking and monitoring hunting in the area.
	Poaching	-Each village has 2 village game scouts for protecting the PWMA but protection has been ineffective due to poor working facilities such as communication, transport, uniform and ration
Economical	-Main sources of income	-Agriculture, livestock keeping and wildlife-related income. 90% of the villagers are crop cultivators or mixed farmers. - Rainfed and irrigation agriculture is practised and the area under irrigation is 275 ha in Idodi and 1250 ha in Pawaga respectively. - Rice and vegetables are the food security and source of income and shifting cultivation is still practised. - 14 out of 19 villages are experienced land scarcity, thus prices for land lease ranges between TZS 15,000 and TZS 30,000 per acre for one season - Average income from agriculture is TZS 168795 per annum - Because of inadequate land for grazing, livestock population is rated low in 5 villages (less than 100 cows), moderate in other 5 villages (101-200 cows), and high in the remaining 9 villages (more than 200 cows).
	-Other economic activities	-Subsistence fishing, bee keeping, carpentry, charcoal burning and petty business. - Remittance is another source of income and 24.7% of the households depend on it as one source of income. Which is estimated to be TZS 41,956 on average
	-Village income	-Average income for Village Governments is TZS 1,634,711 per year per village. 74% of the village's revenue comes from MBOMIPA.

	Land productivity	-Farms range between 10 and 20 acres per household and crop yield shows a declining trend in 11 village and an increasing trend in 8 villages. - Productivity decrease may have negative influence on conservation
	-Access to markets	-Markets is through private traders (middlemen) and open markets.
	Households expenditure	-Priority on expenditure at household level is on buying food, health services, and education and farming costs. However a large portion is consumed on health and education.
	Transport and communication	-Transport is very poor more so during the wet season. Each Division depends on one bus only.
	Economic potential	-Opportunities for other sources of income are fish farming, photographic tourism, tourist hunting, resident hunting and trade on live animals.
Sociological	Ethnic groups	-Original tribes were Wahehe and Wagogo. Settled immigrants are Wabena, Wanji Wakinga, Wasafwa, Wasangu, Wakimbu, Wanyamwezi, Wangoni and Wasukuma.
	Migration patterns	- 28% of immigrants moved in for irrigation agriculture. - Male emigration is estimated at 38.9%
	Human demography	-Average household size is 4.2 people. 70.1% of the households is headed by males and those headed by females is a result of husband dying or divorce. - Population has increased by 29% between 1988 and 2002. - Dependence ratio is 2.5
	-Facilitators	-MBOMIPA; a registered CBO - Other facilitators are DANIDA, TANAPA, CONCERN and various religious organisations - Ruaha and Udzungwa National Parks and Lunda Mkwambi GCA are economic agents
	-Institution set up	-Village Government structure is prevalent. Various committees exist including one on natural resources/environment Political positions are mixed with government leadership positions.
	-Capacity building	-Leaders are not trained
	-Conflicts and conflict management	- Pronounced land use conflict in the area is between farmers and livestock keepers and these are resolved at the Village Government level.
	Social facilities	-Only two villages (Mkombilenga and Mbuyuni) have no schools. The rest villages have at least one primary school each. - Teachers, classrooms and desks are inadequate. - Limited health services; Makifu Nyamahana, Mbuyuni and Magozi lack health centres. Common diseases are water borne including diarrhoea, dysentery and typhoid) and Malaria.
	Governance	-Meetings are not called and income and expenditure reports are not given to the village assembly
	-Knowledge on the WMA concept	-WMA concept is well understood (90% responded that they understand)
	-Water for domestic use	-Tape water is available but not adequate. Water supplement is obtained from rivers.

## UKUTU PILOT WMA

	Key Issues	Current status
Ecological	Extent and status	-PWMA has an area of 750 Sq. km and is located in low-lying flood plains.
	Wildlife species richness	- The most common species are zebra, hartebeest, impala, Waterbuck, giraffe, lion, eland, reedbuck and elephant. - Less common species are sable antelope, hippopotamus, wildebeest, buffalo and leopard
	Wildlife population	Neither wildlife numbers nor trends data were available
	Wildlife migration	- Seasonal movement of large animals from Selous GR and Mikumi NP to Gonabisi area
	Quota utilisation	- Main form of wildlife utilisation is tourist hunting. Quota given is 63 buffalo and 210 wildebeest - In year 2001, 16 crocodiles were killed and 14 skins were sold but no account on revenue was given
	Poaching	Poaching is not a big threat. Between 2000 and 2002, a total of 8 wildebeests, 12 gazelles, 3 reedbuck and 10 impalas were poached
	Other natural resources utilisation	-Subsistence fishing and low scale timber harvesting
	Human-wildlife interactions	-The major interactions are negative whereby animals raid crops and cause human assault mainly by elephants - Between 1999 and 2000, 21 people were killed, 50 wounded and 56 livestock killed by crocodiles - Crop damage ranging between 1-35% of total expected harvests is recorded every year - Expansion of crop field around the PWMA is a threat. Fields are within 1 to 2 kilometres inside the PWMA boundary
	- Water sources for wildlife	-Four permanent rivers which are Mgeta, Duthumi, Ruvu and Mbuha. Seasonal ponds are Kengezua, Bigiza, Palala, Mkese and Nyabigado.
Economical	-Main sources of income	-Agriculture, livestock keeping, petty trade and fishing - 50% of the farmers do crop production alone, 31% combine farming with business and 7% combine livestock keeping and farming - 95% of the communities practice extensive (slash and burn) cultivation
	Land productivity	-Lowest yield in maize production was reported to be 6 bags per acre and highest 10 per acre. -Productivity was reported to be declining for the past 12 years.

	-Other sources of income	<ul style="list-style-type: none"> <li>- Average dependence on natural resource products is reported to range between 16.5% and 62% (fire wood (62%), charcoal (27%), building pole (21%), thatching grass (19%) and medicinal plants (16.5%). Others include fruits and game meat.</li> <li>- Illegal harvesting of natural resource products particularly game meat has been reported though not quantified.</li> <li>- Income from wildlife hunting per village for the past 5 years range from TZS 200,000 to TZS 723,000 dependent on quota utilisation.</li> <li>- Bee keeping is reported to be uncoordinated, with low productivity and low prices for be products</li> <li>- Fishing is also not co-ordinated but has a potential for income generation and boosting nutrition</li> </ul>
	-Expenditure	<ul style="list-style-type: none"> <li>-About half of the village income is reported to be used on management and protection of future WMA</li> <li>- Estimates of money spent by villages on management and protection range between none to 300,000 per village.</li> <li>- Estimates of village funds spent on development activities range from TZS 3,750 to TZS 167,000</li> <li>- In terms of percentages, the proportion of village income spent on protection and management is estimated to be 50% on average while about 15% was spent on development activities</li> </ul>
	Households income	<ul style="list-style-type: none"> <li>-31percent of all households earn less than TZS 60,000 per year while 15% earn more than TZS 300,000 per year.</li> <li>- Over 80% of villagers were reported to be poor (using assets as an indicator of wealth)</li> </ul>
	Hunting quota utilisation	<ul style="list-style-type: none"> <li>-Only 25% of allocated quota is utilised depriving villagers of income and access to game meat</li> </ul>
	Access to market	<ul style="list-style-type: none"> <li>-Markets for farm produce such as maize and rice was reported to be poor and that of sesame was unreliable.</li> <li>- High transport costs for farm produce to urban markets have discouraged farmers from utilising urban markets</li> </ul>
	Facilitators	<ul style="list-style-type: none"> <li>-SEBO Tourist Tented Camp and Kidunda Intercon Adventure Safaris were reported to be existing economic agents.</li> <li>- These investors often provide humanitarian assistance to villagers besides operating on commercial grounds</li> <li>- The relationship between the investors and villagers has not developed to the level of having joint ventures.</li> </ul>
	Land use plans	<ul style="list-style-type: none"> <li>-Only 10 out of the 22 villages have land use plans with measured land use areas</li> </ul>
	Credit facilities	<ul style="list-style-type: none"> <li>Formal financial credit facilities are not available</li> </ul>

	Economic potential	<ul style="list-style-type: none"> <li>- Potential for improved earnings from tourism through optimal utilisation of existing hot springs reported</li> <li>- Potential for photo tourism exists and it is estimated that the activity can generate about US \$ 36000 per year (regional estimates and not specific to PWMA)</li> <li>- To realise this potential lease contracts and conditions need to be prepared and spelled out clearly</li> <li>- Game cropping and sport hunting can also increase local income and improve the nutritional status at village level</li> </ul>
Sociological	Human population	<ul style="list-style-type: none"> <li>-Total population in the PWMA is 64,083 people distributed in 14,139 households and an average of 5 persons per household.</li> <li>- 23% of total households are female headed as result of divorce or widowhood</li> </ul>
	Ethnic groups	-About 7 ethnic groups exist.
	Migration patterns	<ul style="list-style-type: none"> <li>-Immigration into the PWMA accounts for about 16% of the total population</li> <li>- 24% of the immigrants come in search of agriculture opportunities</li> </ul>
	Institutional set up	-The Village Government with the main three committees is in place. Natural resources sub-committee is also operating.
	Social service	<ul style="list-style-type: none"> <li>-Except for Bwira Juu village, all other villages have 1 primary school each which are reported to be in bad shape.</li> <li>- The PWMA has 2 secondary schools located in Nyarutanga and Milengwelengwe villages.</li> <li>- The primary school in Mngazi and Vigolegole are reported to be inadequate in terms of desks, classrooms and teachers houses.</li> <li>- 9 out of 22 villages have either a dispensary or a health centre. The villages are Mngazi, Vigolegole, Mvuha, Bonye, Mbwade, Kisasi Station, Gomero, Nyarutanga and Magogoni.</li> <li>- Common human diseases reported include Malaria, typhoid and diarrhoea. Malaria affect at least 75% of the total population.</li> <li>- On average each village has about 4 kiosks/shop but are reported to be inadequate. However, four villages namely Kiganila, Bwira Juu, Kiburumo and Bwira Chini do not have any.</li> </ul>
	Water sources for domestic use	- Main water sources are wells and rivers. However in Bwakila Chini and Dakawa tap water are available and in Kongwa and Tulodo there are no rivers.
	-Conflicts and conflict management	- By laws are in place thus, natural resources related conflicts are resolved by the Village Government and the natural resources committee.
	Facilitators	- Jukumu is the only CBO existing in the PWMA.
	Governance	-It is reported that there is a serious weakness of governance in all villages. However, the community in each village is involved in drawing up annual budget for the money accruing from quota utilisation.

## LOLIONDO pWMA

	Key Issues	Current status
Ecological	Extent and status	- Six villages form the pWMA but size of land allocated by each village is not available.
	Wildlife species richness	- 36 species of mammals and 41 species of birds were reported and sighted respectively during the period of study
	Wildlife population	-Wildlife populations are not reported but four species, wildebeest, buffalo, zebra, gazelle are reported to be very abundant. Abundant species are impala, hartebeest, bushpig, blue monkey and Eland. Leopard, lion and wild cat are said to be very few.
	Wildlife migration	- The pWMA is an important wet season habitat for migratory species of the Serengeti ecosystem - Migratory routes are rated to be intact
	Quota utilisation	Quota utilisation for the past five years ranges between 20% and 50%
	Poaching	- Subsistence poaching is on wildebeest, eland, gazelles, topi, impala and hartebeest - Zebra, elephant, leopard, lion and topi are hunted for commercial purposes and sophisticated weapons are used
	Other natural resources utilisation	- Other natural resources utilisation include medicinal plants and bee keeping with traditional hives,
	Habitat type	- Grassland, open woodland, closed woodland, open and thick forest
	Habitat destruction	- Tree cutting for both charcoal making and major houses construction is not reported
	Human-wildlife interactions	- The major interaction threat is disease transmission between wildlife and livestock - Livestock predation is a normal issue
	- Water sources for wildlife	- 49 seasonal rivers, 4 permanent rivers and ponds during dry seasons - Available water sources are shared by people, livestock and wildlife
Economical	-Households main sources of income	- Livestock keeping
	Village sources of income	- Average income from hunting per village in a year is 3.0 millions - Average revenue from photographic tourism per village in a year is 4.0 million
	-Other households sources of income	- Farming, employment and petty trade include running of kiosks, shops and tailoring
	-Expenditure	- Main expenditure areas are construction of schools, health facilities, roads and provision of water
	Land use plans	- Land use plans are not yet prepared
	Credit facilities	- No formal credit facilities available
	Economic potential	- Hunting and photographing are ranked high in all villages as economic potential

Sociological	Ethnic groups	- Maasai account for 90% of all ethnic groups in the pWMA
	Institutional set up	Institutional set up include traditional (rituals and taboos), by laws on natural resources, village government, courts and police
	Social service	<ul style="list-style-type: none"> <li>- Scant information on educational parameters</li> <li>- Two villages have no dispensary</li> <li>- Common human diseases are Malaria, pneumonia, Sexual transmitted diseases, acute respiratory, diarrhoea, skin diseases and scurvy</li> </ul>
	-Conflicts and conflict management	<ul style="list-style-type: none"> <li>- Boundary disputes between TANAPA and Mayoka village and those between villages on land uses and cultural differences</li> <li>- Mechanisms for conflict resolutions are: village government, traditional authorities (although weakening), political leaders, District Commissioner Courts</li> </ul>
	Facilitators	- There exists a number of CBOs
	Awareness on the concept of the WMA	<ul style="list-style-type: none"> <li>- Awareness on WMA concept is very low</li> <li>- Negative attitudes towards wildlife by villagers</li> </ul>
	Governance	- Women representation in Village Government is 24% in three villages

## NGARAMBE-TAPIKA pWMA

Ecological	Key Issues	Current status
	Wildlife species richness	- 39 species of large mammals and reptiles are reported
	Wildlife population	- Wildlife numbers are not available but populations were reported to be increasing except for hartebeest which was reported to be declining - Greater Kudu are rare.
	Wildlife migration	- Three species which are elephant, wildebeest and buffalo migrate regularly
	Habitat type	- Four habitats identified are woodlands, grasslands, aquatic and forests
	Habitat destruction	- Illegal cutting of trees for timber and shifting cultivation
	Quota utilisation	- Animal species allocated for hunting are buffalo, eland, wildebeest, warthog, impala and bush buck - Average percentage utilisation of animals quota for most species is around 65%
	Poaching	- Poaching for subsistence is relatively very low. Only 14 wire snares were collected in 2001
	Other natural resources utilisation	- Other resources utilisation include bee keeping which is practised in one village with 148 traditional and modern beehives
	Human-wildlife interactions	- Animals involved in crop damage are: elephant, buffalo, baboon, vervet monkey, bush pig, warthog, reed buck and porcupine - Most damaged crops are maize, paddy, sugarcane, sorghum, pumpkins, sim sim and banana - Amount of crop damage is estimated at around 50% of the expected harvests per growing season - Loss of life is not a big problem. One person was reported killed in the past three years - Zoonotic diseases are not reported
	- Water sources for wildlife	- 10 seasonal rivers, 8 permanent ponds/dams, 3 seasonal dams/ponds and 13 permanent springs
Economical	-Main sources of income	70% of villagers depend on agriculture and 13.4% on handcraft sales.
	Land productivity	- Low agricultural productivity due to poor soil fertility. Yield per hectare is reported to be 19 bags for maize, 6 bags beans and 22 bags maize
	-Other sources of income	- 11.6% of villagers do petty trade (8 kiosks, 4 groceries, 1 butcher, 2 tailoring and 1 food vending) 4.7% wage labour and few individuals sell game meat
	-Wealth status	- 16.9% corrugated iron sheet houses and 18.9% mud and grass thatched houses
	Access to market	- Access to market is not reliable
	Credit facilities	- no formal credit facilities available - There is one bank; the National Bank of Commerce

	Economic potential	- Tourist hunting and photographic safaris, handcraft, bee keeping and employment
Sociological	Human population	- Total population for two villages amounted to 3332
	Ethnic groups	- Four ethnic groups are found in the two village namely; Wangindo, Wapogoro, Wahehe and Wagogo
	Migration patterns	- Slightly above 50% percent of all household heads were born out of the area - 17% of households emigrated from the two villages
	Institutional set up	- There exists Village Council, and other committees including natural resources and environmental committee
	Social service	- Each village has one primary school with shortages in teachers houses and classrooms - School enrolment for the two villages stands at 311 - Enrolment ratio of girls to boys stands at 1:1 - One village has dispensary - Poor road infrastructure in one village and accessibility is difficult during wet seasons
	Water sources for domestic use	- 93% of the villages get water from wells
	Conflicts and conflict management	- No conflict over natural resources was reported
	Awareness on the WMA concept	Village Government and village natural resources and environmental members understand the concept of WMA
	Governance	- Village assembly, Village Council and committee meetings are held as schedule - Number of females in Village government is 10 out of 50 in the two villages combined - Management of funds by Village Government was reported to be poor - Benefit sharing mechanism is not clear

## UYUMBU pWMA

Ecological	Key Issues	Current status
	Wildlife species richness	<ul style="list-style-type: none"> <li>○ – Mammal species: elephants, lions, leopards, Kudu giraffe, buffalo, warthog, wild pig, dikdik, monkeys, baboons, hare/rabbits and hyena.</li> </ul>
	Wildlife population	-
	Wildlife migration	<ul style="list-style-type: none"> <li>○ – Uyumbu is a dry season refuge area for wildlife from Ugalla.</li> </ul>
	Habitat type	- Large forests
	Habitat destruction	<ul style="list-style-type: none"> <li>○ – Illegal use of natural resources</li> <li>○ Wild fires during honey collection.</li> </ul> Few settlements
	Quota utilisation	-
	Poaching	
	Other natural resources utilisation	<ul style="list-style-type: none"> <li>○ – No access to game meat for home consumption.</li> <li>○ By laws and permits are issued by the committee for access of resources.</li> <li>○ Selective logging especially for Mninga.</li> </ul>
	Human-wildlife interactions	-
	- Water sources for wildlife	<ul style="list-style-type: none"> <li>○ – Permanent from Ugalla River and seasonal from water holes.</li> </ul>
Economical	-Main sources of income	<ul style="list-style-type: none"> <li>○ – Crop cultivation predominant activity (100% of the HH), followed by traditional bee keeping (59% of the HH), Livestock and fishing involves 21% of the HH.</li> <li>○ Tobacco is a major cash crop.</li> </ul>
	Land productivity	
	-Other sources of income	<ul style="list-style-type: none"> <li>○ – Kiosk, milling machine, honey etc.</li> <li>○ Logging done by outsiders.</li> <li>○ Employment: trade, mason, carpenter, tailoring and bicycle repair.</li> <li>○ Natural resources is part of income source both subsistence and commercial. These include fish, thatch grass, building poles, clay soil, firewood, honey,</li> <li>○ Medicinal plants, fruits and vegetables. Timber, bee keeping and fishing is business resource.</li> </ul>
	Household expenditure	<ul style="list-style-type: none"> <li>○ Priority expenditure is on: food, clothes and medicines. School is not a priority.</li> </ul>
	District income	<ul style="list-style-type: none"> <li>○ Government revenue source is tobacco tax and cess, hunting fee, and market and on timber taxes.</li> </ul>
	-District expenditure	<ul style="list-style-type: none"> <li>○ Village government use of funds is on: construction of schools, village government offices, office expenses and</li> </ul>

	Access to market	
	Credit facilities	
	Economic potential	
Sociological	Human population	
	Ethnic groups	
	Migration patterns	
	Institutional set up	
	Social service	<ul style="list-style-type: none"> <li>○ Poorly serviced.</li> <li>○ Two villages are serviced by two seasonal tracks.</li> <li>○ Only Izimbili villagers have access to bus service at Usoke 6 Km away. Main transport is bicycle (70%-85%).</li> </ul>
	Water sources for domestic use	
	Conflicts and conflict management	
	Awareness on the WMA concept	
	Governance	

**SONGEA pWMA**

<b>Aspect</b>	<b>Key issues</b>	<b>Current status</b>
<b>Ecological</b>	<ul style="list-style-type: none"> <li>• Species richness</li> <li>• Wildlife population</li> <li>• Endangered species and endemism</li> </ul>	<ul style="list-style-type: none"> <li>• 39 animal species reported (4 reptiles and rest large mammals)</li> <li>• <i>Endangered species existing include Wild dog and Black Rhinoceros (Kitanda, Kilimasera, Songambebe, Nambecha, Likuyseka Villages)</i></li> <li>• 16 dominant Miombo plant species recorded</li> </ul>

Aspect	Key issues	Current status
	<ul style="list-style-type: none"> <li>• Habitat quality</li> </ul>	<ul style="list-style-type: none"> <li>• Four major habitat types identified (forest, woodland, grassland and aquatic) of unknown quality.</li> <li>• Habitat disturbance through timber harvesting, encroachment, fire and mineral prospecting of unknown rate.</li> <li>• Animal population data not available but population sizes are reported to increase</li> <li>• Migratory routes exist and intact. Migratory animals include: Elephants, Buffalo, Eland, Sable Antelope, Warthog, Lion, Zebra, Rhinoceros, Hippos and Wild-dog.</li> </ul>

Aspect	Key issues	Current status
	<ul style="list-style-type: none"> <li>• Water sources for wildlife</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate and permanent water sources exist – 55 ponds/dams, over 100 rivers and 28 springs</li> </ul>
	<ul style="list-style-type: none"> <li>• Quota utilisation</li> </ul>	<ul style="list-style-type: none"> <li>• Hunting quota utilisation rated at 100% for Buffaloes and Eland, and for the others ranges from 20% to 75% except for warthog and bush pig which is 0% in most villages due to religious reasons.</li> </ul>

Aspect	Key issues	Current status
	<ul style="list-style-type: none"> <li>• Crop/livestock and human damage</li> </ul>	<ul style="list-style-type: none"> <li>• Crop damage rated at 50% on average mainly by Elephants, Baboons and Bush pig.</li> <li>• Crop yield rated at 2.6 tons of maize and 3.1 tons for rice.</li> <li>• Magnitude of human loss through wild animal attacks at a maximum of 8 persons per year</li> <li>• Frequency of livestock attack by wildlife at a maximum of 80 times per year.</li> <li>• <b>Existence of subsistence and commercial poaching was reported in 5 out of the 7 villages</b></li> <li>• Collected rope snares range from 10 to 100, per village per year.</li> </ul>

Aspect	Key issues	Current status
Economic	Economic activities	<ul style="list-style-type: none"> <li>Only three economic activities practised including agriculture (75%), small and petty business (23%) and wage employment (2%).</li> </ul>
	<ul style="list-style-type: none"> <li>Household income</li> </ul>	<ul style="list-style-type: none"> <li>About 13% of the households earn below TZS 60,000 annually and 32% earn above TZS 300,000 (reported).</li> </ul>
	<ul style="list-style-type: none"> <li>Dependence on natural resources</li> </ul>	<ul style="list-style-type: none"> <li>32% of households depend on game meat and 27% depend on grass for thatching.</li> <li>The dependence on building poles, medicinal plants and grazing area was rated at about 13%.</li> </ul>
Social	<ul style="list-style-type: none"> <li>Population.</li> </ul>	<ul style="list-style-type: none"> <li>Total population per village range between 630 in Kilimasera village to 6936 in Kitanda village.</li> </ul>

### LIWALE pWMA

ASPECTS	KEY ISSUES	CURRENT STATUS
Ecological	<ul style="list-style-type: none"> <li>Species richness</li> <li>Wildlife populations</li> <li>Water availability</li> <li>Habitat shrinkage and deterioration</li> <li>Village quota utilisation</li> <li>Bee keeping</li> <li>Problem animals</li> <li>Poaching both commercial and subsistence.</li> </ul>	<ul style="list-style-type: none"> <li>44 species of large mammals</li> <li><i>Encounter of rhino (Kimamb iii Village)</i></li> <li>Population size of species is not known.</li> <li>Waterbuck population is declining in numbers.</li> <li>Migratory routes exist.</li> <li>Water sources are not permanent and not adequate.</li> <li>Logging, agriculture and fires.</li> <li>Shifting cultivation rated at 50% of the HH.</li> <li>Low utilisation of wildlife quota rated at less than 50%.</li> <li>Narrow base of species utilised due to lack of guns. Preference on hartebeest, buffalo and Eland.</li> <li>Traditional and modern bee keeping. 200 bee hives.</li> <li>Crop damage rated at 50% of the cultivated crops.</li> <li>10 people attacked by animals per year.</li> <li>Prevalence of subsistence hunting mainly buffalo, hartebeest and wildebeest.</li> <li>Commercial poaching on elephant.</li> <li>Snares collected rated at 30 pieces</li> </ul>
Economic	<ul style="list-style-type: none"> <li>Income</li> <li>Production</li> <li>Wealth</li> </ul>	<ul style="list-style-type: none"> <li>1% of HH engaged in bee keeping.</li> <li>3% petty business.</li> <li>1% engaged in game meat.</li> </ul>

		<ul style="list-style-type: none"> <li>• 65% agricultural activities</li> <li>• 15% small businesses</li> <li>• 12% hand crafts</li> <li>• Income rated at minimum of TAS 30,000/= and 200,000/= maximum.</li> <li>• Only 1% of 87 of responded HH have access to formal credits.</li> <li>• <b>Maize 2 tons per Ha</b> <ul style="list-style-type: none"> <li>• Rice 1.7 per Ha</li> <li>• Cashnut 2.4 per Ha</li> </ul> </li> <li>• 9% use burned bricks for building</li> <li>• 16.9% use corrugated iron sheets.</li> <li>• 20% depend on natural forest for medicine, poles and game meat.</li> </ul>
Social	<ul style="list-style-type: none"> <li>○ Acces to water</li> <li>○ Access to markets</li> <li>○ Road transport and accessibility</li> <li>○ Education</li> <li>○ Emigration</li> <li>○ Governance and gender</li> </ul>	<ul style="list-style-type: none"> <li>• 60% HH have access to clean water.</li> <li>• 1% has private water collection.</li> <li>• 35% water points are not functioning.</li> <li>• Only one designated</li> <li>• Limited trade in natural resources products.</li> <li>• open market place.</li>   <li>• No secondary school.</li> <li>• There is a deficit of 15% of the required (80) classroom.</li> <li>• Deficit of 36% desks in schools out of the required 558.</li> <li>• 1 out of 9 village has public transport.</li> <li>• Road accessibility is seasonal (during the dry season).</li>   <li>•</li> <li>• Emigration rate at 30% within the village</li> <li>•</li> <li>•</li> <li>• Low representation of women in village committees (6 out of 25).</li> <li>• 2 villages out of 9 have no VNRCs.</li> </ul>

		<ul style="list-style-type: none"> <li>• 75% of scheduled village meetings are carried out.</li> <li>• Financial matters are not reported at Village Assembly Meetings.</li> </ul>
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**MAKAMI pWMA**

<b>ASPECTS</b>	<b>KEY ISSUES</b>	<b>CURRENT STATUS</b>
Ecological	-Species richness	-34 mammal species and 27 bird species
	- Wildlife movement	- Dry season dispersal area for wildlife from Tarangire NP. -15 mammal species migrate seasonally (local). o - A migratory route exists between Tarangire NP. And Makami pWMA.
	- Habitat type and quality	-Habitat composed of grassland, woodland and forest/woodland – -Vegetation is relatively intact
	- Water sources for wildlife	-Two seasonal rivers (Nakasero and Sukura) and several seasonal ponds.
	-Human/livestock – wildlife interaction	-Crop damage by wildlife rated at 35% annually -Crop raiders are warthog, bush pig, gazelles, zebra and elephant. -Livestock raiders include; lion leopard, hyaena, jackal, wild dog and cheetah. About 300 small stock and 200 cows are killed each year at Ilkish-ibor village -Current level of disease transmission is rated low.
	- Natural resources utilisation	o - Traditional honey collection rated very low. o Medicinal plants regularly used o No charcoal making or fishing.
	- Poaching status	- Subsistence poaching is rated high
Economical	- Sources of Income for the villages	- Tax retention and tourism business (TH and Photographic safaris) are the main sources of income for all villages making up the Makami pWMA
	- Economic agents	- Economic agents operating in the area include: Tanzania Safaris and Hunting Ltd, and Traditional African safaris Ltd. - There are no credit facilities
	- Transport and communication	- No reliable road transport but an all weather road exists from Ndedo to district hqtr.
	- Poverty levels	- 65% of the people earn less than One dollar per day, while 35% earn above one dollar.
	- Economic activities	- Main economic activities (at subsistence level) include: livestock keeping and farming. -Production in the villages is mainly for subsistence and wealth accumulation. - Possible economic opportunities are: hand crafts for sale, wage employment and tourist business

	- Access to markets	- Have weekly open markets at Ndedo
Sociological	-Water sources for human being and livestock	<ul style="list-style-type: none"> <li>o - Water provided from shallow well and then pumped and distributed o several stations.</li> </ul>
	- Ethnic group composition	- Dominant ethnic group is Wamasai (mean is 93%), The Warangi, Wanguu, Wasambaa Wamburu and Wachaga are minority.
	- Human migration pattern	- Migration: 80.5% of the population born and reside in the same village
	-Institutional set up	<ul style="list-style-type: none"> <li>- Traditional institutions exist in form of taboos where it is a taboo not to eat game meat, fish, birds and vegetables.</li> <li>- Modern institutions for conflict management include: Village govts. Village NR Committees, Women and Church CBOs, Courts and Police.</li> <li>-Women representation in Village governments stands at 26.67%</li> </ul>
	- Awareness on WMA concept	-84% of the population is aware of the WMA concept
	- Progress towards establishment of WMA	- Draft Village by-laws and land use plans exist. However, there is no AA or a CBO for Makami Village.
	-Conflicts and conflict management	<ul style="list-style-type: none"> <li>- There is a conflict between Makami village and an investor (Game Frontiers).</li> <li>- Conflicts are dealt with either through use of traditional leaders/elders or Village Govt., Ward tribunal and the Court.</li> </ul>
	-Provision of social Services (education and health)	<ul style="list-style-type: none"> <li>-Primary schools exist in each of the three villages.</li> <li>-One secondary school is earmarked for construction in Ndedo village.</li> <li>-There is a very serious shortage of desks, classrooms and teachers houses (total desk shortage for Makami and Ndedo is 91 whereas there are none for Irkshio-bor school).</li> <li>- Out of the three villages only Ndedo has ata least a dispensary that caters for all villages.</li> <li>- There are no village government offices in Makami and Irkiushi-bor villages.</li> </ul>
	-Human diseases	- Top five diseases are: malaria, acute respiratory infection, pneumonia, pelvic inflammatory diseases and skin infections
	Facilitators	- Facilitators in the area include: AWF, ORGUT/LAMP have been instrumental for training communities on wildlife conservation.
	Governance	-Governance is rated satisfactory as Village Govt. leadership presents reports on income and expenditure to Village Assembly

## B. ANALYSIS OF GUIDELINE REQUIREMENTS FOR DEVELOPMENT OF MONITORING INDICATORS

Aspect	Key issues	Requirements by Regulations
Commencement of the Regulations	<ul style="list-style-type: none"> <li>• Operationalisation of the WMA Concept.</li> </ul>	<ul style="list-style-type: none"> <li>• Date of gazettelement by the Minister.</li> </ul>
Establishment of WMA	<ul style="list-style-type: none"> <li>• Village land set aside for WMA</li> </ul>	<ul style="list-style-type: none"> <li>• Village land outside the core protected area</li> <li>• Village land used by community members.</li> </ul>
	<ul style="list-style-type: none"> <li>• Designation and application</li> </ul>	<ul style="list-style-type: none"> <li>• Village Council recommend land for WMA to the Village Assembly</li> <li>• Village Assembly Approves</li> <li>• Filling in the information data sheet</li> <li>• Registering a CBO</li> <li>• Preparation of the village land use plan</li> <li>• Preparation of a sketch map of the proposed WMA</li> </ul>
	<ul style="list-style-type: none"> <li>• Establishment of CBO</li> </ul>	<ul style="list-style-type: none"> <li>• Conditions set by the registrar of societies followed (CAP 337)</li> </ul>
	<ul style="list-style-type: none"> <li>• Application for AA</li> </ul>	<ul style="list-style-type: none"> <li>• Copy made to District Council and acknowledged within 7 days.</li> <li>• Minutes of the Village assembly</li> <li>• Dully filled information data sheet</li> <li>• CBO registration</li> <li>• Constitution of the CBO</li> <li>• Approved village land use plan</li> <li>• Sketch map of the proposed WMA</li> <li>• Boundary description of the WMA</li> <li>• Copy of draft GMP or draft RMZP.</li> </ul>

Aspect	Key issues	Requirements by Regulations
	<ul style="list-style-type: none"> <li>Approval/ Rejection</li> </ul>	<ul style="list-style-type: none"> <li>Director to assign reasons for rejection within 14 working days.</li> <li>Forwarding application of the CBO to the Minister for AA status</li> </ul>
	<ul style="list-style-type: none"> <li>Appeal</li> </ul>	<ul style="list-style-type: none"> <li>CBO to appeal to the Minister within 30 working days.</li> <li>Determination of the appeal by the Minister in writing within 21 working days.</li> </ul>
	<ul style="list-style-type: none"> <li>Endorsement and Gazettement</li> </ul>	<ul style="list-style-type: none"> <li>To be done by the Minister</li> <li>WMA and AA gazettement to be done concurrently</li> </ul>
Pilot WMAs	<ul style="list-style-type: none"> <li>Monitoring, assessment and evaluation.</li> </ul>	<ul style="list-style-type: none"> <li>Assessment to be done after 36 months from the date of gazettement of the Regulations.</li> <li>The assessment to be done within 90 days after the lapse of the 36 months.</li> <li>Assessment results are availed to the public within 30 days after the lapse of the assessment.</li> <li>Minister in consultation with the DW to declare in the gazette any pilot WMA to become a WMA</li> </ul>
Administration of WMA	<ul style="list-style-type: none"> <li>Distribution of institutional responsibilities (Part 5 of the Regulations)</li> </ul>	<ul style="list-style-type: none"> <li>Village Council,</li> <li>District Natural Resources Advisory Body,</li> <li>AA</li> <li>Village Game Scouts</li> <li>District Council</li> <li>TANAPA</li> <li>Ngorongoro Conservation Area Authority</li> <li>DW</li> <li>Minister</li> <li>NGO</li> <li>Private sector</li> </ul>
Management of WMA	<ul style="list-style-type: none"> <li>Management tools</li> </ul>	<ul style="list-style-type: none"> <li>Land use plans</li> <li>GMP or RMZP</li> </ul>
User Right	<ul style="list-style-type: none"> <li>Issuing of User Right</li> </ul>	<ul style="list-style-type: none"> <li>Based on GMP or RMZP</li> <li>Issued to AA</li> <li>Not transferable</li> <li>May be used by the AA under an investment or agreement</li> </ul>
	<ul style="list-style-type: none"> <li>Withdrawing</li> </ul>	<ul style="list-style-type: none"> <li>Proof of AA failure to comply with the Regulations.</li> <li>AA accorded an opportunity by the DW to show cause.</li> <li>AA can appeal within 30 days.</li> <li>De-gazettement of WMA by the Minister within 12 months</li> </ul>

Aspect	Key issues	Requirements by Regulations
	<ul style="list-style-type: none"> <li>Surrender</li> </ul>	<ul style="list-style-type: none"> <li>Subject to the approval of the Village Assembly</li> <li>To the DW</li> <li>De-gazettement of WMA by the Minister within 12 months</li> </ul>
	<ul style="list-style-type: none"> <li>Cessation</li> </ul>	<ul style="list-style-type: none"> <li>Change of use of village land use plan</li> <li>AA ceases to exist</li> <li>AA fails to comply with the provisions of the Act, these Regulations or any other law.</li> <li>De-gazettement of WMA by the Minister within 12 months</li> </ul>
De-gazettement of WMA	<ul style="list-style-type: none"> <li>Application for de-gazettement</li> </ul>	<ul style="list-style-type: none"> <li>AA may apply to the DW</li> <li>Accompany, original certificate of AA, letter of approval from District Council, minutes of the Village Assembly endorsing the decision</li> <li>Application forwarded to the Minister within 14 working days.</li> <li>Minister declared de-gazettement within 6 months after receipt of the recommendations of DW</li> <li>Minister to gazette de-gazettement within 30 days after declaration</li> </ul>
Resources utilization	<ul style="list-style-type: none"> <li>Animal quota allocation</li> </ul>	<ul style="list-style-type: none"> <li>To be issued by the DW</li> <li>To be allocated according to laws.</li> <li>To be established according to the existing scientific information available.</li> </ul>
	<ul style="list-style-type: none"> <li>Utilization procedure</li> </ul>	<ul style="list-style-type: none"> <li>To follow existing laws and laid down procedures.</li> </ul>
Investment	<ul style="list-style-type: none"> <li>Terms of investment.</li> </ul>	<ul style="list-style-type: none"> <li>Duration of contract is three years renewable and excludes allocation of hunting blocks.</li> <li>Investment to respect Village Land Act No. 5 of 1999</li> <li>EIA mandatory</li> <li>Conform to GMP or RMZP.</li> <li>AA may seek advice from the District Natural Resources Advisory Body when negotiating contracts.</li> <li>The Director may consult responsible authorities for investment</li> <li>Copies of the investment agreement availed to the District Council and the DW</li> </ul>
	<ul style="list-style-type: none"> <li>Joint venture</li> </ul>	<ul style="list-style-type: none"> <li>May be established between AA and an investor</li> <li>Shall not include management of natural resources and allocation of hunting blocks.</li> <li>Copies of the joint venture agreement availed to the District Council and the DW</li> <li>Approval by DW</li> </ul>

Aspect	Key issues	Requirements by Regulations
	<ul style="list-style-type: none"> <li>• Management of joint venture</li> </ul>	<ul style="list-style-type: none"> <li>• Formation of joint venture management committee</li> <li>• Joint venture committee to be comprised of 2 representatives from AA, enterprise or firm, District Natural Resources Advisory Body,</li> <li>• The committee shall make rules and procedures of its meetings.</li> </ul>
	<ul style="list-style-type: none"> <li>• Concession</li> </ul>	<ul style="list-style-type: none"> <li>• Investments and business to be operated according to agreement terms.</li> <li>• AA may change concession fees subject to approval of the District Council</li> <li>• Withdrawal and revocation powers of any investment agreement is vested with DW</li> </ul>
Dispute settlement and conflict management	<ul style="list-style-type: none"> <li>• Conflict resolution</li> </ul>	<ul style="list-style-type: none"> <li>• Whenever conflict arises shall be referred to arbitration committee, tribunal or arbitrator as provided by the agreement.</li> <li>• If not provided by the agreement apply the arbitration ordinance</li> <li>• User right shall be vested to the remaining members of the AA. During the arbitration period</li> <li>• The award of the arbitration process should determine the fate of the user right</li> </ul>
Miscellaneous provisions	<ul style="list-style-type: none"> <li>• Cooperation with the Village Game Scout</li> </ul>	<ul style="list-style-type: none"> <li>• VEO, WEO and Authorized Officers to facilitate and cooperate with VGS.</li> <li>•</li> </ul>
	<ul style="list-style-type: none"> <li>• Benefit sharing</li> </ul>	<ul style="list-style-type: none"> <li>• Shall comply with circulars issued by the Government and shall adhere to mechanisms of equitable distribution of costs and benefits</li> <li>• Distribution of the annual gross revenue of the AA to ensure that not less than 15% is re-invested, not less than 50% is directed to member villages and not less than 25% to strengthen the AA.</li> </ul>
	<ul style="list-style-type: none"> <li>• Financial management.</li> </ul>	<ul style="list-style-type: none"> <li>• AA shall be responsible for the financial management of the revenue</li> </ul>
	<ul style="list-style-type: none"> <li>• Budget and action plan</li> </ul>	<ul style="list-style-type: none"> <li>• AA to prepare annual plans, budget and set procedures for allocation and expenditure of funds.</li> <li>• Budget plans prepared in consultation with the District Natural Resources Advisory Body</li> <li>• Budget and action plans are endorsed by the Village Council and approved by the Village Assembly</li> <li>• AA funds to be audited annually by the Controller and Auditor General.</li> <li>• Minister may approve financial and technical assistance from an NGO to AA subject to recommendation by DW.</li> </ul>