Mainstreaming Poverty – Environment Linkages in the European Union's Development Assistance in Tanzania.

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EXECUTIVE SUMMARY

Introduction

This study is one of the studies conducted in ACP countries in order to provide recommendations to the European Union and its development partners to address poverty-environmental linkages in development assistance. The main objective of the study is to enhance the impacts of the EC's development assistance on poverty alleviation through increased attention to the role of the environment in the livelihoods of the rural poor in its country development strategies.

The research was based on the analytical framework by Reed (2004). It is based on three case studies: a road transport project in Shinyanga region, a fishery project in Mwanza region and coastal marine resources in Dar es Salaam region. The research involved review of documents, fieldwork and data analysis at local / meso, and national levels. Fieldwork involved site visits, interviews, focused group discussions, and interviews with key informants.

Research Findings

The local communities, district and national authorities appreciate the importance of the road project, as it will open up markets, facilitate trade and enhance economic growth. However, poverty is a multi-facet phenomenon such that road improvement alone may not lead to poverty alleviation unless access to feeder roads, water and farmland is also improved. Unless deliberate effort is made to regulate resource use through improvement of property rights and fair trade, the road development may lead to further degradation of the environment. Environmental issues were integrated in the project. However there was inadequate consideration of the poverty – environmental linkages since short term environmental impacts (such as borrow pits, outlet culverts, etc) were evident in the field. Persistence of poverty is likely to force the people to degrade the environment further.

The majority of the people living around Lake Victoria rely on the fishery resources for their livelihoods. However, development of the Nile Perch fish export has created mechanisms of change that impact the livelihoods of the poor. The growth of fish export without improving incomes of the local communities is likely to environmental degradation. The poorer

stakeholders (boat crew, artisanal processors, local village communities, etc) are in a weaker position to compete with private business sector to which they have lost business. Although the fish export generates a lot of revenue, very little trickles down to the local community level. Consequently there has been a growth of settlements on shore and on islands that is not supported by adequate provision of infrastructure and services. Competition for resources is increasingly leading to conflicts and environmental degradation.

Along the coast there is complex relationship between poverty and environment. Much of the problem of environmental degradation centres on poverty as both a cause and effect. The overuse of coastal resources and decline in fish stocks has led to a reduction in earnings and ability of fishermen to buy sustainable fishing gear. This in turn, has forced many fishermen to use fishing methods that provide better short-term rewards for their cost but are also environmentally degrading. Hence, this perpetuates the problem by contributing towards the further decline in the marine resources available. Unless the question of marine resource degradation is addressed, incidences of poverty among the coastal communities will persist.

Opportunities for streamlining poverty and environmental linkages

Economic opportunities arise from improved export, local trade / businesses and tourism and private sector involvement in resource management. There has been a growing trend towards institutional developments (through macro and micro reforms) at regional, national and local levels which are meant to enhance involvement of the private sector and local people's participation in resource management. Effort has been made to integrate poverty and environmental issues in sectoral policies and development strategies.

Impediments for poverty and environmental linkages

Although there efforts towards institutional development, there are still weaknesses such as lack of community based initiatives and organisations; multiplicity of institutions with overlapping mandates that are also weakly coordinated. Economic impediments as reflected by lack of well-developed credit system for the poor; low level of technology used; and imperfect fish and agricultural markets. Social conflicts arising from unfair competition for resources and weakening social cohesion. Furthermore, Social problems such as spread of STDs including HIV/AIDs associated with rapidly growing settlements. Infrastructure and social services at local scale are not adequately developed. Environmental impediments such as pollution and resource depletion are likely to hinder efforts towards poverty alleviation.

Conclusion

The findings from the three case studies have indicated that there is strong link between the dependency on local natural resource base and rural poverty. However, the poverty-environmental linkages are complex and mediated through various factors such as policy measures, market forces, local institutional arrangements and property rights. For example, the liberalization of the fishery sector and development of coastal tourism have marginalized the poor. In turn this has undermined the capacity of the poor to use resources sustainably. Institutional, economical, structural, social cultural constraints have hindered realisation of poverty – environment integration.

Recommendations

There is the need for the government to regulate imperfect markets such as potential for cartels and protect disadvantaged groups such as the poor, women, etc.

The national, regional, district and local communities should develop mechanisms to enable small-scale fishers and farmers to have access to market information and credit services to enable them utilize the growing opportunities.

There is the need to review the law and improve compensation rates for personal assets lost during road development.

Effort is required to diversify the local economies to avoid over dependence on one sector e.g. Development of non-fish export sector.

Support the review of institutional structures that do not provide better opportunities to local communities.

There is a need to strengthen benefit-sharing mechanism to ensure that local communities the benefit from resources harvested. This includes use some of the revenues generated from fish to support other sectors of the economy (crop cultivation, livestock keeping and non-farm activities) to make them also relatively strong.

There is need to promote local enterprises such as handicraft production, to ensure that local communities benefit from coastal tourism.

There should be a follow-up on development projects to see whether with time they really contribute to poverty alleviation and environmental conservation.

There is the need to support and enhance the development of civil society organizations for managing natural resources for poverty alleviation and sustainable livelihoods.

Geographical areas of concern which include critical habitats should be given intensive proactive planning management

There is the need for improvement in integration of environmental and poverty concerns of the local communities in development assistance programmes**.**

The EU anticipated investments in the country need to go hand in hand with reversing the depletion of natural resources.

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LIST OF ABBREVIATIONS

ACP	African, Caribbean and Pacific
BMU	Beach Management Unit
CMA	Community Management Area
CSPs	Country Strategy Papers
DAS	District Administrative Secretary
DED	District Executive Director
DFO	District Fisheries Officer
DFSO	District Fisheries Officer
EAME	Eastern African Marine Ecoregion
EC	European Community
ECHO	European Community Humanitarian Office
EDF	European Development Fund
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EU	European Union
FD	Fisheries Division
FMP	Fisheries Management Plan
FoB	Free on Board
GDP	Gross Domestic Product
HIV	Human Imunol Virus
Km	Kilometer
LGRP	Local Government Reform Programme
LVFO	Lake Victoria Fisheries Office
LVEMP	Lake Victoria Environmental Management Project
LVFRP	Lake Victoria Fisheries Research Project
LVFMP	Lake Victoria Fisheries Management Plan
LVTRP	Lake Victoria Tanzania Research Project
MACEMP	Marine and Coastal Environment Management Project
MMA	Marine Management Area
MPA	Marine Protected Area
MPO	Macroeconomic Policy Office
MSc.	Master of Science Degree
MNRT	Ministry of Natural Resources and Tourism
MRALG	Ministry of Regional Administration and Local Government
NSGRP	National Strategy for Economic Growth and Poverty Reduction
PRSP	Poverty Reduction Strategy Paper
PhD	Doctor of Philosophy
STDs	Sex Transmitted Diseases
TAFIRI	Tanzania Fisheries research Institute
TANROADS	Tanzania Roads Agency
TCMP	Tanzania Coastal Management Partnership
ToR	Terms of Reference
TPO	Tanzania Programme Office
Tsh.	Tanzania Shillings
URT	United Republic of Tanzania
VicRes	Victoria Research
WWF	World Wide Fund for Nature

1. INTRODUCTION

Tanzania is a well-endowed country from a natural resource point of view; with its area of more than 945,000 km^2 of which 388,000 km^2 is forests and woodlands. About 6 percent of the acreage consists of permanent crops, 40 percent of permanent pastures and 7 percent is inland waters in terms of ocean, lakes and rivers. Other natural resources include wildlife and minerals. According to the census of 2002, the population growth is around 2.9 percent per year and the population size is now estimated at 34.6 million (URT, 2003). Despite this abundance in resources the majority of her population is poor. Thus contemporary development interventions through macro and micro economic and social reforms give priority to poverty alleviation. These efforts in Tanzania are reflected in the Tanzania Development Vision 2025 (URT, 1999), Poverty Reduction Strategy Paper (URT, 2000), Tanzania Assistance Strategy (2000), and the National strategy for Economic growth and reduction of Poverty (URT, 2004).

However, poverty is multi-dimensional in nature and recent analytical evidence in many places shows that poverty levels and inequalities are still high (URT, 2004), and that in order to realize significant poverty reduction more resources must be used. At the same time concern has been growing over the last half century on the decline of the natural resources base. Inadequate consideration on environmental issues in poverty alleviation is considered as one of the major weaknesses of various reforms and strategies for development from national as well as from international development interventions. Analysis of environmental-poverty integration in country strategy papers (CSPs) of Tanzania, other ACP countries and in international development assistance has indicated that institutional, policy and structural impediments are contributing to the weaknesses (Snel, 2004). Poverty-environmental concern is raised case studies of many sectors of the economy including transport, mining, tourism, fishing and agriculture/export growth (*ibid,* Jambiya and Lewis 2003*)*.

The majority of the poor lives in rural areas and mostly depends directly and/or indirectly on natural systems such as forests, fishery, wildlife and land for subsistence. But also in most cases these poor people are also landless. These people also continue to be poor because of decline of the resource base and quite often are forced to degrade the environment further (Bucknall, *et. al.,* 2001). The rapid population growth in Tanzania, increasing land scarcity,

coupled with declining yields in agriculture (after reduced use of fertilizers and other inputs), has created a situation where the pressure on remaining stocks of forestland has increased substantially.

It is now widely acknowledged therefore that a great attention also must be paid to mainstreaming poverty - environment linkages in national and international development assistance in order to meet targets of economic growth and poverty reduction. Environmental change affects poor people's well being both positively and negatively in terms of opportunities, capabilities, security and empowerment.

This research seeks to provide to the European commission and its partner developing countries recommendations to address poverty-environmental weaknesses in current country strategy papers (CSPs) and to improve environmental streamlining in European Community (EC)'s development assistance. This study will further identify institutional, policy-oriented changes and structural impediments encountered in addressing poverty-environmental gaps in development interventions. Detailed Terms of Reference (TOR) are provided in Appendix I.

2. BACKGROUND

2.1 POLICY STATEMENTS ON ENVIRONMENT – POVERTY LINKAGES IN TANZANIA

The Poverty Reduction Strategy Paper (PRSP) of 2000/01 – 20002/03 emphasized poverty alleviation and set out the medium term strategy for poverty reduction and indicators for measuring progress. It defined objectives for poverty eradication by 2010, with the following key priority areas for achieving its goals:

(i) Reducing poverty through equitable economic growth
(ii) Improving human capabilities, survival and social well being, and
(iii) Containing extreme vulnerability among the poor

The Country Strategy Paper (CSP) recognises the heavy dependence of the poor households on the environmental resources (land, minerals, water and forests) for monetary and non-monetary incomes. Although the Government of Tanzania has not categorised natural resources as a priority sector there is a growing understanding of the important role they play in supporting about 86% livelihoods by providing their income and in sustaining important ecological services. However, the CSP did not mention key environment – poverty linkages

and the likely consequences to the poor if the environment resources are degraded and strategies to address the consequences.

The National Strategy for Economic Growth and Reduction of Poverty (NSGRP) (URT, 2004) is a second national framework for putting the focus on poverty reduction high on the country's development agenda. The NSGRP is a five-year strategy (2005/06 – 2009/10) and builds on the first PRSP. The NSGRP mentions that it will pay great attention to mainstreaming cross-cutting issues namely HIV and AIDS, gender, environment, employment, governance, children, youth, elderly, disabled and settlements.

Following the ideological shift from centrally planned economy in 1980s, the Government has been implementing wide ranging institutional and policy reforms including the Public Sector Reform Programme (PSRP) and the Local Government Reform Programme (LGRP). The reforms focus at strengthening Local Government Authorities (LGA), making them effective in implementing the expanding responsibilities through both decentralization and devolution.

The PSRP has helped to re-define the role of the State in Tanzania. The Government has withdrawn itself from direct production of goods and services. It has reduced its roles and functions and enhancing the participation of NGOs and private sector in the delivery of goods and services. The civil services have also been substantially re-structured and employment levels have been reduced. Restructuring of the civil services and reduction of employment levels have, for example, resulted to inadequate staff at regional and district levels making it difficult to implement the good policies and strategies. Inadequate implementation capacity and poor enforcement of local and national policies and legislation both contribute, in a very significant manner, to environmental degradation (Jambiya and Lewis, 2003).

The re-introduction of the Local Government System was aimed at providing a meaningful decentralization, by facilitating more democratic participation and decision-making and implementation at all levels. The major feature of the Local Government Act of 1982 (URT, 1996) was to make Village Assembly the supreme policy-making body, vesting of executive power in the Village Council and opening up for the Village Council to enact by-laws, which however had to be approved by the Full District Council to become officially enforceable laws. The overall objective of the Local Government Reform Programme is to improve the

quality of and access to public services provided through or facilitated by the Local Government Authorities (URT, 1999). Nevertheless, many village councils and village natural resource management committees have failed to exercise their powers because of the delay by District Councils in approving by-laws. A study conducted by Ngaga and Luoga (2003) in 14 districts of Tanzania shows that on average, each district has prepared 47 by-laws of which Full District Councils had approved only 6 hence weakening the capacity of local communities to enforce sustainable management and utilisation of natural resources.

It is worth pointing out here that in addition to the above reforms/strategies, the Government of Tanzania has put considerable efforts to ensure sustainable management and utilisation of natural resources by formulating policies and regulations that facilitate poverty alleviation and environmental management (URT, 2002). The National Agricultural and Livestock Policy (URT, 1997a) points out that agriculture is the lead sector in Tanzania on which the majority of the rural poor depends. The policy acknowledges that one of the major constraints to the sector is erosion of natural resource base and environmental degradation. It points out further that the present use of natural resource is unsustainable, and barriers to communities gaining increased benefits from natural resources remain.

The National Environmental Policy (Vice-President's Office, 1997), points out that there is a clear cause-and-effect relationship between poverty and environmental degradation, and that environmental degradation leads to widespread poverty. Therefore one of the objectives of the policy is to ensure sustainable and equitable use of resources for meeting the basic needs of the present and future generations without degrading the environment or risking health or safety.

The National Fisheries Sector Policy and Strategy Statement (URT, 1997b) also emphasizes that the fisheries sector has significant economic and social impacts. Its focus is among other things to promote its contribution towards poverty alleviation, food security and employment. On the other hands, the policy empowers the communities to participate in the management and conservation of the fisheries environment by ensuring responsible fishing principles by all communities. The policy insists on adherence to environmental impact assessment (EIA) before launching any fisheries investment. It bans destructive fishing and processing methods thereby discouraging water pollution.

The National Forest Policy (MNRT, 1998) acknowledges that forest resources must be used to combat poverty and deprivation in order to improve people's welfare. As a deliberate intervention to enhance livelihood systems of the local communities, the policy promotes forest-based activities for the benefits of the local communities and national development. Among other things, the policy strives to prevent and control degradation of land, water, vegetation and air that constitute life support systems. Also it strives to ensure ecosystem stability through conservation of forest biodiversity, water catchments and soil fertility. This involves establishment of some new catchment forest reserves for watersheds management and soil conservation in critical watershed areas.

The current Mineral Sector Policy (URT, 1997c) is designed to address among other issues creation of gainful and secure employment in the mineral sector and provide alternative source of income particularly for the rural population, and ensure environmental protection and management. For example, the 1998 Mining Act (URT, 1998a), has an impressive catalogue of environmental standards that investors are supposed to observe. The Act for example makes extensive provisions for environmental matters in relation to mining activities particularly with regard to limits of discharge of pollutants, noise or vibrations into the environment, reclamation requirement standards for land, waste dumps and waste treatments.

The main objective of the National Water Policy (URT, 2002) is to develop a comprehensive framework for sustainable development and management of the Nation's Water resources. However, the Water and Utilization and Control Act of 1974 makes extensive provisions for environmental matters. The Act stipulates specific standards for production of certain water products, discharge of effluents/water back to receiving waters, treatment of effluents and maximum permissible concentrations for different chemicals and compositions.

The Wildlife Policy (URT, 1998b) emphasises the involvement of all stakeholders in wildlife conservation and sustainable resource utilisation as well as in a fair and equitable sharing of benefits as one of its visions. The policy also aims at using wildlife resources to contribute to poverty alleviation and improve the life quality of Tanzanians. The policy prohibits human settlement and hence activities in the National Parks and Game Reserves. It therefore discourages the destruction of resources such as water catchment and soil.

The National Beekeeping Policy's (URT, 1998c) main goal is to enhance sustainable contribution of the sector for socio-economic development and environmental conservation. One of the policy's objectives is to prevent and control degradation of water resources and vegetation and in this view; it encourages sustainable management of natural resources.

Although the policies cited above and others have indicated poverty and environmental concerns but their linkages and strategies to address linkage consequences are weak and/or lacking. It is further pointed out by Jambiya and Lewis (2003) that there is little analysis of the nature of poverty and environmental relationship, and even less guidance on the steps that can be taken to reduce the negative and enhance the positive aspects. In addition, the government has shown weakness in the management of natural resources due to inadequate manpower, limited funding and weak implementation of its policies and enforcement of regulations (Ngaga *et al.,* 2003). As such, there is very little on the ground especially at district and village levels on implementation.

In reality, the District Councils are capacity constrained in terms of finances, inadequate and qualified human resources and working facilities. The districts are severely constrained in terms of transport especially vehicles, motorcycles and bicycles. Almost all districts have inadequate capacity in terms of computers, photocopiers and other office supplies, office rooms and facilities such communication systems (Telephone and Radio Calls) (Ngaga *et al.,* 2003). This shows that reforms and structural changes alone cannot solve current range of problems associated with poverty and sustainable management of natural resources in District Councils and villages. Complementary changes of building capacity in training, provision of working tools, changes in individual staff attitude/behaviour to improve governance and accountability are imperative.

There is also the problem of awareness/appreciation and/or mindset of some of the district officials of the need to have highly qualified staff in certain areas of speciality. For example some districts do not have professionals in forestry, supplies and auditing/accounts, and almost all districts do not have tourism and environmental experts (Ngaga *et al.,* 2003). It is reported by Jambiya and Lewis (2003) that at district level, there is no official post for either environmental management or poverty reduction as a result there no allocation of responsibility of day-to-day running of these responsibilities.

Furthermore, implementation of natural resource policies and Acts at district and village levels is weak because of the inadequate link between the natural resources departments in the districts with the mother Ministry of Natural resources and Tourism (MNRT) (Mtuy 1994; Ngaga, 1998; Ngaga *et al.,* 2003). Most of the staff at districts are employed by District Councils and answerable to the Councils under the President's Office - Regional Administration and Local Governments, and not directly answerable to the MNRT. To strengthen poverty and environmental linkages, human resources at District Councils must be linked to the Sector Ministries responsible for policy, regulatory, training, standards, monitoring and evaluation. There is little analysis of how the weakly developed cross-sectoral and multi-sectoral policy coordination functions at districts and national levels can be improved to maximise poverty reduction and environmental management (Jambiya and Lewis 2003).

The low financial capacity of the districts can also be attributed to the policy of the Central Government that natural resources sector was not among the four priority sectors (education, health, water and infrastructure) set by the Central Government of Tanzania. Natural resources are by and large considered as sources of revenue to the District Councils and consequently are allocated small budgets.

Most Community Based Organisations (CBOs) at local levels are entities that generate income from the natural resource base and in most cases people are willing to sustain them even from their own resources. In this respect therefore, these CBOs can be very important entry points to capacity building at grass root level to address poverty and environmental concerns and participatory natural resources management. Remarkable challenge however lies with the present and future performance of Village Natural Resource Committees (VNRCs) because of low incentives to motivate VNRCs, and the pace of formulation and enacting by-laws by village governments and approval by district councils.

2.2 EU-ACP POLICY ON ENVIRONMENT – POVERTY LINKAGES

Cooperation between the European Union (EU) and the countries of Africa, Caribbean and the Pacific (ACP) dates back to the origin of the Community. During this period many changes especially in ACP countries have taken place, which has necessitated a modification/revision of the development assistance approach in order to accommodate these changes. To date the EU's primary concern has been poverty alleviation and promote the

integration of the ACP countries into the global economy. Nevertheless, the two goals may conflict and hence require proper planning to balance them. Also the link between poverty and deterioration of the environment is given priority in the EU's development assistance to ACP countries (EC, 1997).

Despite the reordering of priorities of the international development community to focus on poverty alleviation, relatively little attention has been given to the critical role that environment and access to environmental goods and services play in poverty alleviation, particularly of the rural poor (Snel, 2004). A recent review by the ACP-EU joint assembly adopted in October 2003 – on the "Sustainable management and conservation of natural resources in ACP countries in the context of the 9th European Development Fund (EDF) aid programming" indicated that the European Commission development assistance inadequately addresses environmental issues, especially with regard to the critical role that natural resources assets play in alleviating poverty (*ibid*).

In order to effectively address poverty alleviation, understanding the critical role that environment plays is important. This study is therefore an attempt to explore this link in the ongoing EU development assistance in Tanzania through case studies. It seeks to understand how key environmental-poverty linkages have been integrated in development programmes and identify various environmental-poverty weaknesses and types of interventions that may be used to address the concerns.

2.3 EU ASSISTANCE TO TANZANIA

Tanzania is among the ACP countries that benefit from EC assistance European Development Fund (EDF) programmed aid. The EDF support to Tanzania has been increasing both in magnitude and sectoral coverage. Table 1 shows the magnitude and focal sectors for the 6th to 9th EDFs. The allocation of funds has grown from 176.5 m€ for the 6th EDF to 290 m€ for the 9th EDF. The focal sectors have grown to include transport infrastructure, agriculture, Communication infrastructure, human resources development, education, social infrastructure and services, and macro economic support. These sectors play a great role in enhancing economic growth and alleviating poverty. Governance, though not a focal sector, has also received funding as it has a key role to play in enhancing people's development initiatives.

Table 1: EDF Allocation to Tanzania

EDF	Value	Focal sectors
6	176.5 m€	Transport infrastructure and Agriculture
7	185 m€	Transport and communication infrastructure, Human resources development
8	204.5 m€	Transport infrastructure, social infrastructure and services
9	290 m€	Transport infrastructure, macro economic support, education, and Governance (non focal sector)

Source: URT and EC, 2002

The 9th EDF allocation to sectors is shown in Table 2. The transport sector is allocated 40% of the funds. Support in the transport sector is aimed at opening up the market and improves access and hence promote the growing sector of mining, tourism and agriculture activities through regional and international trade. Another large share of 34% is allocated to macro-economic support. Macro support is aimed at facilitating growth the same sectors mentioned including the agribusiness sectors. Macro economic support has facilitated liberalization of the economy including the fisheries sector. The support of EU in mining and tourism has, for example, enabled the sectors to grow rapidly in Tanzania. Education and governance have been allocated 15% and 10% respectively.

Table 2:Allocation of the 9th EDF by Sectors.

Focal Area	Allocation (A Envelope) m€	Percentage of overall allocation
Transport infrastructure	116.0	40%
Macro-economic support	98.6	34%
Education	43.5	15%
Governance (non-focal sector)	31.9	10%
Total	290.0	100%

Source: URT and EC, 2002.

Tanzania's road network (about 85,000 km) is poor by international standards. Less than 20% of the road network is in good condition and the situation is bad in rural areas. EU assistance to transport sector has been central. EDF allocation has financed the building/rehabilitation of

more than 800 km of trunk roads. It has contributed in repair and maintenance programmes, building/maintenance of feeder roads, and institutional support. Some of the road projects implemented or under implementation include Mwanza roads, Mwanza / Shinyanga border - Tinde-Isaka-Nzega, backlog maintenance programme and institutional support.

Tanzania also receives other funds from the European union, Through the European Community Humanitarian Office (ECHO), the EC has also given support to refugees in Tanzania. Tanzania has also received significant funds through STABEX (for cotton, coffee and tea), EIB loans, structural adjustment, emergency aid, and community budget lines. EC support on the fisheries sector in Tanzania, has concentrated on ocean marine fisheries and Lake Victoria fisheries through regional programmes.

Through its development assistance to Tanzania, EC aims to integrate the local economy to global economy by promoting trade, It also intends to alleviate poverty among the local population. These objectives are not benign and care is required in order to achieve both. The promotion of gold mining, for example, has increased growth of the national economy with little linkage effects to the economy of the local communities. Gold mining has gained greater importance in the trade structure of Tanzania in terms of export value. However, the gold mining sub-sector has had limited linkage effects to the rest of the economy (URT and EC, 2002).

Trade between EU and Tanzania in fresh water fishery products through its regional programme has been growing rapidly. The EU support on fisheries in Lake Victoria for the past 10 years has been on research. EU has funded Lake Victoria Fisheries Research Project (LVFRP) that involved a consortium of European researchers; institutions and fisheries research institutes of Tanzania, Uganda and Kenya (Bugenyi and Knaap, 1997). The outcome of the research project is the Lake Victoria Fisheries Management Plan (LVFMP) which the EU has shown interest to assist. The water and fisheries sectors have also benefited from the macro support fund mentioned above. Certainly the European Union’s support to Tanzania through EDF has been significant and crucial for the development of the national economy. Further support is expected in future.

3. OBJECTIVES OF THE STUDY

The main objective of the study as outlined by the terms of reference (ToR) is to enhance the impact of the EC's development assistance on poverty through increased attention to the role of the environment in the livelihoods of the rural poor in its country development strategies.

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More specifically, the objectives of this research are:

i. To evaluate the anticipated environmental impacts of the projects,
ii. Assess linkages between natural resource assets and rural poverty,
iii. Identify socio- economic, institutional and structural impediments operating at local, meso and macro levels,
iv. Evaluate the extent of environmental integration in EU assistance in Tanzania and identify poverty-environmental gaps,
v. Identify long term policy and institutional opportunities to improve poverty-environmental streamlining to enhance future effectiveness of EC development assistance, and
vi. Propose strategic interventions that are needed to address the envisioned environmental problems.
vii. To formulate recommendations for long term EU and national institutional and policy changes to facilitate poverty-environmental integration in the Country Strategy Paper process.

Key hypotheses:

The key hypotheses of this research are:

Hypothesis 1:

The roles of natural resource wealth, especially their contribution to rural livelihoods, have been inadequately addressed in EC development programmes. An evaluation of poverty-environment impacts and ways to address these shortcomings is needed.

Hypothesis 2:

Long term national to local level institutional and policy changes are needed to help ensure that country development strategies better integrate poverty-environment concerns.

4. STUDY AREA AND METHODOLOGY

4.1 DESCRIPTION OF THE STUDY AREAS

The geographical study areas were around the Lake Victoria Basin, particularly the EC investments in Shinyanga and Mwanza regions and the marine coast areas of Dar es Salaam. The Lake Victoria basin is selected because it has been identified as a hot spot with unregulated growth in the mining, tourism, fishing and other sectors resulting to significant environmental problems such as deforestation, biodiversity loss and water degradation (Snel, 2004). There is also significant socio-economic impacts (Kulindwa 2001), depletion of the commercially important fish species due to over fishing (Wilson, 1993; Bwathondi *et al.,* 2001) and growing fish exports and investments (URT 2003b). The regions face environmental pressure on natural resources because of prolonged drought, demographic growth and rapid urban development affecting land uses. To enable the basin especially the regions sustain this pressure there is need to properly address poverty-environmental linkages in the ongoing and future development interventions.

According to the 2002 census, Shinyanga region was estimated to have 2,805,580 people, which is 8% of the total population of Tanzania mainland making it the second populated region (URT, 2003a). Annual average population growth was estimated at 3.3% and the average household size is 6.3. Mwanza region was estimated to have 2,942,148 people, which is 9% of the total population of Tanzania making it the most populated region. Annual average population growth was estimated at 3.2% and the average household size is 5.9 (URT, 2003a). The rapid growth in population in Lake Victoria basin has made the environment vulnerable. It has also increased pressure on natural resources and need for transport infrastructure and services

4.1.2 Resources Endowment in Shinyanga and Mwanza Regions

Shinyanga and Mwanza are endowed with wide range of resources including arable land, forests, water, and 85% of the region's population is rural and relies on crop and livestock production systems. The agricultural sector contributes 65% of the region's GDP (URT, 1998d and 2003b). However the agricultural sector is constrained by the low fertility of the good proportion of the regions' soils and the erratic rainfall patterns. With the exception of Geita and northern parts of Sengerema districts, rainfall in the rest of the regions is marginally adequate and highly variable. The main food crops are maize, paddy, sweet

potatoes and cassava. The regions are experiencing rapid increase in population size and densities. Mwanza region is susceptible to frequent recurrence of food shortages. Reliance on food importation from other regions implies that food is relatively expensive to the local communities.

Both regions have traditionally been the major producer of cotton. Cotton is grown by peasant farmers in all the districts and is an important foreign exchange earner for the regions. However, recently there has been a declining trend in cotton production due to low profitability of the crop (URT, 1998d and 2003b). This is despite EU support of Euro 2.2 million through STABEX to the cotton sector (EU Newshabari, 2002). This has great implications to the livelihoods of the local communities that for many years had relied on the crop for cash income. Livestock keeping is another important sub-sector that contributes to incomes and livelihoods of the local population. However, the population of livestock has been declining recently probably due to migration to other regions and / or diseases (URT, 2003b). The average cattle population density in Mwanza, for example, dropped from 122 in 1994/95 to 108 in 1998/99 and to 69 per square kilometers in 2002 (URT, 2003b). The decline in cattle population in the regions relieves pressure on land resources. Overgrazing is an environmental problem in drier areas. Overgrazing is more pronounced in Kwimba, Magu and Missungwi districts where serious soil erosion problems are faced. The livestock production sector is also facing problems of diseases and inadequate livestock facilities and veterinary services.

The regions are rich in natural resources including forestry, fisheries, beekeeping, wildlife and minerals. However, the regions have lost most of tree cover through extensive clearing of forests for agricultural production; timber and firewood, charcoal; wild fires, etc. Fuel wood and charcoal account for 95% of the domestic energy. Shortage of supply of fuel wood leads to acute energy scarcity for domestic uses. Mwanza city and Shinyanga municipality have to rely on importation of firewood and charcoal from Tabora and, Kahama and Bukombe districts of Shinyanga region.

Lake Victoria is one of the African Great lakes, and the second largest lake in the world covering 68,000 km2. The lake is shared by Kenya (6% by area), Uganda (43%) and Tanzania (51%). It has a mean depth of 40 m, maximum depth of 84 m, shoreline of 3450

km, a water retention time of 140 years and a catchments area of 193 000 km2 which extends into Rwanda and Burundi.

Lake Victoria is the key resource base for Mwanza region and its local communities. Fishing has been a traditional occupation of local communities living around the lake. Most of the local people rely on fishing and agriculture as the main source of livelihood. However recently fishing has become more commercialised. The fishery sector has replaced cotton as the leading foreign exchange earner and the major contributor to the region's economy. The local people are increasing relying on fishing as the main source of their livelihood. It is widely acknowledged by respondents in Mwanza that fishing is more important than crop farming among communities of the Lake Victoria zone. The implication of the commercialisation of the fishery sector and especially the growth in export of fish fillet to the local economy has been a subject of major debate among social scientists.

The organization of the fisheries sector in Tanzania is with Central Government and Regional/Local Government functions. At the center fisheries are under the Ministry of Natural Resources and Tourism (MNRT). Fisheries administration is vested in the fisheries Division (FD), which is headed by a director of Fisheries.

The MNRT liaises with the Ministry of Regional Administration and Local Government (MRALG). The District Fisheries Officer (DFO) falls under the Natural Resources and Environment sector of MRALG. When dealing with technical matters, the Director of Fisheries communicates directly with the DFO through the District Executive Director (DED). The DFO receives funds for fisheries activities from the Director of Fisheries, but these funds are channeled through the DED. Some of the funds sent by the DF through the DED for fisheries activities are, however, sometimes diverted by the DED to non- fisheries activities. The Fisheries Department is developing a system of funding fisheries activities directly without going through DED to overcome this problem. The DFO is in charge of extension, licensing and surveillance. In Tanzania, the government at the district level has developed management partnerships involving fishing villages, known as beach management units (BMU) which are charged with enforcing and implementing the national fisheries regulations. However, the effectiveness of these BMUs is constrained by capacity in terms of inadequate and qualified human resources, lack of regular training, finances, and working facilities such as transport to monitor illegal activities

4.1.3 The Eastern African Marine Ecoregion -Tanzania

The marine part of Tanzania is a component of the broader Eastern African Marine Ecoregion (EAME). The EAME extends approximately 4,630 km along the eastern coast Africa, including the southern part of the coast of Somalia, the entire coastline of Kenya, Tanzania, and Mozambique and the northern part of the eastern coast of South Africa. It covers an area roughly estimated at 540,900 km2, including the territorial waters and Exclusive Economic Zones (EEZ) of these countries to the 2,000 m depth contour beyond the continental slope. The north-south orientation of the EAME, covering about 30 degrees of latitude, contributes to its high levels of marine biodiversity: more than 1,500 species of fish, 200 species of coral, 10 species of mangrove, 12 species of seagrass, 1,000 species of algae, several hundred sponge species, 3,000 species of molluscs, 300 species of crabs and 250 of echinoderm, have been recorded (WWF, 2004).

The EAME vision aims to define how the EAME should appear in 2051 and is as follow: A healthy marine coastal environment that provides sustainable benefits for present and future generation of both local and international communities, who also understand and actively care for its biodiversity and ecological integrity.

4.2 METHODOLOGY

4.2.1 Data Collection Methods

As dictated by the objectives of the study, the study team began by familiarizing with various approaches used in this kind of studies. The analytical approach (Reed 2004) was adopted in this study. The approach was found useful in understanding poverty-environmental linkages and in identification of strategic interventions for removing obstacles to sustainable resource management and reduces rural poverty. The analytical approach is multi-disciplinary, analyses local poverty-environmental dynamics; links local level dynamics to meso and macro levels, and integrates economic and institutional analysis into a coherent framework.

After brainstorming, the main components of the study were identified and comprised of background (Review of document), fieldwork at Local/Meso Level Assessment, national level Assessment and analysis and Interventions/Recommendations.

4.2.1.1 Review of Documents

An extensive survey of literature was conducted covering EC development Assistance in roads and fisheries, socio economic profile and environment on Shinyanga and Mwanza regions. Documents on road construction project, fisheries in Lake Victoria and their linkage with poverty and environment were reviewed. Literature on EU development assistance in Tanzania included annual reports, policy documents and newsletters.

In addition, different sectoral and national policies were reviewed such as environmental policy, fisheries policy, transport policy, forest policy and agricultural policy. Strategic / reforms documents reviewed include National Strategy for Growth and Reduction in Poverty (NSGRP), Public Sector Reform Programme (PSRP), Local Government Reform Programme (LGRP) and Tanzania Development Vision 2025.

Based on review of documents and discussion, issues to be studied, data requirement and sources, methods of data collection, key/specific questions were identified as indicated in appendix 2. Thereafter key contacts at local, meso and macro levels were identified and research tools were developed and administered to individual as indicated in Appendix 6.

4.2.1.2 Field Visits

Activities during field visits included observations, administering questionnaires/checklists, focused group discussions and consultative meetings. Field visits were conducted at three levels. At local and meso levels, Shinyanga and Mwanza regions were visited. In each region, districts and villages/ local people relevant to the study/ project were interviewed using questionnaire and checklist (Appendix 3 and 4).

For the road project in Shinyanga region districts visited include Shinyanga urban, Shinyanga rural and Kishapu. Villages whose target groups were interviewed included Tinde, Kituli, Mipa, Maganzo, Ibadakuli and Nata (in Nzega district in Tabora region).

For the fisheries sector in Mwanza region, Mwanza city and Magu district including landing sites in each were visited. At region, City and district levels, officials and fish industry owners were interviewed. At fish landing sites fish selling/buying agents, boat owners, boat crews, individuals and village governments were interviewed. Landing sites visited for

observations and interviews conducted include Kayenze, Igombe, Kibangaja and Kigangama (see Figure 2).

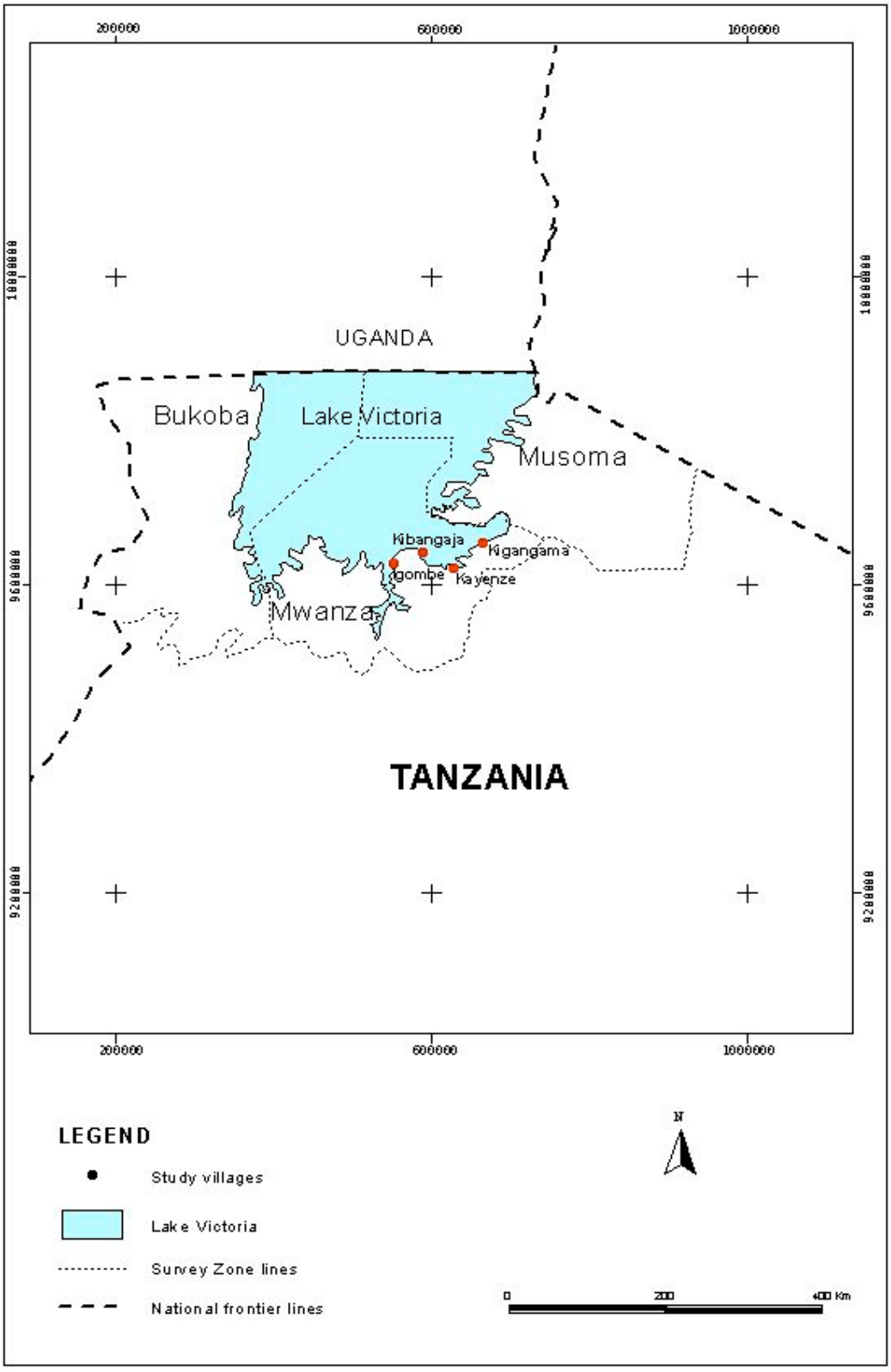


Figure 1: Location of Landing Sites Visited

In addition, key informants and focused group discussions were carried out opportunistically with village governments, resource management units e.g. Beach Management Units in the case of fishing, fishers and other key user groups of the resource/project. The questionnaires served to enhance understanding on household practices, expectations/benefits of the projects (road and fishery), how the environment contributed to poverty and vice versa; reliance on local resources and access, environmental problems and institutions and their relation to poor and the environment.

In addition, the questionnaires sought to understand how improvement of road or fisheries will affect/has affected people's livelihoods and the environment, and increase in degree of dependency and relationships with local resources and poverty. The checklists developed (Appendix 4) for semi-structured interviews or consultative meetings were administered to Regional and District officials, TANROAD, Fisheries Department and other relevant official (See Appendix 6).

At national level, interviews, consultative meetings and research were conducted with the Presidents Office- Planning and Privatization, Vice-Presidents Office-Poverty Desk and Division of Environment, Ministry of Natural resources and Tourism (Fisheries Division), Tanzania Investment Centre, and Ministries of Finance, Transport, Works, Industries and Trade. List of individual contacted in these offices is indicated in appendix 6.The main focus at national level was to identify their link with meso and local levels in order to identify opportunities and impediments for poverty reduction and environmental linkages.

The coastal marine study involved the following activities:

a) Literature review, using existing research focusing on the root causes analysis for EAME, that updates and builds on the root causes analysis as well as other socio-economic analysis for the area.
b) Identification of structural impediments, (economic /institutional), operating at local, sub-national and national levels that encourage environmental mismanagement and keep rural areas locked in poverty.
c) Visiting two villages along the coastline of Tanzania to further assess and validate the poverty environment linkages

d) Visiting the local and regional government offices to determine the opportunities and blockages to environmental management and poverty alleviation.

4.3 DATA ANALYSIS

Data collected was analyzed quantitatively and qualitatively based on the analytical approach (Reed, 2004). This is a multi-level analysis with focus on local dynamics, and how meso and macro level influences local level dynamics. Therefore, discussions held with officials, key informants and focused group discussions were broken down into written presentation/statements through personal interpretations. Qualitative analysis enabled to understand the local situation and the way people interact with local resources and the environment, and interaction amongst members of the society. In some cases models, maps and figures were found useful in driving the message and understanding the actors and how they are linked. This was found useful especially in identifying impediments and interventions. The data and analysis conducted provide both the local level dynamics and meso level influences, and some policy and institutional concerns.

Detailed National-level assessment of CSP on how the poverty - environment concerns are addressed is addressed in another study[1]. The National level assessment of CSP will be linked with multi-level analysis to establish the relationship of local poverty-environmental dynamics to macro policies and institution, and provide recommendations and strategic interventions needed to address current weaknesses.

4.4 LIMITATIONS OF THE STUDY

The study is limited in:

- Coverage as not all villages along the road (Shinyanga region) and fish landing sites along Lake Victoria (Mwanza region) were covered. Instead, sampling was done through which five villages along the road and six villages and four land sites were sampled in Shinganya and Mwanza regions respectively.
- As the visits to road sites were done at the time when only about 20% of the construction was completed and some of the villages were yet to be reached to be able to see the impact.

[1] A national level study, to which this study contributes, is being undertaken by Matilde Snel.

- Difficulties in acquisition of data as several staff in some districts were not readily available or could not provide data in time. In addition the questionnaire used was not meant for quantitative analysis.
- EU assistance in the fishery sector was at research level therefore the impact assessment on poverty-environment from local communities perspective was hard to establish.
- The study is focused on/limited to evaluating, from the local perspective, the poverty-environmental impacts of EU assistance in the lake fisheries, transport sectors and marine resources.

5. THE CASE STUDY OF THE ROAD PROJECT IN SHINYANGA

5.1 THE ROAD PROJECT

Shinyanga region is located on the North West of Tanzania and is part of Lake Victoria zone. It is about 20 to 160 km south of Lake Victoria. In Shinyanga region the study site was the Mwanza/Shinyanga border – Tinde/Isaka – Nzega road (see Figure 2). The total length of the road project is 170 km. administratively the road is divided into Lot 1 and Lot 2. Lot 1 is the Mwanza/Shinyanga border – Tinde (97 km) and Lot 2 is Nzega-Tinde – Isaka (73 Km). The road project passes through four districts namely Kishapu, Shinyanga urban and Shinyanga rural in Shinyanga region, and Nzega district in Tabora region. These road segments form an important part of the Mwanza-Dar es Salaam Road and their improvements will substantially reduce journey time, vehicle operating costs and contributes towards agricultural and mineral production of the project area.

The improved roads are most likely to have an additional importance because apart from linking Shinyanga and the lake zone regions with those in Central and South of the country, they also provide a link to the neighbouring countries of Rwanda and Burundi. Already there is some trade especially the fish products between Mwanza and the neighboring countries. With an improved road network fish trade will be further promoted and stimulate exchange of other goods in the region. It is highly likely that there will be an increased flow of goods from the neighbouring countries. These goods may include agricultural products, fisheries and even forest products. This may also intensify the rate of natural resources degradation, particularly forest products because with improved roads the transport costs are likely to fall and thereby attract people to invest in timber business. Generally though, the rehabilitation of the road has the potential to stimulate economic growth in the Lake Victoria zone because this zone will be opened up to a wider trading zone that includes the neighouring countries. Therefore, road rehabilitation is likely to have long-term impacts on poverty-environment linkages.

5.2 POVERTY-ENVIRONMENT LINKAGES IN SHINYANGA REGION

The majority of the sample population acknowledged that poverty is a multi-facet phenomenon and that it cannot be reduced to a single dimension. To some respondents poverty was characterized by lack of reliable means of earning a living such as livestock

keeping. Therefore, people who do not have cattle are generally considered as poor. To others, the poor are those who do not have any reliable cash income and those without enough food. Households that cannot keep enough food to last them to the next harvest season are also considered as poor. Yet others view the poor as those who are disabled to an extent of failing to engage themselves in any productive activity. The poor, according to other farmers in Mipa village also included people who cannot afford to take their sick for treatment. Indeed, this is further evidence in support of the view that poverty is multi-dimensional.

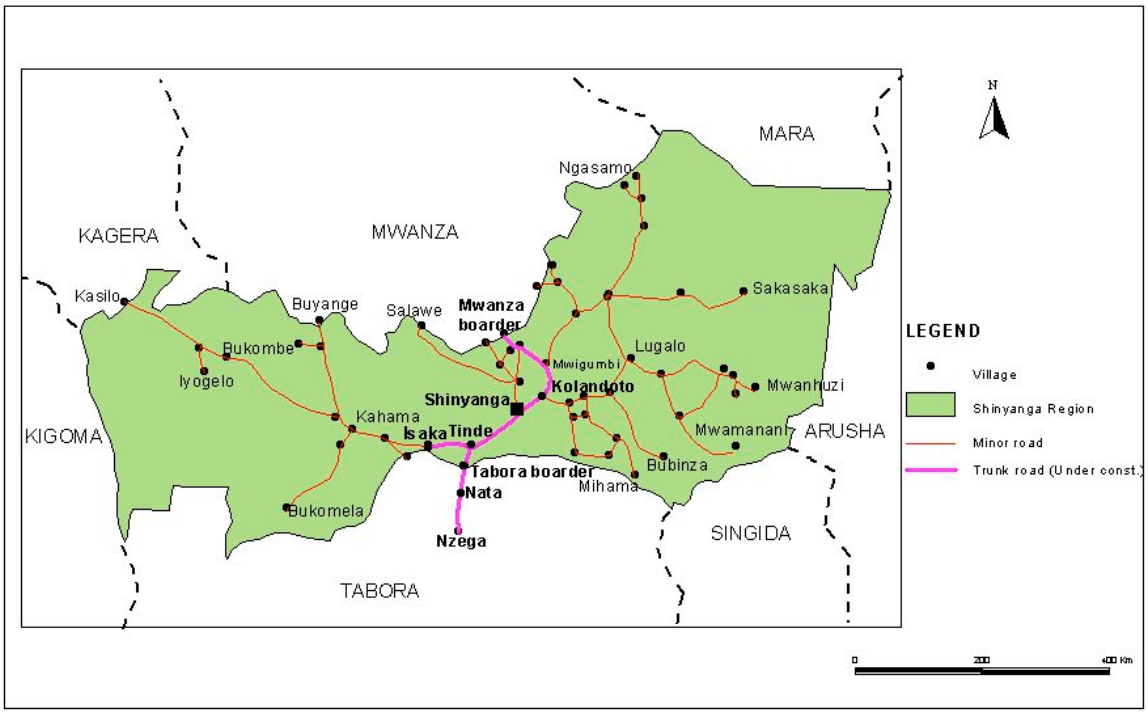


Figure 2: The Location of the Road Projects

In describing their own poverty the majority of the poor in the sample villages in Shinyanga Region highlighted the crucial role of the environment and environmental change to their well-being and ability to control their lives. They often depend directly on a diversity of natural resources and ecosystem services for their livelihoods, and therefore are the most severely affected when the environment is degraded or their access to natural resources is limited.

Invariably all people in the sample villages were aware that their environment is under serious problem of degradation. This degradation is evidenced by declining productivity of

the soils, disappearance of natural vegetation, but especially more, natural forests, shrinkage of pasture land and scarcity of water. While some viewed this to be natural phenomenon, others attributed this change to increased pressure on land. Indiscriminate cutting down of trees and continuous cultivation on land were identified as the major causes of environmental degradation in the region.

In linking environmental degradation and poverty, respondents in the sample villages were aware that part of the degradation of the environment was caused by the need for some poor people to survive. For example, farmers in Ibadakuli and Nata villages argued that they were forced to invade the natural vegetation simply to survive and not necessarily to make profits. Most respondents were of the low agricultural productivity but cannot afford organic fertilizers and therefore resort to shifting cultivation. Also alternatives for income generation were limited. Consequently they resort to use natural resources and leading to environmental degradation. They also cited examples that in some parts of Shinyanga region forests were disappearing due to the greed of some wealthy people wanting to make profits out of these resources.

On whether environment degradation could contribute to poverty incidences, most respondents affirmed this and mentioned issues like decline in land productivity as contributing to their poverty. In addition however, the lack of capital was also mentioned as a contributing to their poverty. It was evident from the respondents and observations that the major causes of poverty in Shinyanga region is related on unreliable rain fed agriculture, use of hand hoe by the majority of the people, lack of sufficient fertile land, low producer prices for their agricultural products.

Poverty and environment in Shinyanga Region are linked in both directions, i.e. poverty is both a cause and an effect of environmental degradation. In a positive way the poor depend upon natural resources for undertaking farm and non-farm activities for their livelihoods. Natural resources particularly soils and grazing land are among the main sources of income for the poor. These resources are not only used for subsistence farming activities, but also for commercial crops. Other groups of the poor use or sell products such as timber and charcoal as a way of supplementing their incomes. Therefore, natural resources provide important inputs into the livelihoods of poor people and also contribute to their well-being.

The specific ways in which poor people depend on natural resources and are affected by environmental changes is not universal, but area specific. In Shinyanga region for example, as in many other regions in the country, water is a very critical resource and it is very decisive in terms of what is a good year for crop cultivation and livestock keeping. Therefore, the poor in the region tend to suffer more than others when extreme events like drought occur. In addition, the majority seems not to have the resources to cope with these events.

Given the limited capital and alternative livelihood options common property resources in Shinyanga Region tend to be more important to the poor than the rich. It follows that the effects of natural resource degradation are also more pronounced on the livelihoods of the poor people. Poor people, particularly women are disproportionately affected by natural resource degradation because of their particular dependence on communal resources. Thus, the degradation of these resources is a major source of vulnerability for the rural poor, particularly women.

The endowment of Shinyanga region with natural resources, such as soils, and pastureland does not guarantee the local communities with sustainable livelihoods. Rather from the field visits it was very evident that the extent to which people can improve their livelihoods and reduce poverty depends on their access to assets like financial, human and social capital. The institutional set-up, governance and property rights, embedded in these resources do shape people's access to these resources. This means that even with the improvements of the road it is possible that only few people can be able to take this opportunity. Furthermore, through road improvements, the local communities are more integrated to global economy through commercialization. External integration of the local economies further shapes the people's access to resources; creates competitive production systems and relations that the poor may not have the ability to cope with.

Members of the local community in Mipa village and Nata expressed the fear that poor governance at the village level could contribute to the poor, especially those along the roads to loose their land to land speculators. Likewise, ambiguous property rights, particularly on such resources as forests may also contribute to their unsustainable use.

5.3 INSTITUTIONAL SETUP OF THE ROAD SECTOR

The set-up of the transport sector in Tanzania consists of the following institutions: The Ministry of Works (MoW); Ministry of Communication and Transport (MCT); and President's Office for Regional Administration and Local Governments (PORALG). The Ministry of Works is in charge of the national and regional road networks, and PORALG shares with local authorities the responsibility for the district/municipal networks. The responsibility of MCT include road transport operations i.e. traffic on the roads the remaining transport sub-sectors and general transport policy issues.

In accordance with the road sector reform, the road agency is in charge of all financial and technical issues related to road project management and implementation. The MoW is responsible for the general direction of TANROADS and the overall accountability to the Parliament. PORALG is responsible for assisting and supervising local authorities, notably for the management of the district, urban and feeder roads. Maintenance of this network is financed by the Road Fund and complemented by the Districts and Municipal Councils.

Besides the three ministries, the following institutions are of particular importance to the roads sub-sector: the Road Fund and Road Fund Board (RFB), Tanzania National Roads Agency (TANROADS), and the National Road Safety Council (NRSC).

The responsibilities of the RFB are the following:

(i) To ensure full collection of the Road Fund revenues;
(ii) To monitor the use of funds by TANROADS, the MoW, PORALG and local governments
(iii) To advice the government on adjustments to the existing sources of funding
(iv) To ensure adequate and stable flow of funds to road infrastructure operations.

The Tanzania national Roads Agency (TANROADS) has the responsibility to provide cost-effective and sustainable maintenance and development of the national and regional roads. Other activities include procurement and management of contracts for design and supervision, maintenance, emergency repairs, rehabilitation, upgrading and construction of roads, improvement of road safety and advice to the Minister of Works on regulations and standards for road works.

The National Road Safety Council (NRSC) is responsible for law enforcement relating to road safety matters. NRSC activities also include monitoring, preparing studies, conducting training, and making proposals to improve road safety.

The institutional set-up as described above is a matter of concern, particularly the division of the transport sector responsibilities between two ministries (MoW and MCT) part from PORALG. The involvement of three bodies makes it difficult to ensure the implementation of coordinated transport policies at the national level. In this case the improvement of the Mwanza-Shinyanga boarder road is a national road, but for this road to have direct impact of the rural people parallel efforts to improve the feeder roads in the area have to be made. However, such feeder roads (which are district and urban) might not be priority for the ministry concerned (PORALG). As a result the concept of network improvement might not bear the expected benefits.

5.4 ROAD TRANSPORT AND POVERTY ALLEVIATION: LOCAL PEOPLE'S VIEWS

Transport is an intermediate service-it is a means to an end. While transport alone cannot reduce poverty, it serves a pervasive and crucial complementary role. Transport may reduce absolute poverty mainly by increasing economic efficiency-by lowering costs and prices and enhancing opportunities. Members of the local communities in the sample villages believed that road investment could result in an increase in agricultural productivity and non-farm employment. This would consequently contribute directly in raising the wages and employment of the poor and, their economic welfare. During the construction phase the local people in the roadside settlements experienced short term benefits such as temporary employment of various forms in construction works, increased number of food vendors, small shops, restaurants, saloons, guest houses, bars etc. especially more around the villages of Maganzo, Tinde, and Nata. On the other hand it was further argued that with low level of agricultural productivity of the land farmers would have very little to transport on roads.

Respondents in the sample villages were however very cautious that improved roads do not necessarily promise them of total reduction of their poverty. This is because some of the causes of poverty in the region (e.g shortage of land and water) had nothing to do with roads. The distribution of benefits from road expansion may be ambiguous. They argued that, indeed improved roads have the potential to reduce poverty but one needs to have capital to invest in productive activities in order to take advantage of the improved roads. It was

strongly felt that the business community for example, stands to gain more than the smallholder farmers. Therefore, while road improvements may increase the potential for mobility, farmers in the region felt that they were poor and worst placed to profit from it.

So long as there is unequal distribution of land among the social groups poverty would remain, even if roads were to be improved. Few others, especially those in Tinde village feared that they would lose their farmlands to urban development. Farmers in Nata village also expressed the same fear. These farmers were worried about a growing trend whereby richer farmers from outside the village grab land that has high irrigation potentials. What was feared most was that village leadership is not powerful enough to reverse the trend. The regional and district officials shared this position by arguing that the poor are at the bottom end of line in benefiting from road improvements. It was further argued that farmers ought to undergo structural changes before they can benefit from road improvement. By virtue of their educational and training background, the regional and district officials viewed the road improvement from the point of view of linking Shinyanga Region with other areas in the Lake Victoria zone and also the neighbouring countries. On the other hand, members of the local communities were most concerned with their immediate transport needs at local levels.

In the views of the regional and district officials on the one hand, and members of the local communities on the other, poverty is a multi-facet phenomenon and road improvements alone cannot alleviate poverty among the poor. Thus unless the causes of poverty (shortage of land, water and capital) for agricultural investment the poor will remain poor and continue to rely and degrade the natural resource base.

What is most evident from the responses of farmers is that the impact of the roads on the poor will depend on the specific transport conditions associated with the location and travel needs of the poor. It is the extent to which the poor are "connected" to the general transport system that will shape the benefits that they receive. In addition, transport access is complementary to the availability of other basic services such as water, health care and education. Therefore, the effectiveness of direct service assistance strategies depends significantly on the accessibility of the poor to those services.

Women on their part expressed their positive views on the benefits of road improvements, in terms of increased mobility and transportation of goods. Perhaps what catches more attention are the views of a female farmer in Ibadakuli villages who argued that she was poor not

because of bad roads, but more because she had no enough land and little to invest on. Again, this gives further evidence that while road improvements have the potential to alleviate poverty; the poor are locked in a vicious circle of poverty that makes it difficult to benefit from such projects. Furthermore, the domestic and agricultural transport activities of women in the region plus those trips associated with health care and use of markets are essential to the reproductive and productive well being of the households. Therefore, the extent to which the poor, particularly women, are likely to benefit from road improvements depends on how these transport needs are addressed.

The local people's views on the role of road improvement on poverty alleviation are worthy noting. However in order to realize the potential role of roads in alleviating poverty there has to be strong governance and institutions at the local community and meso levels that would reduce corruption, distorted public investment choices, and neglected maintenance. These are necessary for enhancing infrastructure's contribution to economic growth and diversion of benefits to the poor.

5.5 IMPACTS OF ROAD CONSTRUCTION ACTIVITIES

5.5.1 Short-term Impacts

There are both short-term and long-term environmental impacts. The short-term impacts include mainly those impacts experienced during the construction phase. Such impacts are more pronounced mainly in the roadside villages. However, in the long-term even the remote villages will experience significant socio-economic and environmental impacts.

5.5.1.1 Borrow Pits:

Ideally borrow pits are dug along the roads in distances ranging from 1 – 1.5 km away from the road. The agreement requires that borrow pits are filled in after the completion of excavation of the building materials. This is to be done to ensure that no waterlogged conditions are created and for fear that they may become breeding grounds for mosquitoes. Filling in the borrow pits is also necessitated by the need to maintain the scenic view of the areas. However, given the scarcity of water in many parts of Shinyanga, borrow pits in some places have become good water reservoirs for both livestock and people. Most respondents (backed by their village governments) are happy with the borrow pits because now they act as

water reservoir both for livestock and domestic uses. On the other hand, the contractors would like to abide to the agreement and fill in the pits.

A compromise is being sought to ensure that the local people benefit from these pits. Such a contentious issue reflects the importance of water in the livelihood of the people in the region. To many people who reside along the roads that are being rehabilitated borrow pits have become a blessing. The divided opinion between road construction companies and the local communities suggest that the design and implementation of road project did not properly incorporate the important need for water for local communities. Furthermore, the unfilled pits and their use for livestock may bring unanticipated impacts such as tracking along or across the road; nearby fields, which will have further environmental impacts. On the negative side however some borrow pits were dug in areas used for cultivation, and hence leading to loss of farmland. Although in such cases the owners of land are compensated, the rates are still very low compared to a loss of such a valuable asset.

5.5.1.2 Outlet Culverts

Outlet culverts have become a very notable feature in road construction. These culverts are designed to drain rainwater away from the roads. Some run up to 200 metres away from the road side and cut across farmlands. The construction of these outlets has therefore contributed to loss of farmland and crops. Not only that farmland is lost, but in many instances these outlets empty their water into other farmlands and creating water logged conditions there. Again, like in the case of borrow pits farmers who have lost their farmlands have been compensated. However, the majority complained that the rates of compensation were very low. Had the project considered the need for water by local communities these outlet drains could have been linked to water storage systems as means of water harvesting.

5.5.1.3 Excavated Soils

Just like the case of borrow-pits, the excavated soils had both negative and positive effects on the people but more specifically on the farmlands along the road. To some farmers particularly those who had been experiencing waterlogged conditions in their farms the dumping of the excavated soils contributed to reclaiming the land and putting it into productive uses, especially crop cultivation. In some other cases however, the dumping of such soils led to loss of farmland because this is now covered by sub-soils that are not good

for growing crops on. Generally though the dumping of soils has contributed more to loss of farmland than land reclamation.

5.5.1.4 Noise and Air Pollution

Noise and air pollution was another environmental effect brought about by the blasting of rocks. Residents in Mipa and Tinde villages complained of these problems. Air pollution is made worse by the absence of trees that would otherwise trap the dust. Villagers close to the quarrying sites are given an advance notice but in some cases these noises are very damaging. In an isolated incidence of a woman miscarrying due to noise pollution was reported by the respondents in Tinde village.

5.5.1.5 Blasting

Blasting of rocks was a problem most felt in Mipa village where nearly 90 houses had developed cracks due to blasting of rocks. The same problem was also experienced in Tinde village. Actually most of these houses are more than 2 kilometers away from the blasting plants. The law that governs compensation on property damaged by blasting stipulates that such compensation will be made to property within 400 metres from the blasting plants. However, evidence from Mipa and Tinde villages clearly shows that effects of blasting can reach as far as more than 2 kilometers depending on the types of rock being blasted.

5.5.1.6. Loss of Farmland and Property

There has been considerable loss of farmland to construction activities and nearly all farmers have been compensated. Farmland is lost either to outlet drains; borrow pits and dumping sites for excavated soils. Usually, the compensation rates stand at 25/= per square metre of land. This means that a loss of 1 hectare is compensated with 250,000/=. This may seem a lot of money to some people, but this is only equivalent to a one-year income from a maize field of the same size of land. The fact of the matter is that the loss of such farmland represents a loss of livelihood assets. Some of the lost property such as fruit trees is not easily replaceable. Actually some farmers made outright admission that they did not replant the fruit trees but spend the money on something else. This is understandable because of what was explained as the critical need for cash.

5.5.2 Long-term Impacts of Construction Activities

5.5.2.1 HIV/AIDS

Although new and improved roads may bring economic and social benefits, they can also facilitate the spread of diseases, especially communicable diseases such as HIV/AIDS. Workers involved in the construction and maintenance of roads usually comprise a mobile and at risk population as far as HIV/AIDS is concerned. Their comparative wealth enables them to purchase sexual services. Transport operators, especially truck drivers will be faced with the same likelihood of increased sexual activity as those in construction. This fear was raised in almost all villages covered by this study, particularly in Tinde, Maganzo and Tinde townships. This is hardly surprising because there is strong evidence to show that increased mobility is linked to the spread of HIV. For example, in Mwanza region the HIV-1 infection was 2.5% of the adult population in rural villages, 7.3% in roadside settlements and 11.8% in town. On the Dar-es-Salaam highway for example, HIV prevalence was noted to be 28% for truckers and 56% for their female partners in 1991.

In addition to spread of communicable diseases the increase of people into the region especially in towns and settlements along the road is also likely to contribute to insecurity and lawlessness. The feeling of some respondents was that there is temporary social unrest due to immigrants looking for employment and other engagements. Already people in Nata, Maganzo and Tinde townships have been complaining of an increase in incidences of banditry, rape, and armed robbery in their areas. It is more likely that with improved roads these offences will be on the increase.

5.5.2.2 Deforestation

Road improvement is likely to have direct and indirect impacts on natural resources management. Road construction in the region is likely to increase the existing incentives to extract wood and to convert the remaining forests to commercial farms, and also extend the economic radius within which it is profitable to do so. Unless some controls are instituted road improvements may consequently lead to more deforestation in the region. The main source of forest products especially charcoal in Shinyanga and Mwanza regions is Bukombe and Kahama Districts. This has made transportation costs high. With improvements of the road this means that the costs of transporting these products will be significantly reduced and this could lead to more investment into the business. Unless there is more elaborate control

system the remaining natural forests in Bukombe District may also disappear through deforestation. Mwanza region relies on Shinyanga for fuelwood and charcoal supply. Improved transportation through road rehabilitation is likely to enhance tree harvesting for charcoal and fuelwood supply to Mwanza.

Road construction in the region is likely to increase the existing incentives to extract wood and to convert the remaining forests to commercial farms, and also extend the economic radius within which it is profitable to do so. Unless some controls are instituted road improvements may consequently lead to more deforestation in the region.

Indirectly and more positively road improvement may mean more diversification of the rural livelihoods and hence less pressure on the natural resources. In other words, with increased opportunities to invest in other sectors of the economy, pressure on natural resources (especially forests) may be reduced. Furthermore, depending on the extent of livelihood diversification the dependence on land resources either for crop cultivation or livestock keeping) may considerably ease out thereby relieving the natural resource base from unsustainable pressure.

5.5.2.3 Expansion of Trading Activities

Improved road transport is considered by many that it will hasten transport of goods especially farm produce and goods from other trading centers in the lake zone. In this construction phase residents in roadside settlements have appreciated the immediate impact that the road has on their livelihood. Improved income and hence increase in money circulation along road settlements are among the benefits of the new road. With an improved road there is definitely going to be an increase in the number of trading activities especially in roadside settlements. This may consequently result in increased penetration of consumer goods into the more remote villages. In a way this may also lead to a more diversified economy in the region. However, members of the local community in Ibadaguli and Nata villages were very cautious that the improvement of the road would benefit those people who are already rich or middle class, e.g. traders because these are the people who have capital to invest in trading activities.

5.5.2.4 Easy Marketing of Agricultural Products

The majority of the respondents in the sample villages reckoned that there would be significant improvement in the marketing of agricultural products – both livestock products and crops. Again, the majority was very cautious that since the poor farmers have less to offer to the market, it is only the rich who are able to produce enough for consumption and sell the surplus. Also, most of the poor people are far from the road, unless feeder roads are also improved they are likely to benefit less by a bitumen standard road.

Shinyanga region has the highest number of livestock in the country. However, it is one of the regions that have been hard hit by drought and therefore posing a threat to both livestock and people. Improvements of the road, coupled with the increased penetration of consumer goods in the region may tempt the local people to increase the sale of their livestock and consequently improve their well-being. However, this is only possible with an elaborate system that protects these livestock keepers from unscrupulous businesspersons. Therefore for the road to have any significant impacts on the livelihoods of the people the small farmers must be protected against unfair trade. Thus, no matter how beneficial the road may seem to be, if the farmers do not get a fair deal of their products they may continue to get poor prices for their farm and livestock products and rely on natural resources and hence degrade the environment even further.

5.5.2.5 Diversification of Livelihoods

The upgraded road is likely to result into more diversified rural livelihoods in the region. With improved roads it will be possible to access goods produced from distant places both within the region and from the neighbouring countries. With more trading activities more consumer goods will penetrate into the rural areas and thereby stimulating the growth of the service sector. Therefore, the rehabilitation of the roads in the region is likely to result into reduced dependence of the poor on the land.

5.5.2.6 Better Houses

From the local people's point of view and as observed in the field better houses are being constructed especially in the roadside villages. Road contractors have also hired houses and this has enabled house owners to improve their houses. The money that was received from compensation is now used to build better houses. Most people who were interviewed

considered this as one of the positive effects of road construction in the area. At Tinde village for example it was estimated that about 40 -50 houses have been constructed or renovated using corrugated iron sheets.

5.5.2.7 Increase in the Number of Road Accidents

Residents living in villages along the road feared that with an increase in the number of vehicles there would be an increase in the number of road accidents due to over-speeding. This concerned was more noted in rapidly growing small townships of Nata, Tinde and Maganzo near the Mwadui Gold mines.

5.5.2.8 Food Insecurity and Malnutrition Cases

While the improvement of the road is expected to stimulate more marketing of agricultural products, it is also possible that many farmers may be tempted to sell all their stocks of food in anticipation of making some profits. Elsewhere in the country traders are penetrating into rural areas to lure farmers to sell their crops even before they are harvested. This may also happen due to increased demand for cash following the introduction of more consumer goods in the rural areas and increased traders. If this happens then, food insecurity and incidences of malnutrition may affect the rural residents.

5.5.2.9 Employment Opportunities

The construction phase of the road has created employment opportunities. For example, nearly 30 youths in Nata village and 100 youths in Tinde villages were employed in road construction on temporary basis. The majority of these were male youths. Such opportunities contribute to cash income to the villagers.

6 THE CASE OF THE FISHERY SECTOR IN MWANZA REGION

6.1 EU ASSISTANCE IN THE FISHERY SECTOR IN MWANZA REGION

Mwanza region is among the regions in Tanzania that have benefited from EU support through the macro economic reforms including the liberalization of the fishery sector and consequently, growth in fish export trade. Other areas of EU assistance in Mwanza region include road, sanitation and fishery sub-sectors. EU supports the Water Supply Programme to the regional centres of Mwanza, Iringa and Mbeya. Phase 1 of this grand project was allocated 32 m€ from EU and 10 m€ from the Federal Republic of Germany. Phase II of the programme is expected to start in 2005 and is predicted to cost 53 m€. EU has also funded water supply and sewerage rehabilitation in Mwanza city. 5.5 m€ were allocated for the sewerage rehabilitation project that intended to prevent the overflow of raw sewage from Mwanza City directly into Lake Victoria (EU Newsletter, October 2003). Also through support from EU, the Mwanza Region Transport Programme has involved the construction of Mwanza – Nyaguge Road Road (35 km); construction of Mwanza City roads (22 km); and improvement of Mwanza bypass road (earth road) (20 km) (Delegation of the European Commission, 2001). As discussed in section 2.3, the fishery sector in Lake Victoria has benefited from EU financial support through the 9th EDF allocation to macro-economic support.

The fishery sector plays an important role to the economy of Mwanza region. Fish fillet export to EU has grown rapidly from late 1990s. Investment in sustainable development of the fisheries sector is therefore crucial to both Mwanza region and the European Community. Thus, the fisheries sector is one of the areas that have received assistance from EU. The EU funded the Lake Victoria Fisheries Research Project (LVFRP) through its regional indicative programmes. The total budget for the region was € 29.9 m (including € 9.3 m for Tanzania. The LVFRP was carried out in Tanzania, Kenya and Uganda had two phases: 1997 to 2002 (LVFO, n.d.).

On the Tanzania side the LVFRP involved provision of a research vessel, RV Victoria Explorer. The EU assistance intended to assist TAFIRI to carry out fish stock assessment and socio-economic studies; to support operational costs; workshops and data analysis; capacity building through training at M.Sc. and Ph.D.; provision of research equipment and books;

computers, vehicles and technical assistance (LVFO, n.d.). The research work was consigned to the Tanzania Fisheries Research Institute. The research works in all the three countries aimed at assessing the fish stocks and understanding the ecosystem dynamics. The socioeconomic studies were undertaken for understanding the impact of fishery management on the local communities. The major output of these research activities is a baseline data set and the Lake Victoria Fisheries Management Plan (LVFMP) (see Bwathondi, et al, 2001). Information from the Mwanza regional fisheries office indicated that the EU has shown interest to support the implementation of the LVFMP. URT (2004) documents some of the proposed activities. The implementation of the FMP is at its initial stage. The activities involved include inception workshops and development of specific projects both at country and regional levels. More funding (3 billion Tanzanian shillings) from EU is expected for the supporting the Fisheries Department of the Ministry of Natural Resources and Tourism (MNRT) through EDF allocation for macro-economic support.

Certainly there has been some EU assistance to the fisheries sector in Mwanza region, although not comparable to other sectors in its magnitude. EU assistance in the fishery sector in Mwanza region is crucial for the development of the fish production for export that has recently dominated the sector. There is a growing concern on the implications of the development of fish export trade on the livelihoods of the local communities that suggest lack of adequate consideration for poverty and environmental impacts of its development. The sustainable development of resource utilisation through EU assistance calls for more streamlining of poverty – environment linkages. This study intends to contribute to this.

6.2 THE CONTRIBUTION OF THE FISHERY SECTOR TO THE LOCAL ECONOMY

The contribution of the Lake Victoria fishery sector at local, regional and national level is very significant. The fisheries sector now leads cotton as the major contributor to the region's GDP and export earnings (URT, 2003). Fish processing factories employ 2,740 people making them the largest employers among industrial establishments in the region.

The fishery sector is dominated by Nile Perch (*Lates Niloticus*). The growth in the fillet export has transformed the traditional fishing economy tremendously. Jansen (1997) identifies two main periods in the history of fishery in Lake Victoria. The pre – Nile perch regime was dominated by traditional fishing where the low technology vessels and fishing gears were owned by the local community; there was a fairly even distribution of income;

fish processing was dominated by the fishers and was done around the lake; traders had no control over the fishers; and there was little capital penetration from outside the fishing communities. Fishing was predominantly artisanal and for local consumption.

The Nile perch regime from 1980 – 1995, is characterised by the change in fish mass composition that was dominated by the Nile Perch and other minor ones like *Tilapia* and *dagaa*. More fishing gear and of better technology and more labour force were employed. Factories do fish processing. These necessitated the sector to recruit more people from the local as well as non-local population for employment. Increasing demand for fish fillet from abroad presented the danger of over-fishing. Factories began to compete for fish and as most of the catch was processed, access to fish in the local communities became difficult. The growing foreign demand on fish filler has attracted foreign investment in the sector. To the present, the fishery sector is dominated by national and international capital. The number of fish processing plants has grown. There were eight fish processing plants in Mwanza region in 2001. The plants are the largest employers of the region. Fish export has been growing very rapidly in the region. Table 1 below shows changes in fish fillet export.

Table 3: Growth in Fish Fillet Exports

Year	Quantity (metric tonnes)	Data source
1981	Less than1000	Jansen, 1997
1986	124,000	Jansen, 1997
2000	38,290.86	URT, 2003
2001	95,540.34	URT, 2003
2003	37,290.86	Hoza, 2004

Increase in fish fillet export goes hand in hand with increase in employment, and fishing gear as shown in Table 2 for Mwanza City. The city authority conducts fishery census once for every two years. Whereas the number of boats almost doubled between 2000 and 2002, the number of fishermen increased only slightly. This shows there was an increasing in fishing effort.

Table 4:Some Changes in the Fishery Sector in Mwanza City

Items	Year		
	2000	2002	2004
Number of fishing boats	650	1205	1406
Number of carrier boats	40	100	171
Total number of boats	690	1305	1577
Number of fishermen	3000	3473	4989

Source: Mwanza City Council office

Similar trends in changes in the fishery sector are shown in Table 3 below:

Table 5: Fishery Resources, Facilities and Production in Mwanza Region.

Year	Number of registered Fishing Licenses	Number of Fishermen	Fish catches Weight (tons)	Value (Tshs to Fishermen)
1997	3,566	16,867	137,695	30, 813,365
1998	3,369	16,385	173,630	40,365,770
1999	3,369	16,385	227,717	52,879,159
2000	7,678	29,301	281,605	65,392,674
2001	7,678	29,301	335,493	77,906,232
Total	-	-	1,156,340	267,357,400

Source: URT, 2003 p. 88.

The growth in fish export has brought about the greater integration of the fishing communities into the global market. This has great impacts to the local communities that require attention. There is the concern that the local communities are being marginalised in the process. Unless this phenomenon is addressed properly, development intervention on the fishery sector is likely to exacerbate the problem of rural poverty and this will have environmental repercussions. The growth in fish fillet export trade has impacts on the following areas:

a) Inequalities in Income Distribution

Fishery sector growth has detrimental effects to the local population due to growing social inequality. There is a growing tendencies towards monopoly and control fisheries activities and incomes that bring unfairness e.g. traders have control over fishermen; factory operators gain more control over agents/fisherman. These monopolistic situations, unless controlled lead to unfair trade that largely impoverish the local communities. The development in the

fisheries sector has changed the requirements for capital investment in fishing gear that are beyond the ability of the members of the local fishing communities. This has rather opened up opportunities for investors, external investors who eventually gain control of the sector at the expense of marginalisation of the local communities. Whereas earnings from have increased tremendously, the majority of the rural poor have benefited very little. Although the fishing community appreciates that income from fishing are relatively better than those from farming, their distribution is more skewed. There are growing income inequalities and the majority of the poor have very little to benefit. The Lake Victoria Fisheries Management Plan (LVFMP) acknowledges that the gap between the richest and poorest fishers in some beaches is widening. The gap between the benefits obtained from fishery by vessel owners and labouring classes is also growing (Bwathondi, et al, 2001).

b) Differential Employment Opportunities

The development in the fish export has transformed the traditional employment structure. Factories are creating monopolies and are increasingly being engaged in all activities along the production chain. This draws artisanal fishermen out of business. Mechanised fishing and trawling has rendered artisanal fishing system functionless. Artisanal fishermen and local fish processors are being driven out of business. This has been related to the concentration of capital and fishing resources into fewer hands. Most of the fishing crews do not own the means of production and employees of the boat owners. Consequently there has emerged a new re-categorisation of workers in the fishing sector including: fishing crew; machinga at the lower level, to boat owners, traders and factory agents and factory owners. The income and employment differences among these categories are reinforced by the contractual relations established between them. The loss of employment and income earning opportunities exacerbates poverty among the local communities.

c) Food Insecurity

The impact of fish export development on food insecurity is strongly argued by Abila (n.d.). Less fish stock is available for local consumption as most of the catch is taken for factory processing. Effort to improve and maintain quality standards through refrigeration have meant that there is less fish rejected by factories that would feed local market. The use of by-products for local consumption has been a common phenomenon. As most of the fish is taken to factories, fish has become too expensive for the local population to buy. The price fluctuates between Tshs. 1,000 and 1,400 per kg depending on the demand and catch. Also

remuneration of crews by giving a portion of the catch is being replaced by other means such as cash. This has also reduced the access to fish by households.

d) Discrimination Against Women

Field observations and focus group discussion at landing sites showed that women had relatively fewer opportunities to participate in the fishery sector. The few women found were engaged as artisanal fish processors and suppliers to the local market. Some women worked as 'machinga'. Women did not feature as boat owners except at Igombe where one women owned several boats. Even fish factory agents very few of them were women. Discrimination of some social groups – through limiting their access to fishery resources – e.g. women, crews, etc. Medard, et al. (2001) observes that women are being marginalised in the fishing industry and their involvement is being limited to small scale, lower remuneration, trade of processing of native species such as dagaa (*Rastrineobola argentius*).

Also the women have been neglected despite their contribution to the artisanal fish industry. Field interviews and discussions show that there is growing marginalisation of the artisanal and small-scale fishers in the process of fisheries development. It seems most women are engaged in activities which don't require rigorous supervision / management and little capital. Mkumbo and Mwanisongole, (1995) (quoted in Yanda (2004) make a similar observation that the fisheries management presents a trend of monopolization and marginalization of the artisanal sector. This partly due to concentration of the fishing gear into fewer hands; reduced access to fish by the poor and artisanal processors. Fish trade is increasingly becoming under monopoly of few companies and private boat owners. Women, in particular, are engaged in the less lucrative sections of fish trade. Boat crews, small-scale fish traders and artisanal traders are poorly organized and have less power and resources to ensure fair trade. There has been little support to women in the development of the fishery sector.

e) Inadequate Benefits to Local Communities

Observations have indicated that there is less trickling down of benefits to local communities from the growing fish export industry. Discussion with the Mwanza city mayor revealed that wealth from the fishery sector goes out the city region. It was observed that a very small proportion of turnover from fishing filtered down to the local communities. Similar

observations were made in our discussion with LVEMP officers that money from export was not trickling down to local communities.

Local dynamics are centred on the fishery activities. Respondents acknowledged that there is an increased circulation of money in the fishing village / settlements around or near landing sites. The local government collects revenue from fish trade at landing sites. A private agent selected through tender often assigned to collect revenue at landing sites. In Mwanza city the revenue collected at beach landing sites is 7 - 10 Tshs per kilogram. Part of the revenue is supposed to be returned to the local village communities, but this is rarely taking place. At national level, the government takes royalty from fish export at the rate of 6% of FoB value. Income from the booming fisheries sector acquired by the private operators and the local government rarely trickles down to the poor majority. Even the little income received by crews for example goes back to the business community that runs various social entertainment businesses at the land site settlements.

The local village governments are therefore unable to cater for the growing requirements of population and settlement dynamics along the lakeshores and in the islands, such as service and infrastructure development; civic institutional organisation, etc. This phenomenon of little redistribution of benefits from fish export to local communities is not peculiar to Mwanza region. Namisi (2001) makes similar observations for Uganda.

f) Over Dependence on the Fisheries Sector

The growth in fish export trade in Mwanza region and its relative importance in the economy of the region suggest a trend towards over dependence on the fishery sector and poor integration of the sector with other sectors of the economy. Removal of subsidies in agriculture might have affected cash crop farmers leading to low productivity and hence shifting to fishing. But overdependence on one sector or sub-sector of the economy makes it more vulnerable to changes. There is need for economic diversification to avoid risks of overspecialisation. There is little evidence that profits from fishery sector spill over to key sectors such as agriculture, infrastructure and services provision. This is more critical for the sustainable livelihoods of the poor majority. Moreover, re-investment of the profits from fish export trade in the better management of the fishery resources is limited. The development of landing sites, local people's participation in fishery management; conflict management; surveillance and research face resource constraints. The newly introduced beach management

units (BMUs) face serious constraints for undertaking their tasks, but there is little that they can draw from the profits of fish export trade.

Whereas the fish export sector has received a lot of support through investments and improved management, the non-export fishery sector has been neglected. Quality standards of fish products for the local market and export to neighbouring countries receive little attention. The post harvest sector that employs the majority of small scale processors and traders has received very little support from government or donor community.

At local community level, the over dependence on the fishery sector implies that there are fewer alternatives income generating activities. This is further aggravated by the declining cotton economy. This is likely to hinder fishermen from accepting restrictions on fishing practices and methods that are harmful to the fishery environment.

g) Environmental Implications

The growth of the fish export dominated by Nile Perch has some implications to the environment. Over-fishing and pollution are the key environmental issues that have attracted research interest on Lake Victoria (see Odada, et al, 2004). There are also claims that fish carcasses have provided food for birds and hence their increase, which at times causes problems to flights. Nevertheless, disposal of by-products is still a problem that needs to be addressed.

i) Changes in Fish Mass Composition

Most of the fishers indicated that the main species found in the lake are Nile Perch and Tilapia. The balance of species in Lake Victoria has changed dramatically since the 1980s with the Nile Perch, dagaa (*Rastrineobola argentius*) and Tilapia growing at the expense of other species (URT, 2003 p. 86).

ii) Environmental degradation

Environmental degradation at fishing settlements such as poor sanitary conditions is an emerging problem. The fishing industry has attracted fishers from different parts of the country. This has led to rapid growth of fishing settlements that put pressure on the resources,

infrastructure and services available. Information from key informants indicated that over concentration of population at fishing camps along the seashore and in the small islands caused major problems to sanitation. As the number of vessels operating in the lake increase, there is a concern towards pollution of the lake's water through toxic substances such as engine oil and fuels if not properly managed.

iii) Energy requirements for fish processing.

The development in fish factory processing for export market has significantly reduced the proportion of fish processed by local artisans for the local consumption. This has reduced the charcoal and fuel wood consumption for fish processing. Certainly this is likely to reduce environmental impacts of fish smoking. Field information however indicated that fish smoking in the fishing camps on the islands and landing sites continues to rely on fuel wood and charcoal. Also fuel wood and charcoal are major energy sources in the rural areas. The rapid growth of fishing village settlements camps and landing sites and their related activities implies that there is an increasing demand and use this energy sources. Jambiya and Sosovele (2002) observe that a business of selling firewood and charcoal has been growing between the islands and landing sites. At Igombe landing site, for example, charcoal loads were seen being unloaded from the islands for use in the mainland. This suggests that the use of profits from fish export trade for supplying electricity to rural areas will reduce further environmental degradation on the islands. However, the rural poor may not be capable of tapping electricity if their incomes will continue to decline due to unfair fish trade. But, provision of electricity per se may not be a solution to the problem, since electricity is often used for lighting rather than for other energy needs (Kulindwa, 1994).

Over-fishing

Over-fishing is another environmental problem in Lake Victoria. The growing demand for fish fillet for export has encouraged growth in the number of fishers, fishing vessels and improvement in fishing technology (see Table 4). Excessive fishing for export may contribute the collapse of the fishery and undermine the nutritional security of the local community. Evidence of overexploitation of fish stocks include 'reduction in age/length at maturity, higher mortality, especially caused by fishing pressure; reduction in catch per unit effort; reduction in mesh size of nets used and an increased proportion of immature fish in the catches (Bwathondi, et al, 2001, p. 8). Fish maturing at small sizes is a sign of over fishing

(LVPO, n.d). The LVFO asserts that there is a serious risk of fisheries collapse in Lake Victoria unless urgent action is taken to improve their management.

v) Deforestation

The depletion of forest resources is not only due to growing needs of energy resources by the local communities, but also growth of the fish – export and sectoral changes have led to an increase in demand for forest products for boat construction and maintenance. Canoes are the most commonly used vessels for fishing. Jambiya and Sosovele (2002) note that boat builders have to rely on distant sources of materials as local resources have been depleted. As sturdy hardwood required for boat building are no longer available, softer and less sturdy woods are increasingly being used. Consequently the life span of the boats is shorter and more frequent repairs are required. This implies more exploitation of the forest resources. Also it becomes more difficult for poorer members of the communities to own and run fishing vessels.

Other areas that fish export has impacted on the local communities include:

a) Social Conflicts

There is open access to fishery resources. The growing competition for fish resources has intensified conflicts between users. The conflicts are between big fishers and small scale fishers mainly using canoes, between those using boats and those using fish hooks, between Nile perch fishers and dagaa fishers. The LVFMP notes the growing economic and social distance along three dimensions: between migratory and sedentary populations of both fishers and non-fishers; between the owners of large and smaller fishing operations; and between owning and non owning classes (Bwantondi, et al., 2001 p. 13). A conflict between migrant dagaa fishers from Lake Tanganyika and sedentary population was evident at Nyakabanja landing site. Migrant fishers are denied access to land for house construction and therefore are forced to live in temporary structures at beach site.

b) Social Insecurity Off-shore

Discussions with fishing crews and boat owners at Igombe and Kayenze landing sites revealed that theft of fishing gears, vessels, as well as piracy were rampant in the lake. As disparities and social distance among the fishing communities grow, these problems are likely to increase. Bwantondi, et al, (2001 p. 13) do correctly view that the deteriorating security situation on the lake poses serious threats to the fisheries, fishers, fishing communities and the lake environment.

c) Local people's Participation in Resource Management

Participation of the local communities did not feature very much in the LVFRP's training and capacity building in research and resource management. The project supported the establishment of BMUs primary for enhancing community participation in enforcing fishery regulations. The fishery resource is open access. A major problem related to fishery management therefore, as seen by the regional fisheries office is the weakness in enforcement of fishery regulations. This explains the establishment of BMUs as a way of enhancing participation of the local communities in the management of the fishery sector. Enforcement of regulations on its own is not adequate for sustainable fishery resource management. Unless problems of poverty are addressed, the local community may be compelled to exploit resources in a non-sustainable manner.

6.3 THE STRUCTURE OF THE FISHERY SECTOR

The structure of the fishery sector is very complex. An identification and analysis of its different players and their roles is important for understanding the dynamics of the sector, its implications to poverty and environment as well as the entry point for interventions. The relationship among the key players dictates the relative benefits each category is able get from the growth of the sector. The LVFRP fish market study (SEDAWOG, 1999) uses the category 'fishers' as a collective noun. This hides some key variations within the category that require attention for understanding the dynamics of the sector. As noted earlier the traditional fishery structure has changed with growth of fish export trade. Fishers are more differentiated than it used to be. The differentiation is based on emerging patterns of production relations (Figure 1). Ownership of fishing gear is becoming more concentrated in fewer hands and the majority of the crews does not own the fishing gears and therefore work for the boat owners. Ownership of fishing gear is an important indicator of a person's wealth status in the fishing communities.

Through field observations and discussion with informants, we were able to identify several categories of fishers: the crews (locally known as 'wategaji'); boat owners; and agents (Figure 3). The crew category is dominated by the youth. These do not own the fishing gear but work under contract for the boat owners. They have to bring the fish stock caught to boat owners at landing sites. There are different ways of remunerating boat crews. A common practice has been sharing the catch between the boat owner and the crews. At Igombe landing site, for example, some boat owners used a cycle of 9 fishing days. Out of these the boat owner takes a fish stock caught in 6 days and the boat crews take fish stock harvested in 3 days. The boat crews are obliged to deliver to the boat owner all the catch and their share is paid in monetary value. Boat crews complained of boat owners deducting any other expenses such as fuel and fees from share belonging to the boat crews and therefore reducing their share of income. The crews are paid 500 Tshs every day they return from work for breakfast (chai).

A newly emerging contract is that of monthly payment. In this case the crews are given a flat rate payment of 250 Tshs per kilogram of fish they bring to the boat owner at the landing site. However, boat owners deduct operating costs such as fuel cost from this rate. Unlike the traditional fishing system where the crews were able to bring fish home, the current arrangement gives little opportunity for the crews' households to access fish.

Another collective category is that of traders. These link the fishers and the factory processors. In this category there are agents for the factories. These buy fish from boat owners for the factories. This trade requires high level of capital investment in transportation vehicles and refrigeration facilities. Due to factory competition for fish, factory owners have contractual arrangements with agents through which they supply them with credit, special transport vessels, etc. To ensure their fish supplies, agents also make contractual arrangements with boat owners that involve credit, supply of fishing gear and refrigeration facilities. Boat owners are obliged to supply fish to such agents. Sometimes, though illegally, agents may buy fish direct from boat crews. This may happen offshore. As this may mean that boat crews contravene their contractual agreement with boat owners, this becomes a source of conflict and insecurity at offshore.

Informants from the Mwanza City Directorate and LVEMP indicated that regulations do not allow factory owners to engage in fishing. However, to ensure adequate fish supply from

competitive sources, factories rely on contractual arrangements with boat owners and agents and through such arrangements, factory owners are engaged in fishing though indirectly. Some factories have their own fishing gears, and have direct access to and collect fish from fishing camps. This has great repercussions in the sector as it introduces more monopolistic conditions in the fish trade that lead to unfair trade. Whereas the factory owners have established a Fish Processors' Association to promote their interests, such organisations do not exist for fish traders, fish agents, boat owners and fishing crews.

Among the traders, there are other sub-categories. The '*wamachinga*' operate at the landing sites. These buy fish that is not suitable for factory processing, either due to small size or poor quality, for sale to artisanal fish processors. Sometimes the machinga traders may accumulate fish bought in pieces from crews and eventually sell to factory agents. The artisanal fish processors also operate at the landing sites. They prepare fish for local markets. As measures for quality standards have improved such as refrigeration, less and less fish is becoming available for artisanal processors. Women are more involved in these two categories of fish traders. The fish export trade has tended to deprive opportunities for these groups to earn a living.

Another group of fish traders and artisanal processors is engaged in factory fish by-products such as punk, fish cuts that are further processed for export to regional markets such as Rwanda, Burundi, and the Democratic Republic of Congo (DRC); and the local market. This category of fish traders and artisanal processors operates from urban environments.

Figure 3 summarises the structure of fish trade in the region. The relationships between the different players in the fish trade structure are rooted in their contractual arrangements. The nature of the contractual arrangements ensures concentration of ownership of resources and undermines the opportunities for a sellers' market (Jansen, 1997). Also there has been a growth in the involvement of the more well – to –do people at the expense of marginalisation of the rural poor. There are reports of incidences of 'absentee fishermen' – civil servants, businessmen working and residing away from the lake who own boats and employ people to operate for them.

Field information suggests existence of unfair trade by unscrupulous traders and factory owners through various forms of contractual arrangements. This perpetuates poverty among

members of the local communities. Credit mechanisms, for example, make fishermen dependent on agents who in turn are dependent on factory owners. These relationships are reproduced at lower levels. For example, a '*machinga*' issues credit (locally called '*skadi*') to boat crews (to enforce contract) in order to be assured of fish supply.

The factory owners are the dominant players. They fix fish prices. The bargaining power of the fish factory agents, fishing crews, machinga and artisanal processors at the lower level of the export fish market is low as they have no collective organisation to promote their interests.

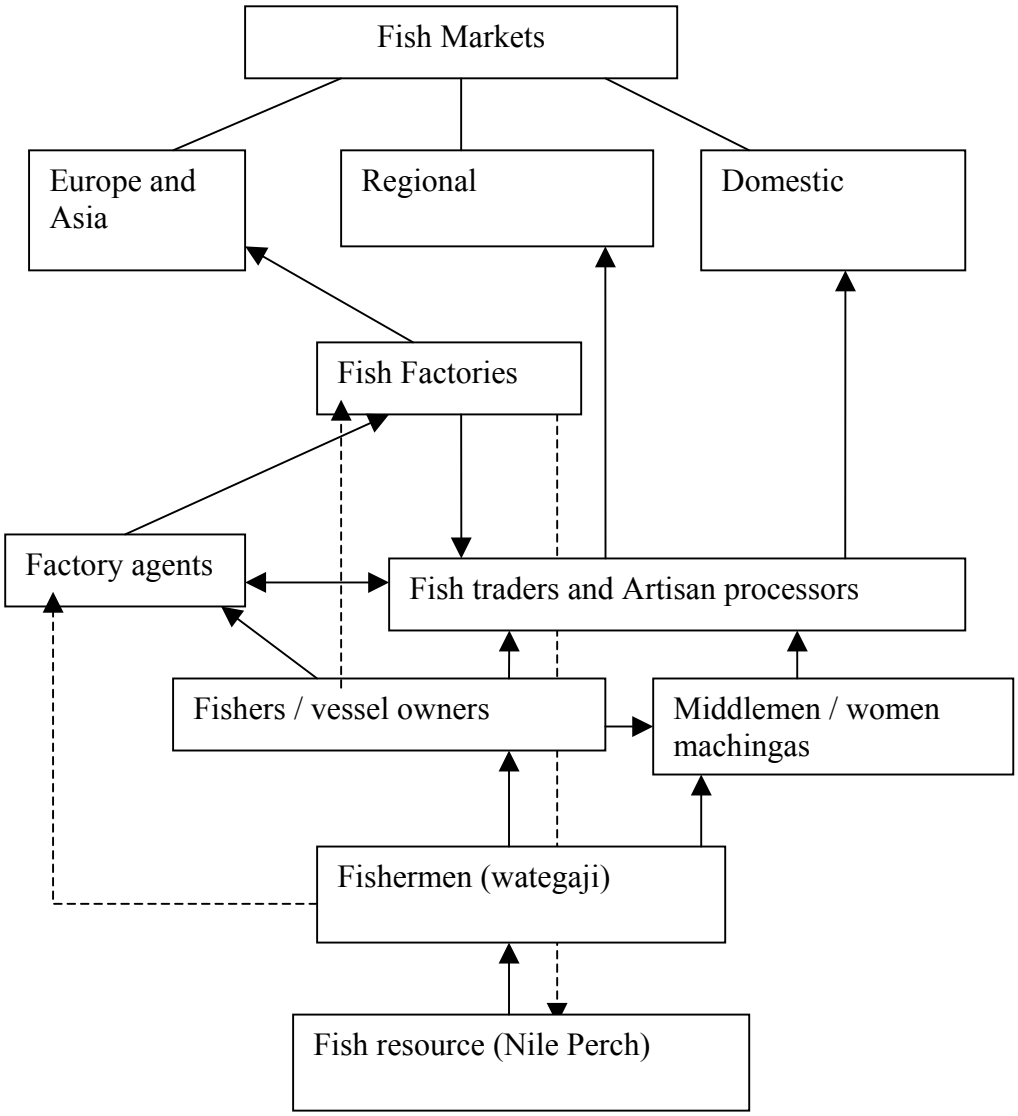
The structure of the export fish industry limits the possibilities of trickle down effects to the local communities from the growth of the sector. Profits from the trade are not adequately re-invested in the local fishing communities. Certainly some rich traders have invested in better housing with the local communities. Data to quantify this phenomenon is unavailable. Developments and landing sites and fishing villages are more associated with the provision of consumer services. These include guesthouses, bars and restaurants, and shops. The growing entertainment services serve to draw more income from low-income earners for the benefit of the rich traders.

6.4 INSTITUTIONAL ORGANISATION

The LVFRP funded by EU realises the need for improving fisheries management for sustainable development of fisheries resources. Thus the development of participatory fisheries management is a central matter in the proposed Lake Victoria Fisheries Management Plan (Bwatwondi, et al, 2001). The FMP responds to some of the critical problems facing the fishery resources of Lake Victoria. These include excessive fishing effort; over-fishing; degradation of fishing habitats; destructive fishing methods and gears; inadequate enforcement of fisheries laws and regulations; limited involvement of fishers and lakeside communities in the management process, etc.

Various institutions are involved in the management of the Lake Victoria fisheries resources including the Departments / Directorates of Fisheries, Fisheries Research Institute, donor projects (LVFRP and LVEMP). The LVFMP intends to integrate fisheries management from the regional level to the local (beach levels).

The LVFMP also realises the need for developing infrastructure to alleviate problems facing post harvest sector due to the remoteness of the land sites. It acknowledges that poor handling facilities such as ice plants, storage facilities; sanitary conditions at landing sites contribute to poor fish qualities. Non export fish processing also faces poor quality problems due to lack of racks at beaches leading to drying on sand as was seen at Kabangaja landing site (see Plate 1); facilities for smoking; and frying. The post harvest sector constitutes the majority of small-scale processor / trader population at the landing sites. Unfortunately this sector has received little support and making the fish industry less beneficial to the poor majority.



---- Dotted lines show relationships / transactions out of normal practices.

Figure 3 Trade Structure of the Fishery Sector

The LVFMP also realises the need for developing infrastructure to alleviate problems facing post harvest sector due to the remoteness of the land sites. It acknowledges that poor handling facilities such as ice plants, storage facilities; sanitary conditions at landing sites contribute to poor fish qualities. Non export fish processing also faces poor quality problems due to lack of racks at beaches leading to drying on sand as was seen at Kabangaja landing site (see Plate 1); facilities for smoking; and frying. The post harvest sector constitutes the majority of

small-scale processor / trader population at the landing sites. Unfortunately this sector has received little support and making the fish industry less beneficial to the poor majority.

Plate 1. Drying Dagaa on Sand at Kabangaja Landing Site

The problem of growing social insecurity off shore and increasing social conflicts, require the development of management organisations for addressing the problems. This features strongly in the establishment of the beach management units (BMUs) that are empowered to take on management functions at local level. The establishment of the BMUs in Mwanza region was supported by the LVFRP, LVEMP. BMUs are operating under the supervision of Fisheries Departments at district levels. Their establishment is seen as a method of delegating some responsibilities for the management of the fisheries resources to communities. The prime responsibility of the BMUs is enforcement and implementation of national and local fisheries regulations. Thus, the BMUs are often associated with the functions of *Sungusungu*. The BMUs members are selected by the village assembly and operate under the village sub-committee of *ulinzi na usalama* (literally defence and security). The basis of the BMUs is biased to enforcement of government fisheries regulations and inadequately responds to civic organisation needs of the local communities. As Medard, et al., (n.d.) have noted in their study of the Kabangaja fishing village and landing site, there is no community involvement in the design and implementation of BMUs activities. Our field findings show that where BMUs

are involved in revenue collection, for example, they have no authority and have little influence in ensuring that part of the revenue is brought back to the village as regulations demand. Where part of the revenue has been sent back to local communities, some significant developments are apparent, as is the case at Kayenze landing site.

The BMUs have taken up the tasks of fisheries management including enforcing regulations against destructive fishing, conflict resolution, and some supervising licensing of fishers and traders and recording production data;. However, BMUs face a lot of resource constraints. Several BMUs have been dissolved and new ones have been formed due to default in membership. Acceptability of BMUs by the local community is hard to establish. The BMU at Kayenze site is a good example of excellent performance. Apart the usual responsibilities, it has been able to collect revenue from the fish industry and to reinvest the profits in the development of the landing site infrastructure (see Plate 2). Patrol of fishing operations that is required for checking destructive fishing; offshore conflicts; and offshore insecurity is hardly undertaken by BMUs due to resource constraints. This leaves a gap that requires immediate solution to safeguard the local fishing communities and the environment. Most BMUs work on voluntary basis as there is no remunerations to compensate for the time spent on BMU activities.

Plate 2: Kayenze landing site

A major weakness in the institutional organisation for fisheries management is the lack community based organisations to promote the interest of low income members of the fishing community who are unfairly monopolised and marginalised by richer fishers and traders. Although the importance of the fisheries cooperatives is recognized in the Cooperative Development Act of 1997 (URT, 1997d), there is little evidence of support of the fishing communities in developing cooperative societies. Clauses 3.5 and 3.6 of the policy state that:

"The government will play the role of facilitating and catalyst with emphasis on information provision, sensitization, education, training, inspection and supervision" (Article 3.5)

"The government will encourage women participation in cooperatives by removing inhibiting traditional laws, customary values and any other constraints". (Article 3.6)

However, information from land sites we visited indicated little effort towards formation of community-based organisation for promoting the interests of low income fishers and traders. Focus group discussions at Igombe landing site revealed that boat crews had no organisations that united them for promoting their common interest and defending them from unscrupulous traders and boat owners. Such organisations of fishers and traders can bring great economic and social advantages through economies of scale, greater bargaining power and social cohesion. These would also enhance collective effort and participatory management of fishery resources. It was revealed during discussion with boat owners, fish factory agents, and traders that most of them are constrained by poverty background and inadequate education making it difficult to mobilise themselves and have a single stand/voice. Those who have relatively managed to break through poverty fear to create a situation that may jeopardize the already established opportunities, and cannot have a strong social cohesion (or talk in the same language) with those who are very poor to have a single voice and a greater bargaining power.

Lack of development of community-based organisations has also weakened the development in credit services systems for the low-income fishers and traders. The National Fisheries Sector Policy and Strategy Statement of 1997 (URT, 1997b) identifies the unfavourable credit condition from lending financial institutions as one of the constraints in the fisheries sector.

6.5 SOCIAL ISSUES

The increasing social distance among members of the local communities at the landing sites and fishing camps goes hand in hand with the declining moral behaviour. As social differentiation increases unlawful ways of sharing wealth are likely to lead to social insecurity. Discussions with respondents indicated an increasing concern over the growing situation of lawlessness both off-shore and on shore.

Medard (2001 p. 156) complains of the neglect of women by government and non-governmental organisations. The women are forced by the circumstances to work in the lowest levels of technology as modern technology marginalises them. Williams (2001 p. 151) made a similar observation that women are relegated to low paying tasks as technology develops. The conflict between migrant fishers and local sedentary population at Kabangaja was quite evident in the field discussions. Also most women in landing settlements were working in social/entertainment activities such as restaurants and bars.

6.6. FOOD INSECURITY AND NUTRITION ISSUES

The impact of Nile Perch export trade on food security of the local communities has been highly debated. Some deny the argument that the export trade has denied access to fish by the local population. This argument suggests that Nile Perch has not been a preference dish for the local communities due to its fatty nature. Tilapia is preferred to Nile Perch (LVFRP, 1999:125). It also holds that the local communities do still have access to other fish species.

Arguments that export trade leads to food insecurity (Onyango, 2001) centre on the increase in price of Nile Perch as well as other fish species and fish products. The increase in the price of Nile Perch has also triggered a rise in the price of other fish. It is generally agreed that fish has become more expensive and low-income household cannot afford buying fish regularly. As noted in the discussion above, the commercialisation of the fish sector has changed traditional ways that used to ensure household access to fish. Since a large proportion of the fish catch is delivered for fish processing factories, it is obvious that there is less fish for local consumption.

As noted earlier, Mwanza region is more vulnerable to the problems of food shortage and often relies on food imports from other regions. This means food items are very expensive and therefore poor households are at greater risk. This is where linkage of the fish industry

with the other sectors is important. Profits from the fish industry could be used to boost the agricultural sector that is the major source of food requirements for the local population.

6.7 POVERTY - ENVIRONMENTAL ISSUES

The poverty implications of the development in fish export discussed above have repercussions on the environment. Growing impoverishment of the local fishing communities means limited capacity for them to better manage the fishery resources. As fishers find it difficult to acquire expensive fishing gears they are likely to resort to cheap, but destructive fishing gears like the '*kokoro*', trawling; and fish poisoning (Bugenyi and Knaap, 1997). Certainly the improvement in quality control and adherence to quality standards is likely to discourage the use of destructive fishing gears and methods in Nile Perch industry. But lack of quality control in non-export fish sector is likely to entertain the use of destructive fishing methods and gears. The low-income communities are more likely to experience the health hazards that are related to poor quality of the non-export fish products.

In order to improve their income more poor people have to work in the sectors as labourers for boat owners, and have to spent many hours fishing as fish stock declines. This has tended to encourage population concentration in fishing camps both on the shore and in the islands. Growth of fishing settlements (villages at landing sites; fishing camps on islands, artisanal fish processing camps, etc) has related environmental problems (e.g. Sanitation, use of fuel-wood for fish processing and other domestic uses). Settling on fishing camps is a coping strategy of the poor but leads to environmental degradation. The EU support on sewage management in Mwanza city has helped to reduce pollution of Lake Victoria. Yet, the pollution that is likely to arise from the concentration of population in numerous villages and fishing camps along the shores and in islands of Lake Victoria is yet to be addressed. The urban way of life in the growing settlements involves generation of wastes that find their way into the lake. Runoff from the villages into the lake affects the quality of water.

The deterioration of the environmental resources / fish stock deterioration will impact more the poorer as they are the least capable of adapting to the expected consequences. Due to the growing demand for fish export, there is the danger of over-fishing.

Capacity of village authorities to conserve the environment is limited due to less revenue transfer from fish trade to the village level. Local authorities lack the capacity to provide for required services and infrastructure in the rapidly growing settlements.

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7 THE CASE STUDY OF MARINE RESOURCES

The objective of this undertaking is to formulate marine and coastal related recommendations for long term EU and national institutional and policy changes, and long-term opportunities to facilitate poverty-environmental integration in the Country Strategy Paper process.

7.1 EU AND COASTAL PROGRAMME

The EU is anticipating investment in the coastal area-with a focus on poverty alleviation. EU investment will build on the existing World Bank MACEMP project and focus on areas of governance for regional coastal zone management, EEZ management and capacity at the District level.

The Marine and Coastal Environment Management Project (MACEMP) hosted by MNRT is a six-year project that is to improve the management of coastal and marine resources. It has a view to contribute to economic growth and poverty reduction in coastal communities. The Project emphasizes the establishment of an effective regulatory and institutional framework, participatory planning and the creation of an enabling environment for integrated coastal and marine resources management and private investment.

MACEMP will, amongst others: strengthen marine management institutions with a focus on creating a common governance regime for the Exclusive Economic Zone (EEZ) (Component 1); support coastal area planning and the establishment of a network of marine protected areas (MPAs), community management areas (CMAs) and marine management areas (MMAs) for conservation of biodiversity and sustainable utilisation of coastal and marine resources (Component 2); and create an enabling environment for environmentally sustainable investment along the coast (Component 3).

While the overall goal of MACEMP is to improve current economic, social and environmental conditions over the long-term, it is recognized that some activities may negatively affect individuals and households. Resource management will be changing from what is currently an open access regime to a regulated or limited-access regime. Reducing the availability of or access to resources has the potential to place already impoverished populations at risk when the productive assets are lost. Other potential impacts include a

weakening of community institutions and social networks, traditional authority, and potentially diminishing or removing mutual help systems that exist in communities.

The ocean bordering the East coast of Africa is one of the last areas where fishing activities are largely unregulated. Despite the declaration of a 200-mile Exclusive Economic Zone (EEZ: Law of the Sea), Tanzania lacks the institutional and financial capability to exercise their jurisdiction. While fish species living in a narrow coastal strip are harvested, the potentially valuable offshore species are left to foreign fishing fleets that rarely, if ever, pay reasonable ”resource rents” for exploitation of the fishery, tend to land fish outside East Africa, and do not assist in management of the resource by sharing data with Tanzanian authorities.

The Project seeks to improve the regulatory and institutional framework for management of marine resources- particularly establishing the links between the marine environment and the fishery resource and what are expected to be conservative estimates of sustainable commercial exploitation of marine fishery resources. It also aims to fill gaps in the data describing the fishery in Tanzanian marine waters and the coastal and offshore environment upon which the fishery depends. The objective is to enhance the contribution of these resources to economic growth and reduction of poverty, and to develop the scientific understanding of the status of the resources and major threats to them.

7.2 METHODOLOGY

In addition to the review of literature two sample villages along the coast of Dar es Salaam were selected. These villages were Kunduchi and Amani Gomvu in the north and south of Dar es Salaam city respectively. Kunduchi Mtongani village is basically part of the Dar es Salaam city. Both the livelihood system and natural resource utilization clearly reflect the influence of the city. Relatively fewer households depend directly on fishing in Kunduchi village. Otherwise, the majority are engaged in various non-farm activities. By any standards the majority of the residents in Kunduchi village can be categorized as poor.

On the other hand, Amani Gomvu can be best described as a rural village with minimal influence of /from the city. Crop cultivation and fishing are the most dominant livelihood activities for the majority of the people. Like Mtongani village, Amani Gomvu is also

experiencing pressure from tourist development. This pressure is reflected in losses of village land to tourist hotel investment. The livelihoods in Amani Gomvu are not as diversified as those in Kunduchi village. Again this can best be explained by the influence of Dar es Salaam city.

Both primary data and secondary data were used. Through literature reviews secondary data pertaining to resource use patterns and livelihood systems were collected. WWF library provided the major basic source of secondary data. Primary data was obtained through interviews, and focus group discussion with members of the local communities in Kunduchi and Amani Gomvu villages. In addition officials from Kinondoni and Temeke municipalities also provided an invaluable source of data for the assignment.

7.3 THE NATURAL RESOURCE BASE AND LIVELIHOOD SYSTEMS

7.3.1 The Natural Resource Base

The coastal communities in the rural areas of Tanzania are richly endowed with a wide range of natural resources that people can utilize (with technology and capital at their disposal) to form the basis of their livelihoods. People in the sample villages for example, perceive the ocean and land as their most important natural resources, and for decades now the livelihood options have, to a large extent been influenced by this richness.

Members of the local communities in Kunduchi and Amani Gomvu are aware of the potentials in their villages. The sandy soil, fishing grounds and remnants of the natural forest (especially in Gomvu) for example, were identified as the most valuable resources in these villages. Although all these resources are under pressure and are currently being over exploited, the villagers consider them as their lifeblood. In fact this is hardly surprising given the low level of technology that locks them into dependence on the natural environment.

Mangroves are one of the most productive habitats on the coast of Tanzania. Associated with mangroves are lagoons and estuaries, which are important habitats for aquatic organisms. Mangrove forests occupy the largest area of all these coastal habitats, typically around river estuaries. Coastal communities use mangroves to supply local needs for fuel wood, charcoal making, fences, house construction, boat building, fish traps, fishing stakes and medicines.

Coral reefs form another marine resource in the coast. These are located along about two thirds (600 km) of Tanzania's continental shelf. These coral reefs are known to be the home of about 4,000 fish species as well as a variety of sponge, mollusks and other invertebrates. Coral reefs and associated habitats also support species such as marine turtles, dugongs, rays, whale sharks, and others (Bunting, 2001). Over 500 species of commercially important fish and other mammals such as lobsters, octopuses, bivalves, gastropods, and sea cucumbers are commonly found (Horrill et al. 2001, Wagner 2000).

Another form of marine resource is the sea grass. The sea grass beds are very productive areas and are high in species diversity and numbers of individuals (Semesi, et al., 1999). Their most notable role is that they provide breeding, nursery, and feeding areas for many invertebrates and vertebrate species including commercially important species of finfish, and shellfish. Seaweeds grow attached to rocks, or to shells of marine animals, or grow as epiphytes on other marine plants. Currently, seaweed farming is an important economic activity and provides an alternative livelihood to fishing in many coastal communities particularly Zanzibar, Tanga, Muheza, Pangani, Bagamoyo, Mtwara and Lindi (Mgaya, 2000).

The marine biodiversity of eastern Africa, with its many plants and animals constitutes a vital resource for the well being of coastal and inland inhabitants. Today however, the growth of the coastal population, expansion of industrial activities and the development of tourism have combined to contribute to the degradation of these resources.

The resource use patterns clearly reflect the level of technology as well as the growing pressure as caused by population increase and the economic policy reforms. In the views of most members of the two local communities the different natural resources that are found in their area belong to them. In fact such perceptions have tended to shape the patterns of resource utilization. For example, the majority of these people own small tracts of land, usually an acre or two, and very few have land for cultivation exceeding ten acres. The land is usually underutilized. This is because of low technological and capital inputs. Other assets owned by the indigenous people beside land include the dwellings, in which the majority of the people dwell in themselves, and fishing gear. The technological limitation on the fishermen confines them to short off shore distances. As for crop cultivation again, the size of

land that can be cultivated is, to a large extent determined by the level of agricultural technology.

With the liberalization of the economy in the mid-1990s a new category of resource uses has emerged. There are large-scale investors, mostly foreigners who have acquired large tracts of land by the seaside for building expansive hotels for the tourism industry. The hotel compounds are enclosed by walls, which extend out to the beach areas. Some investors enclose their property in electrified fences to enhance security of their property. By law, the beach areas are supposed to be open to public access, but it seems that investors are taking advantage of poor law enforcement and deny access for to the communities to access and use the ocean and the beaches.

Local migrants from within the country own some land in the coastal areas. These have acquired relatively sizeable amount for settlement and investment. The amount of land they acquire is usually less in size than that of foreign investors, but also larger than that of the local dwellers.

There is a noticeable changing access to land ownership pattern along the coast but especially more near urban centres like Dar es Salaam. The local communities are losing more of their resources, but most notably land, to the outsiders. Many of them are bought off from their land and settle in confined settlements with small patches of land. The land bought by the investors is withdrawn from production, fenced and strategically left undeveloped for extended periods of time for future investments. The need for cash made available to them on immediate basis tempts farmers to sell their land to investors.

Up until recently, ownership of resources within the geographical locations of the coastal communities was through customary tenure. The system ensured a relatively fair allocation of non-public resources to the indigenous people. Following major transformations in the political and economic policies prominently featured by economic liberalisation land is being bought and put under the rights of occupancy.

The new system requires one to have capital and insight into legal aspects concerning property laws. In this respect, the people of the local communities are disadvantaged because they lack the financial capability and knowledge about their property rights, the necessary

aspects to be able to compete in the open market system. Experience of the events of the past decade at least has shown little or no initiative on the part of the government to help address and redress the externalities associated with adoption of new economic policies on the ownership security of the local people. As a matter of fact, in some cases the government deliberately evicted people from the property considered to be worthy of supporting investments that would increase government income through taxes. In view of the preceding discussions, it is evident now that the institutional set-up and changes in economic policies shape the access and resource use patterns.

7.3.2 Livelihood Systems

The coastal people in Tanzania are involved in a wide range of activities that exploit the rich biodiversity of the coast for their livelihoods (WWF, 2001; TCMP, 2001). In most of the coastal districts, for example, farming and fishing are the primary means of livelihood of the poor communities. Other secondary alternatives exist, some of which are related to the fisheries resource, but many others are not. The major economic activities practiced by the people of the coastal communities are basically extractive ones, featured by crop cultivation, fishing, and some non-farm activities. The prevalence of these activities results from a complex interplay factors including natural resource endowment, level of technological know how and associated tools, and nature of capital base.

7.3.2.1 Fishing

Fishing is the most dominant activity for the majority of the people living in the two sample villages. The importance of marine fisheries resources to the livelihoods of the local communities can be best appreciated because they provide nutritional requirements, creation of job opportunities, and income generation among the communities.

The fisheries activities as practiced by the local people in the two villages are of small-scale using mostly traditional gear. The activity takes place onshore rather than offshore and this is largely because of the poor technology. A wide range of species is fished. However, the government protects some marine species, and therefore by law they do not form part of catch. These include prawns and turtles. In the onshore waters there are fewer fish than there are in offshore. In addition, fish stocks onshore fluctuate with seasons and decline with time. However, for the fishermen to practice offshore fishing they need sophisticated boats and

equipment, which they cannot afford. It follows, therefore, that those who can exploit reliable fish stocks are outsiders with powered vessels and their employees, which may be some local fishermen or those they come with. This scenario has implications on fish markets. Within the villages where no offshore fishing is practiced, the price of fish fluctuates inversely in relation to fish availability. Where offshore suppliers market their fish, such as the major market centres, the prices remain relatively stable throughout the year.

Fishing is an important livelihood activity in nearly all coastal villages. In addition to the supply of food, it is also a source of income. In recent years however, the artisanal fishers have been facing some problems. The fish prices are low because many such fishing villages are not served with a reliable transport. In such situations, few people (traders) who can afford to take fish to the urban markets take advantages as they force a wide price margin at the expense of the fishers.

In nearly all fishing villages, the type of fishing gear used determines the amount of fish catch. The boats used are mainly small dug out canoes poled or sailed. Boats are used to fish with nets, hand lines and traditional traps, as well as diving for octopus. Most fishers do not own a boat and a high percentage of fishers do not use boats at all. The low proportion of boat use is due to the relatively high cost of boats. A boat made in soft wood will last around 3 to 5 years and a hard wood boat could last for 20 years.

Commonly fishers share a boat. Boats are usually owned by one individual, but can also be owned between 2 to 6 fishers. The most common is for fishers to share a boat between two or three to go fishing. In the case where individuals own boats, fishers share the catch and give a share for the boat. Some fishers rent boats, on a monthly basis for example. They also could rent a boat on an occasional basis. Again for most fishers, having to pay for the rented vessels means even lower net return from fishing.

A wide spectrum of gear is used along the coast of Tanzania and they include: Gill nets: of 3-4 ply and of 2.5-3 inch mesh from 50 to 100m long are usually set by boat, and left all night in deeper areas. This method of fishing is done at low tide during both night and daytime depending on the tide. Cast nets are also used. These are small size and small mesh size, nets that are cast over sardines, prawns or small fry (dagaa). Cast nets are used at low tide, during

the day or at night mainly in sandy or muddy shallower areas. Another type of gear used is the beach seine. These are very small mesh size (about 0.5 inch) nets. Fishers on a boat spread the seine over a large area encircling a group of fish, while the two extreme ends of the net are held by two groups of fishermen at the beach. Perhaps this is one method that leads to indiscriminate fishing and actually fisheries authorities are discouraging it, although it is the most preferred by fishermen.

Home made spear, spear guns, sticks are also used. Crabs are collected in mud flats/ mangrove areas, with hooked sticks, during low tide and in all seasons. Divers use sticks or spear guns or nothing to target lobsters, octopus, sea cucumber and reef fish. Other fishers use fence traps. these can be fixed larger structures or light removable ones. Harvesting occurs at low tide when fish are trapped at the end of the fence. Other gears include hand lines. These are very common and fishers often use them as well as nets. They are bought and are mainly used from boats, in all seasons, in both tides.

7.3.2.2 Farming

Besides fishing and its related activities, the local people along the coast are also engaged in farming activities. Crop production in the two coastal communities is practiced in small, enclosed, and fertile lands. The individually cultivated fields are small, usually more or less than an acre. The crops grown include, rice, cassava, sweet potatoes, peas, cow peas, traditional vegetables, okra, etc,) or production of cash crops (coconuts, cashew nuts and fruits. Generally however, farming is mainly for subsistence than a source of cash. Problems of accessibility explain why much of the produce crops do not reach the urban markets. Like in fishing, only few middlemen who can afford to transport the goods to the urban markets get good benefit.

In many cases the farmlands, small as they are, are not fully utilised because of limited available labour and technological input: usage of tools that are simple extensions of the hand, limited use of fertilizers, and limited capital input. There are patches of high potential lands along the coast but these have not been fully utilized largely because of shortage of labour and problems of transport.

7.3.2.3 Small scale business

Retail shops and kiosks supply fishers and other villagers with essential commodities and are found in all coastal villages and landing sites. They supply household needs (rice, flour, cooking oil, kerosene, matches, soap etc.). The traders may have other livelihood earning activities including fishing. Few rely solely on retailing to make their living. The small businessmen and women are also engaged in selling fish at their villages or market centers, particularly dried fish. Due to its proximity to Dar es Salaam city Kunduchi village has more of these activities than Amani Gomvu village in the far south.

7.3.2.4 Firewood Collection

Nearly all the coastal communities in Tanzania depend on wood or charcoal as their main source of energy (cooking, heating, etc.). Women are engaged in firewood collection for their households. Men may be engaged in firewood cutting/collection for sale to other users, or making charcoal, or for salt making and lime making where heat processing methods are used. The source is the mangrove and coastal forests. The lime and salt heat processing methods utilize a lot of firewood, hence are very destructive. Drying fish is basically done on the sun but the larger ones are dried on open fire using firewood. Fish frying is done using charcoal or firewood as source of energy. This is yet another evidence of the linkages between poverty and the environment.

7.3.2.5 Wood carving and weaving (local craftsmen)

Wood carving and weaving employ a reasonable number of people, especially in Amani Gomvu village. Whilst it is unlikely any fisher would undertake carving, a member of the fisher's family would, as an additional source of the family's income. They make their living through sale of the carvings by selling to tourists visiting the nearby hotels. The carvings are made out of special trees selected from the coastal forests. Generally the selling prices are low and therefore their engagement in this activity has just little contribution to the household economies.

7.3.2.6 Salt making

Production of salt through solar evaporation is another activity in which some villagers are engaged in. Many of these saltpans are located near mangroves, which have been cleared of trees. This activity demands substantial hired labour and occasionally fishers may seek temporary employment to work in the salt production when not fishing but this is not regarded as an important fisher's alternative source of livelihood. However the saltpans form an alternative fishing ground in the rainy season when fishing in the open sea is not possible and salt production stopped until the dry season commences.

7.3.2.7 Quarrying

In recent years, business involving construction materials (sand and stone) has been on the increase. Quarrying activities take place in areas within vicinity of the settlements. This activity employs a large number of people as individuals (small aggregate crushers) or groups working on industrial stone crashing factories. To some villagers this is a full time activity and sole source of income. This was particularly noted in Mtongani village. Men and women are engaged in aggregate breaking by hand. Fishers may be involved in stone quarrying for sale or for building own houses when they are not fishing. Alternatively if the fisher's piece of land has some stone outcrops, he may contract crushers who will pay him royalty bringing in additional income to the fisher's family.

7.3.2.8 Charcoal Burning

This is another non-farm activity undertaken by the coastal communities. Nearly all the charcoal produced is sold in Dar es Salaam city. The ever-increasing demand for this product by the urban population, has significantly contributed to the loss of forest in areas around Dar es Salaam. In Amani Gomvu charcoal makers complained of the growing scarcity of good trees from which charcoal can be made. Nearly all good trees have been cleared for charcoal and this has contributed to the rise of price. A bag of charcoal sells at Tshs. 3,000/= at production sites. The middlemen in the villages sells at Tshs. 8,500/= and sold even higher price in urban markets.

7.4 ENVIRONMENTAL GOVERNANCE

In the views of most respondents in both villages (Amani Gomvu and Kunduchi) environmental governance along the coast was perceived to be the responsibility of the

formal institutions. Respondents in Amani Gomvu mentioned the Fisheries Department as being incapable in implementing its plans. What is even more interesting however is that there are no community initiatives to spearhead efforts towards environmental conservation. Based on the findings of livelihood appraisals (King, 2000) it appears that informal rules exist and these relate to conflict avoidance (e.g. not disturbing an area where nets are set. The lack of community initiatives in Gomvu village for example, was attributed to mistrust among the community members. "We have made several attempts to work together for a common goal that is, improving the fishing activities, and establishing our own funds, but we are not told how this is spent" This was a remark by one respondent in Kunduchi village. Apparently the complaint was directed to village leaders who were also alleged to have initiated communal efforts for their personal gains. Without community unity it is even difficult to access credit that would have been used to improve the fishing gear.

The need for good governance of marine resources can not be overemphasized given the growing pressure on these resources. The increase in the number of fishers and the development of coastal tourism has all combined to put pressure on marine resources. Liberalization policies have attracted investors especially for the development of tourist hotels, and this means more pressure on resource use, ownership and control has been altered, indeed, that is why the issues of governance are becoming even more important than ever before.

Thus until recently the Fisheries Act of 1970 provided the first comprehensive legislation to safe guard the marine environment. Although some areas along the coast were declared as protected, in most cases there was no management framework for environment and resource protection. We also note that there is a general trend of failure may be due to lack of trained personnel and financial resources as well as political will among the government authorities and local community. Furthermore, these problems are made worse because most of the local people are not involved in implementation of environmental management activities thus leading to resource use conflicts. It is because of this that the riverine conservation (Ngaramio River) in Amani Gomvu village has created problems and clashes between the local people and the investors. With the good intentions by the investors to conserve the biodiversity along the river, the villagers still see this as a denied use of 'their river'. All this is happening because the local community members were not part of the planning.

The continued violations of even the available by-laws and policies by the investors including the use of the 200 metres considered lawfully to be public, is also a cause for concern. With denied direct access to the ocean, villagers in Amani Gomvu cannot feel like conserving the area that is not theirs.

Many residents have expressed contempt towards the presence of the investors in their neighbourhoods and communities. They claim to perceive no collateral benefits from the foreign investors. Indeed, some of them think the presence of the investors has and is worsening community life. For example, they claim that some of the investors have deliberately constrained their access to forests and fresh water sources they have depended on for generations by placing them under their control. Some of the community dwellers claim investors have overloaded community infrastructure. For example, residents of Kunduchi village in their area claim they do not get enough water from the village taps because a hotel owner drains water to fill up a swimming pool and water the hotel compounds. Such reservations by majority stakeholders and lopsided realisation of interest by the moneyed-and-informed few indicate governance in the resource acquisition and management is not at its best. More needs to be done by all that are involved to ensure fairness, transparency, accountability, and responsibility for the benefit of all.

As far as the legal and policy issue on marine resources are concern the country is not short of them. For example, the fisheries laws include; the Territorial Sea and Exclusive Economic Zone Act (1989); the Fisheries Act No. 10 of 1994 and the Marine Parks and Reserves Act No 29 of 1994. As for the policies the following are noted; the national Environment Policy (1997); the National Fisheries Sector –Policy and Strategy Statement (1997) and the Fisheries Master Plan (2002).

From both the literature (e.g. Malleret-King, 2000) and evidence from the survey villages, it was evident that the management of fisheries resources was found to be the fact of formal institutions mainly; traditional management if it existed has lost its power. The local stakeholders consider management of fisheries resources to be the responsibility of national institutions, particularly the Fisheries Department. Management is therefore a top down affair. This also means that there is a gap, but such a gap in management is not being filled by community based management initiatives. Indeed, this contributes to perpetuating the use of illegal gear and thus to exacerbating the unsustainable use of overexploited resources and

the destruction of marine resources. King (2000) further notes that the little amount of community initiatives among the coastal communities, might be the result of lack of empowerment.

Problems of mistrust between community members were noted in Kunduchi village. It was claimed that the local fisheries committee was formed to benefit few individuals. This partly explains the lack of community groups.

Complications were also found to address the question of responsibility and accountability, the general perception was found to be that the local people perceived themselves as neither responsible nor accountable to the situation existing but rather they viewed the government to be the sole responsible and accountable body. To them it was the government and particularly the municipal authority that was responsible and accountable for all the miseries. To see responsibility and accountability in a different perspective, two ideas ushers in one is that it was the municipal authority that shouldered the responsibility of making sure that the investors do get established there, but not taking it is the never ending responsibility to oversee and regulate the relationship between the investors and the local people. The second idea is that because of the blurred nature of responsibility even the question of accountability was found to be a nightmare.

An example of the involvement of the private sector in marine resource management is obtained from Chumbe Island.

Chumbe Island Coral Park Ltd. (CHICOP) is a private marine conservation project established in 1991 for sustainable management of uninhabited Chumbe Island, a small coral island of 22 ha, located 8 miles southwest of Zanzibar town. Based on the initiative of CHICOP, the island and part of the fringing coral reef were gazetted in 1994 as a protected area by the Government of Zanzibar which has semi-autonomous powers over its natural resources within the United Republic of Tanzania. CHICOP was given management rights and developed a model of sustainable park management, where ecotourism supports conservation and free island excursions for local schoolchildren. Thereby, project objectives are non-commercial, while operations follow commercial principles.

With increasing pressure on coastal resources and the generally weak enforcement of fisheries regulations the understanding and support of the local fishing communities became essential to the effective protection of the island from exploitation. Therefore, the CHICOP relied on educating and convincing local fishers about the benefits they could gain from a small totally protected area. Therefore the strategy of recruiting local fishers to become park rangers, trained on the job proved successful and cost-effective.

Source: Riedmiller, S (2002)

There are several lessons that can be learned from the experience of Chumbe Island. First, there are long-term benefits when a private sector institution establishes and manages small MPAs for effective resource protection, economics, capacity building and environmental awareness.

Second, a small private management body dealing with direct stakeholders has comparative advantages over large central management authorities. Present and future stakeholders participate and benefit more directly, when local fishers are trained as park rangers to deal with local communities, employment is offered to local people, and when schoolchildren and ecotourists are offered environmental education.

Third, sustainable private management of MPAs is feasible. Where coral reefs have tourism potential and are not yet over-exploited for subsistence by local communities, privately managed marine parks are viable and can generate considerably more income than fisheries and other resource extraction.

Fourth, where private investment is encouraged the tourism sector can help with management and enforcement of MPAs, and raise awareness on the environmental, investment, economic, legal or social policies required for effective conservation and sustainable management on the ground.

7.5 POVERTY-ENVIRONMENT LINKAGES

7.5.1 Levels and root causes of poverty

7.5.1.1 Local People's Views

Despite their resources endowment most coastal communities are generally considered as poor. However, the poverty levels in these communities cannot be properly assessed because of the lack of basic information. Nevertheless the fisheries communities are also amongst the more marginalized groups in the population.

Based on the wealth ranking exercise conducted in Amani Gomvu village it is quite clear that poverty is a multi-dimensional phenomenon. Respondents in this village identified several that can be used to distinguish the poor from other categories (Table 6).

Table 6: Wealth ranking in Amani Gomvu village

Criteria	Well-off	Middle group	Poor
Food security	Food secure all year round	Experience problems in food security	More food insecure for more than 6 months
Land	Own more than 5 acres of land	Have between 3 to 4 acres of land	Have less than 3 acres of land
Fishing gear	Some own motorized fishing gear	Use traditional gear	Poor gear or no gear at all
Education	Nearly all have reached Standard VII	Some have gone to Standard VII	Some have not reached Standard VII
Household assets	May possess a bicycle, radio, good house	Fewer of these assets	May not have
Economic activity	Engaged in petty trading, have a shop, more diversified sources of income	Good farmers and have a more diversified economy	Generally considered as lazy, sell labour

The majority of the people in the coastal communities are poor. According to the respondents in Gomvu Amani village most of the people are poor because they do not have enough land and production of crops rarely go beyond subsistence levels. Even in situations where agricultural production goes far beyond subsistence levels the poor roads makes marketing rather difficult and hence keeping the farms in state of poverty. Although there is a wide range of economic activities the scale of operation is small and lacks technological inputs. Production of handcrafts could have been a profitable sector but the quality of the goods is quite low and hence fetch low price. It was also noted in Amani Gomvu village that despite the resource endowment especially the ocean the fishing gear has been a hindrance towards poverty alleviation. Most of the poor members of the community own poor gear and some do not own them at all (Table 6).

Another contributing factor to poverty in coastal communities is the attitudes towards resource use. Most of the fishermen still harbour the “Sea never dry’ attitudes. As argued by some respondents in Kunduchi village, “The Sea will never dry, it will always be there forever, and I will always get fish from it, so why invest?” Indeed this attitude has perpetuated the problem of lack of investment amongst most people. Instead, fishing remains

a hand to mouth activity, with very few people rising beyond subsistence levels. Although nearly all fishermen in Amani Gomvu had noted the decline of fish in recent decades they still believe that the fish stock will never be completely exhausted. These observations reflect some of the typical reasons for rural poverty.

In both villages the local people face serious problems in marketing their products. The marketing of fish draws in a chain of stakeholders. Fish passes various hands –auctioneering, processing, and preparation before reaching the consumers. Given the low purchasing power of local people, the prices of fish are kept low and as a result the fishers get very low price for commodities/items whose production is perhaps their full time occupation.

Appreciably the level of technology in crop cultivation and fishing is generally low. Fishers who did not use boats were found to be poorer than those who did. With poor fishing vessels the fishers lack access to deeper waters. Thus, we note that the type of boat used affected households' wealth, as the larger and more sea worthy the boat, the more wealthy the households. In this case, poverty confines the fishers to exploit fisheries resources closer to on shore.

Resource degradation is one of the root causes of poverty in most fishing villages along the coast. As the population increases the impact is felt on the natural resources that support the livelihoods of the people. For instance, with population increase the number of fishermen has also increased. However, given that the majority cannot afford deep water vessels it means the fishing activities are concentrated on shallow waters. As a result of this the fish stock tends to decline in these areas. In addition, the decline of mangroves has also contributed to the degradation of the fishing grounds and hence a decline in fish stock.

Poverty among the people along the coast may also be attributed to growing rates of HIV/AIDS infections. Fishing communities along the coast are often among the highest-risk groups in the country. Infection rates of blood donors in the coast region are approximately 10% of male and 25% of female donors (Ministry of Health, 2002). This information suggests that in some coastal districts of Tanzania, the prevalence of HIV positive individuals is higher than the national average. Increasing mortality from AIDS changes the demographic characteristics of impacted communities including age structure, sex ratios, and life

expectancy. HIV/AIDS lowers life expectancy, slows population growth, and affects the age structure of affected communities.

Linkages between this health issue and coastal resources and biodiversity are many and strong. As people get sick and die prematurely from AIDS, communities face an unexpected loss of capacity and traditional knowledge (ABCG 2002) about sustainable management of their natural resources. Households impacted by AIDS become increasingly desperate and may revert to destructive use practices and exhibit a greater tendency to break local rules on resources use and management (USAID 2002). The prognosis for coastal conservation and sustainable resource use in coastal areas becomes grimmer as families impacted by HIV/AIDS seek coping strategies and look for easy ways to find food and make money.

As females, who engage in most of the subsistence agricultural production, fall sick to HIV/AIDS, there may also be less food available for coastal communities and households, poorer nutrition and declining health (Topouzis 1999). As men fall ill, it becomes increasing difficult for them to continue the physically demanding job of traditional fishing. Hence, marine conservation areas, which tend to have higher abundance of fish, become easy targets for illegal fishing. For example, dynamite fishing is a quick, easy, and profitable way to earn money and may be seen as an alternative to more physically demanding traditional fishing methods.

The vulnerability to HIV/AIDS stems from complex, interacting causes that may include the mobility of many fisher folk, and the time fishermen spend away from home. Fishing, processing and trading provides almost daily cash income to small-scale, inshore fisher folk and fish traders, and irregular but substantial sums to offshore fishermen. In studies conducted recently, small-scale fisher folk's incomes have been found to be comparable or higher than those of other occupational groups in the same areas. In the context of generally low incomes, this may not make fisher folk 'wealthy' by absolute standards, but in a very poor coastal or lakeshore village, they may be among the few people with a disposable income (Tietze, 2000)

Although increased cost of health care provision is the most obvious burden of HIV/AIDS on national economies, loss of labour has also been highlighted as one of main economic impacts. The HIV/AIDS pandemic threatens the sustainability of fisheries by eclipsing the futures of many fisher folk. The burden of illness puts additional stresses on households,

preventing them from accumulating assets derived from fishing income. Premature death robs fishing communities of the knowledge gained by experience and reduces incentives for longer-term and inter-generational stewardship of resources.

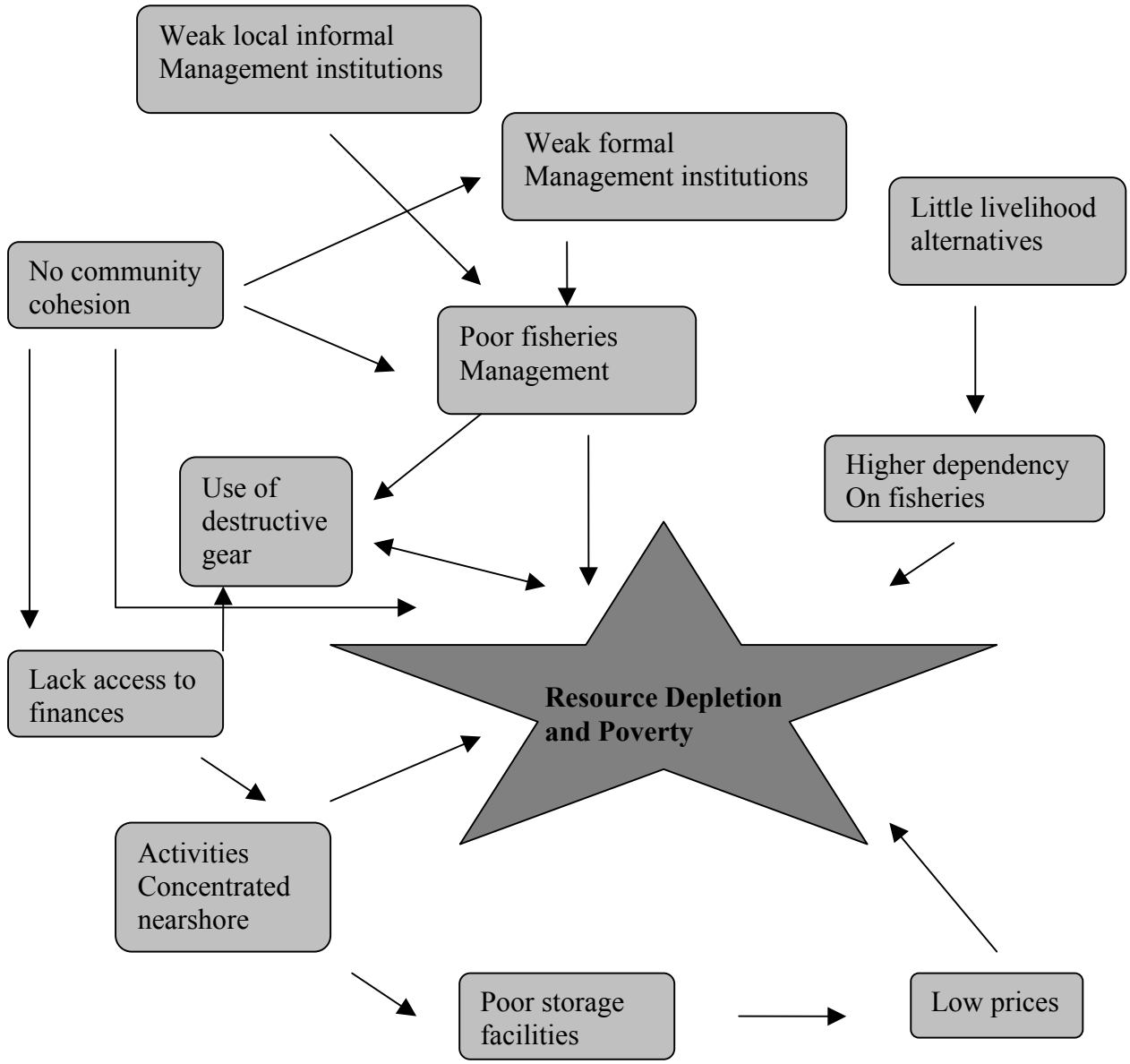

Figure 4: Fisheries associated livelihoods. Poverty cycle

7.5.1.2 Municipal officials' views

In the views of the municipal officials poverty among the people in the coastal areas is largely attributed to their attitudes to life. It was reported that the majority of the people have a tendency to neglect the value of education. They would rather engage their children in fishing activities instead of taking them to school. As a result some of the children have not

had a chance to attend school at all. Officials from Kinondoni Municipality also had the opinion that most people along the coast are not willing to adopt new technologies to improve their lives. Furthermore, it was also reported that community spirit and initiatives are lacking among people living in the coast. This was explained to be due to historical reasons of not having a centralised chiefdom among the Zaramo people. As a result, there has only been low community spirit.

7.5.1.3 National level

It was acknowledged that rural areas along the coast are among the poorest in the country. The causes of poverty were explained to be related to the lack of granted and sought opportunities, for example for tourism for income generation and stimulation of other economic activities. Even where such opportunities existed, the low education of the people prevented them from getting better jobs. The depletion of heavily dependable upon marine resources for subsistence was also cited as a major cause of poverty. In particular officials from The Tanzania Coastal Management Partnership (TCMP) cited the destruction of fishing grounds. The lack of financial and technological resources was also given as contributing factors to poverty among people in the coastal communities.

Problems of governance were also cited as contributing to poverty in coastal areas. In particular, it was reported that the top down approach to resources management deprives the fishers the opportunities to participate in managing fisheries resources. This problem was made worse by lack of implementations of the by-laws and regulations on proper resource uses. The failure to enforce the laws governing the use of marine resources has contributed to the continuation of using destructive fishing gear.

7.6 ROOT CAUSES OF ENVIRONMENTAL DEGRADATION

Coastal and indigenous fishing communities have a long-term stake in the conservation and protection of biodiversity, given their reliance on coastal and marine biodiversity for livelihoods and income. Generations of close interaction with the coastal ecosystem have led to well-developed traditional ecological knowledge systems (TEKS). Such TEKS have contributed to sustain both the livelihoods of these communities and the integrity of the ecosystems.

In more recent decades, however, coastal and marine biodiversity, including mangrove forests, are under serious threat from various sources. The root causes of this degradation are several but most are related to increasing human activities in the coastal areas. For example, habitat degradation of coral reefs is occurring through destructive fishing practices such as dynamite fishing and trawling and pollution. These practices have led to coral reef destruction, mangrove depletion, reduced fish stocks and declining marine biodiversity.

7.6.1 Poverty

Poverty is one of the factors that has contributed to the degradation of the environment along the coast. In particular, the limitations of alternative livelihoods to fishing and crop cultivation force the people to rely almost wholly on the extraction of natural resource base. Much of this pressure is felt on the fisheries. As a result, fishing pressure on the coast is increasing. Few coastal households have the capacity to successfully implement income diversification strategies to cope with poverty and income fluctuations, including income failure. However in many cases, there are no alternatives locally to fishing and/or farming. In such situations, artisanal fishers are forced to continue to work in fisheries. Therefore, the lack of access to alternative livelihoods and income sources adds to the exploitation of marine natural resources above the level that would occur if these were available. More and more people depend on the same limited resources (water and land) to generate income and provide food. The competition for these resources coupled with the desire to increase income has increasingly led to destructive fishing practices. Thus, a combination of a growing human population and increased poverty prompts the unsustainable use of coastal resources.

A study by Jambiya and Lewis (2003) also found out that the causes of poverty and environmental degradation to include; limited alternative income generating opportunities, cultural dependence and subsistence, resistance to change, use of inappropriate technology and the need to maximize short-term benefits at the expense of long-term ones.

Non-fisheries activities, in particular the extraction of sand, gravel and limestone rock for construction purposes has also contributed to the destruction of coral reefs. Coral mining is conducted along the entire coastline of Tanzania. Mined coral is taken from living reefs at the land water interface or from ancient fossilised reefs on shore and a little distance inland. Both live and fossilised coral is used for building blocks and aggregate. From the preceding

discussion it is evident that it is not only the poor who are responsible for the degradation of the marine resources. The well off people too, especially in urban areas and the neighbouring villages contribute to the degradation of marine resources. Their activities however, are more of wealth creation than poverty alleviation.

In the views of the MNRT (in particular TCMP) officials, coastal dwellers are not provided with alternative sources of livelihoods. An example was given that when a resource is gazetted the local people are not provided with an alternative resource. As a result those who have been deprived of their resources are forced to use the remaining resources in a sustainable manner. This may be for matters of survival rather than wealth accumulation.

7.6.2 Development of tourism activities

The coast of Tanzania is home to many excellent natural and cultural resources that have the potential to serve as world-class tourist attractions. However, while tuorist activities, especially the construction of hotels is booming there are has not been any strong partnership between the private sector and the local communities. Thus it is hardly surprising that villagers in Amani Gomvu feel that they have not benefited much from the development of touriusm in their village. The expansion of tourism industry, especially the establishment of hotels along the coast has contributed to problems of pollution and the destruction of mangroves. Mangroves are cleared to allow tourists have a good view of the beaches and the ocean. There is also increased pressure from tourism, industry and population growth. The booming tourism industry has also created a rapidly growing market for marine products and contributed to over-explaoitation.

7.6.3 Poor Fishing technology

Destructive fishing methods, such as the use of dynamite and small-meshed nets, have destroyed seagrass beds and coral reefs. These practices still continue in many places along the coast despite being illegal. As a result of these destructive fishing methods the marine fishery resource has reached the upper level of exploitation. This is believed to be due to fishermen continuing to exploit the same fishing areas, limitation of the range of their fishing vessels, which are not powered by motor engines and lack of proper management strategies. At the root of this problem is the issue of poverty among the coastal communities. The

underlying cause of environmental degradation is the short term imperative of poverty which force poor resource users to use destructive techniques (Jambiya and Lewis, 2003).

Large proportions of the by-catch (e.g. non-commercial or unwanted species) of shrimp trawlers are juvenile fish. The loss of these immature individuals threatens future fishery resources. Offshore fishing grounds, some of the only areas on earth from where fish catches are increasing, are also open to plundering, often by industrial foreign fleets.

7.6.4 Population Increase

The five coastal regions of mainland Tanzania encompass about 15 percent of the country's land area and are home to approximately 25 percent of the country's population. Recent estimates indicate that the population of the five coastal regions now numbers about eight million, with a growth rate ranging between two and six percent. Correspondingly the number of fishers in coastal areas has also considerably increased particularly over the last two decades. This is commonly considered a contributing factor in the overexploitation of marine fisheries resources and the deterioration of the coastal environment.

In areas where large populations are located, sprawl and uncontrolled land use and development are problems. This is made worse by unplanned settlements, both in urban and rural areas, where there is no access to potable water and sanitary systems. In all five coastal regions, 15 to 23 percent of today's households do not have toilets, leading to health problems like cholera and diarrhea.

8 OPPORTUNITIES AND IMPEDIMENTS

The EU development assistance in Tanzania in general and particularly in the road transport, the fishery sectors of the Lake Victoria zone and the coastal areas has brought a wide range of opportunities for poverty alleviation and sustainable management of environmental resources. However the realization of the opportunities has been hindered by a number of institutional, economic, social, cultural and structural impediments. Unless rural poverty alleviation is addressed, it is unlikely that environmental problems will be reduced. Reducing the impediments is, therefore, crucial for achieving gains from the prevailing opportunities.

8.1. OPPORTUNITIES

8.1.1 Economic opportunities

The EC assistance in road transport and fishery sector has contributed towards improved trade and businesses in the regions. Within the fishery sector, export trade to European, American and Eastern markets has grown rapidly. Trade business between the region and neighbouring countries is also growing. Development assistance from individual members of EC and from other countries has given opportunities for developing the utilisation of environmental resources for generating incomes and employment to the local communities as well as revenue to the country.

Trade activities between the region and the neighbouring countries as well as local trade is greatly enhanced by the development in the road transport sector. These developments will further be enhanced with efforts for economic development within the East African countries for example harmonisation of custom tariffs. There is further room for integrating the development in the fishery and road sector with other sectors of the economy such as agriculture, industries, etc. At the national level, efforts towards formalisation of informal household assets will enable households to use their assets for economic ventures, especially in accessing credits / loans.

In the fisheries sector there are opportunities for livelihood diversification among the poor. In the road construction, opportunities exist in further taking advantage of the emerging structures like borrow pits and outlet culverts to maximize benefits from their continuous use through better project design.

The coastal areas in the country are richly endowed with a wide range of marine resources. These areas also have tourist attractions, and all these present good economic opportunities which if properly harmonized and utilized could contribute to poverty alleviation.

8.1.2. Institutional opportunities

The development of institutional organisation is crucial for sustainable resource management. Within last two decades, institutional development in the fisheries sector has been a great opportunity for poverty alleviation and environmental conservation. The EC support to the fishery sector has facilitated the development of regional initiatives for collaborative fishery resource management for Lake Victoria. Such efforts include the formation of the LVFO and the LVFMP. Regional research projects (e.g. LVTRP, LVEMP and VicRes) have also played a significant role by making data on resource use and potential available. This has enhanced knowledge on the resource base of the area. In particular institutional developments have focused on the local communities' participation in resource management through BMUs. More initiatives are undertaken at village level to development and enforce resource management by-laws. Furthermore, capacity building at national, regional, district and local levels offer greater opportunities for poverty alleviation and reducing environmental degradation. At regional level efforts are made to harmonize tariffs to enhance trade and cooperation between the states and their communities.

The Fisheries Division intends to extent the BMU's ideas to the marine waters with the intention of merging its functions with those of Village Environmental Committees (VEC) to ensure that the BMUs are legally recognized. In addition, the Fisheries Master Plan (2002) has been put in place to operationalize the National Fisheries Sector Policy and Strategy Statement (1998). The Plan's objective among others is to develop a fishery environment and economic/social welfare of the fisheries communities.

8.1.3. Social Opportunities

Poverty and environmental issues are addressed in the sector policies and development strategies. This offers the opportunity for the consideration of poverty alleviation and environmental conservation in resources management and development planning.

Population dynamics including settlement growth along the shore, on islands and along the roads offer opportunities for greater diversification of people's livelihoods. As the

composition of the local communities becomes more complex, there is the opportunity for changing traditional inward looking attitudes that have denied opportunities for some disadvantaged groups such as women, to participate fully in resource use and management. Incoming migrants present challenges to the local communities that may encourage change to the better.

8.1.4. Structural Opportunities

The structural transformations taking place in Tanzania including the local government reforms that involves decentralisation of decision making offer other opportunities for consideration of poverty and environment in resource management and utilisation. Further consideration of the participation of local communities in decision making will enable society to address their needs.

8.1.5. Environmental Opportunities

The natural environment in the study region is rich in natural resources that offer opportunities for the local communities to earn income and food items. Lake Victoria is rich in fishery resources and Shinyanga region has potentials for agricultural development. These opportunities are, however, threatened by increasing pressure on and use of the prevailing resources.

Opportunities exist in fostering environmental conservation through promotion of environmentally friendly practices, correction and mitigation of environmental problems. These could be achieved through awareness creation and capacity building of all stakeholders.

The coastal areas of Tanzania have rich habitats that support not only the local economies, but also even the national economy. The marine resources provide a potential for improving the livelihoods of the people. In addition, this richness is also an attraction to tourism activities.

8.2. IMPEDIMENTS

Whereas national development policies and strategies, as well as, EU assistance policy recognize the need for addressing poverty in development interventions, linkages between poverty and environment have not been easy to incorporate. It is evident from this study that

poverty hinders adoption of environmental conservation practices as the poor lack the motivation and ability to adopt environmentally friendly production method and gears. Yet, environmental degradation arising, further deprive the poor of the ability to generate adequate income and food. Addressing poverty-environment linkages is therefore very important if development assistance has to contribute to poverty alleviation. However, the mainstreaming of poverty and environment linkages in EU development assistance in the region has faced several impediments. The impediments have reduced the potential for the local communities to benefit from the prevailing opportunities.

8.2.1. Institutional Impediments

Whereas the development assistance has enabled and is likely to encourage economic growth in the region, institutional developments in the region have hindered the realisation of poverty alleviation and environmental conservation. Revenue collection and enforcement of fishery regulations have been the key issues behind institutional organisation development such as the establishment of BMUs. Whereas revenue from the fishery sector is collected at local and national levels, little of the revenue trickles down to the local communities. Village leaders complained that their share of revenue was rarely sent back to the village. Similarly, local communities benefit very little from revenue generated through export loyalties. This deprives village governments of the capacity to invest in the development of infrastructure and services for the growing rural settlements.

Villagers along the coast made the same observation. Members of the local communities felt that the hotel owners were paying revenue to the municipal councils but nothing trickled down to the villagers.

Enforcement of the regulations requires that institutions developed for the purpose have capacity to carry their tasks. However the regional, district authorities and BMUs had poor capacity to undertake their tasks. As the development in the fish business involves concentration of capital, meso and local level institutions are not in position to adequately enforce the fishery regulations.

Generally institutional organisations that promote the interest of the poor are lacking. In some occasions informal associations of boat crews exist for mutual assistance in case a fellow is in need of social assistance such as when one is deceased. Lack of fishers' associations hinders

the attainment of economies of scale among artisan fishers and processors. This also means that poor members of the community are not well placed to compete in the fish trade. This gives room for unfair trade that accounts for the impoverishment of the poor.

Revenue collection relates to collection and access to data. Revenue collection is usually tendered. In some cases the tenderer is at the same time doing the task of data collection and monitoring. This has the danger that data may be manipulated to suit the interest of unscrupulous tenderers and therefore deny the local community its right share of the revenue.

As far as the marine resources are concern there are conflicts with regard to the mangrove ecosystem. According to the Management Plan for the Mangroves the existing Forest Ordinance, which prohibit cutting of mangroves, seems to be applicable to villagers only. On the other hand, local authorities continue to issue licenses to commercial groups to cut poles and to clear mangroves to construct saltpans. This implies that the present legislation and level of enforcement does little to manage or conserve mangroves.

8.2.2. Economic Impediments

Unlike the traditional artisan fishing, the modern fishing business requires more capital investment in the fishing gear and trade. Field observations and discussions show that to be a factory agent one requires a capital of 10 million Tanzanian shillings. As indicated earlier, ownership and operating a boat is expensive and not easily affordable by the local poor. Due to this economic impediment, the majority of the artisans have lost their traditional occupations. There is a lack of well-developed credit system for the poor. Low level of agricultural technology and lack of access to credit facilities were also mentioned as barrier against poverty alleviation in the region. This problem is further compounded by inadequate capital to invest in the sector. Most smallholder farmers in the sample villages were aware of the existence of credit facilities at district levels but complained of the difficulties of getting access to such facilities.

The prevailing imperfect fish market is another economic impediment. Due to concentration of capital in few hands, various forms of market imperfection such as monopolies exist. Owners of fish processing factories, for example, monopolise information of export prices and actually determine the fish price. Capital concentration in few hands is likely to change

people's access to resources. This impediment is more felt among artisan fish processors, most of who are women.

Along the coast, the lack of access to finances to purchase high-powered and more sea-worthy boats and modern gear confine the fishers within the lagoons. Furthermore, the lack of finances has also led to an increase in the use of destructive gear such as beach seines.

8.2.3. Social Cultural Impediments

Social conflicts arise due to some social impediments. Migrant fishers are often not acceptable in the sedentary local communities as is the case at the Kabangaja landing site. The migrant fishers are forced to live in temporary structures as the local community denies them access to land for settlement development. Other impediments arise from competition for resources which has grown through social differentiation and break-up of the social cohesion. This further hinders development of social capital systems and institutional organisations to cater for the interest of the local communities.

Along the coast, culture and historical influences play an important role in the way communities behave and accept intervention programmes to alleviate poverty and environmental management. The coastal areas had no traditional state system. This has contributed to the lack of community initiatives, which in turn partly explains the difficulties of accessing credit.

The level of literacy is generally low among coastal communities. There seems to be large dropouts from primary schools, particularly women (Semesi, 1991, MNRT/JICA 2002). In addition, compared with women from other regions of Tanzania, those of the coastal villages are more confined to their houses. The man makes most decisions, and are involved in almost all community decision making forums.

Concentration of population in fishing villages and camps create social problems. Increase in social interactions and mixed communities have encouraged spread of STDs including HIV/AIDs. Inadequate provision of infrastructure and services further weaken poverty alleviation and environmental degradation. The cultural setting among the Wasukuma in Shinyanga region is such that women cannot own land on themselves. Such a restriction contributes to unequal distribution of land and hence impacting on agricultural expansion.

Women are therefore likely to remain in poverty and less likely to benefit from road improvements

8.2.4. Structural Impediments

Members of the local communities, for example in Mipa and Ibadakuli villages complained of problems of local leadership. It was reported that the local leadership was not strong enough to deliver solutions to local environmental problems. Similar observations were made in revenue collection from the fishery sector. The village governments require more capacity to actively follow-up their right share of revenue and development benefits.

The lack of strong leadership was more pronounced in the coastal communities where most village leaders felt they were not strong enough to negotiate with foreign investors on matters related to sharing benefits from the development of tourist hotels. In this case, not even the officials at municipal level felt strong enough to deal with these investors.

8.2.5. Infrastructural Impediments

Inadequate development of infrastructure at local scale is a great impediment to poverty alleviation and environmental improvement. Whereas improvement in the trunk roads will enhance economic growth, poor feeder roads hinder development effects at local scale. Health and education infrastructure can also hinder mainstreaming of poverty and environment at local level. Development of sewerage infrastructure is lacking in the growing village settlements along the main roads and the lake shore and on the islands.

With respect to the coastal communities the lack of storage facilities (cold storage) means that both the fishers and traders have to sell their products as fast as possible, thus at very low prices when the catch is good.

8.2.6. Environmental Impediments

Environmental impediments for the fishery sector are still prevailing. The danger of stock depletion as demand for fish increases threatens the sustainability of the fishing industry. Degradation of the fishery resources through pollution and destructive fishing hinders the sustainable development of the sector. The increasing income differentiation worsens the situation as it compels the poor local communities to degrade the fishery resources.

Environmental impediments along the coast are quite significant. Just as it is the case with Lake Victoria, the marine resources are being depleted due to a combination of forces such as the increase in the number of fishers, pollution, and the use of destructive gear.

With a low level of agricultural technology smallholder farmers become very vulnerable to changes in environmental conditions, especially rainfall. The unreliability of rainfall is still a big constraint to agricultural production in the region. For example, the prolonged drought that has hit the region in recent years have severely. Water is perhaps the scarcest resource to most people in the region. This scarcity impacts so much on agricultural activities as a lot of farmers' prime time is spent on the search for water. Therefore, even with investments on road transport poverty is likely to persist unless initiatives to provide people with water are introduced.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1. CONCLUSIONS

The findings have indicated that there is strong link between the dependency on local natural resource base and rural poverty. In Shinyanga region, for example, the majority of the poor most of the people rely on land for agriculture and livestock keeping and to a small extent on mining. Likewise in Mwanza, the dependence of poor people on land for agriculture and fisheries was evident. Development assistance to support economic and/or sector growth for example road and fishery open up the resources to a wide use and puts more pressure on resources with little benefits to the poor people.

The poverty-environmental linkages in the road project are not direct. Environmental integration in the road project is reasonably good but poverty integration is weak. This is because poverty is a multi-dimensional phenomenon and investments on road transport is only a contributive factor. While it is true that the road will open up markets and increase trade in agricultural products, this will only be possible if farmers who are the poor will produce more and get good market price. This entails that feeder roads and other institutional, structural and economic impediments have to be removed. Given the land constraint, dependence on rainfall and lack of capital to buy fertilisers without other interventions, the road itself may not help to alleviate poverty and on the contrary, may accelerate poverty as people will be compelled to sell even food stocks and increase environmental degradation.

In the fishery sector in Lake Victoria, the growing population and the liberalization of the fishery sector is resulting into over fishing which consequently affects the resource stock. The liberalization of the industry has sidelined the poor and most of them cannot afford to use modern fishing gears an technology, and as a result may tend to resort poor and unlawful fishing gears such as trawlers, hence causing more environmental damage.

The observed short term environmental impacts of the road project relate to construction phase activities. These impacts relate to borrow pits, culverts and dumping of excavated soils on farmlands. In the long term, investments on road improvements is likely to impact of the road is open up and expand agricultural and mining markets and hence growth in trade. These improvements are also likely to lead to increased deforestation in the two regions and increase in charcoal trade, agricultural produce and mining.

A poverty-environmental linkage in EC development assistance is weak. While the EC supports development of the road to open up markets and expand trade. It is not obvious that this will alleviate poverty without in-built interventions to address impediments for the poor to benefit from such developments. There is weak integration in the programme of the consequences (for example growth in charcoal trade and over fishing) of development support to stimulate growth in trade as a result of road improvement and fish export. Other environmental issues not adequately addressed include dumping of fish carcasses, and growing of settlements in fish landing sites causing inadequate service facilities.

Inadequate enforcement of regulations and monitoring of fishing activities in general was noted and lack of clear regulatory framework for sustainable fishing. Nevertheless, there was improvement on enforcement and monitoring of fish quality standards for export market but weakly enforced for domestic and regional markets.

As far as the marine resources are concerned the poverty-environmental linkages are quite vivid. Much of the problem of environmental degradation centres on poverty as both a cause and effect. The overuse of coastal resources and decline in fish stocks has led to a reduction in earnings and ability of fishermen to buy sustainable fishing gear. This in turn, has forced many fishermen to use fishing methods that provide better short-term rewards for their cost but are also environmentally degrading. Hence, this perpetuates the problem by contributing towards the further decline in the marine resources available. Therefore, given the complexity of the linkages between poverty and the environment suffice to conclude that unless EU addresses the question of marine resource degradation incidences of poverty among the coastal communities will persist.

9.2. RECOMMENDATIONS

9.2.1 Recommendations to the Government of Tanzania

1. Imperfect price mechanisms of fish and need for a regulator:

It was evident that the fish price is controlled by the fish factory operators who have access to the export market. The export market information is not readily available to fish agents and fishers as a result they don't have strong bargaining power on the prices. There is need for the government, as a regulator, to intervene on the marketing and to minimize the potential for cartel. Fishers and fish agents should be facilitated to have market information on the prevailing international market prices. Regulations that require fish factory companies not to

engage in fishing to allow the local community to earn incomes from fishing lack enforcement as factory processing firms indirectly through contractual arrangements engage in fishing.

2. Credit facilities or financial support should be extended to small scale fishers to enable them to utilize the growing opportunities. The empowerment of artisanal fishers would enable them acquire improved fishing gear and vessels that will in turn enable them exploit better the fisheries. This could be made possible through the formation of viable fisher cooperative organizations through which credit and donor or government support could be channeled. This credit support will significantly improve fishers well-being especially fishing crews and boat/canoe owners who seem to be the most disadvantaged in the fishery industry.

3. Remittance of revenue share to local communities. It was apparent that for royalty/fees collected for the central government or the City, the local communities must get 5% of the royalty/fees. However, most local communities don't get their share due to lack of transparency and an effective mechanism that would ensure that their share is obtained. There is therefore a need to strengthen benefit-sharing mechanism to ensure that local communities the benefit from resources harvested. This will not only improve their incomes but also it will act as an incentive in the management of the resources. Fish processing factories should be encouraged to invest in rural social services and infrastructure.

4. Review of compensation rates for personal assets. It was apparent that compensation rates for damaged trees, houses and land were very low. Compensation rates for trees and land are paid once at a fixed rate/unit. The rates don't take into accounted the accumulated benefits which the owner of the asset could earn for several years. Most of the people who own these assets are poor and such rates don't help them to alleviate poverty, or find alternative means of livelihood. Likewise there is also need to revise the law on compensation for damages caused by quarry and blasting sites. In principle only damages within 400 metres from blasting sites are compensated. However, evidence from Mipa village in Shinyanga region shows that properties, especially houses beyond 400 metres were also damaged. There is need therefore for the law to be more flexible and take into considerations the material conditions obtaining in a place.

5. The need for diversification of the local economic activities. It was observed that the economy of Mwanza region by and large depends on Nile perch export. The consequences of this overdependence was felt when the EU banned fish export from Lake Victoria. There is therefore a need to use some of the revenues generated from fish to support other sectors of the economy (crop cultivation,\livestock keeping and non-farm activities) to make them also relatively strong.

In addition, as income generated from the trade rarely benefits the rural poor communities, there is the need for deliberate efforts to promote and develop the non-export fish sector. There is currently little attention to fish development (hygiene, quality and standards) for the local market making poor people susceptible to diseases.

6. Capacity building and empowerment of local communities. Strengthening of community involvement (e.g. BMU) in management of natural resources. It was pointed out that most BMU are weak and cannot enforce regulations and monitor fish harvesting activities effectively. Thus, they need to be strengthened. Also modalities for establishing similar units for the marine fisheries resources along the coast should be speeded up with the intention of merging the functions of the BMUs and those of the Village Environment Committees (VEC). Furthermore, efforts should be made to ensure that the BMUs are legally recognized.

Capacity building should also include development/formation of institutional organisations e.g. the formation of fishers and traders' associations or cooperatives. These will not only safeguard the local communities against unfair trade from monopolistic traders and fish processors, but also will enhance the income, food security and better management of fishery resources. The organisations may also function as pressure groups that would ensure that sufficient profits from the fishery sector are allocated to the development of infrastructure and services for the local communities.

7. Given the size and length of some of the outlet culverts, it is not clear if the large quantity of water collected don't cause environmental damage especially where culverts end. Therefore a follow up to establish its effects will be useful for the remaining part of road construction and for future plans.

8 Nearly all areas along the coast have the potential to become tourist destinations. In order to realize this potential fully, there is need to identify and promote specific enterprises that local people can undertake. Such enterprises as handicraft production, and the other products using local materials will ensure that coastal tourism benefits the local people too.

9.2.2 Recommendations to WWF

1. There should be a follow-up on these projects /interventions to see whether with time they real contribute to poverty alleviation and environmental conservation. This should be done in the light of developing initiatives that are necessary to overcome any impediments towards poverty alleviation and environmental conservation goals. Thus WWF is urged to support the review of institutional structures that do not provide better opportunities to local communities.
2. There is the need for WWF to support and enhance the development of civil society organization for managing own natural resources for poverty alleviation and sustainable livelihoods.
3. Geographical areas of concern which include critical coastal habitats such as mangroves, sea-grass, watershed and coral reefs areas require and should be given intensive proactive planning management. Their potential uses should be well planned to resolve possible conflicts before they occur.

9.2.3 Recommendations to EU

1. There is the need for improvement in integration of environmental and poverty concerns of the local communities in development assistance programmes**.**

2. Poverty-environmental integration in the road project and in the fishery sector is weak and need to be strengthened at planning level especially integration of impediments e.g. poor agricultural productivity and reliance in rainfall, which are likely to constrain them to benefit from the assistance. One way would be to link with plans of the national and other development partners (collaborative approach).

3. According to the contract agreement, borrow pits must be re-filled. Some of the borrow pits are located close to residential areas. However it was observed that in some places local communities didn't want them refilled so that water collected from runoff can be used for livestock. Therefore, there is need to consider local community's concerns in advance and locate borrow pits in areas that are relatively convenient and safe for use..

4. There is need to take into consideration the temporarily influx of people in road construction camp sites causing unsatisfactory provision of infrastructure and social services. Also there is need to take into consideration the growing of settlements around Lake Victoria especially along fish landing sites so as to improve infrastructure needs. Most of the living in these settlements are the poor and are therefore likely to degrade further the environment because they have limited alternative.

5 The EU anticipated investments in the coastal areas need to go hand in hand with reversing the depletion of fisheries resources.

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APPENDICES

Appendix 1
TERMS OF REFERENCE FOR THE CARRYING OUT OF A STUDY ON STREAMLINING POVERTY-ENVIRONMENT LINKAGES IN THE EUROPEAN COMMUNITY'S DEVELOPMENT ASSISTANCE IN TANZANIA

1.0 Introduction

The European Community's Development Policy's (2000) principle aim is to refocus its activities to combat poverty" where the "environment … will play an important role supporting the main objective" while the continuo Agreement (2000) similarly states that activity"…. Shall be centered on the objective of reducing and eventually eradicating poverty consistent with the objectives of sustainable development……"Despite these commitments, a recent review by the ACP-EU joint assembly – adopted October 2003 – on the "Sustainable management and conservation of natural resources in ACP countries in the context of the 9th European Development Fund aid Programming" indicates that EC development assistance inadequately addresses environmental issues, especially with regards to the critical role that natural resources assets play in alleviating poverty.

This research seeks to provide to the European commission and its partner developing countries recommendations to address poverty-environmental weaknesses in current Country Strategy papers (CSPs) and to improve environmental streamlining in EC development strategies through its six focus areas. This research will do so by evaluating the effects of development strategies on local poverty-environment dynamics through: reviewing CSPs on anticipated environmental impacts of EC thematic aid sectors in various countries; conducting multi-level evaluations to determine structural impediments and strategic intervention areas to address poverty-environment weaknesses; and identifying institutional and policy opportunities to strengthen environmental integration in future CSP design.

EC Country Strategies will be reviewed and interviews conducted for 3 countries on the role of natural wealth in alleviating poverty, anticipated environmental impacts, and areas of possible intervention. Candidate countries for evaluation include Tanzania,

Madagascar, Kenya, Vietnam, and Papua New Guinea. To gain a detailed understanding of the environmental consequences and specific strategic interventions needed to address poverty-environmental concerns, multi-level evaluations will be conducted in 2 countries (of the above 3 mentioned countries). The multi-level evaluations will use a bottom-up analysis to identify the structural impediments operating at local to national levels that reinforce rural poverty and environmental concerns – highlighted in the multi-level evaluation – are being addressed in the development strategies. This research will be structured about key poverty-environmental issues on how the proposed EC Country Strategies are anticipated to affect rural poor's livelihoods, their rights to land and resources, their health due to anticipated environmental deterioration, and their vulnerability to environmental disasters. The multi-level evaluations and CSP reviews will result in recommendations to address poverty-environmental weaknesses in EC development strategies.

This study will further identify institutional and policy-oriented changes needed to address poverty-environmental gaps. This activity will rely on document review and interviews with individuals involved in CSP development and their revision. The evaluation will be conducted at EC and country levels (for the same 2 countries in which the multi-level evaluations were conducted) and will build upon current EC environmental integration efforts. Results of this study will be summarized and distributed to raise awareness on the need and opportunities to enhance poverty-environment integration in EC development assistance.

1.0 Significance of the study

Within the specific field of poverty-environment analysis, most recent work has focused on ways that the poor at the local level interact with natural resources as part of their strategies to maintain livelihoods. While this new research has contributed significantly to better understanding the livelihood strategies of the rural poor, seldom are linkages made to specific policy and institutional factors at meso and macro levels.

Over the past 10 years, WWF has given considerable attention to developing and implementing an analytical approach that cuts across these multiple levels. The analytical approach begins at the local level and then works up through a chain of causal factors to link to meso and macro drivers.

This kind of "bottom up" analytical perspective is important for analysis of the poverty-environment impacts of EC County Strategies by grounding this analysis in a concrete understanding of the real problems and impendiments facing the rural poor. This study will use the results of the multi-level analysis specifically to evaluate likely environmental impacts of EC development programs and will provide recommendations to EC and partner developing countries on ways to improve poverty-environmental performance. While a growing number of studies have assessed to poverty-environment impacts of non-EU development policies (e.g., of the World Bank), none have yet done so for EC development programmes. Even fewer studies have sought to translate the poverty-environment concerns into recommendations for policy and institutional changes to improve resource management and the livelihoods of the rural poor.

2.0 Objectives of the study

Main objectives:

The overall objective of this research is to enhance the impact of the EC's development assistance on poverty through increased attention to the role of the environment in the livelihoods of the rural poor in its country development strategies. This research seeks to provide to the EC and partner developing countries recommendation to address poverty-environmental weaknesses in current Country Strategy papers (CSPs) and to improve environmental streamlining in EC development strategies through its six focus areas. More specifically, the objectives of this research are:

Objective 1: To evaluate the anticipated environmental impacts of proposed EC CSP sector investment areas in select countries and propose strategic interventions that are needed to address the envisioned environmental problems. This assessment will

emphasize linkages between natural resource assets and rural poverty and will identify structural impediments, be they economic or institutional, operating at local to meso to macro levels that encourage environmental mismanagement and keep rural areas locked in poverty.

Objective 2: To evaluate current aid programming processes used to develop and revise CSPs, specifically with regard to environmental integration in the EC focus areas, and identify long term policy and institutional opportunities to improve poverty-environmental streamlining to enhance future effectiveness of EC development assistance. This activity will build upon current EC efforts to improve environmental integration (e.g. EC manual development).

How the objective relate to the theme(s) of the EC-PREP:

The aim of the EC-PREP is to enhance the impact of the EC's development assistance on poverty through support to policy-oriented research, including cross-cutting research on environmental dimensions of poverty. This study seeks to inform the EC and developing countries on poverty-environment dynamics in selected study areas and their relationship to meso and macro policy and institutions in two countries, and will provide detailed recommendations on measures needed to address current poverty-environmental problems as well as institutional opportunities to improve long term poverty-environment integration in future EC CSPs.

As noted above, a recent review by the ACP-EU joint assembly indicates that EC development assistance inadequately addresses environmental issues, especially with regard to the critical role that natural resource assets play in alleviating poverty. The research program that we are proposing will review selected country strategy papers for their anticipated poverty-environment impacts and link this to an analysis of major constraints to substantively improve the livelihoods and environmental conditions of the resource-dependent poor in specific rural areas. This program will:

- conduct a bottom-up analysis that links local, meso and macro institutions and economic changes
- draw on this analysis to inform a review of EC Country Strategy papers, identifying gaps that need to be addressed to affect the problems of resource-dependent rural poor.
- Provide recommendations to improve mainstreaming of poverty-environment considerations in the development of CSPs.

How the objectives relate to development work already undertaken in this area:

Despite the reordering of priorities of the international development community to focus on poverty alleviation, comparatively little attention has been given to the central role that the environment and access to environmental goods and services play in poverty alleviation, particularly of the rural poor. The Rural poor have an immediate survival dependence on natural resources from which they derive food, water, energy, housing, medicines, and clothing on an uninterrupted basis. They are more likely to be exposed to deteriorating environmental conditions (e.g. illness due to water pollution) and have fewer means to cope to the consequences of environmental deterioration and natural disasters. Despite considerable growing recognition of poverty-environment linkages, these linkages have seldom been recognized in many pro-poor development policies, including PRSPs. Where these linkages have been mentioned, they have failed to translate such concern into investment programs and policy initiatives to improve resource management and improve livelihoods for the rural poor.

Key hypotheses:

Key hypotheses of this research are

Hypothesis 1: The roles of natural resource wealth, especially their contribution to rural livelihoods, have been inadequately addressed in EC development programmes. An evaluation of poverty-environment impacts and ways to address these shortcomings is needed.

Hypothesis 2: Long term national to local level institutional and policy changes are needed to help ensure that country development strategies better integrate poverty-environment concerns.

3.0 The study area

The geographical study area in Tanzania is around the Lake Victoria Basin, Particularly the EC investments in Mwanza and Shinyanga and Kagera Regions.

4.0 Methodology of the Study

a series of linked research activities will be completed by this study as described below:

- *CSP reviews* will be conducted to evaluate anticipated environmental impacts of EC country strategy investment in three countries. The reviews will rely on interviews with experts and staff of relevant local to national institutions and draw on documents such as EC development policies and papers that describe environmental and livelihood impact of similar programs. This activity is currently being co-financed by WWF EPO and MPO (see Annex 2 under "CSP Reviews") and will be conducted prior to the start of EC-PREP funding.
- *Multi-level* analysis will be conducted of local poverty-environment dynamics in defined geographical areas within two countries, and the policy and institutional factors shaping them at meso and macro levels. This analysis will be conducted by small, multidisciplinary teams of researchers with oversight and management from WWF in-country offices and WWF-MPO.
- *Follow-up* CSP reviews will be conducted to assess if the Country Strategies are addressing the poverty-environment concerns and required interventions as highlighted in the mult-level case study analyses. This review will be conducted by WWF EPO in conjunction with local offices.
- *Institutional evaluations* will be carried out to identify long term institutional and policy opportunities to improve poverty-environmental streamlining in future CSP design. The institutional evaluations will rely on document reviews and interviews with individuals – at country and EC level – involved in CSP development and revision. This activity will build upon current EC

environmental integration activities (e.g., manual development) and will be conducted by WWF EPO.

- *Recommendations* will be drawn based on results from the mult-level analysis and CSP reviews on strategic gaps and weaknesses that need to be addressed in CSPs in relation to environmental dimensions of poverty. Recommendations will also be developed on measures to improve poverty-environmental integration in the process of developing CSPs.
- *Awareness building* material on the need and opportunities to address EC Country Strategy poverty-environment weaknesses will b e developed by WWF EPO and MPO. Its distribution will be conducted by the WWF network and by local to national organization with oversight from WWF EPO and MPO.

Methodology

Owing to this study's emphasis on the importance of natural resources assets to the rural poor, this studies fundamentally structured around key poverty-environment linkages. These linkages are namely: that poor people's livelihoods are disproportionately dependent on natural resources; that especially the rural poor fundamentally rely on natural resources and land rights; that poor people are more likely to suffer health consequences from deteriorating environments; and that people living in poverty are more vulnerable to and have fewer means to cope with environmental disasters. This study's evaluation including its CSP reviews and mult-level evaluations are critically based on such poverty-environmental issues.

This study's methodology furthermore highlights micro to macro linkages, particularly higher-level policy and institutional factors shaping local poverty-environment dynamics. Finally, the methodology emphasizes long term approaches to address poverty-environmental weaknesses. This research will provide recommendations on programs of action needed to address current poverty-environmental weaknesses and on long term

institutional and policy changes needed to improve future poverty-environmental streamlining in EC aid programming.

Methodology for Objective 1

CSP reviews and mult level analyses will be used to evaluate anticipated environmental impacts of current CSPs and to identify areas of strategic intervention. The CSP reviews will be structured around key poverty-environmental issues described above and conducted in three countries. Criteria for country selection include: representation of EU focal areas and WWF ecoregions; availability of CSPs and synergies with similar programs. Candidate countries are Tanzania, Madagascar, Kenya Papua New Guinea, and Vietnam.

- *Mult-level* poverty-environment analyses will subsequently be undertaken to gain a more detailed understanding of structural impediments that are reinforcing (or anticipated to reinforce) rural poverty and environmental degradation in particular localities or sub regions. The analysis will assess poverty-environment dynamics at the local level, establish the relationship of constraints to meso-level institutional arrangements, and make linkages to macro policies and institutions. Due to resource constraints, the mult-level analysis will be conducted in defined geographical areas within two (of the three above mentioned) countries. This analysis will cut across relevant EU focal areas for that country/locality.
- *Follow-up* CSP reviews will then be conducted in these two countries to evaluate whether the current EC Country Strategies are addressing the poverty-environmental concerns identified in the mult-level analysis. Recommendations will be drawn from results of the multilevel analysis and CSP reviews and distributed to raise awareness on the need to improve poverty-environmental streamlining in EC development assistance.

Methodology for objective 2

- Institutional evaluations will be conducted to identify policy and institutional opportunities to improve future poverty-environmental streamlining. This

evaluation will describe current procedures used by the EC and partner developing countries to integrate environmental concerns in Country Strategies and will account for current efforts by the EC to improve environmental integration. Recommendations will be drawn to raise awareness on the long term institutional and policy opportunities.

Why the methodology is appropriate to the focus area and project results:

- This research fundamentally relies on evaluations structured about poverty-environmental issues acknowledges multi-level causality and linkages, and highlights institutional and process oriented changes. These approaches have intentionally been used to help ensure that results of this research may translate into long term changes that will improve environmental streamlining in EC aid programming and in turn environmental conditions and the livelihoods of the rural poor.

TERMS OF REFERENCE

Multi-level analysis to influence EU Country Strategy Papers in the Eastern African Marine Ecoregion: Focus on Tanzania

CONTEXT

Building on the root causes analysis and other socio-economic analysis for EAME in Tanzania. The assessment will emphasize linkages between natural resource assets and rural poverty in coastal area of Tanzania. The research will also identify structural impediments, be they economic or institutional, operating at local, sub-national and national levels that encourage environmental mismanagement and keep rural areas locked in poverty.

The research will emphasize the importance of natural resources assets to the poor coastal communities. The study is fundamentally structured around key poverty-environment linkages. These linkages are namely: that poor people's livelihoods are disproportionately dependent on natural resources; that especially the rural poor fundamentally rely on natural resources and land rights; that poor people are more likely to suffer health consequences from deteriorating environments; and that people living in poverty are more vulnerable to and have fewer means to cope with environmental disasters.

The study's methodology furthermore highlights micro to macro linkages, particularly higher-level policy and institutional factors shaping local poverty-environment dynamics. Finally, the methodology emphasizes long-term approaches to address poverty-environmental weaknesses. This research will provide recommendations on programs of action needed to address current poverty-environmental weaknesses and on long term institutional and policy changes needed to improve future poverty-environmental streamlining in EC aid programming.

The researcher will use existing research focusing on the **root causes analysis for EAME** to carry out a literature review that updates and builds on the root causes analysis as well as other socio-economic analysis for this area. The researcher will **visit selected**

coastal areas in Tanzania to further assess and validate the poverty environment linkages and **visit with local and regional government offices** to determine the blockages to environmental management and poverty alleviation.

Issues to focus will include land tenure arrangements, ownership of resources utilization and management, links to markets, ability to invest or borrow funds. Next, the research will be taken to the national level government offices to determine impediments at the national level. Research visits will include the National Environmental Management Council, Ministry of Transport and Communication, Ministry of Finance, and those involved in Fisheries, Forestry, Tourism, Micro-credit and Planning.

A final report will include the research results and recommendations for the EC as they develop their coastal program. As background to this coastal program, the EC is anticipating investment in the coastal area-with a focus on poverty alleviation. They will build on the existing World Bank **MACEMP** project and focus on areas of governance for regional coastal zone management, EEZ management and capacity at the District level. Recommendations should be targeted at these anticipated areas of work.

OBJECTIVES OF THE CONSULTANCY

The objective of this consultancy is to formulate marine and coastal related recommendations for long term EU and national institutional and policy changes, and long-term opportunities to facilitate poverty-environmental integration in the CSP process.

ACTIVITIES

In this regard a consultant(s) will carry out the following activities:

e) Literature review, using existing research focusing on the root causes analysis for EAME, that updates and builds on the root causes analysis as well as other socio-economic analysis for the area.

f) Identify structural impediments, be they economic or institutional, operating at local, sub-national and national levels that encourage environmental mismanagement and keep rural areas locked in poverty.
g) Visit selected areas along the coastline of Tanzania to further assess and validate the poverty environment linkages
h) Visit local and regional government offices to determine the blockages to environmental management and poverty alleviation.
i) Provide recommendations on programs of action needed to address current poverty-environmental weaknesses and on long term institutional and policy changes needed to improve future poverty-environmental streamlining in EC aid programming.

OUTPUT

The consultant must submit a final technical report, which must include the research results and recommendations for inclusions to the **Coastal Program** that is being developed by EC. The EAME report will form a chapter in the much larger report being prepared by the consultant for the whole of Tanzania (including Lake Victoria) in collaboration with WWF-MPO and WWF-TPO. The final report by the consultant to the WWF-MPO and WWF-TPO will therefore be regarded as the deliverable for this consultancy.

Appendix 2: Analysis of TOR to identify data requirement, sources and methods of data collection

Item	Data required	Sources	Methods
Background • EC-ACP policy on environment – poverty linkages and trends over time, • Sustainable development • EU assistance in Tanzania • EC assistance in transport and fishery sectors	• Policy statements • Number, types of projects, value of assistance • Trend over time • Data on road and fishery investments in Tanzania • Geographical distribution of projects	EC-ACP documents and web sites • Annual reports • TIC • EU – delegation • Finance • TANROADS • fisheries	• Documentary review
Background to the study area • how livelihood relate to the resource base • institutions and their functions	• socio-economic profile • Environmental profile • NR base • Poverty levels • List of institutions and their activities	• Mwanza and Shinyanga socio-economic profiles 1999 • LVEMP • TCMP • POPP • Household budget survey • REPOA • Regional / district offices	• Documentary review
Objective1: Evaluation of the anticipated environmental impacts of the projects	• EC investments on roads and fishery	• EIA reports • Fisheries industries	• Documentary review • Interviews

• Assess linkages between NR assets and rural poverty • Identify socio- economic, cultural impediments • Institutional impediments • Policy impediments • Structural impediments	sectors • Number of factories and traders engaged in fisheries • Growth in the number of vehicles using the road • Type and Volume of cargo being handled • Volume of trade • Growth in urbanization along the road • Costs and benefits of the projects, long term and short term, direct and indirect • Stakeholders' perceptions of the impacts of the project • Project linkages with economic activities, informal activities, health sector, food security		•
Objective 2: Propose strategic interventions needed to address the envisioned	• extent of environmental / NR degradation	• As in objective 1 •	

environmental problems	• Peoples perception of the benefits from the fishery / road projects		
Objective 3: Evaluate the extent of environmental integration in EC assistance in Tanzania • identify poverty-environmental gaps	• Peoples (local communities) perception of the benefits from the fishery / road projects • Perceptions of investors, beneficiaries, government officials, civic organisations	• Local communities • Officials at ministerial levels and agencies	• Interviews • Focused group discussion • Documentary reviews
Objective 4: Identify policy opportunities to improve poverty - environment streamlining • Environmental policy • Water policy • Fisheries policy • Transport policy • PRS	• Policy documents • CSP / PRS • Policy-oriented changes needed to address poverty-environmental gaps	• Policy documents	• Documentary reviews
Objective 5: Identify institutional opportunities to improve poverty - environment streamlining	• Environmental law • By laws • Institutional-oriented changes needed to address poverty-		• Documentary reviews • Interviews • Focused group

	environmental gaps • Local govt. reform programme • Public sector reform programme • New Rural Development Strategy • Dev. Vision 2025 • MDGs		discussions

Key issue	Specific questions	Data	Obstacles towards
Local level dynamics	1. Main social actors (multiplicity of institutions) • The poor • Govt offices • Private sector (formal and informal) • CSOs 2. Functions of main actors 3. Local natural environment features (eg. Environmental degradation, use of biomas energy, natural resource base) 4. Environmental issues / problems affecting livelihoods and welfare 5. Dynamics of poverty-environment relations and main drivers • Extent to which social activities and	• Socio-economic conditions as they have changed over time • People's perception on the relationship between environment and poverty • Multiplicity of institutions and their functions	• Poverty reduction • What obstacles prevent local communities from attaining poverty reduction • Environ. Sustainability • What obstacles hinder attainment of environmental sustainability

	poverty are affected by the environment • How poverty affects the environment • How local dynamics (survival, poverty reduction, wealth accumulation objectives) impact on the environment • Drivers: (e.g. expansion of farmland, increase in reliance on biomass, climate change, changes in economic policies/liberalisation, change in infrastructure, population change, consumption patterns, etc) • Cultural factors / influence on the dynamics		
Meso level (District and region)	1. Principal institutions influencing development dynamics (e.g. District natural resource committee,) • Organisational institutions • Laws • Governance arrangement, • Traditions • Cohesion 2. Social relations influencing local and national level development dynamics 3. Who are the main actors driving the relations and how do they exert their influence? 4. Relationship with lower and higher levels	• Identify principal institutions and how they link with the local level dynamics • Identify main actors	• Poverty reduction • Environ. sustainability
Macro level	1. Macro economic and development policies	• How are the policies	• Poverty reduction

	influencing development options (e.g. structural adjustment of the economy, trade liberalisation, abolition of subsidies) 2. Sectoral policies (transport + fishery) 3. Institutional arrangement	transmitted to lower levels • How these influence local and meso level dynamics • How they create opportunities and constraints •	• Environ. sustainability

Appendix 3:

A STUDY ON STREAMLINING POVERTY-ENVIRONMENT LINKAGES IN THE EUROPEAN COMMUNITY'S DEVELOPMENT ASSISTANCE IN TANZANIA

CHECKLIST FOR LOCAL COMMUNITIES AND CIVIC ORGANIZATIONS BENEFITING FROM THE EUROPEAN COMMUNITY'S DEVELOPMENT ASSISTANCE

A: IDENTIFICATION VARIABLES

ITEM	NAME/NUMBER
1. Sheet No.	
2. Name of Interviewer	
3. Date of Interview	
4. Name of respondent(s) and position	
5. Village name	
6. Ward	
7. Division	
8. District	

B. OTHER VARIABLES

B.1 CHECKLIST FOR LOCAL COMMUNITIES/VILLAGE LEADERS/CIVIL ORGANIZATIONS MEMBERS

1. Who are the rural poor in your village?
2. What criteria do you use to distinguish the poor and the rich?
3. What are the causes of being poor?
4. What are the main activities of villagers undertaken for a living?
5. What natural resources do you use to make a living?
6. How do you access these resources?
7. How does the environment contribute to poverty?
8. How does poverty contribute to environmental degradation?
9. What must be done to alleviate poverty in rural areas?
10. What are the main local environmental features?
11. What are the main environmental problems and causes in the area?
12. Are things getting better or worse for the poor and the environment

	Same? Better? Worse?	How?	Why?
Poverty			

Environment			

13. Indicate Institutions available in the village

Institutions	Functions	Importance to the poor	Importance to the environment	Relations of the poor and the environment

14. In what way is the road important to you?
15. How would the improvement of the road affect you?
16. How would the improvement of the road affect the environment?
17. What activities have increased as a result of road construction?
18. Do you think road construction has improved/decreased local community income?, employment?
19. Quantify the improvements/decrease observed
20. How do you think road construction has influenced utilization of natural resource/environmental assets?
21. How much does the resource utilization contribute to the economy of the household (cash and own consumption at home)?
22. Any other comments?

Appendix 4:

A STUDY ON STREAMLINING POVERTY-ENVIRONMENT LINKAGES IN THE EUROPEAN COMMUNITY'S DEVELOPMENT ASSISTANCE IN TANZANIA

CHECKLIST FOR REGIONAL AND DISTRICT OFFICIALS/NATURAL RESOURCE MANAGERS BENEFITING FROM THE EUROPEAN COMMUNITY'S DEVELOPMENT ASSISTANCE

A: IDENTIFICATION VARIABLES

ITEM	NAME/NUMBER
1. Date of Interview	
2. Name of respondent(s) and position	
3. District	

B: CHECKLIST ITEMS

- EC investments on roads and fishery sectors
- Number of factories and traders engaged in fisheries
- Growth in the number of vehicles using the road
- Type and Volume of cargo being handled
- Volume of trade
- Growth in urbanization along the road
- Costs and benefits of the projects, long term and short term, direct and indirect
- Stakeholders' perceptions of the impacts of the project
- Project linkages with economic activities, informal activities, health sector, food security
- extent of environmental / NR degradation
- Peoples perception of the benefits from the fishery / road projects
- Peoples (local communities) perception of the benefits from the fishery / road projects
- Perceptions of investors, beneficiaries, government officials, civic organisations

1. List the villages, sub-villages and population in each village and sub-village around the road being investigated or the fish industries.
2. Indicate how villages and sub-villages utilize/benefit from the development project/industry.
3. How much did the transport and communication sector/fish sector in the region grow as a result of the road construction/EC Investment in fish industry)?
4. What was the GDP contribution of the transport and communication sector /fish sector in the region as a result of the road construction/EC Investment in fish industry)?
5. What services and sectors in the region grew as a result of the road construction/EC Investment in fish industry)?

6. Estimate the revenue and other benefits obtained from fish industry or as a result of the road project.
7. Explain the extent of trade in natural resources products and /or services from fish industry or road construction by specifying quantity and price for each product and/or service (including installations if any).

Product/service traded	Quantity	Price (Tsh.)

8. In what ways have your district strived to create markets for goods/services to utilise these developments?
9. How much does the road or fish industry contribute to the economy of the household, village and district?

Appendix 5

Itinerary for the study team on streamlining poverty-environment linkages in the European community's development assistance in Tanzania

S/N	DATE	PLACE	ACTIVITY
1	15/12/2004 – 23/12/2004 and 27/12/04 – 31/12/2004	Dar es Salaam	Literature review, Identification of key contacts/target groups, Policy reviews, Interviews at TANROADS Head Office and Tanzania Investment Centre (TIC)
	2/1/2005		Travel to Shinyanga
2	3/1/2005 – 8/1/2005	Shinyanga	Courtesy calls and Discussion with RAS & DED Discussion with Regional TANROADS Manager Discussion with Regional Natural Resources Advisor Discussion with Regional Agricultural Advisor Discussion with Regional Engineer Advisor Discussion with Regional Agricultural Officer Discussion with Regional Agricultural Officer Acting Zonal Mangroves Manager Courtesy call and discussion with District Administrative Secretaries of Shinyanga rural and Kishapu Field visits for administering questionnaires, interviews and road observations
	9/1/2005		Travel to Mwanza
3	10/1/2005 – 16/1/2005	Mwanza	Courtesy calls and Discussion with RAS & City Director Discussion with Regional Fisheries Advisor Discussion with Regional Forest Advisor Discussion with City Fisheries Officer Discussion with Operations Manager, LVEMP Field visits for Field visits for administering questionnaires to various fishery stakeholders and observations
	16/1/2005		Travel to Dar es Salaam
4	17/1/2005-21/1/2005	Dar es Salaam	Visits and consultative meetings with Vice-President's Office – Poverty desk and Division of Environment, President's Office – Planning and privatization (POPP), National Bureau of Statistics, LVEMP Head Office, Ministries of

			Finance, Works and Natural Resources and Tourism (Fisheries Division). Administering questionnaires to some of the districts and sub-components staff
5	24/1/2005 – 13/2/2005	Dar es Salaam and Morogoro	First draft report writing
6	14/2/2005	Dar es Salaam	Report submission

Appendix 6.

Persons met during a study on streamlining poverty-environment linkages in the European community's development assistance in Tanzania

NO	NAME OF PERSON	POSITION/TITLE AT THE TIME OF MEETING
1	Eng. Mgani	TANROAD Dar es Salaam, Project supervisor – Mwanza boarder/Shinyanga – Tinde – Isaka – Nzega road project
2	Mr. M.I. Iyombe	Regional Manager, TANROADS Shinyanga
3	Mr. K. Kiyabo	Graduate engineer, TANROADS Shinyanga
4	Mr. L. Mashamba	Graduate engineer, TANROADS Shinyanga
5	Mr. Mwandambo	Graduate engineer, TANROADS Shinyanga
6	Mr. E.M. Msafiri	Regional Planning Officer and Ag. RAS, Shinyanga
7	Eng. D. Mushuga	Regional engineer advisor, Shinyanga
8	Mrs. M. Jilumbi	Regional Economist Advisor, Shinyanga
9	Mrs. M. Mashaka	Regional Agricultural Advisor, Shinyanga
10	Mr. E.M. Mbassa	Shinyanga rural District Administrative Secretary
11	Mr. L.L. Simkoko	Kishapu District Administrative Secretary
12	Mr. H. K. Usungu	Ward Executive Officer (WEO), Nata
13	Mr. S. H. Pundugu	Village government member, Nata
14	Mr. A. Mashangara	Ward Education Officer, Nata
15	Mr. S. Mahike	Ilula Sub-village Chairman, Nata
16	Ms. P. Kulwa	Mishishi Sub-village Chairman, Nata
17	Mr. A. Mahona	Village government member, Nata
18	Mr. S. Makwelu	Village government member, Nata
19	Mr. H. Shabani	Village executive Secretary, Nata
20	Mr. A. O. Sauli	Village government member, Nata
21	Mr. J. Massudi	Village Chairman, Nata
23	Mr. J. Abdallah	Village government member, Nata
24	Mr. A. Maswanya	Village government member, Nata
25	Mr. M. Gundu	Village government member, Nata
26	Mr. H. Milambo	Village government member, Nata
27	Mrs. B. Maige	Village military commander, Nata
28	Mr. B. Charles	Ten cell leader, Nata
29	Mr. M. Hussein	Manager, Aids Defence and Environment Programme (ADEP)
30	Mr. K. J.K. Kihembe	Villager
31	Mrs. C. Kisa	Villager
32	Ms. S. F. Swati	Villager
33	Mr. J. Kamolo	Villager
34	Mr. A. N. Mngeja	Villager
35	Mr. M. Martin	Villager
36	Mr. M. Mussa	Village Chairman, Tinde
37	Mr. B. Kasuka	Ward Executive Officer (WEO), Tinde
38	Mr. C. Maganga	Village Education Officer, Tinde
39	Mr. M. Nkengi	Jomu Sub-village Chairman

40	Mr. K. Nyali	Village Chairman, Kituli
41	Mr. K. Jomanga	Village Education Officer, Kituli
42	Mr. J. Kanolo	Sub-village Chairman
43	Mr. W. Mnyashi	Village Education Officer, Tinde
44	Mrs. C. Masanja	Village Education Officer, Tinde
45	Mr. M. Mpanda	Ward udication Officer
46	Mr. L. Sambaji	Sub-vilage Chairman
47	Mr. J. Malula	Village Education Officer, Tinde
48	Mr. S. Mabula	Sub-village Chairman
49	Mr. S. Shija	Sub-village Chairman
50	Mr. M. Kashinje	Sub-village Chairman
51	Mr. M. Magale	Sub-village Chairman
52	Mr. H. Sanula	Sub-village Chairman
53	Mr. M. Mihambo	Sub-village Chairman
54	Mr. J. Salum	Village Chairman, Jomo
55	Mr. P. Katanga	Land surveyor
56	Mr. S. Kasoga	Regional Planning Officer, Mwanza
57	Mr. Mahatane	Regional Fisheries Advisor
58	Mr. T. Kyamba	Planning Officer
59	Mr. H.G. Mbilinyi	Fisheries officer – Quality Control, Mwanza
60	Mr. P. Kauswa	City Fisheries Officer
61	Mr. Makuke	City Fisheries Staff, Mwanza
62	Mr. S. Mbwana	LVEMP Operations Manager, Mwanza
63	Mr. Shindika	Fisheries officer, Fisheries Division, DSM
64	Mr. A. Muhuna	Fish agent
65	Mr. B. Abdu	BMU Chairman, Kayenze
66	Mr. E. Lwigisha	BMU Vice Chairman, Kayenze
67	Mr. E. Ntemu	BMU Secretary, Kayenze
68	Mr. J. Baiskeli	Village Chairman, Kigangama
69	Mr. K. Kireka	BMU Chairman, Kigangama
70	Mr. E. Mashara	BMU Secretary, Kigangama
71	Mrs. M. Machanulo	BMU member, Kigangama
72	Mrs. M. Simoni	BMU member, Kigangama
73	Mr. M. Kasheto	BMU member, Kigangama
74	Mr. T. Chule	BMU member, Kigangama
75	Mr. Kazimbaya	Fisheries staff, Magu District
76	Mr. M. Masanywa	Fisheries staff, Magu District
77	Mr. T. Makwaya	Councillor – Ibadakuli Ward
78	Mr. P. Kashinje	Villager – Ibadakuli
79	Mr. Mwagala	Village Executive Officer – Ibadakuli
80	Mr. Mihayo	Villager –Ibadakuli
81	Mr. Ngatale Nyau	Villager – Ibadakuli
82	Mr Sekebugolo	Villager Mipa
83	Mr Emanuel Tasiano	Acting Village Executive Officer – Mipa
84	Mr. Castory Seni	Villager - Mipa
85	Mrs S. Saida	Villager – Mipa
86	Mr. A. Mayunga	Villager - Mipa
87	Mrs Amina Shilumba	Villager – Mipa

88	Mr. Rashidi Bakari	Villager - Maganzo
89	Mr. Augustino Francis	Village Executive Officer – Maganzo
90	Mr. Hirsi	Villager - Maganzo
91	Mrs Rehema Hussein	Villager – Maganzo
92	Mr. Kisoronyi Matiko	Villager – Maganzo
93	Mr. J Daffa	TCMP – Dar es Salaam
94	Mrs Mwawa Johari	Fisheries Officer -Kinondoni Municipal
95	Ramadhani Yusufu	Villager – Amani Gomvu
96	Dunia Amiri	Villager – Amani Gomvu
97	Fatma Shabani	Villager – Amani Gomvu
98	Zubeda Bakari	Villager – Amani Gomvu
99	Makwaya Sango	Villager – Amani Gomvu
100	Bakari Mlambo	Villager – Amani Gomvu
101	Ahmed Sibanga	Villager – Amani Gomvu