

THE UNITED REPUBLIC OF TANZANIA



**Lake Jipe Awareness Raising Strategy
(2005 – 2007)**



MINISTRY OF NATURAL RESOURCES AND TOURISM

Wildlife Division

MAY 2004.



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(2005 – 2007)**

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LIST OF ABBREVIATIONS

CBC	Community Based Conservation
CBO	Community Based Organization
CDA	Coastal Development Authority
CDTF	Community Development Trust Fund
CEPA	Communication Education and Public Awareness
DOE	Division of Environment
FAO	Food and Agriculture Organization
HIPC	High Indebted Poor Country
IGA	Income Generating Activities
IOWE	International Conference on Water and the Environment
ITV	Independent Television
IUCN	International Union for the Conservation of Nature (The World Conservation Union)
JET	Journalists' Environment Association of Tanzania
KWS	Kenya Wildlife Service
LEAT	Lawyers Environmental Action Team
MDC	Mwanga District Council
MIFIPRO	Mixed Farming Improvement Project
MOU	Memorandum of understanding
MNRT	Ministry of Natural Resources and Tourism
NEC	National Environment Council (Kenya)
NEMA	National Environment Management Authority
NEMC	National Environment Management Council
NEP	National Environment Policy
NGO	Non-Governmental Organisation
NYM	Nyumba ya Mungu
OAU	Organization of Africa Unity
PBWO	Pangani Basin Water Office
PO-RALG	President Office Regional Administration and Local Government
PRSP	Poverty Reduction Strategic Paper
Ramsar Convention	Convention for conservation of Wetlands of International Importance
RTD	Radio Tanzania, Dar es Salaam
TAFIRI	Tanzania Fisheries Research Institute
TAWIRI	Tanzania Wildlife Research Institute
TANESCO	Tanzania Electric Supplies Company
TASAF	Tanzania Social Action Fund
TATEDO	Tanzania Traditional Energy Development and Environment Organization
TIP	Traditional Irrigation Improvement Project
TPRI	Tanzania Pesticide Research Institute
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
URT	United Republic of Tanzania
U.S.A	United States of America
VPO	Vice President Office
WCST	Wildlife Conservation Society of Tanzania
WWF	World Wildlife Fund for Nature.

EXECUTIVE SUMMARY

Lake Jipe is a basin lake shared between Tanzania and Kenya. On the Tanzanian side, Lake Jipe is in Mwanga district, in Kilimanjaro region. The Lake is fed mainly by rivers from Mount Kilimanjaro (Ruvu and Lumi) and small streams from North Pare Mountains. Lake Jipe area is on the leeward side of North Pare Mountain, which makes the area get limited annual precipitation.

Lake Jipe is biodiversity rich ecosystem known for its water birds and is one of the few places in East Africa where the Lesser Jacana and the Purple Gallinule are common and where the Madagascar *Squacco Heron*, Black Heron, Africa Darter and African Skimmers are often seen. It is also a habitat for the endemic tilapia species *Oreochromis jipe* which is also found in Pangani river. The lake supports life of more than one hundred and twenty thousand inhabitants who depend on the lake for their livelihood. It is also a habitat of other aquatic life forms like hippos, crocodiles and other living things.

The main activities of the inhabitants of villages surrounding Lake Jipe include fishing, agriculture and animal husbandry.

Lake Jipe is facing a number of environmental and management problems which if not addressed, might lead to the disappearance of the lake. These problems include siltation, soil erosion, recurring droughts leading to shrinking fishery, deforestation, reduced lake run off, overgrazing and invasive waterweeds. Other problems include trans-boundary resource management issues as well as limited income generating activities among the communities as well as attitudinal change issues on suitable crops to grow in their area.

To-date, the Lake has been invaded by massive invansive waterweeds mainly *Typha* and *Papyrus species*, which are threatening its existence and well being of surrounding communities. It is also alleged that Lumi River on the Kenyan side has been blocked for irrigation purposes. Reduced water in the lake, coupled with siltation, drought and reduced run off have created conducive situation for waterweeds to flourish and until the time of this consultancy weeds had covered more than half of the lake. Due to the above-mentioned environmental problems and limited alternative income generating activities, communities which depend on the lake, seem to be in difficult socio-economic situation which has forced some of them to migrate to Nyumba ya Mungu. Likewise, the biodiversity of the lake ecosystem is under serious threat.

After realizing that the existence of lake is at stake if present environmental problems are not checked, the Ministry of Natural Resources and Tourism through the Wildlife Division which is also the National Focal Office for the Ramsar Convention initiated preparation of Lake Jipe environmental management plan which will elaborate the short, medium and long term measures for conservation of the lake and its resources.

As the first step towards preparation of the plan, the Ministry initiated preparation of this awareness raising strategy for all Lake Jipe stakeholders. The objective of this strategy is to elaborate and sensitize stakeholders of their roles, rights and responsibilities in conservation, and sustainable utilization of the lake and its resources.

This is a three-year awareness raising strategy, which elaborates major issues and challenges of Lake Jipe area, its stakeholders and what has been done so far to check the lake degradation, The strategy also elaborates on the various national policies

Regional and international treaties and agreements relevant for conservation of wetlands like Lake Jipe. It also outlines the benefits people get from lake and thus the need to conserve it. Finally the strategy identifies information needs, communication means and channels for vertical and horizontal communications to facilitate decision-making and planning for sustainable resources utilization. The strategy also proposes the action plan and required budget to implement the strategy, lead organizations to implement different identified activities as well as the messages and communication channels to be used.

It is hoped that this strategy will lay foundations for sustainable use and management of Lake Jipe resources for the benefit of mankind and conservation of biodiversity.

1.0 INTRODUCTION

The Ministry of Natural Resources and Tourism is responsible for natural resources management in the country. Lake Jipe is one of the wetlands, which is biodiversity rich, and there are more than one hundred thousand Tanzanians who depend on it for their livelihood. Major activities of communities surrounding the lake are fishing, livestock keeping and agriculture.

The lake has been facing a number of environmental problems since the early 1980-s. These problems included siltation, soil erosion, droughts, overgrazing and invasion by waterweeds. The main waterweeds in lake Jipe are Typha and Papyrus species. To date waterweeds have covered more than half of lake Jipe. Increased environmental problems in lake Jipe have led to reduced fishing activities and some of the fishermen have migrated to Nyumba ya Mungu. Likewise Agriculture production especially for this year (2003/4) is not promising due to drought.

The Ministry of Natural Resources and Tourism as the custodian of the Ramsar Convention in the country is coming up with strategies to rescue the Lake from further degradation. One of these strategies is an awareness raising for key Lake Jipe stakeholders and hence involve the later fully in coming up with a management plan for sustainable utilization of the Lake resources and conservation.

This awareness raising strategy (three years) is aimed at contributing towards greater involvement of stakeholder in planning and implementation of programmes geared towards checking the Lake degradation and contributing to sustainable Lake resource use to improve the quality of life of all inhabitants of the lake area.

Key stakeholders are communities, which live around the Lake as well as those in the catchment areas. Other stakeholders include village leaders, Mwangi district and Kilimanjaro region authorities as well as the civil society. Various ministries and agencies are also national level stakeholders in conservation and management of Lake Jipe resources. If all these are well sensitized and empowered, they can effectively promote conservation and sustainable use of the lake resources, hence contribute towards sustainable development of this country.

1.1 Background

Lake Jipe straddles the border of Kenya and Tanzania and has a complex drainage basin in both countries involving Mt. Kilimanjaro and the Pare Mountains (IUCN-EARP, 1999). It covers an area of about 30 km² and is surrounded by varying widths of Lake edge swamps. Lake Jipe is known for its water birds and is one of the few places in East Africa where the Lesser Jacana and the Purple Gallinule are common and where the Madagascar Squacco Heron, Black Heron, African Darter and African Skimmers are often seen. The lake shares the endemic tilapia (*Oreochromis jipe*) with the Pangani River system and has significant fishery based on this species together with barbel fish and the sardine (*Rastrineobola argentea*).

Hippopotamus and waterbuck are present in lake Jipe. The northern half of the lake is in Kenya, forming the southern part of Tsavo West National Park. Lake Jipe therefore, serves as a watering point and feeding ground for wildlife.

Socio-economically, Lake Jipe is important to both Kenya and Tanzania for agriculture and fisheries as well as a biodiversity rich habitat in terms of fauna and flora. Also the lake provides water supply for domestic uses, reeds for fishing gears, irrigation, livestock uses, and attraction for wildlife tourism, building and roofing materials and for artifacts. The area is also conducive

for honey production and a source of water for Nyumba ya Mungu Dam, which is one of the major sources of Hydro - Electric Power in the country. Taking in consideration, all the above socio-economic and ecological benefit, and the livelihood it supports, sustainable utilization of lake resources need to be over emphasized.

For a number of years, Lake Jipe and its catchments have been facing environmental and management problems, which include: reduced runoff, increasing siltation, decreasing water quality, shrinking fishery and advancing wetlands plants such as *Typha* and *Papyrus* which threaten the existence of open waters. Other problems include inappropriate agriculture practices, lack of civil society organizations to speed up positive change process towards a number of issues including the cultural mindset over crops to grow within their areas.

Lake Jipe is fed mainly by rivers emanating from Mt. Kilimanjaro (5895m) the highest standing mountain in Africa. The mountain experiences surface runoff from the eastern slopes of the mountain which feeds into the Lumi River and flows to Lake Jipe in those seasons when there is sufficient local rainfall to maintain this river (IUCN, 2000). The slopes of Mt. Kilimanjaro are all in Tanzania while the Lumi River runs through Kenyan territory, through Taveta before it enters the lake. The Lumi enters Lake Jipe through a large *Typha* swamp, which exceed 20 km² in area and which blends into the swamps of the Ruvu River, the exit for lake waters.

Another source of water for Lake Jipe is the Pare Mountains in Tanzania. Such streams from the eastern side of the North Pare Mountains reach Lake Jipe, either above or below ground, while others flow only during the wet seasons. It is believed also that the Kirurumo River, which is from south Pare Mts, also flows into Lake Jipe through its southern swamps (IUCN 2000).

For many years up to the early 80s, Lake Jipe maintained a fairly constant level throughout the year, despite the existence of a marked bimodal rainfall (Gaudet, 1999). This level was partly regulated by the outflow from Ruvu River, which passes through a very extensive swampy area with almost no slope before becoming a true river near Kifaru. This swamp, which is dominated by papyrus, covers at least 35km² and is in both Kenya and Tanzania as the river “channel” is the international administrative border of two countries. Ruvu River then flows westwards on its way to Nyumba ya Mungu reservoir where it joins with waters from the southern and western sides of Mt. Kilimanjaro as well as those from Mt. Meru to become the Pangani River. Lake Jipe thus acts as a natural storage for Pangani River via the Ruvu, which flows all year around. Pangani River is a very important river in Tanzania, for irrigation, water supply, hydropower generation as well as for its contribution to the productivity of the coastal area in Tanga Region – through nutrients, sediments and water to the mangroves and other marine life.

1.2 Objectives

The Long-term goal for Lake Jipe is to develop a plan that will ensure conservation and sustainable use of Lake and its resources.

The specific objective of the strategy is to sensitize lake communities and other stakeholders to actively participate in the identification of lake Jipe problems, systematic identification of solutions and implementation of various programmes for conservation and rehabilitation of Lake Jipe.

Development of this strategy involves identification of sustainable resource use key issues, stakeholders, activities, messages and methodologies suitable for each key wetland stakeholder in the conservation of Lake Jipe as well as identifying institution(s) to implement the strategy.

1.3 Scope of Work

The terms of reference to design and prepare this strategy required the consultants to undertake the following tasks:

- Review all relevant literatures pertaining to the status of Lake Jipe.
- Undertake comparative analysis of relevant national policies with regard to sustainable wetland management in the context of poverty reduction, such as the Poverty Reduction Strategic Paper (PRSP) and Tanzania Development vision 2025.
- Visit the Lake Jipe and its surroundings, including all relevant institutions and stakeholders/beneficiaries.
- Identify issues and aspects that need to be considered in the awareness strategy.
- Undertake stakeholder's analysis and collect views for strategy formulation.
- Identify information flow and channels of (from up-down or vice versa).
- The type messages and channels of dissemination.
- Identify possible agencies that may implement the Lake Jipe Awareness strategy based on experiences of their previous work.

2.0 METHODOLOGY

To develop a proper awareness strategy, the consultant conducted the study in Dar es Salaam and Kilimanjaro region in March 2004. The aim was to understand the socio-economic context of the target populations, the governing structures of local, district, regional and Central levels and, in this case, any changes and factors contributing to environmental and socio-economic issues within Lake Jipe and its surrounding environs.

This involved collection and review of documents, summarizing information about Kilimanjaro region (Mwanga and Moshi Rural districts), its natural resources and their use. Statistical information was sourced from Mwanga and Moshi District Natural Resource Offices and Village Executive Officers. The following section presents socio-economic and environmental issues of Lake Jipe and comparative analysis of relevant national policies with regard to sustainable wetland management in the context of poverty reduction.

2.1 Literature Review

2.1.1 Description of Mwanga District

Mwanga District is one of the six districts of Kilimanjaro Region. The district covers an area of 2,641 km² and lies between the latitude 3°46' to 3°47' South and longitude 37°35' to 37°50' East. It is bordered by Same district in the South, Simanjiro District in the West, Moshi Rural District to the North, and Kenya and Lake Jipe in the Northeast.

The district mainly comprise of the Eastern and Western Lowlands (700-1000 m asl) and the North Pare Highlands (1300-2200 m asl). The Eastern and Western Lowlands occupy 600 km²

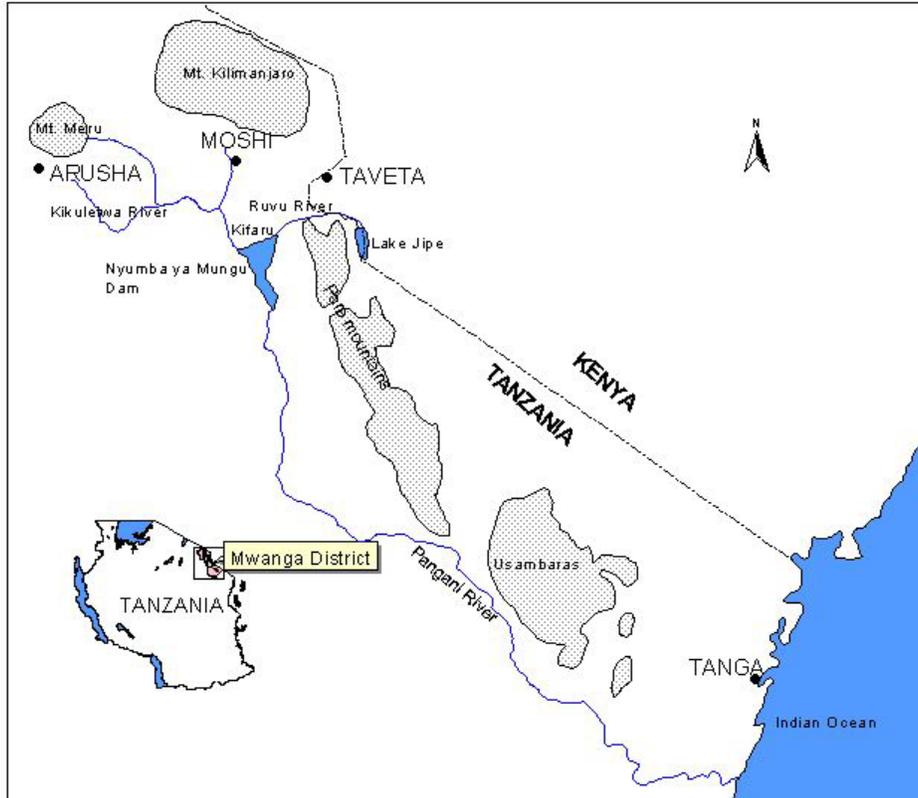
(22,72%) and 1,233 km² (48,21%) respectively. The lowland areas include the water bodies of Lake Jipe and Nyumba ya Mungu Dam. The highland occupies only 808 km² (29,7%). A number of small rivers, streams and springs originate from the mountains.

Mwanga district has a population of 115,620 people, of which 55,666 are men and 59,954 are women (Tanzania Population and Housing Census 2002).

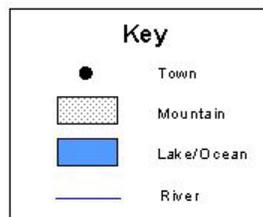
The climate in Mwanga District is generally semi-arid which makes the district experience predominantly easterly winds which cause more precipitation (700-1000 mm/year) in the mountains and at the Eastern slopes because they are on the windward side of the highlands. In contrast, the Eastern and Western Lowlands are on the leeward side and receive less annual rainfall (500-650 mm) with occurrences of severe droughts. The effects on the leeward side where Lake Jipe is found are worse.

On average precipitation is relative low, with about 60 % of the yearly rainfall in less than three months (period mid-March to May). September is the driest month with, on average, less than 10 mm of rainfall (FAO, 1986 in Soil Appraisal, 1992). Temperatures range from a minimum of 16°C, between July and August, and 32°C between January and February.

Figure 1: Location of Lake Jipe



Source: GISE Unit-NEMC, May 2004.



2.1.2 Management issues of Lake Jipe

2.1.2.1 Environmental and Natural Resources Management issues

Based on a literature review and field observation, the following are the main natural resources and environmental management issues for Lake Jipe and surrounding villages

Inappropriate farming practices

Over 90% of population in Mwanga district live in rural areas and depend primarily on agriculture for their livelihood. Due to that, most of environmental problems in the area have a bearing on agriculture. These include cultivating close or in water sources and stream-valley bottoms; cultivating very close to riverbanks; Flat cultivation (sesa) in both valley bottoms and steep mountain slopes; poor managed irrigation schemes; The impact of these practices include soil erosion and siltation of rivers and Lake Jipe, reduced flow, lowering of water table, more sediment load produced into the rivers and water bodies increase nutrient level in streams and lakes which create conducive environment for growing of water weeds.

▪ ***Deforestation***

Natural forests in Mwanga District occupy a total area of 327 sq.km i.e. 12 % of the district. Out of this total, 207 sq.km are traditional forests (“mpungis”) and 120 sq.km governmental forest reserves (S. Semgalawe 1996). However, in the last two decades deforestation and over-exploitation of the natural resources has been a serious problem in the district. The causes for deforestation are for meeting the high demand for wood products, which are timber and wood for building materials, fuel-wood and charcoal. Also trees are fell to open up areas for new farms and houses as population density increases.

▪ ***Erosion, siltation, sedimentation and eutrophication***

High level of erosion and siltation of the lake are partly due to the nature of the drainage basin of Lake Jipe as well as heavy rain showers on the upper slopes of North Pare Mountains. Deforestation on the upper parts of both Mt. Kilimanjaro and the Pare Mountains as well as inappropriate farming practices around the lake are contributing to land degradation and siltation of lake Jipe. It is also alleged that road and railway construction and the mining of stones and soil (kifusi) in the catchment areas has affected the surface flows that they now carry more silt. Thus, while erosion of soils in the Jipe drainage basin and the siltation and shallowing of the lake are natural processes, they are being hastened by human activity (IUCN 1999).

▪ ***Bush fires***

Kwakoa and Jipe wards in Mwanga district are vulnerable to fires during the excessive dry periods. The fires are caused by slash and burn farming system practiced in the area, burning to kill destructive insects, honey harvesting as well as burning of water weeds to open up areas for water for livestock as seen in the Photograph below. More affected are forest reserves in Mts. Kilimanjaro and Pare mountains.

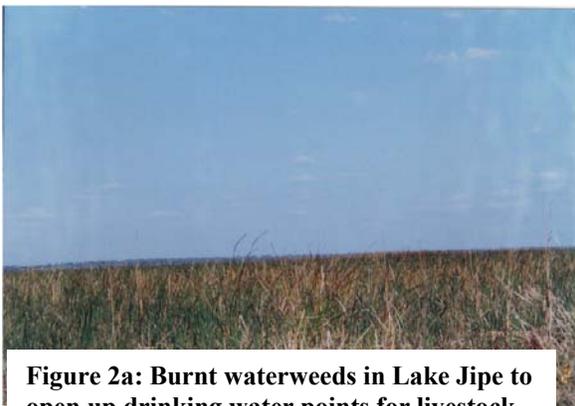


Figure 2a: Burnt waterweeds in Lake Jipe to open up drinking water points for livestock
Source: A. Maembe March 2004

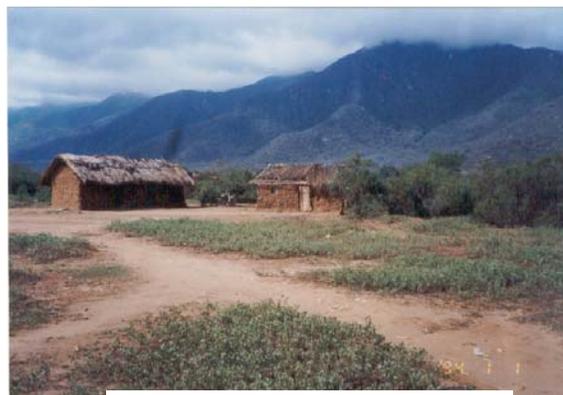


Figure 2b: North Pare Mountains as seen at Kwa Nyange hamlet in Mwangi District.

- ***Sand mining***

Uncontrolled mining of sand, gravel and stones from riverbeds and/or banks; and in gullies in Mwangi can be observed very close to Kifaru river and Nyumba ya Mungu reservoir. The sand from these areas is regarded as the best one and is used for construction purposes all over the region (TANESCO 2000). The dug trenches contribute to loosening of soils and subsequent erosion.

- ***Water pollution***

Agricultural activities such as use of agrochemical and inorganic fertilizers especially for irrigated farms in lower Moshi and flower farms and factories in Arusha and upland districts of Kilimanjaro region which are catchment areas for Lake Jipe and Nyumba ya Mungu increase effluent load in Lake Jipe and Nyumba ya Mungu dam (Maembe, 2001, Kamugisha 2001). High level of erosion and silt are sought to be responsible for the changing of water quality and increase nutrient load in Lake Jipe and hence creating conducive environment for the waterweeds to flourish.

- ***Overgrazing***

Shortage of pastures and drought has caused the formation of concentrations of people and animals in Mwangi district. The increase is high in the grazing lowland areas of Mwangi district as compared to the zero grazing in the highlands. The overpopulation of cattle and people in selected areas has brought not only environmental degradation, but it has also caused frequent conflicts between pastoralists and other people as they fight over grazing lands (including crops) and drinking water for livestock. Although the cattle migration is a traditional trend, the frequency has increased recently because of frequent dry spells.

- ***Invasive Water Weeds***

It has been reported that Lake Jipe weeds mainly *Typha* and *Papyrus sp.* (known as ***Makuruvira*** and ***Mabulla*** respectively in the local language) were first spotted way back in the 50's. These waterweeds started as small floating patches when Lake Jipe had plenty of water and the weeds could not anchor and become permanent due to winds blowing in either direction. As years went on weeds islands increased and during droughts they would anchor and become permanent.

Initiatives to physically remove the weeds was the only control method until the late seventies when the Government through Pare district started setting funds for research on best and appropriate ways of controlling the weeds. To date weeds have covered more than half of the Lake Jipe and the Tanzania side is affected more than the Kenyan side (TANESCO, 2000). Due to the increasing weeds spatial spread each year, Lake Jipe fishermen find it more difficult to get out into open water in order to set their nets. Regardless of the size of a given *Typha* island, they are a problem in that they foul fishnets, and hasten the spread of *Typha* around the Lake (Gaudet 1975) and decrease oxygen circulation, which has negative effect on fish and fishery industry.. Fishing operations in Lake Jipe have been reduced drastically and a number of fishermen have shifted to Nyumba ya Mungu (Lyatuu, 1981). For 2003/04, Lake Jipe has almost dried leaving only pools of water in a few places *Typha* and papyrus weeds have anchored on the shores and most local people interviewed said that it is no longer possible to remove the islands of weeds as they are now permanent flora in the shores of the lake. Some locals use them for thatching their houses, otherwise the weeds are just a nuisance of no socio-economic value. It has been alleged that similar weeds in Lake Naivasha (Kenya) and Lake Kiyoga (Uganda) use them for basketry as well as decorations and mat making

Mwanga District Council Officials paid a visit to lake Victoria, to learn if experiences gained in eliminating the water hyacinth species, which was a threat to the lake, might be used in eliminating Lake Jipe weeds as well (Mramboah, 2004).

- ***Limited outreach programmes.***

Although each village in Mwanga district has formed environmental committee, most of the villagers are unaware of the basic issues concerning natural resources and some are even reluctant to participate in conservation activities. Communities are more or less keen to first earn a living before they could think of conservation issues. Likewise communities are not fascinated to grow drought resistant crops, which are suitable for the area. They are stuck to growing maize, which does not do, very well compared to sorghum and cassava.

- ***Limited natural resources management techniques***

Kwakoa and Jipe wards are famous for livestock keeping especially goats, sheep, chicken and other small animals. But the villagers have limited capacity in livestock management techniques which could help them to increase their livestock productivity for example increased milk production and even de-stocking to have a few healthy animals which can fetch more when sold. Likewise fish farming can be introduced to complement fishing in Lake Jipe and they can use storm water harvested during wet season and trapped in fish ponds. Bee keeping can also be promoted to increase their income.

- ***Lack of resource users associations***

There are a number of natural resource users in the two wards. These include farmers, fishermen, livestock keepers and women groups making mats. However there are no organized resource use groups that can allow resource users to have a forum during which they can discuss issues affecting them

- ***Trans-boundary issues***

Lake Jipe is shared between Kenya and Tanzania, thus management and sustainable utilization of the lake depends on goodwill and cooperation between the two countries. Presently management and resource use problems stretch from one side of the international boundary to the other (and back again). This requires a cross-border coordination and joint planning.

2.1.2 Initiatives to Conserve the Lake

Worldwide, wetlands are known for their ability to support large human population s(Kamukala & Crafter, 1993). A number of scholars affirm that wetlands are among the most productive ecosystems and thus deserve special attention. They are also important for groundwater recharge, control of floods, retention of sediments and preventing eutrophication of rivers and Lakes (Bakobi, Kamukala & Crafter, 1993).

Various initiatives have been going on for a number of years in attempt to rescue Lake Jipe. There are a number of reports which confirm that Lake Jipe weeds were observed in the 50s and initiatives to physically remove them manually were undertaken at different times by the then the Pare District before it was sub divided into Mwanga and Same districts (DNRO 2004, Gaudet 1998, IUCN 2000).

In 1970, the Government through the Tanzania Pesticide Research Institute (TPRI) initiated research for Lake Jipe (Mwanga District Report 2001) and funds were set aside from 1981 – 1984 to evaluate the option of use of chemicals to check weed invasion in the Lake. The study conducted in 1981 revealed that control of weed species observed at Lake Jipe by using chemicals is possible but might be dangerous to the other living organisms and activities that are taking place in the Lake (Lyatuu 1981). Lake Jipe and its wetlands are of international importance as a home to diverse fauna (including many palaeartic migrant birds, intra-African migrants and large mammals) and flora as well as providing support to many people on both sides of the international border. (IUCN, 2000).

In 1985, The Catholic Relief fund constructed guts for fish landing in the Lake. Other key players who supported Lake Jipe research to eliminate weeds include UNEP; U.S.A through the Natural Resources Bureau of Aquatic Plant Research and Control, IUCN, FAO and TAFIRI also did some researches on waterweed invasion in Lake Jipe (DNRO 2004, Mwanga District Report 2001).

In April 1993, Coastal Development Authority in collaboration with the district of Taita Taveta (Kenya), held a workshop, to discuss the issues of Lake Jipe and the need for management of the watershed and the wetlands. Many of the issues were discussed and it was resolved that CDA should work towards a comprehensive management and development plan for the watershed on

the Kenyan side of the border as well as looking into ways of managing the specific problems of the lake. CDA felt that there should be cooperation with authorities with similar mandates for management of the Jipe watershed and wetlands in Tanzania (IUCN, 2000).

Because of its regional spread, IUCN found it best placed to spearhead the process in both Tanzania and Kenya to address the environmental challenges facing Lake Jipe. From 1992, IUCN recognized the value of Lake Jipe (including its wetlands and the watershed) and in 1994 it convened a joint meeting between Coastal Development Authority of Kenya and the Pangani Basin Water Office (PBWO) to discuss the challenge of Lake Jipe weeds invasion and preparation of management needs. CDA and PBWO finalized summary assessments of management needs for Lake Jipe catchments and its wetlands in 1996. A follow up meeting was conducted in 1999 with the assistance of IUCN and EAWLS when also assessment reports by CDA and PBWO were presented and discussed (IUCN, 2000).

The assessments affirmed that Tanzania Government or Kenya alone couldn't seek a permanent solution to the weed problem out. There is a need for two countries (Tanzania and Kenya) to work together into finding the better ways of handling the situation (Lyatuu, 1981). Two district sharing this lake, Mwanza district in Tanzania and Taita Taveta district in Kenya should discuss the issues pertaining to the degradation of Lake Jipe and recommend or advice their countries on the solutions. Currently the most pressing problems on the lake are *invasive weeds* and the alleged diverting of water from permanent streams (Mata river) for irrigation on the Kenyan side.

Several methods exist for dealing with "*Typha*" weed. Each method has its advantages and disadvantages (Gaudet 1975). Methods proposed are dredging, cutting and burning during periods of low water level, application of chemicals, construction of seasonal fishing channels, harvesting by using motor boats and construction of fish ponds. Application of chemicals some how would be an effective way of eliminating weeds in the Lake, however, the following are impacts associated with this method:

- Burnt weed will remain in water surface for some time to decompose. The process of decomposition is active in oxygen depletion; as a result of those microorganisms that are main food for fish will die due to deprivation of oxygen and eventually fish also will disappeared due to starvation or suffocation.
- Many chemicals are toxic both to the prey (fish) and consumer (man) and all other organisms making the food chain within the lake ecosystem.
- Any hazardous effects experienced in Lake Jipe will be carried forward through River Ruvu and Kifaru to Nyumba ya Mungu dam. This means applied chemicals will be transported to Nyumba ya Mungu as the result also fish in the dam will be affected.

"Environmental issues are best handled with participation of all citizens at the relevant level. It is widely recognized that interventions that are likely to have positive impacts are those which enjoy the greatest support from grassroots" NEP 1997.

Basing on the above quotation and experiences from different programmes and projects, the major responsibility of government and various technocrats working at grassroot levels is to assist local communities become aware of their own situation and support them to become responsible for their own destiny. Availing the required knowledge through agreeable communication channels and being open to them on the challenges and opportunities will facilitate them to make environmentally sound decisions which will in turn facilitate their pursue of sustainable socio-economic development.

2.1.3 Policies and Legislation for Conservation of Wetlands in Tanzania

Although a single comprehensive wetland policy or strategy has not been prepared for Tanzania, there are a number of policies directed towards sustainable resources use and environmental management, which aim at improving the quality of life of all Tanzanians. This section gives a comparative analysis of relevant national policies with regard to sustainable wetland management in the context of poverty reduction.

- ***Vision 2025 (1999)***

Tanzania Development Vision 2025 anticipate that by 2025 Tanzanian population will have attained “a high quality of life, peace, tranquility and national unity; good governance; an educated society eager to develop; and an economy which is competitive with sustained growth for the benefit of all people...”. These objectives not only deal with economic issues, but also include social challenges such as education, health, the environment and increasing involvement of the people in working for their own development. The thrust of these objectives is to attain a sustainable development of the people.

The Vision foresees the alleviation of widespread poverty through improved socio-economic opportunities, good governance, transparency and improved public sector performance. While charting a challenging path for future development, the Vision is not explicit about the role of improved wetland management in the process. Given the importance of environmental factors to the effectiveness of the Vision’s implementation, they need to be incorporated *ex post* in the Targets and the Monitoring, Evaluation and Review components of the Vision’s rollout. However the vision underscores the need for alleviation of poverty through sustainable resource utilization. This strategy is thus addressing resource use in the context of improving the quality of life of Tanzanians.

- ***The Poverty Reduction Strategy Paper (2000)***

The PRSP (2000), which was prepared in response to the HIPC initiative, did not give priority to neither wetlands management nor environmental issues, though it recognizes that “the poor in Tanzania are heavily dependent on the environment”. While being significantly less explicit on the poverty-wetland/environment linkages than the NEP, the PRSP does set out a process for development of a partnership between government, the private sector and civil society in the fight against poverty. Therefore, it might be argued that poverty reduction under these conditions must be achieved through the wise use of natural resources, which includes sustainable use of wetlands like Lake Jipe

- ***National Environment Policy (1997)***

The National Environment Policy (URT, 1997) was formulated as a unifying natural resources and environmental management policy in order to engage the contradictions, minimize sectoral conflicts and overlap of activities. The NEP addresses among other issues, management of wetlands under the water and sanitation section. The policy objective here is to pursue improved management and conservation of wetlands. It also argues for conservation of biodiversity and biodiversity loss is one of the major six national environmental problems identified by the policy.

The policy contends that despite considerable national effort, over half the people in towns and rural are do not have access to good quality water for washing, cooking, drinking and bathing; the

pollution in town and the country side is affecting the health of many people and has lowered productivity of the environment; productivity of lake, river, coastal and marine waters is threatened by pollution and poor management.

The National Environmental Policy is without doubt the strongest national policy in recognizing the linkages between poverty and environment. The policy stress that environmental degradation leads to widespread poverty; equally, poverty is a habitual cause of environmental degradation as it undermines people's capacity to manage resources wisely. In Para 36 the policy states that the major responsibilities of government institutions and non-governmental organizations is to assist local communities to become aware of their own situation and support them to become responsible for their own destiny. Also the NEP directs Regions/Districts to develop lists of priority environmental concerns in their areas and draw plans for dealing with them. Therefore formulation of this awareness strategy for conservation and sustainable use of Lake Jipe, the Ministry through the Wildlife Division is trying to meet this policy objective.

▪ ***Agricultural Sector Development Programme (2002),***

The National Agricultural Sector Development Programme (2002) objective is to create an enabling environment for improving agricultural productivity and profitability, improving farm incomes, reducing rural poverty and ensuring household food security. The links with poverty reduction are evident, and Sector Growth Targets are taken directly from the Poverty Reduction Strategy Paper. The programme importantly recognizes that support for subsistence agriculture is support for sustainable poverty, and the only way out of the poverty cycle is to develop profitable agriculture. The importance of sustainable natural resource management including the wetlands is specifically acknowledged, and environmental management is identified as an important crosscutting issue at national and local government levels. Interventions with neutral or minimal environmental impact will be given higher priority investment than environmentally damaging activities; as will activities that have a positive impact on growth and poverty reduction. Agriculture activities in Lake Jipe area are expected to conform with the agriculture policy.

▪ ***The National Land Policy (1997)***

The National Land Policy (URT, 1997) among other things advocates the protection of land resources from degradation for sustainable development. However, the policy states that "wetlands are considered wastelands and are thought as being not useful for social and economic development". Fortunately local communities and those responsible for national biodiversity conservation as well the international community thinks otherwise. Lake Jipe has the potential to provide many income-generating activities that can contribute to poverty reduction. This includes fishing and fish farming, irrigation, tourism and domestic supply. But the development of these resources must be carried out in a carefully planned manner, as the environmental implications of unsustainable exploitation can be serious. The development of the Lake Jipe Land Use Plan will be implementing the Land Policies (1999) pronouncements.

▪ ***National Water Policy (2002)***

The water policy (2002) clearly stipulates the heavy dependence of communities on the environment (soil, water and forests) and in particular household dependence an environment resources for livelihood and income generation. The policy points out clearly that water allocation for various users including ecological uses must be carefully planned. Deliberate efforts are therefore needed for management of the water resources in order to sustain the desired

pattern of growth and consumption. This requires integrated planning, development, environmental and wetland management in support of food security and poverty reduction as well as environmental safeguards.” As such, the policy is clear on the linkages between poverty reduction and natural resources management.

- ***National Fisheries Sector Policy (1997)***

The main benefits of the Lake Jipe and its wetland are commercial and subsistence fishery (there were several large fishponds on the edge in the past). The Fisheries Sector Policy and Strategy Statement (URT, 1997) acknowledge the linkage between the sustainable exploitation of fish resources and the provision of high quality food, income and employment. The link between poverty and employment in fishing activities is therefore once again recognized, though the roles of poverty as a constraint to sustainable management of fisheries resources, or possibility of developing positive environment/poverty linkages, are not highlighted.

- ***Wildlife Policy (1998)***

The 1998 Wildlife policy is undergoing review to accommodate wetlands issues. The policy review has reached very advanced stages of review, thus when adopted it will clearly have statements for management of wetlands in the country. Likewise the Wildlife Conservation Act of 19.. is under revision and when ready it will have sections relevant for enforcement of wetlands issues. These reviews are necessary for accommodating wildlife issues in wetlands like Lake Jipe whereby wildlife management issues are affecting livelihood of communities especially those moving from Tsavo National Park in Kenya and the resident wildlife of Lake Jipe like the hippos, crocodiles warthogs and others which destroy crops and others threaten lives.

Tsavo West National Park has its boarder within the waters of lake Jipe. This allows access for many terrestrial wildlife species to the wetlands and waters of the lake edge while providing protection for the large mammals and crocodile that inhabit the open water of the lake. The National Wildlife Policy (URT, 1998) seeks to integrate wildlife conservation within rural development. Benefit sharing – which should imply poverty reduction in rural areas if it was effectively applied – is discussed at length, and the establishment of a process by which the benefits of wildlife management will go to local communities is given priority. The policy strongly supports community-based conservation (CBC), which has been shown elsewhere, under the right conditions, to be an effective instrument for poverty alleviation and environmental management.

- ***Beekeeping Policy (1998)***

Initiatives have been taking place for honey production from Lake Jipe wetland trees and riparian plants. The Beekeeping Policy (URT, 1998) adheres to the NEP principles and aims to “enhance the sustainable contribution of the sector for socio-economic development and environmental conservation”. The policy talks at length about the local benefits that can accrue from improved beekeeping. The potential role of beekeeping in generating household revenues, and hence poverty reduction, is a central theme of the policy.

- ***Tourism Policy (1999)***

Tourism on the lake and the attraction of wildlife to the lake enhances tourism development on the area. The National Tourism Policy (URT, 1999) seeks to “assist in efforts to promote the

economy and livelihoods of the people, essentially poverty alleviation, through encouraging the development of sustainable and quality tourism that is culturally and socially acceptable, ecologically friendly and economically viable.” The link between poverty and Lake Jipe conservation in this sector is therefore tangentially acknowledged.

The policy recognizes that much of Tanzania’s tourism depends on areas of great biodiversity and on the maintenance of a high-quality environment like that of Lake Jipe and its wetlands. However, the policy is unclear on how to plan and implement greater benefit sharing with local communities from this highly sophisticated, extremely profitable and well-structured industry.

- ***Energy Policy (1992)***

The lake and its wetlands are major source and storage for waters of the Ruvu River, Nyumba ya Mungu dam, and Pangani River (the second most important river in Tanzania for hydropower generation). The energy policy (1992) focuses on utilization of various energy resources including water, forests, gas, coal, petroleum sun and wind in a sustainable and environmentally friendly manner. The energy policy notes that Tanzania is a relatively small consumer of electricity, and only 5% of the populations have access to electricity and wood fuel accounting for 92% of final energy consumption. However the policy does not address poverty issues directly, but recognizes that wood fuel is the major fuel for cooking and heating for most Tanzanians. It also acknowledges that the energy switch is unlikely to occur if electricity and other alternative forms of energy are not developed.

Thus all these policies and policy documents are in one way or another relevant to issue of addressing sustainable use of resources of Lake Jipe, which is a national and regional (it includes Kenya) concern.

Regional and International Treaties and Conventions

Tanzania is a party to various international treaties and Conventions aimed at conservation and management of wetlands. The treaties are divided between those having a universal application and those limited to the Africa Region. Some of the treaties and conventions on conservation and management of wetlands that Tanzania is a party include:

- ***African Convention on the Conservation on Nature and Natural Resources (adopted in 1968 and came into force in 1969).***

African Convention for the Conservation of Nature and Natural Resources urges contracting parties to adopt policies for the conservation, utilization and development of underground and surface water and take appropriate measures to ensure, *interalia*, the presentation and control of pollution in water. The Convention requires that where surface water or underground water resources are shared by two or more of the contacting parties, they should act in consultation and if the need arises, set up inter-state commissions to study and resolve problems as well as to develop and conserve their resources.

- ***Convention Concerning the Protection of the World Natural and Cultural Heritage, Paris 1972***

This Convention was adopted at UNESCO and came into force in 1975. It has ever since been instrumental in the protection of fragile or ecologically significant parts of States parties to it.

- ***Treaty for the establishment of the East Africa Community***

The East Africa Community Treaty of 1999 is a regional agreement with repercussion on the watershed management in Tanzania, Kenya and Uganda. In March 2001 the Treaty became part of the domestic law of the country through its ratification and subsequent enactment as Treaty for the Establishment of the East Africa Community Act, No. 4 of 2001. Tanzania under the Treaty has, a legal obligation to co-operate with Kenya and Uganda in the management of the regions' natural resource such as Lake Jipe and its environment. This treaty is very relevant and applicable for addressing lake Jipe trans-boundary issues since it involves two East African sister countries Kenya and Tanzania

- ***East African Community Memorandum of understating for Co-operation on environment***

According to Article 142 of the Treaty for the Establishment of the East African Community, the MOU is a binding legal agreement in so far as its construction does not conflict with the provision of the treaty. The MoU was signed in Nairobi on October 22, 1998. Among its objectives is the development and implementation of environmentally sound principles, international agreements, instruments, and strategies for environmental and natural resource management.

The MoU sets out elaborate provisions on environmental procedural rights. The partner states commit themselves to promoting public awareness programmes and access to information, as well as measures aimed at enhancing public participation on environmental management and issues. Article 16(2)(d), on the other hand, provides that partner states agree to develop measures, policies, and laws to grant access, due process, and equal treatment in administrative and judicial proceedings to all persons who are or may be affected by environmentally harmful activities in the territory of any of the partner states.

- ***United Nations Convention for Conservation of Biological Diversity***

In 1992, the United Nations Conference on Environment and Development (UNCED or the "Earth Summit") marked an important event towards the goal of achieving sustainable economic development, which meets the needs of the present without compromising the needs of future generations. The meeting produced a lengthy report, entitled *Agenda 21*, which among other things outlines the importance of water for life and socio-economic development hence the need for water sector reform. It states that,

".... sustainability of food production increasingly depends on sound and efficient water use and conservation practices consisting primarily of irrigation development and management with respect to rain fed areas, livestock water supply, inland fisheries and agro forestry. Achieving food security is a high priority in many countries and agriculture must not only provide food for rising populations but also save water for other uses. The challenge is to develop and apply water saving technology and management methods and, through capacity building, enable communities to adopt new approaches for both rain fed and irrigated agriculture" (Agenda 21, 1992).

Likewise the Convention on Biological Diversity which is also one of the UNCED Rio 1992 meeting milestones advocates for rehabilitation and restoration of degraded ecosystems and recovery of threatened species through development and implementation of plans and strategies

(CBD article 8f). Also the convention reflects a commitment to reconciling conservation needs with development concerns as part of the over all global and national pursuit of sustainable development. In this regards the Convention on Biological Diversity is one of the most relevant convention for developing this awareness strategy to rescue lake Jipe and its biodiversity from disappearing.

▪ ***Convention on Wetlands of International Importance Especially as Waterfowl Habitat (the Ramsar Convention), 1971***

On top of all the above-mentioned policies and policy documents Tanzania is a party to the Ramsar Convention. The major goals of the convention are to stem the loss of wetlands and to ensure their conservation. It strives to promote wetland conservation by developing programs for wetland inventory, monitoring, and research; educating the public and increasing public awareness of the value of wetlands; and developing integrated wetland management plans.

Under resolution VII.9 of the Ramsar Convention on Wetlands' Outreach Programme, each contracting country is required to prepare a national strategy for Communication, Education and Public Awareness (CEPA) in support of wetland conservation. During the eighth meeting of the Conference of the Parties under Ramsar Convention which was held in 2002 in Valencia, Spain, member states adopted a Communication Education and Public Awareness (CEPA) Programme for 2003 – 2008 under Resolution 31. CEPA is recognized by member states as an important central and crosscutting instrument for implementing the Convention's wise use Principle. The Ramsar CEPA Programme identifies the following opportunities and benefits that may arise from investing in CEPA.

- a) Wetland issues can increasingly become part of the business of other sectors and not just that of environment, thereby mainstreaming the conservation and wise use of wetlands into society and government;
- b) Communities use resources sustainably as a result of engagement and agreement to collaborative plans, thereby reducing conflict;
- c) Communities agree to invest in restoration and long-term stewardship of wetlands;
- d) There is a public constituency that speaks for and helps set the agenda for wetland conservation and wise use; and
- e) The young generation imparts knowledge on wetland conservation and wise use, and become stewardship for wise use in future.

The Ramsar Strategic Plan 1997-2002 adopted in 1996 provides direction under Operational Objective 7.2 on international cooperation related to international/ regional environment conventions and agencies. Essentially this sets priorities for the Convention in the development of cooperation and synergy with these conventions and agencies in order to promote shared objectives and goals.

The Ramsar Convention has always recognized that a fundamental obligation of Contracting Parties pursuant to Article 5 was cooperation in the management of so-called shared wetlands. Article 5 of the Convention states that *"the Contracting Parties shall consult each other about*

implementing obligations arising from the Convention especially in the case of wetlands extending over the territories of more than one Contracting Party or where the water system is shared by Contracting Parties. They shall at the same time endeavour to coordinate and support present and future policies and regulations concerning the conservation of wetlands and their flora and fauna."

It has been assumed that this text refers to all obligations arising from the Convention text, including, but not restricted to, Article 2.6 (conservation, management and wise use of migratory waterfowl), Article 3.1 (planning and implementation of wise use), Article 4.3 (encouraging research and the exchange of data and publications), and Article 4.5 (promoting training). Further more it has been assumed that this text refers to cooperation between Contracting Parties in areas such as shared wetland-dependent species, bilateral and multilateral assistance, trade in wetland-derived plant and animal products, and foreign investment practices.

2.2 Identification of Stakeholders

In order to have general view of all stakeholders, a number of interviewees were consulted during visits at National, Regional, District and village level. Different participatory methods were applied to involve all the concerned stakeholders. The identification of stakeholders was based on the location, role and relevance of an organization, institution, group or individual to Lake Jipe and its environment. Based on that, stakeholders for Lake Jipe were divide into two groups: - Primary stakeholder and Secondary stakeholders.

The primary stakeholders of Lake Jipe are communities, which live around the lake as well as those in the catchment areas of lake and those living downstream. Local leaders and Government officials in the two wards of Jipe and Kwakoa as well as other key informants living in these villages i.e. elders, fishermen, farmers/livestock keepers, women, youths or any other influential people in the community were consulted.

Secondary Stakeholders or "the other" Stakeholders are those not directly involved but are interested parties in conservation of Lake Jipe. Those include: technical and administrative Government officers, professionals, politicians, Councilors, academicians, entrepreneurs, NGOs and international agencies. The list of representatives/institutions contacted is found in annex B.

Through interviews and discussions, stakeholders pointed out a number of issues and concerns. The main topics discussed covered main issues affecting socio-economic development, ways used to communicate and raise awareness among their communities means/tool of communication; appropriate channels of communication; key messages to various stakeholders; expectations of different actors; issues and any other aspects to be considered in the awareness strategy as well as involvement of NGOs/CBOs.



Figure 3: Experts interviewing villagers at Toroha during data collection for preparing Lake Jipe Awareness raising strategy
Source: A. Maembe March 2004

2.3 Development of Tools for Data collection

The study was carried out using questionnaires, district and village leaders meetings, and focused group discussions. The focus groups at Village level were intended to test the differences in knowledge and understanding of Lake Jipe issues, environmental issues as well as attitude and practices/behavior (KAP) among the communities surrounding Lake Jipe. The study tools and methodology were developed after conducting adequate review of existing literature. Main tools for the survey was three types of open-ended questionnaires designed to get answers from:

1. MNRT (Wildlife division, Ramsar Focal Point);
2. Government Ministries/Agencies /Various organizations at national, Regional and District levels;
3. Village Governments/Villagers

3.0. STAKEHOLDERS OF LAKE JIPE

In trying to understand Like Jipe issues and challenges, it is better to analyze the various stakeholders basing on their links and interest in lake resources. Most if not all Lake Jipe management issues are linked to the social, economic and ecological needs of people and capacity of the lake to provide such needs.

Local communities have a range of interests in Lake Jipe. It is desirable to maximize the concurrence of those interests with conservation and sustainable use. Different stakeholders have a stake in Lake Jipe for different purposes (irrigation for farmers, domestic water use, tourism, fishing, transport and generating revenue for district as well as interests of those people living on the Kenyan side who also depend on lake Jipe). This variability of interests creates conflicting situations resulting in issues that need to be clearly communicated in order to be resolved. This awareness raising strategy for lake Jipe is expected to bring a clear understanding of the Lake Jipe issues in social, economic and ecological terms that make the issues relevant to people's livelihood. The stategy assumes that there will be linkages between Lake conservation programmes for both countries who share the lake and its resources.

Major issues are summarized below:

3.1.1 Ecological/Environmental

- The capacity of Lake Jipe to support different life forms and communities livelihood
- Different researches being conducted at Lake Jipe
- Absence of integrated Lake Jipe Management Plan limits conservation and community socio economic development efforts in the Lake area.
- Siltation of the Lake, which is caused by unsustainable farming methods, has reduced lake depth thus impairing transport, fishing and accelerated weeds growth.
- Lack of alternative energy sources and facilities, afforestation and appropriate farming programmes for soil and water conservation in Lake Jipe to both upstream and down stream communities accelerate degradation.

3.1.2. Economic

- Limited involvement of all stakeholders in management of Lake Jipe area
- Lack of alternative livelihood and capital such as credit facilities in villages surrounding Lake Jipe has negative impact to conservation and income generation (eradicate poverty)
- Degradation of Lake Jipe has negative impact on national power production since the former is one of the sub-catchments of Nyumba ya Mungu and Pangani river. Drying up and degradation of Lake Jipe will have serious negative impacts to power generation in Nyumba ya Mungu as well as spread of waterweeds in the two wetlands.
- Reduced fishing leads to less income to individuals and Mwanga district and less nutrition to the surrounding communities
- Limited capacity of communities/district to undertake conservation and sustainable use of Lake Jipe and its resources
- Promotion of eco tourism depends on water and wildlife qualities of Lake Jipe for tourism business

3.1.3 Social/Political

- Serious water shortage for both domestic and livestock use for villages surrounding the lake has social and health implications to these communities.
- Laxity of the communities to report various issues to district authorities slows action taking by the later (e.g blocking of Lumi river in Kenya)
- Mindset and Limited involvement of all stakeholders in management of Lake Jipe area
- Lack of a resource management and land use plan of Lake Jipe both a national and as a shared transboundary resource between Kenya and Tanzania.
- Limited Community focused joint programmes on conservation and sustainable utilization of natural resources
- Limited established mechanisms for cooperation, networking and exchange of information for management of the lake and other socio-economic issues
- Migration of people to other areas affects social life of communities
- Limited programmes for sensitizing communities on the importance and links between conservation, livelihood and poverty.

3.1.4 Institutional and Natural Resources Governance

- Limited natural resources management techniques for increasing productivity as well as enforcing rational utilization of available resources.
- Limited capacity and extension services for training and re-training communities.
- Lack of Resource users associations and other civil society organizations to complementing extension services
- Limited community groups and NGOs to work for socio-economic and ecological development slows poverty eradication efforts in Lake Jipe

3.2 Key stakeholders in Implementation of various proposed activities

The successful implementation of the strategy will be a major challenge in terms of mobilization and participation of all concerned and interested parties. For Cross border management of Lake Jipe and its resources, Coastal Development Authority (CDA) of Kenya and Pangani Basin Water Board (PBWB) of Tanzania are very important stakeholders. The Pangani Basin Water Office (PBWO) is a regulatory body, which allocates water use in consultation with the District Administration Offices while CDA is mandated to encourage development in river basins and catchment areas within the Coast Province in Kenya. Other most important selected stakeholders from Kenya are Kenya Wildlife Services (KWS), Taveta District Authority, National Environment Council (NEC) and National Environment Management Authority (NEMA).

Stakeholders of lake Jipe are those groups or people that can have direct and indirect impact on the Lake, either by being decision makers or (end) users. As the awareness strategy will be implemented in Tanzania, all primary and secondary stakeholders were targeted and selected during field visit missions. Based on the role and responsibilities, the following groups were selected:

3.2.1. National Level

In Tanzania the responsibility for wetlands/natural resource conservation and management is shared among many stakeholders. At national the awareness strategy for lake Jipe will target several stakeholders with the objective of raising awareness on issues happening at local level and disseminating relevant information for informing policy decision making of issues at both national and local level.

▪ *Ministry of Natural Resource and Tourism*

The overall implementation of the strategy will be done by the Ministry of Natural Resource and Tourism through the Wildlife Division (National Focal Office for Ramsar Convention). Wildlife Division will appoint officers in charge for the implementation of the strategy. The office will be responsible for mobilizing resources, disbursing funds, overseeing the implementation of the strategy as well as monitoring, reviewing and evaluating the strategy. Other divisions of the MNRT such as Tourism, Fisheries and Forestry Division oversee the implementation of their sectoral mandates while the Wildlife division will oversee to ensure that wetland issues are intergrated in overall Strategy implementation plans of all players.

- ***Other government Ministries and Institutions***

Conservation and sustainable use of Lake Jipe is a multi-sectoral issue. Success of the strategy depends on the support of different government institutions responsible in environmental conservation and natural resources management. Government institutions at National level relevant in the implementation of the strategy include Division of Environment (VPO), NEMC, Ministry of Water and Livestock Development, Ministry of Regional Administration and Local Government; Ministry of Agriculture and Food Security; Ministry of Lands and Human Settlement Development; Ministry of Community Development, Women Affairs and Children; Pangani Basin Water Office (PBWO), National Land Use Planning Commission, Presidents Office, Regional Administration and Local Government. This multi-sectoral group is very important for successfulness of the strategy and should be well informed and where necessary involved.

- ***Media***

Media plays a vital role in dissemination of information. In implementing this strategy, regular information flow is needed to ensure that all relevant stakeholders are continuously up to date with the conservation activities taking place at lake Jipe. Different media which can reach a large number of people such as TV (ITV, TVT, Star TV, Channel TEN, etc), Radio stations (Radio Tanzania (National and Zonal Radio), Radio One, Radio Free Africa), Media Council of Tanzania, Tanzania, Tanzania School of Journalism and Journalists Environmental Association of Tanzania (JET) should be well informed and involved. The Media is a very important outreach arm in the implementation of the strategy and hence all relevant print, electronic media as well as traditional information dissemination channels like drama, songs, dances should be used.

- ***Research institutions***

Tanzania has strong scientific research institutions in various aspects of natural resource management such as Dar es Salaam University/Institute of Resource Assessment, Sokoine University of Agriculture/Faculty of Agriculture TAFIRI, TAFORI, and TAWIRI as well as NGOs. Sound research on lake Jipe/wetland values and functions, techniques for wetland restoration, and other related topics provides important information on which to base wetland conservation policies and programs.

- ***National NGOS***

Another important group of stakeholders is that of environmental NGOs and civil society organizations. NGOs together with local and Central Government in collaboration with international agencies and institutions have been very instrumental in implementation of various natural resources conservation activities in the country. NGOs possess diverse experiences, expertise and capacity in natural resource management and enhancing awareness among the general public because of the access they have to the local nationwide communication channels and media as well as working with grassroots.

- ***International NGO/ Development Partners /and International Community***

Many international NGO/ Development Partners and International Community are on the forefront in supporting management of natural resources in Tanzania. Those organization/agencies are very potential in providing technical assistance, information, financial resources wetlands and other natural resources conservation. Potential International NGO/

Development Partners /and International Community relevant in the conservation of wetlands and natural resources in Tanzania are provided in appendix B.

3.2.2 Regional and District Level

▪ ***Decision Makers***

The environmental and socio-economic influences of Lake Jipe extend beyond the Region and District where it's located. For example, drying up of the lake could have a wider impact on the Nyumba ya Mungu Dam as well as Pangani river. Therefore Tanga, Manyara and Kilimanjaro regions are key players in management of Lake Jipe. The Regional Commissioners for all these regions, District Executive Directors having a stake in Lake Jipe issues should be represented.

District technical staffs such as Heads of Department: Agriculture and Livestock; Community Developments; Planning Officer, District Natural Resources Officers (DNRO), District Forestry Officers (Dfo), District Fisheries Officers (DFO), District Wildlife Officers etc are important in facilitation of the communities in development activities by giving technical advice on natural resource conservation, fishing, education, agriculture and weather conditions. Also District Leaders are responsible to ensure that all the planned activities in their area are implemented by monitoring and supervising.

▪ ***NGOs/CBO***

NGOs working on conservation of natural resources at district and Regional Level, such as - TIP- (Traditional Irrigation Improvement Project), CDTF (Community Development Trust Fund), KIRECA are important stakeholder in training, preparation, production and distribution of awareness materials. These NGOs have been working on the locality for many years and have information, which may be of significant in the implementation of the strategy.

One of the active NGOs in Lake Jipe area is MIFIPRO which was formed in 1984 as a result of a ten-year Agreement of cooperation between Mwanga District Council, and the Community Development Trust Fund of Tanzania. The organization works closely with the District, village authorities and many other organizations responsible for rural development from within and outside the country. It is based in Mwanga District, and its headquarters is located in Kigonigoni village, about 50 km from Mwanga Township and about 3 km from Lake Jipe. The aim of the organization is to improve the conditions for smallholder peasants and to support group organizations, by starting and supporting projects and programmes contributing to sustainable development. The focus is particularly on smallholder peasants, both men and women. Their vision is a better future for the lowlands of Mwanga District and elsewhere in Tanzania. In the implementation of the strategy MIFIPRO, and other NGOs in the area may be involved in:

- Awareness raising and training programmes
- Initiation and mobilization of the communities and resource users to form groups / associations
- Introduction of credit and social services promotion facilities

3.2.3 Ward and Village Levels

▪ ***Village Government, Village Environment Committees, Ward Executive Officers and Councilors***

Village Governments, Village Environment Committees and Ward Executive Officers form established institutions that oversee all the development programmes and projects at their levels and these are also responsible for educating the communities on environment and natural resource utilization. This group is responsible for collection and dissemination of the information on local environment and natural resource utilization and status, and to forward feedback from their areas to the district for follow-ups.

- ***Civil Society***

Local resource users groups (individual Villagers, irrigators/farmers, hunters, fishermen, small businessmen/vendors), Community groups (e.g. pottery, farmers, SACCOS), Religious leaders formal/informal groups (elders, women, youths, farmers, livestock keepers etc.) forms the Primary Stakeholder group designated as the principal resources users. They depend directly and mainly on the resources of lake Jipe for their well being. This group is important in decision-making in Village Assembly for sustainable use of lake Jipe and also collects and disseminates information to villagers. Further more this group contributes ideas and advice on bylaw making and revenue collection. Lake Jipe cannot be separated from the need for local people to meet their aspirations for economic development and a better quality of life. The successful implementation of the strategy will depend to a large extent on cooperative relationship between local communities and implementers of the strategy.

3.3 Segregated Stakeholder Information Needs

Lake Jipe and its resources are complex ecosystems in which many groups of the society both for Tanzania and Kenya have a stake. The interests in the Lake can be shared, but the reason behind this interest and therefore the perception of the use of this Lake differ widely. Also the ideas on how to approach or resolve lake problems can therefore be perceived differently.

3.3.1 Information needs

Because of the multi-stakeholder situation in Lake Jipe management, the problems are complex and information needs are diverse. Communication is needed to make local authorities and the communities around the lake understand the different interests and issues that are at stake, when dealing with people's livelihood support challenges like decrease fishery, water weeds, siltation, functions and benefits provided by lake Jipe for the well-being of the population and measures them. Information on how to increase their income through sustainable management of resources, use of alternative energy, availability of credit facilities and capital as well as enhancing their cooperation with their neighbours on the Kenyan side on collective resource utilization and consequent conservation is very crucial for Lake Jipe communities.

One thing that all stakeholders have in common is their need for a clean, healthy and productive lake Jipe ecosystem. Communication could make this mutual interest a common objective, so that lake Jipe management plan becomes a jointly owned and sustainably managed for the benefit of mankind and all life forms.

3.3.2. Limited guidance on Lake Jipe (wetland) sustainable resource use

Another communication issue is the limited guidance on wetlands management from national level and district.

Despite the fact that there is no single National Wetland Policy, various national policies carry relevant statements for managing wetlands like Lake Jipe. However deliberate efforts should be taken to ensure that all these policy statements are decoded and disseminated to districts and other players so that they can be used to inform and support decisions made. The MNRT effort to come up with this strategy should entail preparation of inventory of all relevant policies and policy documents relevant for management of Lake Jipe. After getting such information then, it is upon the authorities to decide on which policy statement to use. Likewise the Ministry is reviewing the Wildlife Policy of 1998 to accommodate among others, wetland issues. Also the Wildlife Conservation Act is under revision and inputs on wetlands enforcement issues have been incorporated.

3.3.3 Information Flow, Channels and Messages in Lake Jipe Area

Assessment of the existing channels of communication and media at the community level was done in order to get preferred and accepted channels of communications and media for the implementation of this awareness strategy. The results indicate that battery radio and indigenous media such as cultural shows, songs, special community celebrations and interactive drama are very powerful media. Likewise, pronouncements made by Village governments are taken seriously and follow up measures to implement such pronouncements are seriously adhered to. Implementation of such pronouncements is locally termed “Msalagambo”.

Radio sets are available almost at every household in lake Jipe area and for those who don't have their own sets have access to radio from their neighborhoods. The villagers normally listen to Radio Tanzania between 6.00 (majira) and 8 in the mornings before they go for their farm activities and between 7 and 9 in the evenings when they are back from daily work. Other villagers prefer listening to Radio one, Radio Free Africa and Radio Kenya mainly broadcasting entertaining programs like music. Three radio channels that are more popular and preferred by more community groups in Lake Jipe are:

- Radio One
- Radio Tanzania
- Radio Kenya
- Radio Free Africa

Likewise various interactive activities such as video shows, village meetings (generally well attended by men) and exchange visits are found to be effective means of communication at this level. TV stations that broadcast football matches are also popular and seem to have a great attraction to youth groups and youngsters. Also it was found that men mostly get information from worship and recreational places such as the mosque, church, peer gatherings and bars. Therefore, implementers of this strategy should concentrate on promotion in public places and gatherings including forums used by religious organizations, village meetings and traditional gatherings.

Also it was found that other people get information from people with different technical skills like extension staff from agriculture, traditional irrigation schemes, livestock keepers, politicians, health and social officers in general. It was observed that in terms of training and extension on

appropriate methods for increasing agriculture production, MIFIPRO Trust Fund has played a vital role on provision of such technical and extension information.

Furthermore, occasionally local people read newspaper, posters, leaflets and booklets, at district level, posters, leaflets and booklets, newsletters, seminars, meetings and exchange visits are found to be proper media.

Self Help Campaigns “Msalagambo”, or mbiu ya debe provide access to information and a dialogue on key development issues of relevance to Lake communities and dissemination of factual information through gatherings such as community development meetings and other relevant activities in the area. “Msalagambo”, or mbiu ya debe and radio will effectively support the horizontal communications at community levels while official correspondences, reports, media tour and reporting policy briefs and visits and other print media will support vertical communication between the community, district, and central levels.

3.3.4 . Commonly received and disseminated Awareness Raising Messages

Awareness raising involves availing information and making use of it. It is a way of communication with intended end users for increasing the level of consciousness at that particular issue/field.

- ***Provision of the awareness raising messages***

It was observed in the field that there is no regular provision of environmental conservation messages. This was evident in old posters on Kilio cha Mti and Moto na Mazingira campaigns of 1991, and when they were asked whether they could get other similar posters with environmental conservation messages, a number of them confirmed that it was no longer easy to get such posters. They lamented that the most commonly received messages in their villages included MPs and Government leaders visits and meetings, a bit on HIV and AIDS, education, irrigation improvement techniques and training and on games (mainly football).

Other messages provided include general awareness campaigns on water harvesting techniques and irrigation practices, water management, de-stocking and zero grazing, use of draught animal power, importance and conservation of forests for rural livelihoods, land tenure regime, utilitarian and conservation values of natural resources.

- ***Formulation of messages***

It is anticipated that one of the activities during implementation of this strategy will be formulation of messages to en-light all stakeholders that the Lake and its catchments are beset with management problems and that it is their responsibility as the most immediate beneficiaries to see to it that such problems are solved in a participatory manner with them being at the steering wheel. This will be coupled with explanations that we are all responsible to ensure that these problems are solved to bring back the old good days of Lake Jipe being a reliable source of livelihood and wealth for its people and this country.

This information will be disseminated to elaborate incentives, benefits and profits associated with rational use of Lake Jipe and its resources. The messages will put more emphasis that in the long term Lake Jipe wetland can provide much more benefits than at present if it is well conserved.

Formulated messages will also inform the communities that there are a number of national and international obligations and commitments of the country as well as national legislation that stand for environmental ethics and stewardship for conservation of wetlands and environment in general for both present and future generations of Tanzania and Kenya as well as the world at large.

4.0. LAKE JIPE AWARENESS RAISING STRATEGY

This section describes specific strategies and activities needed to meet the objectives set forth below. Some of the strategies are intended to improve the effectiveness of the awareness strategy and to strengthen coordination and cooperative among central government institutions, local government, Non governmental organization as well as local communities. Other initiatives or plans such as land use and management plan; alternative income generation activities are needed to meet the conservation and sustainable use objective.

For each objective, is followed by suggestion why the objective is important and relates back to the lake Jipe issues and concerns raised by Lake Jipe stakeholders as highlighted in section 3.2 and in ANNEX 2. This section also provides activities to be undertaken. Carrying out these activities effectively is expected to result in significant achieving the major objective of this strategy of conservation and sustainable use of Lake Jipe and its wetlands.

4.1 Objectives and strategies

The overall aim of the awareness strategy is to ensure conservation and sustainable use of Lake Jipe and its resources by sensitizing local communities and other stakeholders to actively participate in identification of lake Jipe problems, systematic identification of solutions and implementation of various programmes for conservation, rehabilitation and utilization of Lake Jipe and its resources . In determining how the strategy could best contribute towards achieving the overall goal, the following specific objective are addressed:

Objective 1: To create an understanding of issues and challenges to ensure active support and participation to conservation and sustainable use of Lake Jipe.

From literature review and field visits, it was noted that many stakeholders including the communities living around the lake are not aware of the utilitarian and conservation value of the lake and the efforts that have been going on for restoration of lake Jipe has not been linked to their livelihood they get from using the lake and its resources. Communities and district authorities as stakeholders are critical because of the shared responsibility for lake Jipe and its wetlands conservation and ensuring that decisions made at national government agencies, regional secretariat, take cognizance of Lake resource users who make day-to day decisions about the management and use of lake Jipe wetlands. Setting aside annual budgets is only one of the ways of checking that such issues are taken seriously. Thus raising awareness on the important of Lake Jipe, the benefits and disadvantages of not conserving it should be well known to all stakeholders. This understanding will raise the political will and commitment for its conservation

Strategies

(i) Raise public awareness on the benefits and hence the conservation rehabilitation and utilization of Lake Jipe and its resources.

Different stakeholders are not actively cooperating in lake Jipe conservation and do not understand ecology and wider sets of values attached to the lake that make a significant contribution to the welfare of local inhabitants and Tanzania at large. Therefore it is often not realized that these could be re-conciliated in support of a common objective: an ecologically and economically healthy lake Jipe. It will be important to take an economic valuation of lake Jipe and translate the results into simple appropriate messages to be addressed to legislators and all decision-makers, planners, local communities and local authorities, donors and the public at large.

Activities

- 1) Organize awareness meeting/seminars/workshops for village leaders
- 2) Organize exchange and field visits,
- 3) Production and dissemination of awareness materials
- 4) Prepare and provide information to journalists and editors of television and radio programmes
- 5) Organize face to face discussions
- 6) Disseminate the studies results
- 7) Institute a general public awareness campaign on a periodic basis (e.g. World Environment Day, Wetlands Day and National Tree Planting Day, Lake Jipe Day etc)
- 8) Organize exhibitions and shows
- 9) Creation of an Internet website on Lake Jipe and Tanzania wetlands with links to TZ-Government official websites (e.g. TZ Online) and other local websites.

(ii) Utilize the organizations and agencies expertise that are already involved in informal/formal awareness raising to form the basis of a continuity

There are various organizations and agencies, which have been working on informal/formal awareness raising activities in Tanzania. Such organizations/Agencies possesses diverse experiences, expertise and capacity in preparation and production of awareness materials, training, and in designing and implementing interactive and entertaining activities that promote interaction, dialogue and exchange of experiences.

Activities

- 1) Develop local, district and regional awareness raising materials
- 2) Contact and prepare MoUs to work with NGOs such as MIFIPRO on training and extension services
- 3) Forge partnerships with agencies to develop these awareness materials (e.g. WWF, IUCN, Ramsar Headquarters, SADC REEP etc)
- 4) Collect and adapt existing materials for awareness raising (e.g. Ukulima wa Kisasa)
- 5) Train trainers like teachers, community workers and other staff on delivery of conservation ideas, messages, concepts and materials (mentors)

(iii) Establish adequate means of sharing information, training and exchange of experiences amongst stakeholders to enhance their capacities.

Adequate means of sharing information, training and exchange of experiences amongst stakeholders is needed due to the fact that natural resource conservation information are constantly changing depending on factors such as new policies, new legislation, new guidelines and demographics. Stakeholders need improved accesses of up to date information that clarify which

activities are feasible in lake Jipe area and how they can use such information to make informed decisions

Activities

- 1) Inventory and Documentation of all Lake Jipe stakeholders and their roles in both countries (Kenya and Tanzania)
- 2) Promote interactive meetings/ and workshops to foster mutual understanding fo issues and their implications amongst the parties.
- 3) Popularize policies, legislation, and new guidelines
- 4) Develop by laws for sustainable resource use
- 5) Identify roles and functions of each party and follow up and feed back mechanisms
- 6) Identify and use of focal people at the community level as pioneers/mentors of best practises

(iv). Enhance ongoing efforts concerning conservation of natural resources in the area

There are several information and education efforts ongoing in concerning conservation of natural resources in Tanzania especially on water catchments conservation, forestry conservation, wildlife etc. A coordinated effort should be encouraged to employ a variety of approaches to develop and deliver natural resources information and materials, and training programs for multiple audiences national wide. Communities should be made aware to the fact that all these efforts complement each other.

Activities

- 1) Compile existing wetlands education information and education opportunities
- 2) Strengthen communication among groups and agencies involved in natural resources management education and extension service provision
- 3) Assess public perceptions, interest, knowledge and educational needs regarding natural resource issues
- 4) Identify deficiencies or gaps in existing education information resources and develop awareness materials for the later
- 5) Evaluate the effectiveness of existing educational information for different audiences
- 6) Identify new and improved ways to disseminate new and existing information
- 7) Coordinate various conservation efforts within Lake Jipe.

(v) Encourage voluntary measures for protection, sustainable use and conservation of lake Jipe resources

To achieve a conservation and sustainable use of lake Jipe resource, it requires significant effort beyond regulatory programs. An emphasis on voluntary conservation will build good will between district authorities, NGOs and local communities. Cooperative, voluntary, non-regulatory mechanisms are likely to provide the greatest opportunity for lake Jipe conservation activities.

Activities

- 1) Consultations with local leaders, district authorities, documents, institutions, organizations
- 2) Disseminate information of voluntary activities
- 3) Allocate resources for voluntary

- 4) Compile and evaluate information concerning existing voluntary natural resource conservation activities on the area

(vi) Establish mechanisms for data collection, research and information priorities for Lake Jipe

A centralized, accessible source for information on lake Jipe/wetlands does not currently exist at district and local level. Improved public access to information is essential for increasing the awareness of lake Jipe issues and concerns. Programs and projects for the purpose of lake Jipe conservation all require accurate and relevant information. Use and sharing of existing data are equally important to research and the collection of new data. Accurate reports on the current status of lake Jipe resources are only possible with reliable public access to verifiable information.

Activities

- 1) Propose establishing Lake Jipe resource Centre at on ward level
- 2) Updating data and information
- 3) Inventories,
- 4) Prepare fact sheets and brochures for dissemination to various users
- 5) Formulate discussion forum.

Objective 2: To create awareness of national policies and guidelines on natural resource management/environmental conservation.

National policies and guidelines on natural resource management/environmental conservation information is needed regularly to ensure that all relevant stakeholders are continuously up to date with recent developments in national policy formulation in relation to wetland management. It is important to note that decisions, practices, and actions at all levels - local, district, regional and national are important for sustainable natural resources management and conservation.

Strategies

- (i) Ensure nationally developed policies and guidelines are implemented at local level*

Provision of national and guidelines at local level ensure acceptance, support and active implementation of the policies and guidelines at local level and also create support for lake Jipe/wetland management among the Government ministries and agencies. Laws and policies sometimes provide incentives for sustainable practices. To achieve sustainable livelihoods for the local population requires work not only with them, but also at the level of national policy.

Activities

- 1) Prepare popular versions of various policies and statements on wetlands
- 2) Organise issue specific group discussions and workshops with local groups
- 3) Elaborate community/other stakeholders roles on operationalizing these policy statements

Objective 3: To raise awareness and facilitate income generation activities (IGA).

Economic factors are key determinants of decisions, actions, and practices'; influencing those behaviors requires activities that change the underlying economic benefits and barriers. Lack of alternative livelihood and capital such as credit facilities in villages surrounding Lake Jipe has

negative impact to conservation and income generation. Introduction of credit and social service facilities like TASAF, Self, Pride, Finca in the lake area will increase money circulation in the area. This will also promote formation of groups to stimulate other non-agriculture and non-fishing activities hence reduce Lake degradation and diversify income sources.

Strategies

(i) Promote alternative income generation activities

Conservation and sustainable natural resources management can be promoted by developing more alternative income generation activities that compete with unsustainable practices or that return a higher value from sustainable uses of resources than from unsustainable ones. Irrigated agriculture made possible by stable flows of water from lake Jipe is one example. Income generated from basket and carpet making from waterweeds and ecotourism are economic benefits local people can derive from lake Jipe ecosystems.

Activities

1. Identify and document suitable, and feasible alternative income generating activities
2. Offer training on suitable, and feasible alternative income generating activities
3. Organize exhibitions and shows on IGA
4. Train communities on natural resources management techniques

(ii) Make local residents aware of the various credit facilities

There are several credit support facilities which either provide grants or credits for community development. Promotional materials will be collected from these organizations and disseminated to lake Jipe interest groups. Likewise discussions with these organizations to impress them to work in Lake Jipe will be initiated. Mwanaga District Community Development officers are to be sensitized to take the lead on this issue.

Activities

1. Bring in experts for credit facilities and social service funds (promotional visits)
2. Facilitate development of mechanisms and linkages with credit facilities
3. Incentive schemes
4. Training visits to IGA groups in Kilimanjaro region
5. Develop competition and awards

Objective 4: To facilitate formation of local resource users groups / similar interest group networks.

Different stakeholders at local level may not take into account each other's current and future interests in utilization of lake Jipe and its resources due to lack of venue to reach consensus or common approaches on how to deal with lake Jipe issues.

Strategies

(i) Establish and formulate networks at different levels – Village, Ward, and Districts with representatives from all major stakeholders

Formation of local resource users groups for lake Jipe management, with representatives from all major stakeholders is of great importance. Formulation of the groups means a permanent venue for exchange of ideas and interests pertaining to conservation and sustainable use of lake Jipe will be established and used. The local resource user groups will enhance mutual understanding and to reach consensus on approaches in conservation and sustainable use of lake Jipe for the benefits of all stakeholders.

Activities

- 1) Ensure an integrated multi-stakeholder involvement approach through formation and facilitation of resource users networks
- 2) Facilitate groups to develop their working modalities
- 3) Establish network linkages between themselves and with district/national level organs/authorities
- 4) Formulate resource use networks/group activities monitoring and evaluation mechanisms.

(iii) Increase awareness of different issues of lake Jipe in a multi-stakeholder situation

National and community groups can respond to the conservation of lake Jipe through in a multi-stakeholder situation. Discussions and consensus building on various issues affecting them can help them come up with by laws and governance mechanisms which will be respected by all parties involved

Activities

- 1) Organize workshops, seminars and trainings
- 2) Disseminate print materials through the network
- 3) Sharing information and experience;
- 4) Feedback and/or stakeholders input
- 5) Facilitate Village meetings
- 6) Facilitate inter-village visits/competitions
- 7) Facilitate regional and national visits
- 8) Facilitate media visits to Lake Jipe
- 9) Facilitate media reporting on Lake Jipe
- 10) Facilitate identification of issues which require guidelines and by laws to be developed for regulate their use and management

Objective 5: To provide conducive environment for conservation and sustainable use of Lake Jipe

Lack of single national policy and guidelines pertaining to conservation of wetlands affect also management of lake Jipe at local level. However, the stakes are higher and more pressing at local level as degradation of lake Jipe affect the well being of people more directly and more regularly. In order to regulate interventions in lake Jipe/wetlands management, policies, guidelines, and legislation (by laws) should be formulated at local government level.

Strategies

(i) Facilitate preparation of local and district by laws to facilitate implementation of the management plan

The Local Government (District Authorities) Act, 1982, Section 148 (1) provides that District Councils have powers to make by laws to regulate forests and forest produce, wildlife, building materials and other natural resources. By law may provided an incentive for individuals to conserve the lake, planting trees, sustainable agricultural practices and also may work to discourage tree cutting by individual farmers. Information on such local and district by laws needs to be made available to local communities and other organizations from the civil society.

Activities

- 1) Review the existing by laws and identify gaps
- 2) Create awareness on them through workshops/ meetings
- 3) Prepare popular version and print them for reference and use

(ii) *Put Lake Jipe conservation on the agenda of various decision makers, users and media*

To put lake Jipe and wetland issues on the agenda of various decision makers, users and media ensure continued and growing political will and support especially with regard to the contribution of lake and its resources in the efforts of poverty reduction among the communities, which live around the lake.

Activities

- 1) Consultation with decision makers, including MPs during Parliamentary sessions
- 2) Seek, package and disseminate accurate and pertinent information that can help raise political awareness on lake Jipe issues ,
- 3) Establish volunteer (youth) networks & lobby groups as a platform to advocate wetland conservation
- 4) Organize media visits to Lake Jipe and follow up regular media reporting on Lake Jipe issues/ special events during various celebrations and competitions
- 5) Impress upon private sector to sponsor Save lake Jipe campaigns

Objective 6: To facilitate preparation of land use and management plan.

The main change in the nature of lake Jipe and its wetland over the last forty years has been the increase in silt loads that enter the system. This caused the lake level to rise slightly while the depth of the lake has decreased (at least to the northern end) and the edge swamps have spread in to the open waters. Soil erosion, siltation, sedimentation and eutrophication from agricultural activities have been mentioned to accelerated degradation of lake Jipe. Due to the holistic nature of natural resource management, it is important to address agricultural problems existing on the area through preparation of land use and management plan.

Strategies

(i) *Promotion of appropriate farming techniques*

For successful implementation of the land management plan appropriate farming techniques should be promoted. Issues of lake Jipe management all are interrelated and affect each other. The challenge is to look at the interrelationships among the issues and address them.

Activities

- 1) Awareness of having village land uses and abiding to such plans.
- 2) Identification of appropriate agriculture practices and crops for various villages

- 3) Encourage links between land use planning and lake Jipe conservation.
- 4) Identifying mentors (pioneers) for terracing/ridges and cassava and sorghum crops

(iii) Raise District and community awareness on the importance of having a Lake Jipe land use and management plan

Planning and allocation various areas for a give land use depending on its suitability fcalitates conservation and optimal use of a given piece of land or resource. Lake Jipe area as fragile as it is, is suitable for some activities and not for others. A carefully developed land use and management plan can contribute towards appropriate and rational use of resources in lake Jipe

Activities

- 1) Organize training on land use and management plan for for Mwanga , Moshi Rural and Manyara district stakeholders
- 2) Promote introduction of appropriate farming practices to curb siltation
- 3) Promote drought resistance crops (cassava and sorghum)
- 4) Organize district and community stakeholder meetings
- 5) Develop and implement training programme on land use plans preparation

(iii) Raise community awareness on the existing land legislation and other natural resources management laws

Land and village land Acts of 1999 are crucial instruments in assigning land for villages use. Very few villages are aware of these pices of legislation and many others which are relevant for their welfare. Awareness on these pieces of legislation will enlighten Lake Jipe stakeholders on how they can use them to facilitate their social and developmental issues.

Activities

- 1) Popularizing existing regulations
- 2) Formulation and enforcing of by laws
- 3) Training on good governance
- 4) Guidelines on natural resources management techniques (fishing seasons, weed removal etc).

4.2. Proposed Communication Channels and Messages

Information dissemination and awareness raising on the lake will have wider application. It will involve the dissemination of information concerning the conservation and sustainable use of resource of Lake Jipe and the benefits to immediate communities in Tanzania as well as other resource users (e.g. on Kenyan side). Simple and easy to understand messages will be developed and disseminated using various communication and outreach channels.

Communication channels

Lake Jipe awareness raising communication channels will be both formal and informal communications that are necessary for reaching out to the community level. To reach the all stakeholders at grassroot level, Wildlife Division will work through Regional Secretariat and District authorities to the community level. Also important conservationist NGOs such as MIFIPRO, which have basic extension techniques in the area and have developed networks that

reach almost all community groups. It was observed that MIFIPRO has the capacity to deliver conservation and sustainable use messages due to its agriculture extension experience and location within the lake area.

It is not easy to change the existing formal lines (official lines) of communication from the national level to the community level. However informal direct lines of communication (where possible) will be used between Wildlife Division, implementers and other stakeholders at District level and at local levels. For effective interaction of stakeholders, two-way communication (to and fro feedback mechanisms) will be fostered and promoted.

Tools and Messages

During field visit, it was learnt that most people at the community level rarely read printed materials, they prefer more listening to entertaining radio programmes e.g. Radio One and RTD as well as getting pronouncements from village leaders and peers. However for effective channeling of information and increased outreach, implementers of the strategy will use less wordy print materials like which are graphically attractive; fliers, newsletter, articles, photographs, leaflets, posters, and other printed materials on explaining issues and benefits of lake Jipe. Also exchange visits and other literature dissemination; meetings, interviews, discussion sessions, drama presentations, and indigenous media are also proposed to keep the issue of lake Jipe hot and topical in the community.

Village-based drama groups require training in carrying out local appraisals on environmental issues so that they can base their performances on the conservation and sustainable use of lake Jipe resources .

Awareness raising materials will be designed in line with local community preferences and the implementers will provide a supporting role in this endeavor.. Printed material such as leaflets, brochures, and posters can be prepared locally and printed in Kilimanjaro region or elsewhere if need be.. Relevant district staff should be involved in finalizing the text of these printed materials. Various local based NGOs, which have sufficient experience in designing and implementing interactive and entertaining activities that promote interaction; dialogue and exchange of experience, should be tapped.

Brochure and mass media coverage with appropriate message as stated above will serve to raise awareness on issues as well as the environmental management efforts of the District Council and other players. The suggested brochure format is a slim leaflet (A4 folded twice) printed in full color. The brochure will be distributed to District staff, village leaders, national institutions, journalists, visitors, donors, colleagues and any other interested parties. At the village level, drama, village meetings and pronouncements and poster workshops are tools for putting issues on the local agenda.

World Wetlands Day, World Environment Day, and National Tree Planting Day (or even Lake Jipe day can be proposed) are some special calendar events, which provide opportunities for raising awareness to the public on conservation and sustainable use of Lake Jipe. The district authorities may organize press coverage and mobilize drama groups, schools and other participants locally.

“Msalagambo” or mbiu ya debe will support the horizontal communications at community levels while battery radio, media reports and progress reports on implementation and recovery of resources will support the vertical communications between community levels and district, and

central levels. It is strongly recommended that interactive radio programme should be prepared. In some instances interview with communities and resource users associations should be aired live on media.

For communication to be effective, the message must stress the need for conservation and sustainable use of lake Jipe. The messages need to be palatable so that people are willing to receive them. The use of everyday examples that people can identify with their practices may work better than technical messages.

To influence community's behavior change, information must be combined with other measures that make people actively involved and making them feel that they can deal with their own situations. Another way to support practice changes is to repeat and reinforce the messages that promote the desired change. This may be done through focus groups discussion, community meetings, posters, shows and exhibitions and other local media. Various Messages will be in Kiswahili and the mentors or extension officers will be responsible for ensuring that they are clearly understood by target audiences

Maintaining Media and Outreach Contacts

One of the best and effective ways to maintain media coverage is to establish relationships with individual journalists. Implementers of the strategy should make regular visits to news reporters in Moshi and journalists in Dar-es-Salaam and to maintain good working relationship and regular contacts with environmental NGOs to ensure that activities in Lake Jipe are known to them and may be included in their news briefs and reports. District staff should produce newsworthy stories, articles for publication and the press releases on regular basis. For a journalist in Dar es Salaam where media reporting is high, Wildlife Division and NEMC may provide a contact point. It would be helpful at a certain time of the year to invite journalists to Mwangi District and specifically to visit Lake Jipe and report to raise national awareness and bring to the forefront the conservation and developmental activities as well as getting feedback of lake issues.

The East Africa Community Secretariat also should be briefed and follow up on action taken at regional level. MNRT and VPO are key stakeholders spearheading implementation of this matter at regional level.

4.3. Proposed Implementing Institutions and their roles

For sustainability of the implementation of the activities a Joint Management Committee will be established. This committee will work in line with the existing administrative and management structures. The proposal is for the committee to be chaired by the Permanent Secretary in the MNRT. Other key ministries and departments will be selected depending on their mandates and functions as regards to wetlands, natural resources management and social development. The Ramsar focal Point should propose the membership and ToRs for this committee.

Other key implementing agencies and their proposed functions are:

- (1) District Councils- Mwangi, Moshi Rural and Simanjiro.
 - Oversee, supervise and coordinate different players in implementation of the strategy
 - Plan and set district resources for implementation and sustainability of the strategy
 - Monitor and evaluate implementation of programmes
 - Approving training and awareness programmes

- Monitor infestation of weeds in Lake Jipe and Nyumba ya Mungu and design programme to combat them

The District Natural Resources Officers are responsible for co-coordinating natural resource and environmental conservation activities. This group should also oversee awareness raising activity.

(2) NGOs (MIFIPRO and IUCN)

- Provide technical support
- Train communities/groups
- Prepare and implement awareness raising activities
- Production and distribution of awareness materials
- Work with communities
- Initiate and Mobilize communities and resource users to form groups / associations
- Prepare implementation plans and reports
- Introduce credit and social services promotion facilities

(3) Ramsar Convention Focal Point

- Mobilize resources
- Releasing funds
- Oversee implementation of the strategy
- Monitor, Review and Evaluate implementation of the strategy
- Build the capacity of districts

(4) East Africa Community and IUCN

- Coordinate transboundary issues
- Spearhead and oversee Formation a Joint Management Committee (representatives of stakeholders from both Kenya and Tanzania)

(5) TANESCO

- Monitor weed infestation and water pollution of Nyumba ya Mungu
- Propose means of eradicating weeds
- Monitor Water Quality in NYM
- Participate in national and cross-border initiatives for management of Lake Jipe

(6) Pangani Basin Water Office

- Monitor water use rights (compliance and enforcement)

(7) Resource Use Groups

- Discuss and agree amongst themselves on resource use issues of common interest and develop guidelines on the same
- Liaise with extension workers and press for feed back on action taken on issues affecting them
- Form resource users networks

(8) CBOs

- Mobilize communities to decide and plan for their development issues
- Solicit resource for conservation and social development credits and grants
- Lobby groups within their community and at district and national levels
- Disseminate information and raise awareness on various issues of interest.

5.0. MONITORING AND EVALUATION

Monitoring and evaluation of the strategy will be done at three levels. The first level is at activity level. The formative evaluation will be done at objective level on a quarterly basis by the implementer. The implementer will assess the level of attainment of the objective and report on strength and weakness, which led to that level of implementation. This will enhance adjustment or building upon the strength of the successfully implemented activities.

The second level of evaluation will be the annual reporting to see how the annual plans have been implemented and to review to accommodate raised issues for improvement.

The third level will be the mid term and summative evaluation at the end of the strategy time span. This will be undertaken by the wetland Wildlife Division in collaboration with key ministries or departments to see how effective the strategy has performed in attaining the desired outputs.

Baseline data which will be generated on existing knowledge, attitudes, practices, and information and media habits for the inhabitants of the two wards (Jipe and Kwakoa) will be used as a benchmark for the monitoring and evaluation of the awareness raising activities. Reports on strategy activities and implementation progress and feedback will be produced and widely disseminated to all relevant authorities. This will be evidence and indicators of change whether positive or negative taking place on which reviews and adjustments to the strategy will be made. Also, records of numbers and distribution of brochure, leaflets, participants to meetings and workshops, records of media coverage etc. will all help to illustrate the nature of work done and indicators of effectiveness and success of the strategy in raising awareness and hence contributing to the conservation of lake Jipe.

An external evaluations and impact assessment of the communication and awareness raising initiatives will be done in the two steps. The first one (formative) will be done after one and a half year (18 months) of implementation, and the second one (Summative) will be done at the end of three years. Also quarterly implementation reports will be prepared and tabled before the project steering committee and emerging comments taken on board during implementation.

7.0 PROPOSED BUDGET

Activity	Budget Details	Total (US\$)			Grand Total
		2005	2006	2007	
Specialized External Services					
Local Consultancy for awareness raising activities	1 person for 60 days for three districts @US \$ 200	12,000	12,000	12,000	36,000
Preparation and provision of information to journalists and editors					
(a) TV Programmes 6 x 30 min.	(Production and broadcasting (VAT incl.) 6 programmes @ 7,200	14,400	14,400	14,400	43,200
(b) Radio programmes 12 x 15 min.	(Production, broadcasting, excl. of VAT) 12 programmes @ 1200	4800	4800	4800	14,440
Graphic expert (estimation to be reviewed with detailed contract)					
Drama presentation	2 presentation per village x 5 villages (Jipe and Kwakoa wards) x 2 years		1,000	1,000	2,000
Annual Journalist visit to Lake Jipe	Approximately 4 Journalists for 5 days @ \$ 80	3,200	3,200	3,200	9,600
<i>Sub Total 1</i>		<i>34,400</i>	<i>35,400</i>	<i>35,400</i>	<i>104,240</i>
Printed materials (Design and production)					
News letters production	Writing/production and distribution	4000		4000	8000
Brochures	4,000 color brochure (A4 folded twice) design and print x 2 year	2,000		2,000	4,000
Leaflets	(2,000 on A4 folded twice and printed on both sides) x 2 years	1,000		1,000	2,000
Posters	(2,000 on A2 folded once) x 2 years	1,000		1,000	2,000
Banners	(20 cloth 1x 4 on the first year	500	500	500	1,500
Local prepared posters	(4 metal hand painted on A1)	400	400	400	1200
<i>Sub total 2</i>		<i>8,900</i>	<i>900</i>	<i>8,900</i>	<i>18,700</i>
Events\Activities					
Meetings (MNRT and Implementer)	4 meeting @ 3,000	6000	3,000	3,000	12,000

Local workshops	2 meetings including workshop for the network formulation	9,000		4,500	13,500
Media Technical brief		1,200			1,200
Annual events (World Environment Day, Lake Jipe Day, Wetland Day, National Tree Planting Day)	(Facilitators, performers, materials, hospitality etc.)	4,000	4,000	4,000	12,000
Forum for Land use\water resources management /IGA	3 forum		15,000	15,000	30,000
Focused group discussions	At least 1 Focus group each year	4,500	4,500	4,500	13,500
Lake Conservation Award contests			500	500	1,000
Awareness kit		2,000			2000
Training	3 Short Courses Training for 3 natural resources officers @3000	6,000	3,000		9,000
	3 seminars for community and district leaders @ \$ 3000	3000	6000	-	9,000
	3 workshops (one for each district)	3000	6000		9,000
Monitoring and evaluation	Preparation of Monitoring Plan and its implementation	5,000	2,000	2,000	9,000
Sub Total 3		43,700	44,000	33,000	121,200
Equipment:	Video Camera and accessories	3,000			3000
Sub total 4		3,000			3000
Fluctuations in currency		1000	1000	1000	3,000
Grand Total		81,000	81,300	78,800	241,100

8.0 CONCLUSION AND RECOMMENDATIONS

The following issues are recommended to be addressed for implementation by the relevant parties

1. The Ministry of Natural Resources and Tourism should revive IUCN (1999-2001) initiative to form a joint Tanzania – Kenya board for management and conservation of Lake Jipe.
2. The Government of Tanzania should probe immediately the allegation raised by almost all seven villages visited claimed that Lumi river from Kenya into Lake Jipe has been blocked and diverted for irrigation purposes. If the allegations are true, the district should advise the relevant authorities on measures to rectify the situation.
3. Mwanaga district should increase efforts to curb animals like elephants and lions from Tsavo National Park crossing during dry season and threatening life of the lake inhabitants should be undertaken. Possibly Game Officer(s) to be positioned in one of the villages/in the area.
4. Ramsar Convention Focal Point in collaboration with Mwanaga District authorities should look into the possibility of introducing credit and social service facilities like TASAFA, Self, Pride, Finca in the lake area to alleviate poverty/increase money circulation in the area. This will also promote formation of groups to stimulate other non-agriculture and non-fishing activities hence reduce Lake degradation and diversify income sources.
5. Efforts to use the two main weed species for economic activities like mats and basket making should be investigated promoted and set marketing strategies with facilitation by DC, NGOs, MNRT and MIFIPRO.
6. District, regional and national task force to rescue Lake Jipe should be formed to work out modalities on how to solve Lake Jipe problems.
7. Send a team to Kenya (Lake Naivasha), Uganda (Lake Kiyoga) and any other lakes/ water bodies with similar problem to learn on how they are approached and eliminated the problem
8. Effort for changing deep-rooted cultural mindset of Lake Inhabitants that it is the government's responsibility to solve their problems and on growing drought resistant crops (cassava and sorghum instead of maize) should be instituted.
9. Mwanaga district to write proposals for undertaking study (ies) to show poverty-environment linkage can be very elaborated and documented in Lake Jipe villages (Jipe, Mkisha, Ubembe),
10. Declare Lake Jipe area a national disaster area and mobilize resources to rescue lake Jipe from disappearance (between 65 – 80% has been covered by Typha and Papyrus weeds). This should be initiated by the Mwanaga district through Kilimanjaro region to report to Prime Ministers office on the extent of the problem
11. Approach IUCN to facilitate formation of Kenya – Tanzania, Lake Jipe Neighborhood forum (Ujirani Mwema) for discussing management problems jointly

12. Since there is a lot of interaction and business between Tanzania and Kenya the district should facilitate creation of official Lake Jipe pass ways (Forodha) to facilitate transport and business as well as fishing and fish landing sites.
13. Regional (East Africa Community) and international Agreements should be used to address Lake Jipe conservation/Water management as a transboundary issue between Tanzania and Kenya
14. Since the invasive weeds are advancing into Nyumba ya Mungu dam and Pangani River a programme to conserve these two water bodies should be conceived and its implementation initiated. The Pangani Basin water office should spearhead the process (5 – 10 years). The Ramsar Focal Point should initiate discussions on this matter.
15. Proposal for Lake Jipe Environmental Conservation Programme (5years) should be conceived. This should outline, short, medium and long term measures to conserve the Lake and its resources and put up a plan for sustainable resource utilization and development
16. Mwanga District Council should set a budget/funds annually for Lake Jipe conservation – be part of the district plans
17. More research on reduced water inflow in Lake Jipe attributed to reduced flow of rivers from Mount Kilimanjaro into the Lake should be undertaken.
18. Promote incentives for conservation designed to suit the stakeholder's needs, such as providing them with resources, education and training for effective performance of their roles. Incentives should also include recognition of positive contribution to conservation, by awards of certificate, trophies (non-material) and promotion.
19. It would be important to link conservation to development or more specifically to income generation to individuals or groups. Such a link could be made gender sensitive and done through participatory approaches such as participatory learning and action, which might be appreciated and meanwhile introducing resources conservation practices through use of strong and influential community mentors. This can be initiated by the Ministry and later taken up by Mwanga district
20. Mwanga district should facilitate preparation of land use and management plan as effective tools to manage lake resources and undertake monitoring. The National Land Use Planning Commission can be contacted for technical advice on how to do this.

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Figure 6: Selected photographs showing various issues in Lake Jipe (Source A. Maembe March 2004)



Fishermen at Mkisha showing the fish (small size) they catch out of frustration



Kifaru River covered by water weeds (Mwanga District)



Lake Jipe with islands of floating water weeds as seen at Jipe village



Kifaru River outflow from Lake Jipe



Lake Jipe waters reduced to mud at Mkisha village in Mwanga District

Consultant's Note

I, (the consultant Ms. Anna Maembe Director – NEMC) was assigned to collect, analyze and prepare this strategy as per Tor provided by Wildlife Division of the Ministry of Natural Resources and Tourism.

I would like to sincerely thank Mr. Bashiru Abdul from AGENDA who worked with me during tools development, data collection and report preparation. I would also like to sincerely thank all Wildlife Division staff who facilitate my work. Special thanks should go to the Director of Wildlife Mr. Servere for offering me this assignment. Other Wildlife Division staff who helped me accomplish this assignment and their time and efforts are highly acknowledged with thanks are Mr. C. Mdoe, Ms M. Zakaria, Mr. Nollasco Ngowe and Mr. Norbert Ngowi, Mr Kaita as well as Mr. Nziku, Mwanga District officials, Moshi rural as well as village and community leaders in all participating districts are also acknowledged. I would also like to thank all other persons whom I cant mention here but their contribution in making this work possible is highly appreciated.

Finally, I would like to thank my employer, the Director General of NEMC for allowing me to undertake this assignment and my family for allowing me time off to do this assignment.

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ANNEX 1: TERMS OF REFERENCE FOR THE CONSULTANT

1.0 BACKGROUND

Lake Jipe straddles the border of Kenya and Tanzania and has a complex drainage basin in both countries involving Mt Kilimanjaro and the Pare Mountains (IUCN-EARP, 1999). It covers an area of about 30 km² and is surrounded by varying widths of lake edge swamps. Lake Jipe is known for its waterbirds and is one of the few places in East Africa where the Lesser Jacana and the Purple Gallinule are common and where the Madagascar Squacco Heron, Black Heron, African Darter and African Skimmers are often seen. The lake shares the endemic tilapia (*Oreochromis jipe*) with the Pangani River system and has significant fishery based on this species together with barbel fish and the sardine (*Rastrineobola argentea*).

Hippopotamus and waterbuck are present in Lake Jipe. The northern half of the lake is in Kenya, forming the southern part of Tsavo West National Park. Lake Jipe therefore, serves as a watering point and feeding ground for wildlife.

Lake Jipe and its catchments are facing management problems, which include: reduced runoff, increasing siltation, decreasing water quality, shrinking fishery and advancing wetlands plants such as *Typha* threatens the existence of open waters.

During the eighth meeting of the Conference of the Parties under Ramsar Convention which was held in 2002 in Valencia, Spain, member states adopted a Communication Education and Public Awareness (CEPA) Programme for 2003-2008 under Resolution 31. CEPA is recognised by member states as an important central and crosscutting instrument for implementing the Convention's wise use Principle. The Ramsar CEPA Programme identifies the following opportunities and benefits that may arise from investing in CEPA:

- a) Wetland issues can increasingly become part of the business of other sectors and not just that of environment, thereby mainstreaming the conservation and wise use of wetlands into society and government;
- b) Communities use resources sustainably as a result of engagement and agreement to collaborative plans, thereby reducing conflict;
- c) Communities agree to invest in restoration and long-term stewardship of wetlands;
- d) There is a public constituency that speaks for and helps set the agenda for wetland conservation and wise use; and
- e) The young generation impart knowledge on wetland conservation and wise use, and become stewardship for wise use in future.

2.0 OBJECTIVE OF THE CONSULTANCY

The objective of this consultancy is to develop an awareness raising strategy and methodologies suitable for all key wetland stakeholders in Lake Jipe.

3.0 SCOPE OF WORK

The consultant will undertake but not limited to the following tasks:

- Visit the Lake Jipe and its surroundings, including all relevant institutions and stakeholders/beneficiaries.
- Identify issues and aspects that need to be considered in the awareness strategy.
- Undertake stakeholders' analysis and collect views for strategy formulation.
- Review all relevant literatures pertaining to the assignment.
- Undertake comparative analysis of relevant national policies with regard to sustainable wetland management in the context of poverty reduction, such as the Poverty Reduction Strategic Paper (PRSP) and Tanzania Development vision 2025.
- Formulate an awareness strategy for decision and policy makers
- Develop extension methodologies for wetland practitioners.
- Identify possible agencies that may implement the Lake Jipe Awareness strategy based on experiences of their previous work.
- Table the first draft report to the NWWG
- Table the 2nd draft report to Director of Wildlife (DW)
- Submit the final report

4.0 OUTPUTS

- An inception note providing format of the report to be submitted and discussed with the Wildlife Division in Dar es Salaam, before the consultants goes to the field. The inception note should contain a work plan for the mission and proposed structure of the report.
- A report containing awareness raising methodologies, activities, implementation modalities, as well as budget breakdown and timeframe.
- Final report in 5 hard copies and electronic version on Microsoft Word 2000.

5.0 MODALITIES OF WORK

Consultant will work with the Wildlife Division staff (WD) and will be responsible for the report. The WD staff will support the consultant as resource persons.

6.0 TIMING AND REPORTING

- Total time allocated is 60 days after signing the contract. However, the consultant will spend 21 mandays for the assignment.
- Inception note to be submitted 5 days after signing the contract.
- First draft report should be submitted 45 days after signing the contract.

7.0 MODE OF PAYMENT

Consultant will negotiate the fee with the contractor (Wildlife Division). The fee will depend on the experience and will not include per diem and travelling costs.

ANNEX 2: LAKE JIPE STAKEHOLDERS CONCERNS AND ISSUES

Major Lake Jipe Issues: Inversion of water weeds “Typha” and “Papyrus” and diverting water from permanent streams (Mata river) for irrigation (alleged), leading to unacceptably low water levels and availability		
Concerns	Issue	Nature
Maintaining the ecological character of Lake Jipe and its wetland	The presence of Lake Jipe support different living things	Ecological
	Different researches being conducted at Lake Jipe	Ecological and Scientific
	Lack of integrated Lake Jipe Management Plan limits conservation and community socio economic development efforts in the Lake area.	Ecological
	Laxity of the communities to report various issues to district authorities slows action taking by the later (Blocking of Mata river in Kenya)	Social
	Limited involvement of all stakeholders in management of Lake Jipe area	Social and ecological
Alternative use of the water weeds	Lack of alternative economic ways of using the water weeds	Economic
Credit facilities	Lack of alternative livelihood and capital such as credit facilities in villages surrounding Lake Jipe has negative impact to conservation and income generation (eradicate poverty)	Social and Economic
Ability to conserve natural resources of Lake Jipe depends on water coming from outside the country (Kenya)	Lake Jipe is a shared transboundary resource between Kenya and Tanzania therefore its resource use and management have to take care of interest and benefits of the two countries.	Social and Political
	Community focused joint programmes on conservation and sustainable utilization of natural resources	Social and ecological
	Establishing frameworks for cooperation, exchanging information, build a data base for catchment conditions on implementing an international legal framework on management of a shared ecosystem	Social and ecological
Hydroelectric power production depend on Lake Jipe	Lake Jipe is one of the sub-catchments of Nyumba ya Mungu and Pangani river. Drying up and degradation of Lake Jipe will have serious negative impacts to power generation in Nyumba ya Mungu as well as spread of waterweeds in the two wetlands.	Economic

Depend directly on the water for domestic uses	Serious water shortage for both domestic and livestock use for villages surrounding the lake.	Social
Human activities especially agriculture had more negative impact on the Lake Jipe's ecosystem	Siltation of the Lake, which is caused by unsustainable farming methods, has reduced lake depth thus impairing transport, fishing and accelerated weeds growth.	Ecological
Environmental degradation	Lack of energy serving stoves, afforestation and appropriate farming programmes for soil and water conservation in Lake Jipe to both upstream and downstream communities accelerate degradation.	Ecological
Reduced fishing	Reduced fishing lead to less income to individuals and less nutrition to the surrounding community	Social and economic
Need to strengthen capacities of the local resource users.	Limited capacity of communities/district to undertake conservation and sustainable use of Lake Jipe and its resources	Ecological and Economic
Development of alternative resource uses such as promotion of eco tourism and identification of alternative sources of income,	Limited community groups and NGOs in the area to work for socio-economic and ecological is slowing poverty eradication of Lake Jipe	Social and Economic
Drying up of the lake	Migration of people to other areas.	Social
Awareness raising	Lack of sensitization on the significance of conservation and biodiversity.	Social
Promotion of eco tourism /Un-attractive environment	Depend on water and wildlife qualities of Lake Jipe for their tourism business	Social and economic

ANNEX 3: STAKEHOLDERS RESPONSIBLE FOR CONSERVATION AND MANAGEMENT OF LAKE JIPE

TYPE OF ORGANIZATION	RELEVANT DEPARTMENT/DIVISION	ROLE (S) OF STAKEHOLDER
<i>NATIONAL LEVEL</i>		
MNRT	<ul style="list-style-type: none"> • Tourism Division • Fisheries Division • Wildlife Division • Forestry Division 	<ul style="list-style-type: none"> ▪ Allocate resources for natural resource management to district level ▪ Advice on best practices ▪ Collaborate with each other to implement natural resource management plans.
National Focal Office for Ramsar Convention	<ul style="list-style-type: none"> • Wildlife Division 	<ul style="list-style-type: none"> ▪ Formulating wetland/Wildlife policy policy; implementing policy ▪ Prepare and implement awareness raising activities ▪ Mobilize resources ▪ Releasing funds ▪ Oversee implementation of the strategy ▪ Monitor, Review and Evaluate implementation of the strategy
Other Ministries	<ul style="list-style-type: none"> • Vice President Office (Division of Environment and PED) • Ministry of Water and Livestock Development • Ministry of Regional Administration and Local Government • Ministry of Agriculture and Food Security • Ministry of Lands and Human Settlement Development • Ministry of Community Development, Women Affairs and Children 	<ul style="list-style-type: none"> ▪ Advisory to the Government and Government institution ▪ Sharing of information on technical matters, ▪ Land use planning; ▪ Enforce laws and regulations for water utilization;
Public Agencies/institutions	<ul style="list-style-type: none"> • National Environment Management Council (NEMC) • Standing Parliamentary Committee on the Environment • Inter –ministerial Technical Committee (of Permanent Secretaries) • Planning Commission • Land Use Planning Commission 	<ul style="list-style-type: none"> ▪ Coordinating environmental matters at national/international levels ▪ Technical support ▪ Advise Government on all environmental matters ▪ Raising awareness on environmental management at local, national and regional levels ▪ Dissemination of information
Media	<ul style="list-style-type: none"> • Media Council of Tanzania • Tanzania Broadcasting Commission 	<ul style="list-style-type: none"> ▪ Raising awareness on environmental management at local, national and

TYPE OF ORGANIZATION	RELEVANT DEPARTMENT/DIVISION	ROLE (S) OF STAKEHOLDER
	<ul style="list-style-type: none"> • Journalists Environmental Association of Tanzania (JET) • Tanzania School of Journalism • MISITU NI MALI (Forestry is Wealth) Newsletter • Radio Tanzania (National and Zonal Radio), Radio One, Radio Free Africa, • TV Stations (ITV, TVT, Star TV, Channel TEN, etc) 	<ul style="list-style-type: none"> ▪ regional levels ▪ Information sharing
Research	<ul style="list-style-type: none"> • TAFIRI, TAFORI • Dar es Salaam University/Institute of Resource Assessment • Sokoine University of Agriculture/Faculty of Agriculture 	<ul style="list-style-type: none"> ▪ Advise on technical, scientific and operational matters ▪ Research for natural resource management” i.e. provide advise on best management practices. ▪ Promote community – based research and monitoring ▪ Assessment and avail information on status/condition and trend of lake natural resources.
National NGOS	<ul style="list-style-type: none"> • AGENDA, Wildlife Conservation Society of Tanzania (WCST), LEAT, JET, TATEDO, 	<ul style="list-style-type: none"> ▪ Initiate and Mobilize communities and resource users to form groups / associations ▪ Support search for financial support for better management. ▪ Awareness raising ▪ Work with communities
International NGO/ Development Partners /and International Community	<ul style="list-style-type: none"> • IUCN • Ramsar Convention Headquarter • WWF • Informal Discussion Group on Environment (IDGE) • Embassies 	<ul style="list-style-type: none"> ▪ Provide technical support ▪ Provide management advice and information according to national and international laws, conventions. ▪ Support search for financial support for better management.
<i>REGIONAL AND DISTRICT LEVEL</i>		
Government	<ul style="list-style-type: none"> • Regional Administrative Secretary (RAS) – Tanga, Kilimanjaro, Manyara regions • Regional Natural Resources Officers (RNROs) - Tanga, Kilimanjaro, Manyara • Regional Hydrologists (Tanga, Kilimanjaro, Manyara) • Zonal Irrigation Engineer • District Executive Directors (DED) – Mwanga, Moshi Rural, Simanjiro, 	<ul style="list-style-type: none"> ▪ Oversee, supervise and coordinate different players in implementation of the strategy ▪ Co-coordinating natural resource and environmental conservation activities. ▪ plan for all the development activities ▪ Plan and set district resources for implementation and sustainability of the strategy

TYPE OF ORGANIZATION	RELEVANT DEPARTMENT/DIVISION	ROLE (S) OF STAKEHOLDER
	Korogwe <ul style="list-style-type: none"> • District Natural Resources Officer (DNRO) – Mwanga, Moshi Rural, Simanjiro, Korogwe • District Forestry Officers (Dfo) • District Fisheries Officers (DFO) • District Wildlife Officers • District Management Team (DMT) – Heads of Department: Agriculture and Livestock; Community Developments; Planning Officer; etc. • Pangani Basin Water Office • TANESCO 	<ul style="list-style-type: none"> ▪ Monitor and evaluate implementation of programmes ▪ Approving training and awareness programmes ▪ Use data and information to advise decision makers on best practise. ▪ Monitor infestation of weeds in Lake Jipe and Nyumba ya Mungu and design programme to combat them ▪ Build the capacity of districts ▪ Ensure that all the planned activities are implemented by monitoring and supervising
NGOs/CBO	<ul style="list-style-type: none"> ▪ NGOs working on conservation of natural resources at district and Regional Level, such as - TIP- (Traditional Irrigation Improvement Project), CDTF (Community Development Trust Fund), KIRECA etc. 	<ul style="list-style-type: none"> ▪ Collaborative management with district authorities and other programmes / projects ▪ Training and awareness programmes ▪ Prepare and implement awareness raising activities ▪ Production and distribution of awareness materials
Decision Makers	<ul style="list-style-type: none"> • Regional Commissioner (RC) • District Commissioner (DC) • Councillors • Members of Parliament • District Committee/Sub-Committee on Environment 	<ul style="list-style-type: none"> ▪ Oversee implementation of national policies, laws and regulation ▪ Community mobilization, awareness and support to sustainable practices ▪ Enacting and enforcing by-laws ▪ Endorse and support to village plans, by- laws ▪ Approval and support of NR management plans/projects and budgets. ▪ Enacting and supporting by-laws, on NRM
<i>WARD AND VILLAGE LEVELS</i>		

TYPE OF ORGANIZATION	RELEVANT DEPARTMENT/DIVISION	ROLE (S) OF STAKEHOLDER
Government	<ul style="list-style-type: none"> • Ward Executive Officers (WEO) • Extension Officers (Agriculture, Livestock, Community Development, Education, etc. • Village Governments – Village Chairperson, Village Executive Officer (VEO), Hamlet Chairperson • Village Environment/Natural Resources Committee • Schools • Clinics/Dispensaries 	<ul style="list-style-type: none"> ▪ Oversee all the programmes and projects at their levels and are ▪ Educate the communities on environment and natural resource utilization ▪ development of management plans ▪ Mobilize and sensitize the communities on development programs ▪ Inform and raise awareness about new management policies, laws, strategies and ideas. ▪ Support sustainable practises. ▪ Enact and enforce by-laws, ▪ Awareness raisers and educators.
NGOs/Projects	<ul style="list-style-type: none"> • MIFIPRO Field Officers • Traditional Irrigation Improvement Project • CDTF 	<ul style="list-style-type: none"> ▪ Run awareness programmes ▪ Training ▪ Initiate and Mobilize communities and resource users to form groups / associations ▪ Prepare implementation plans and reports ▪ Introduce credit and social services promotion facilities
Civil Society	<ul style="list-style-type: none"> • Local resource users groups (Individual Villagers, Irrigators/farmers, hunters, fishermen, small businessmen/vendors) • Community groups (e.g. pottery, farmers, SACCOS) • Religious leaders • Formal/informal Groups (Elders, Women, Youths, Farmers, Livestock keepers etc.) 	<ul style="list-style-type: none"> ▪ Contribute ideas and advice on bylaw making, revenue collection. ▪ Decision-making in Village Assembly for sustainable use of lake Jipe. ▪ Apply sustainable methods for natural resource use, ▪ Collect and pass data and information to village government, ▪ Contribute ideas and advice on bylaw making, revenue collection.

Annex 4: OBJECTIVES, STRATEGIES, ACTIVITIES, OUTPUTS AND MEANS OF VERIFICATION

Objective	Strategy	Activities	Responsible Organizations	Output	Means of verification
<p><i>Objective 1: Create understanding to ensure active support and participation to conservation and sustainable use of Lake Jipe</i></p>	<p>Raise public awareness on the reasons behind the conservation of Lake Jipe and its wetland</p>	<ol style="list-style-type: none"> 1) Organize awareness meeting/seminars/workshops for village leaders 2) Making exchange and field visits, 3) Production and dissemination of awareness materials 4) Prepare and provide information to journalists and editors of television and radio programmes 5) Organize face to face discussions 6) Disseminate the studies results 7) Institute a general public awareness campaign on a periodic basis (e.g. World Environment Day, Wetlands Day and National Tree Planting Day) 8) Organize exhibitions and shows 9) Creation of an Internet website on Lake Jipe and Tanzania wetlands with links to TZ-Government official websites (e.g. TZ Online) and other local websites. 	<p>MNRT, Mwanga District Council, PBWO, DOE, NEMC</p>	<ul style="list-style-type: none"> ▪ Awareness meeting/seminars workshops conducted ▪ Lessons learned from Exchange and field visits ▪ Awareness raising materials published and aired ▪ Discussions conducted ▪ Distribution list ▪ Public awareness campaign conducted ▪ Exhibitions and shows conducted ▪ Working website on lake Jipe and Tanzania wetlands 	<ul style="list-style-type: none"> ▪ Meeting/seminars/workshops materials and proceeding ▪ Field visits report ▪ Record of published and aired materials ▪ Records for discussions ▪ Number and address of institutions/people received the results ▪ Records of campaign conducted ▪ Records of people who attend the exhibitions and shows ▪ Visiting people of the website
	<p>Utilize the organizations and agencies expertise that are already involved in</p>	<ol style="list-style-type: none"> 1) Develop local, district and regional awareness raising materials 2) Contact and prepare MoUs to work with NGOs such as MIFIPRO 	<p>Mwanga District Council, Religious organizations, NGOs, CDTF,</p>	<ul style="list-style-type: none"> ▪ Awareness raising materials produced and disseminated ▪ MoU prepared ▪ Awareness materials 	<ul style="list-style-type: none"> ▪ Record of published and aired materials ▪ Signed MoU ▪ Record of

Objective	Strategy	Activities	Responsible Organizations	Output	Means of verification
	informal/formal awareness raising to form the basis of a continuity	3) Forge partnerships with agencies to develop these awareness materials (e.g. WWF, IUCN, SADC REEP etc) 4) Collect and adapt existing materials for awareness raising (e.g. Ukulima wa Kisasa) 5) Train teachers and other staff in delivery of conservation ideas, concepts and materials (mentors)	TIP, MIFIPRO, Gender groups (Youth, Women, men) Resource User groups (Fishermen, farmers etc)	developed <ul style="list-style-type: none"> ▪ Awareness raising materials collected and disseminated ▪ Increased understanding of natural conservation issue ▪ Ensuring the management of Lake Jipe 	published and aired materials <ul style="list-style-type: none"> ▪ Copies of collected materials and records of received people/institutions ▪ List of trained teachers and other staff
	Establish adequate means of sharing information, training and exchange of experiences amongst stakeholders to enhance their capacities.	1) Inventory and Documentation of all Lake Jipe stakeholders and their roles in both countries (Kenya and Tanzania) 2) Promote interactive meetings/ and workshops to foster mutual understanding amongst the parties. 3) Popularise policies, legislation, and new guidelines 4) Identify roles and functions of each party and follow up mechanisms 5) Identification of focal people at the community level as pioneers/mentors	VPO, NEMC, MNRT, NGOs, Mwangi District Authority, Village leaders	<ul style="list-style-type: none"> ▪ Report for all stakeholder and their role ▪ Workshop/Meetings conducted ▪ Increased sharing of information pertain to policies ▪ Report for roles and functions of each part ▪ Focal people working 	<ul style="list-style-type: none"> ▪ Stakeholder report ▪ Materials and proceedings/minutes of the workshop /Meetings ▪ Updated information on policies and guideline provided to people ▪ Number of people understanding their role and responsibility ▪ Number of pioneers / mentors

Objective	Strategy	Activities	Responsible Organizations	Output	Means of verification
	Coordinate ongoing efforts concerning conservation of natural resources in the area	<ol style="list-style-type: none"> 1) Compile existing wetlands education information and education opportunities 2) Strengthen communication among groups and agencies involved in natural education 3) Assess public perceptions, interest, knowledge and educational needs regarding natural resource issues 4) Identify deficiencies or gaps in existing education information resources 5) Evaluate the effectiveness of existing educational information for different audiences 6) Identify new and improved ways to disseminate new and existing information 	GTZ, MNRT, VPO (NEMC and DOE), Research Institutions, TAFIRI, Mwangi District Council, etc MIFIPRO, NGOs	<ul style="list-style-type: none"> ▪ Reports produced ▪ Strengthened communication ▪ Report produced ▪ Deficiencies reduced 	<ul style="list-style-type: none"> ▪ Compilation report ▪ Communication record ▪ Report ▪ New report
	Encourage voluntary measures for protection, sustainable use and conservation of lake Jipe resources	<ol style="list-style-type: none"> 1) Consultations with local leaders, district authorities, documents, institutions, organizations 2) Disseminate information of voluntary activities 3) Allocate resources for voluntary 4) Compile and evaluate information concerning existing voluntary natural resource conservation activities on the area 	MNRT, VPO (NEMC and DOE), Research Institutions, TAFIRI, Mwangi District Council, etc MIFIPRO,	<ul style="list-style-type: none"> ▪ Consultation conducted ▪ Increased voluntary participation of people ▪ Resources available for voluntary work 	<ul style="list-style-type: none"> ▪ Consultation reports/ minutes/ proceedings ▪ District report of people participating on voluntary activities ▪ Budget allocation report ▪ Reports
	Establish a process to discuss and recommend	<ol style="list-style-type: none"> 1) Propose establishing Lake Jipe resource 2) Centre at one village 	MNRT, VPO (NEMC and DOE), Research	<ul style="list-style-type: none"> ▪ Lake Jipe resource Centre at one village established 	<ul style="list-style-type: none"> ▪ Users report ▪ Documents ▪ Fact sheets

Objective	Strategy	Activities	Responsible Organizations	Output	Means of verification
	wetland data collection, research and information priorities for Lake Jipe	3) Updating data and information 4) Inventories, 5) Prepare fact sheet	Institutions, TAFIRI, Mwangi District Council,	<ul style="list-style-type: none"> ▪ Up dated data available ▪ Fact sheets produced and disseminated 	
Objective 2: Create awareness of national policies and guidelines on natural resource management/environmental conservation	Ensure nationally developed policies and guidelines are implemented at local level	<ol style="list-style-type: none"> 1) Prepare popular versions of various policies and statements on wetlands 2) Focus group discussion and workshop with all local groups with a stake in lake Jipe stakeholder on how to operationalize these policy statements 3) Elaborate community/other stakeholders roles on operationalizing these policy statements 	MNRT, NEMC, DOE, District Authorities,	<ul style="list-style-type: none"> ▪ Versions prepared and distributed to many people ▪ Workshop/discussion conducted ▪ Supports of the policy 	<ul style="list-style-type: none"> ▪ Documents and distribution lists ▪ Workshop/discussion proceedings/minutes ▪ District and wards reports
Objective 3: Raise awareness on income generation activities (IGA)	Promote alternative income generation activities	<ol style="list-style-type: none"> 1. Identify and document suitable, and feasible alternative income generating activities 2. Offer training on suitable, and feasible alternative income generating activities 3. Organize exhibitions and shows on IGA 	District extension workers, Community development officers	<ul style="list-style-type: none"> ▪ Suitable IGA selected ▪ Increased number of people engaged in alternative IGA ▪ Exhibitions and shows on IGA conducted 	<ul style="list-style-type: none"> ▪ Report of suitable IGA ▪ Training materials and report ▪ Report/Records of exhibitions
	Make local residents aware of the various credit facilities	<ol style="list-style-type: none"> 1. Bring in experts for credit facilities and social service funds (promotional visits) 2. Facilitate development of mechanisms and linkages with credit facilities 	District extension workers, Community development officers, credit	<ul style="list-style-type: none"> ▪ Increased number of people engaged in AIGA ▪ Lessons learned form Visits ▪ Competition and 	<ul style="list-style-type: none"> ▪ Reports from the village government and the District ▪ Training visit report

Objective	Strategy	Activities	Responsible Organizations	Output	Means of verification
		3. Incentive schemes 4. Training visits to IGA groups in Kilimanjaro region 5. Develop competition and awards	and social services facilities	awards programs established and people win the award	<ul style="list-style-type: none"> ▪ Competitions and awards records
Objective 4: Facilitate formation of local resource users groups / similar interest group networks	Establish and formulate networks at different levels – Village, Ward, and Districts with representatives from all major stakeholders	1) Ensure an integrated multi-stakeholder involvement approach 2) Facilitate formation of resource users networks 3) Facilitate groups to develop their working modalities 4) Establish network linkages with district/national level organs/authorities 5) Formulate group monitoring and evaluation mechanisms.	Villagers, Ward leaders, Mwanga District Council	<ul style="list-style-type: none"> ▪ Multi - stakeholder involvement ▪ Resource users networks in place ▪ Working modality for each group ▪ Linkages between the networks and district/national level organs/authorities ▪ Group formulated for monitoring and evaluation 	<ul style="list-style-type: none"> ▪ Reports and minutes ▪ Reports and minutes of the networks ▪ Working modality report ▪ Monitoring and evaluation report
	Increase awareness of different issues of lake Jipe in a multi-stakeholder situation	1) Organize workshops, seminars and trainings 2) Disseminate print materials through the network 3) Sharing information and experience; 4) Feedback and/or stakeholders input 5) Facilitate Village meetings 6) Facilitate inter-village visits/competitions 7) Facilitate regional and national visits 8) Facilitate media visits to Lake Jipe 9) Facilitate media reporting on Lake	DOE, NEMC, MNRT, District Council, media	<ul style="list-style-type: none"> ▪ Workshop / seminars and trainings conducted and proceedings/materials produced ▪ Produced and disseminated materials ▪ Feedback provided ▪ Lessons learned from inter village/regional and nationals visits ▪ Media report produced, published and broadcasted 	<ul style="list-style-type: none"> ▪ Workshop/seminars and training materials and proceeding ▪ Record of networks and materials provided ▪ Records of feedback ▪ Visit reports ▪ Media report and record of published and aired materials

Objective	Strategy	Activities	Responsible Organizations	Output	Means of verification
		Jipe			
Objective 5: To provide focus to lake Jipe conservation and sustainable use	Facilitate preparation of local and district by laws to facilitate implementation of the management plan	<ol style="list-style-type: none"> 1) Review the existing by laws and identify gaps 2) Create awareness on them through workshops/ meetings 3) Preparation of print material 	Mwanga District Council, NLUPC,	<ul style="list-style-type: none"> ▪ Existing by laws reviewed ▪ Awareness meeting/seminars workshops conducted ▪ Print materials produced 	<ul style="list-style-type: none"> ▪ New by laws ▪ Meeting/seminars workshops materials and proceeding ▪ Number and address of institutions/people received the printed materials
	Put Lake Jipe conservation on the agenda of various decision makers, users and media	<ol style="list-style-type: none"> 1) Consultation with decision makers, 2) Seek accurate and pertinent information that can help raise political awareness, 3) Establishment of volunteer (youth) networks & lobby groups as a platform to advocate wetland conservation 4) Organize media visits to Lake Jipe and follow up regular media reporting on Lake Jipe issues/ special events celebrations and competitions 	MNRT, Mwanga District Council, Village Governments	<ul style="list-style-type: none"> ▪ Consultation meeting/seminars workshops conducted ▪ Volunteer (youth) networks & lobby groups formulated and working ▪ Media report produced, published and broadcasted 	<ul style="list-style-type: none"> ▪ Consultation minutes/proceedings ▪ Record of volunteers working activities ▪ Media visit report and record of published and aired materials
Objective 6: Facilitate preparation of land use and management plan	Promotion of appropriate farming techniques	<ol style="list-style-type: none"> 1) Awareness of having village land uses and abiding to such plans. 2) Identification of appropriate agriculture practices and crops for various villages 3) Encourage links between land use planning and lake Jipe conservation. 	National land use planning commission, District Authorities, MIFIPRO, Framers group leaders	<ul style="list-style-type: none"> ▪ Comprehensive land use plans that can be used as models in other areas ▪ Reduced inappropriate agriculture practices ▪ Links between land 	<ul style="list-style-type: none"> ▪ Document at District Land office ▪ Report at land office ▪ Reports at District land office and natural resource

Objective	Strategy	Activities	Responsible Organizations	Output	Means of verification
		4) Identifying mentors (pioneers) for terracing/ridges and cassava and sorghum crops		<ul style="list-style-type: none"> ▪ use planning and wetlands conservation established ▪ Mentors (pioneers) founded 	<ul style="list-style-type: none"> ▪ office ▪ Reported number of pioneers
	Raise community awareness on importance of land use and management plans	<ul style="list-style-type: none"> 6) Organize training on land use and management plan for stakeholders 7) Introduce appropriate farming practices (e.g. terracing) to curb siltation 8) Promote drought resistance crops (cassava and sorghum and finger millet (mtama, ulezi) 9) Organize stakeholder meetings 10) Develop and implement training programme 	District Authorities, MIFIPRO, MAFS (extension), TATEDO, NLUPC	<ul style="list-style-type: none"> ▪ Training on land use and management plan conducted and training material produced ▪ Reduced siltation ▪ Increased cultivation of drought resistance crops ▪ Stakeholder meeting conducted ▪ Training program in place 	<ul style="list-style-type: none"> ▪ Training materials and report ▪ District report ▪ District report ▪ Minutes of the meetings ▪ Amount of Training materials produced and distributed ▪ Increased number of requests for guidelines and training materials by communities and other users

Objective	Strategy	Activities	Responsible Organizations	Output	Means of verification
	Raise community awareness on the existing land legislation	<ol style="list-style-type: none"> 1. Popularizing existing regulations and legislation 2. Formulation and enforcing of by laws 3. Training on good governance 	Ministry of Lands and Human Settlement Development, District Authorities	<ul style="list-style-type: none"> ▪ Increased understanding of the guidelines ▪ Guidelines in different wards ▪ By laws formulated ▪ Training conducted 	<ul style="list-style-type: none"> ▪ Reach out reports guidelines ▪ By laws in place and enforced ▪ Reduced number of natural resources related cases in courts ▪ Training material produced and report produced

ANNEX 5: SOME PROPOSED GENERIC MESSAGES FOR AWARENESS RAISING IN LAKE JIPE AREA

MESSAGE ELEMENTS:	TARGETED AUDIENCES:
<p>Lake Jipe is almost dying:</p> <ul style="list-style-type: none"> a) Save Lake Jipe, use efficient stoves b) Save our trees, use energy saving stoves / Don't cut indigenous trees, use branches, c) Use animal waste (e.g. cow dung) for biogas and manure d) Use terraces and ridges to save our Lake from siltation e) Prevent forest fires f) Maintain / conserve sources of water for Lake Jipe 	<p>General public, Local inhabitants, Fishermen, Children/Youth, Primary & secondary schools, Tourists, Local business men, NGOs, Decision makers – National, Regional, District Authority,</p>
<p>Waterweeds are dangerous for the existence of Lake Jipe</p> <ul style="list-style-type: none"> a) They Must be eliminated b) Use appropriate fishing gears in the Lake c) Use water weeds (Makuruville) for thatching houses, making, ropes, weaving baskets and mats 	<p>General public, Local inhabitants, Fishermen, Communities, Resource Users groups, Youth, Primary & secondary schools,</p>
<p>You all enjoy the beauty and benefits, of Lake Jipe save it from extinction</p> <p>We need water from Lake Jipe for our own home use</p>	<p>Local inhabitants, Fishermen, Children/Youth, Primary & secondary schools, Tourists from outside region (national, international), Decision makers</p>
<p>Lake Jipe is a source of livelihood for more than 100,000 people, conserve it for human sake</p>	<p>Communities, village leaders, schools and resource users</p>
<p>Lake Jipe is a source of protein (fish and other animals) for more than 100,000 inhabitants</p>	<p>Local inhabitants, youth,</p>
<p>Without Lake Jipe, there will be no fishing/water birds/hippos, etc in our area and therefore no protein, tourism etc</p>	<p>Local inhabitants, Decision makers</p>
<p>Lake Jipe is major source and storage for the waters of the Pangani and Ruvu Rivers. Without Lake Jipe Nyumba ya Mungu Dam will also disappear, therefore no power form NYM.</p>	<p>Local inhabitants, Fishermen, TANESCO, Decision makers</p>
<p>Lake Jipe is an area of outstanding biological importance in terms of its fauna (wild and domestic animals)</p>	<p>Tourists from outside region (national, international), local inhabitants, youth</p>
<p>Lake Jipe has more Pygmy Geese than any other area in Africa</p>	<p>Tourists (national, international), local inhabitants</p>
<p>Its natural value and beauty attracts visitors and is important for the development of Kilimanjaro region.</p>	<p>Local inhabitants, Children/Youth, Primary & secondary schools, Tourists, Decision makers</p>
<p>Lake Jipe is a sink for toxic waste/chemicals from upstream</p>	<p>Upstream villagers,</p>
<p>Lake Jipe is our source of domestic water</p>	<p>Local inhabitants, Children/Youth, Primary & secondary schools,</p>
<p>Lake Jipe is a habitat for other life forms (birds, hippos, snails, crocs, unseen microorganisms) save them by using the lake wisely etc</p>	<p>Local inhabitants, Fishermen, Decision makers – National, Regional, District Authority,</p>
<p>Preserving Lake Jipe is preserving our future Losing Lake Jipe is denying our grandchildren and we the right to get our/their needs/livelihood.</p>	<p>General public, Local inhabitants, Fishermen, Children/Youth, Primary & secondary schools,</p>

	Tourists, NGOs, Decision makers – National, Regional, District Authority,
Lake Jipe is important to both Kenya and Tanzania	Local inhabitants, National, Regional & District Authority, and international community
Conserving resources/the environment is an intergenerational obligation	General public
It is everyone’s responsibility to participate in the conservation of our lake (Lake Jipe)	Local inhabitants, Fishermen, Children/Youth, Primary & secondary schools, Tourists from outside region (national, international), Decision makers
Report any issue/ transboundary issue to village and district authorities. Follow up to get feedback on steps taken	Local inhabitants, Fishermen, Children/Youth, Primary & secondary schools,
Flat (Sesa) cultivation increases the amount of soil in the lake a. Use contour/terrace methods b. Plant trees/Mixed cultivation	Upstream villagers, Local inhabitants,
Lets form community groups for our own development a) Fishing, weaving agriculture groups b) Borrowing and investing etc c) Lets provide services to the community	Local inhabitants, Fishermen,
Lake Jipe is a source of revenue for Mwanga and Kilimanjaro district (fishing licenses, etc), for funding social services	Mwanga district authorities and village Governments and Communities
Work with the government to implement programs on conservation of Lake Jipe and other development programs a) Participate in self help campaigns b) Attend meetings c) Report on any event - Wildlife - Drowning of the lake - Dropping of fish catches in the lake d) It is your right to get feed back on steps taken on solving Lake Jipe problems	Local inhabitants, Fishermen, and other resource users

ANNEX 6: LIST OF INSTITUTIONS/INDIVIDUALS CONTACTED

NATIONAL LEVEL

Name	Department/Organization	Designation
Vice President Office		
Mr. R.P Yonazi	DOE (Policy and Planning)	Assistance Director
Mr. R.N Muheto	NEMC (Planning and Research)	Director
Mrs. Esther Kerario	NEMC (EIA)	Director
President's Office-Regional Administration and Local Government PO-RALG		
Mr. Richard Musingi		Director
MR. J. SHILUNGUSHELA	National Land Use Planning Commission	Principal Land Use Planner
MAFS – Ministry of Agriculture and Food Security		
Mr. A Mtwewe	Extension Services	Assistance Director
Ministry of Natural Resources and Tourism-		
Mr. C. Mdoe	Wildlife Division	Assiatnt Director
Ms. Mariam Zacharia	Wildlife Division	Principal Game Officer - Ramsar Focal Point Officer in Charge
Mr. N. Ngowe	Wildlife Division	
Mr. N. Ngowi	Wildlife Division	
Mr. Nziku	Wildlife Division	
Mr Kaita	Wildlife Division	
Ministry of Water and Livestock Development		
Mr. F. Mpendazoe		Principal Water Officer
NGOs		
Ms Saada Juma	AGENDA for Sustainable Development	Consultant/Researcher
Mr Bashiru Juma		Programme Officer

MWANGA DISTRICT

Name	Department/Organizati on	Designation
MWANGA District Council		
Hon. Prof Jumanne A. Maghembe	Mwanga	Member of Parliament
Mr. L. J. R Chillewa		District Executive Director
Mr. Mwanicheta	DAS Office	District Administrative Secretary
Mr. Gabriel Mramboah	Natural Resources	District Natural Resource Officer

Mr. Khamis Omari	Natural Resources	DFO
Mr. Japhet Juma Muhando	Natural Resources	District Wildlife Officer (Acting)
Mr. Siphorian S.H. Msofe	Natural Resources	District Fisheries Officer
Mr. James Tarimo	Natural Resources	Fisheries Officer
NGOs		
Mr. George K. Madundo	MIFIPRO TRUST FUND	Project Coordinator
UPSTREAM VILLAGES		
<i>Kitoghoto Village</i>		<i>14/03/2004</i>
Mr. Rashidi Kidundi	Ward Executive Officer	
Mr. B. Kisimbo	Secretary	
Mr. Juma Mramba	Member Village Government	
Mr. Saidi Juma	Chairman	
Mr. Ramadhani Rashidi		
<i>Jipe Village</i>		<i>14/03/2004</i>
Mrs. Florida Wignessy	VEO	
Mr. Mussa I. Mziray	Chairman Environmental Committee	
Mr. Abdallah Khatibu	Chairman (Makuyuni Jipe)	
Ms. Fatina Selemani	Member Village Environmental Committee	
Mr. Omary R. Msangi	Member Village Government	
Mr. Mustapha Saidi	Chairman (Ugungu Jipe)	
<i>Mkisha and Ubembe Village</i>		<i>14/03/2004</i>
Mr. Twalib Masoud Kidaya	Councillor – Jipe Ward	
Mr. Iddi Rajabu	Ubembe Chairman	
Mr. Hussein Mashamba	Mkisha Member Village Government	
Mr. Shwaibu Msangi	Mkisha Member Village Government	
Mr. Atwai Saidi	VEO and Village Environmental Committee member	
Mr. Adinani A. Mtei	Mkisha (Mgambo)	
Mr. Ibrahim Shabani	Chairman Mkisha	
Mr. Ayubu Mashamba	Member Environmental Committee	
Mr. Bakari Muhinjo	Elder (Kigonigoni Village)	
UPSTREAM VILLAGES		
<i>Torohe Village (Torohe simu and Kizungu kati - hamlets)</i>		
Mr. Athumani Kivara	Chairman	
Mr. Karimu Shabani	VEO	
Mustafa Ali Msangi	Ten Cell Leader	
Mr. Shabani Selemani	Member Environmental Committee	
Mr. Ramadhani Juma	Member Environmental Committee	
Mr. Yahaya Salim	Member Environmental Committee	
Mr. Shabani Kuya	Villegger	
Mr. Ramadhani A. Msangi	Chairman	
Mr. Abbakari Abdalla	Ten Cell Leader	
Mr. Diwani Shabani	Ten Cell Leader	
Mr. Yasin Saidi	Ten Cell Leader	

Mr. Ayubu Shabani	Elder
<i>Kwakoa Village</i>	
Mr. Bruno Semsu	Councilor Kwakoa Ward
Mr. Shabani Mahona	Ten Cell Leader
Mr. Mussa Athumani Maleke	Elder

Moshi Rural District Council

Name	Department	Designation
Moshi Rural District Council		16/03/2004
Mr. John Nyaki	Natural Resources	Natural Resource Officer
Mr. Silawe Simon	Natural Resources	District Fisheries Officer

ANNEX 7: TOOLS USED FOR DATA COLLECTION:

QUESTIONNAIRE FOR HEADS OF SECTIONS/PROGRAMMES AT WILDLIFE DIVISION

The Ministry of Natural Resources and Tourism is developing a management plan for conservation and sustainable utilization of Lake Jipe and its resources. As the first step in coming up with this plan, the Ministry is developing an awareness strategy for all stakeholders of the Lake.

Your department has been identified as a key stakeholder in the development and implementation of the strategy. The Ministry thus humbly requests you to take a few minutes to fill-in the following questionnaire to facilitate this exercise. If you need additional space, you may use the attached blank sheet.

We thank you for your cooperation.

Name of respondent.....
Title.....
Section/Programme.....
Date.....

- (1) The Ministry of Natural Resource and Tourism specifically the wildlife Department is responsible for implementing Ramsar Convention to which Tanzania is a party. What are Ramsar Convention activities you are actively involved in at your office?
.....
- (2) Under resolution VII.9 of the Ramsar Convention on Wetlands' Outreach Programme, each contracting country is required to prepare a national strategy for Communication, Education and Public Awareness (CEPA) in support of wetland conservation. What are the main communication and awareness creation activities that you have implemented at your department?
 - (i) If there is any what
 - a. Purpose of communication activity
 - b. Target group or audience
 - c. Key messages delivered
 - d. Means/tool of communication used
 - (ii) If no why
.....
- (3) At national level, the CEPA is aimed at providing the national policy makers with guidelines on how to communicate policy issues to stakeholders. Which activities do you propose to be undertaken to achieve this CEPA's communications objectives?
.....
- (4) What available infrastructure and resources (human and financial) for production and distribution of communication materials at your department? (how much skill, knowledge, manpower and budget is currently available, and Which materials are available and which need to be developed?
.....
- (5) What should be done to improve the existing communication practise at your department?
.....

- (6) Currently what is the contribution of your Ministry/ department/project(s)/programme(s) to the conservation and sustainable use of resources of Lake Jipe ecosystem?
.....
- (7) Currently how does information/communications flow in different directions in and from your department (up, down and across)? What are the relevant channels of communication which you use most ?
.....
- (8) What key messages should be delivered to various stakeholders of Lake Jipe? E.g. opportunities/ social, economic, ecological importance of lake Jipe, policy guidance on how to participate; equitable sharing of benefits, technical information etc
.....
- (9) What kind of communication and awareness creation activities are required for conservation and sustainable use of Lake Jipe resources?
.....
- (10) What do you consider to be perfect means/tools of communication to be used to reach the target groups at national, district and village levels? e.g. meeting (workshop, seminar, etc); print materials (newsletter, brochures etc.); involvement of media (radio, TV, newspaper etc); audiovisuals; drama, updated mailing lists; webpages etc
.....
- (11) Based on experiences of your previous work and experiences, what are the possible agencies that may implement the Lake Jipe Awareness strategy?
.....
- (12) In your opinion, what do you think are the benefits of Lake Jipe?
a) Globally.....
b) Nationally.....
c) Locally.....
- (13) How can effective communication be used as a tool to solve Lake Jipe problems?
.....
- (14) What are the issues and aspects that you think need to be considered in the awareness strategy for Lake Jipe?
.....
- (15) What indicators can be used to monitor the effectiveness of the lake strategy?
.....

QUESTIONNAIRE FOR GOVERNMENT INSTITUTIONS AT NATIONAL / REGIONAL AND DISTRICT LEVEL AND HEADS OF DEPARTMENTS/SECTIONS/PROGRAMMES

Name of respondent.....
 Title.....
 Institution/Agency/Agency.....
 Section/Programme.....
 Address.....
 Date.....

- (1) Background information for Lake Jipe
 - i Location.....
 - ii Activities taking place there.....
 - iii Importance of lake Jipe.....
 - iv Threats to the existence of Lake Jipe.....

- (2) What are the main awareness raising activities you are actively involved in at your office?
.....
- (3) Are there any communication and information dissemination initiatives taking place both at the districts and/or national level concerning conservation of the wetland/Lake Jipe?
.....
- (4) If yes; What have you done so far towards these initiatives? If No, what activities/measures should be undertaken or which should be considered?
.....
- (5) In your opinion, what kind of communication and awareness creation activities are required for conservation of the Lake Jipe?
.....
- (6) What do you consider to be relevant and effective means/tool of communication to be used to reach the target groups at national, district and village levels? e.g. meeting (workshop, seminar, etc); print materials (newsletter, brochures etc.); involvement of media (radio, TV, newspaper etc); audiovisuals; drama, updated mailing list; webpage etc
.....
- (7) What are the relevant channels of communication locally e.g. radio, drama, songs, story telling, indigenous media, video shows, exchange visits etc?
.....
- (8) How can vertical (up to down and vice versa) and horizontal communications at community and district levels be strengthened?
.....
- (9) In your opinion, what key messages should be delivered to various stakeholders of Lake Jipe? E.g. opportunities/ social, economic, ecological importance of lake Jipe, policy guidance on how to participate; equitable sharing of benefits, technical information etc.
.....
- (10) What are the expectations of different actors in the field as regards to awareness raising strategy for Lake Jipe?
.....
- (11) What information input from stakeholders is required for effective facilitation of Lake Jipe conservation at local level?
.....
- (12) What are the issues and aspects that need to be considered in the awareness strategy?
.....
- (13) What indicators can be used to monitor the effectiveness of the strategy?
.....
- (14) Are our laws, policies and institutions adequate for the management of our wetlands?
.....
- (15) Are there any by laws related to the conservation of wetlands/Lake Jipe in your district/village?
.....
- (16) Is it worthwhile that environmental education initiatives throughout the country should be coordinated at the national level?
.....
- (17) NGOs, interests groups, service clubs, etc. make important contributions to environmental education and public awareness. How should they be involved in Lake Jipe awareness raising Strategy?
.....
- (18) How is your business/occupation affected by the drying up/degradation of the lake so far?
.....

QUESTIONNAIRE FOR COMMUNITY/VILLAGE LEVEL SURVEY

Name of interviewee

Date of interview

Region.....

District

Ward.....

Village

PERSONAL DATA

1. Gender

- i) Male
- ii) Female

2. Age group

- i) 11 - 20
- ii) 21 - 30
- iii) 31 - 40
- iv) 41 - 50
- v) 51 - 60
- vi) Above 60

Highest level of education and training

- i) No formal education
- ii) Adult education
- iii) Primary education
- iv) Secondary education
- v) Vocational training
- vi) Diploma
- vii) Advanced diploma
- viii) Degree
- ix) Religious education
- x) Other training (mention).....

4. What is your occupation?

- i) Farming
- ii) Livestock keeping
- iii) Fishing
- iv) Business
- v) Civil servant (government)
- vi) Employee of other organization
- vii) Religious leader
- viii) Informal sector
- ix) Housewife
- x) Student
- xi) Hunting
- xii) Other occupation (mention).....

5. How long have you lived here?

.....

GENERAL INFORMATION

- (1) What do you know about the degradation of Lake Jipe?
.....
- (2) What is your perception about decline/degradation of Lake Jipe
.....
- (3) What is your main attitude/wish/desire with regard to the issue?
.....
- (4) How is your business/occupation affected by the drying up/degradation of the lake so far?
.....
- (5) What do you think are obstacles hindering efforts to conserve Lake Jipe?
- (6) Do you read any newspapers, magazines or any print media materials? If yes, which ones?
.....
- (7) Who are the major influential people/ groups/institutions who deliver different messages to your area?
.....
- (8) With whom do you discuss such messages/news and where?
.....
- (9) In your opinion, which groups can be instrumental to facilitate solving the problems related to degradation of Lake Jipe?
.....
- (10) What has been done so far towards conserving the Lake and its resources?
.....
How effective are these efforts?

COMMUNICATION

- (1) What kind of activities related to resource use / conservation of Lake Jipe/wetland are undertaken at your village?
.....
- (2) What is the nature of facilitation that you receive to enable you to perform these activities?
.....
- (3) What key messages should be delivered for effective conservation of the Lake Jipe e.g. opportunities/importance of lake Jipe, policy, guidance on how to participate; technical information etc
.....
- (4) What kind of communication and awareness creation activities are required for conservation of the Lake Jipe?
.....
- (5) What kind of information output from your village need to be communicated to other stakeholders
.....
- (6) What are your preferences in terms of means/media of information delivery and channels for both up, down and lateral communications?
.....
- (7) What are the issues and aspects that you need to be considered in the awareness strategy?
.....

(8) NGOs, interests groups, service clubs, etc. make important contributions to environmental education and public awareness. How should they be involved in Lake Jipe awareness raising Strategy?
.....

(9) What should be their role in the implementation of the strategy?
.....