Preparation of National / Regional Management Framework: Institutional Component for the Lake Victoria Basin

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Preparation of National / Regional Management Framework:
Institutional Component for the Lake Victoria Basin

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LIST OF ABBREVIATIONS AND ACRONYMS

ACORD	Agency for Cooperation and Research in Development
AIC	Appreciation Influence Control
AIDS	Acquired Immune Deficiency Syndrome
ASDS	Agricultural Sector Development Strategy
BA	Beneficiary Assessment
BMUs	Beach Management Units
BOSEDA	Biharamulo Organization for Social Environment Development
BOT	Bank of Tanzania
CAS	Catch Assessment Survey
CBOs	Community Based Organizations
CHAWEDA	Chato Women Development Association
CMUs	Conservation Management Units
CPGL	Community Participation Guidelines for LVEMP
CPO	Community Participation Officer
CPT	Cleaner Production Technology
CSOs	Civil Society Organizations
CSPD	Child Survival and Protection Development Program
DADP	District Agricultural Development Strategy
DALDO	District Agricultural and Livestock Officer
DC	District Commissioner
DCDPO	District Community Development and Participation Officer
DED	District Executive Director
DFO	District Fisheries Officer
DMET	District Multidisciplinary Extension Team
DSC	District Steering Committee
DSMS	District Subject Matter Specialist
EAC	East African Community
FAIDRES	Facilitation, Integrated Development, and Relief Services
FAO	Food and Agriculture Organization of the United Nations
FGDs	Focus Group Discussions
FMC	Fisheries Management Committee
FMP	Fisheries Management Plan
FRI	Fisheries Research Institute
GDP	Gross Domestic Product
GEF	Global Environment Facility
GOT	Government of Tanzania
ha	hectare
HESAWA	Health, Water and Sanitation
HIV/AIDS	Human Immunodeficient Virus/Acquired Immunodeficiency Syndrome
HLGA	Higher Local Government Authority
HPI	Heifer Project International
IDA	International Development Association (World Bank Group)
IFAD	International Fund for Agricultural Development
IFMP	Implementation of Fisheries Management Plan
IPM	Integrated Pest Management
IPNM	Integrated plant Nutrient Management
IRA	Institute of Resource Assessment
ISWC	Integrated Soil and Water Conservation

LANESO	Lake Nyanza Environmental Sanitation Organization
LFA	Logical Framework Approach
LGA	Local Government Authority
LGRP	Local Government Reform Programme
LLGA	Lower Local Government Authority
LMC	Landing Management Committee
LVBC	Lake Victoria Basin Commission
LVEMP	Lake Victoria Environmental Management Project
LVEMP-1	Lake Victoria Environmental Management Project, Phase 1
LVEMP-2	Lake Victoria Environmental Management Project, Phase 2
LVFO	Lake Victoria Fisheries Organisation
M&E	Monitoring and Evaluation
MAFSC	Ministry of Agriculture Food Security and Cooperatives
Mara-FIP	Mara Region Farmers Initiative Project
MEM	Ministry of Energy and Minerals
MFEC	Mogabiri Farmers Extension Project
MIS	Management Information System
MLD	Ministry of Livestock Development
MNRT	Ministry of Natural Resources and Tourism
MoU	Memorandum of Understanding
MW	Ministry of Water
NACP	National AIDS Control Program
NEAP	National Environmental Action Plan
NEMA	National Environmental Management Authority
NEMC	National Environment Management Council
NES	National Executive Secretary
NGOs	Non Governmental Organizations
NPSC	National Policy Steering Committee
NSGRP	National Strategy for Growth and Reduction of Poverty
NTSC	National Technical Steering Committee
O&OD	Obstacles and Opportunities to Development
PEDP	Primary Education Development Plan
PIC	Project Implementation Committee
PLD	Participatory Learning and Development
PM&EP	Participatory Monitoring and Evaluation Plans
PO-LARG	President's Office – Regional Administration and Local Government
PRA	Participatory Rural Appraisal
PRSP	Poverty Reduction Strategy Paper
PSOs	Private Sector Organizations
RAS	Regional Administrative Secretary
RES	Regional Executive Secretary
RPSC	Regional Planning and Steering Committee
RRA	Rapid Rural Appraisal
SACCOS	Savings and Credit Cooperative Society
SARAR	Self esteem Associative strength Resourcefulness, Action planning and Responsibility
SCAPA	Soil Conservation and Agroforestry Programme Arusha
SIDA	Swedish International Development Agency
SMART	Specific, Measurable, Achievable, Realistic, and Time Bound
SUA	Sokoine University of Agriculture
SWC	Soil and Water Conservation
TAFICO	Tanzania Fisheries Corporation

TAFIRI	Tanzania Fisheries Research Institute
TAHEA	Tanzania Home Economics Association
TANESA	Tanzania Netherlands Project to support HIV/AIDS Control
TASAF	Tanzania Social Action Fund
TLMP	Tanzania Livestock Marketing Project
TSh	Tanzanian Shilling
UDSM	University of Dar es Salaam
UNU	United Nations University
URT	United Republic of Tanzania
VEO	Village Executive Officer
VIC	Village Implementation Committee
VPO	Vice President's Office
WB	World Bank
WEO	Ward Executive Officer
WMET	Ward Multidisciplinary Extension Team
WTO	World Trade Organisation
WWF	World Wide Fund for Nature

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EXECUTIVE SUMMARY

Background

Management.of Lake Basin depends on Institutions. Institutions administer the laws and establish the policies and rules and even incentives for management of the resources within the basin. They include traditional organizations such as village committees or fisheries groups, NGOs- often representing marginalized groups, private sector organizations such as industry associations as well as formal government- sunctioned organizations such as department of fisheries. Lake Basin institutions are characterised by different functions which include: Resource development; Service delivery; Regulation; Advisory and Coordination SMEC International Pty Ltd (SMEC) therefore was commissioned by the Ministry of Water, Lake Victoria Environmental Management Project (LVEMP - the Client), to undertake consultancy services for Preparation of a National / Regional Management Framework: Institutional Component, for the Lake Victoria Basin (Tanzania) (the Project). LVEMP-2 is a complex multidisciplinary project that demands strong coordination at the Regional, National Secretariats as well as close sectoral supervision at the various implementing institutions

Objectives

The Overall Objective of this Consultancy was to assist the EAC in designing the proposed LVEMP-2 based on empirical findings and results learned form LVEMP-1 and other interventions so as to improve and achieve sustainable management and shared utilisation of natural resources in the LVB.

The consultancy aims at achieving the following specific objectives:

i) Develop Policy, legal and institutional framework for sustainable natural resources management;

ii) Design a strategy for strengthening capacity of local communities, NGOs, CBOs and other institutions on management and utilization of the shared Lake Victoria Basin resources;

iii) Develop a strategy for promoting environmentally friendly economic growth by engaging the private and public sector.

Organization and Methodology

Following closely the TOR, the team undertook an intensive 4-week period of fieldwork in the Basin, starting with the 3-day stakeholder workshop and subsequently working in eight LGAs in the three main Regions (Mwanza, Mara, and Kagera). In addition to the LGA and Regional staff, a large number of other stakeholders were interviewed representing CBOs, NGOs, smallholder farmers, irrigators, BMU and other fishermen, village headmen, private sector businesses and individuals, as well as many staff of the LVEMP-1 project and several other on-going or completed projects. Key stakeholders were also interviewed at National Level, in Dar es Salaam. Key to all of these consultations was (a) to ascertain the extent to which the natural resources of the Basin were being used sustainably (or conversely, were being degraded, with possible detrimental affects on the Lake), (b) what models of sustainable management currently existed in the basin; and (c) the institutional set-up by which these models could be scaled up under an LVEMP-2 project.

The team also read extensively on the vast quantity of literature available on the LVB, much of it produced as part of the LVEMP-1 project. In total, more than one hundred references were studied, and about half of these are noted in the Annotated Bibliography presented here in Annex E. Air / satellite photography of the project area, maps, and other data were all studied, and these are included on the CD accompanying this report. This data underscores the

extent of the environmental problems in the Lake catchment area both on land (bare degraded land surfaces; extent of deforestation) and on the Lake (remaining extent of water hyacinth infestation).

Findings

Review Existing Policies, Laws and Regulations

Policy Framework

In general, a well established Policy Framework currently exists at National Level, and a good forum (EAC and daughter institutions) exists for coordination at Regional (three-countries) Level.

Central to all of these policies is the need to manage the natural resources in a sustainable manner but at the same time to increase production and share the proceeds equitably; the need to decentralise Government activities from the centre to the districts; and the need to privatise many activities which in the past were undertaken by Government, and furthermore to come up with workable public-private partnerships for the remaining parts of the public sector.

Possible Policy Gaps relate to:

- special provisions which may have to be made for the LVB (in the National Water Policy 2002) no mention is made of water depletion and other problem areas in Lake Victoria – policies regarding irrigation abstractions are also not clearly elucidated, although this may be intentional: introduction of the parameter of *Water Use Efficiency* would be useful as it would strengthen the hand of the three countries with respect to their joint negotiations with the downstream countries); in the National Forest Policy 1998 no mention is made of forest conservation in the LVB area, although problems in parts of the LVB (S, SE and E) are much more severe than average over the whole country);
- roles of informal and traditional institutions with respect to both water and land (NEP,1997); need to be reconsidered
- areas where new problems are being tackled and new institutions are being set up, for example EIA enforcement at pre-implementation stage (a weakness in the Mineral Policy 1997).

Legal Framework

Again a well established Legal Framework exists at National and Regional (3 countries) Levels. At Regional Level, the *Protocol for Sustainable Development of Lake Victoria Basin (2004)* provides the Basis for dealings between the three countries, the Scope (Article 3) Principles (Article 4) giving the necessary balance between development / food security / poverty alleviation objectives on the one hand and environmental conservation and sustainability issues on the other.

Major National Legislation includes: National Environmental Management Act (NEMA) 2004; Land Act (No.4, 1999); Village Land Act (No.5, 1999); Agriculture Law, 2003; Water Utilisation Act, 1974, with amendments in 1981,'89,'97,'99; Forest Act, 2002; Fisheries Act, 2003; Fisheries Regulations, 2005 In particular, NEMA (2004) has sweeping powers to over-ride other legislation on natural resources, land and related matters where there might be any conflict. Because of this, and because it is very recent, it thus needs to be studied first.

Under NEMA it is the responsibility of Sector Ministries to bring up any problems (eg. EIA stipulations affecting their particular sectors). Power is given to the Minister to declare 'Environmental Protected Area' status for any ecologically-sensitive areas, although there are some loopholes in the Act with respect to wetland areas. For these Protected Areas NEMC must then prepare an 'Environmental Protection Plan'. Furthermore the 'environmental action plans' which are required to be produced even at local level will require much work to be sensible and effective (and this is a further potential role for LVEMP-2 technical support). Under NEMA there is also a requirement for 'Local Government Environ-mental Management Officers' operating at both District (Planning & Implementation-)

and Regional (Advisory- Levels): these officers may currently also be having other roles in their respective offices. These officers would also be key staff under LVEMP-2 activities.

Status, management structures and funding of the local community organizations

Most of the local institutions contacted had no proper structure and arrangements for management of daily activities, inappropriate arrangements for roles and responsibilities among their members, and inadequate financial and accounting procedures. A communication gap appears to exist between CBOs and financing institutions that support development projects in the Lake Victoria Basin It was revealed during interviews that most local institutions lacked entrepreneurial skills. Most had no marketing skills and had no proper plans on how to meet their targeted clients and customers. The weak technical capability of CBOs and NGOs operating in the LVB puts significant problems on their access to, and dissemination of, natural resources information.

districts visited, and particularly those away from the three major urban centres (Mwanza, Bukoba and Musoma) are short-staffed in several key technical areas, and with more work being expected of the remaining staff (e.g. through TASAF and other projects) the shortages were severely affecting work in several areas. The spatial planning framework for the districts so far appeared to be very poorly developed.

Another major area of weakness is in agricultural extension, the agricultural extension officers apparently having been omitted from the initial wave of LGA restructuring and the debates apparently are still continuing on possible privatisation of some if not all of these services.

Consultant's Recommendation:

- The Project should focus on on-the-job training activities covering the main fields, using both national and regional ministry staff and consultants/advisors, as required.
- On the job training should be conducted at the district centre and in the field: the work should have a practical field-bias, and organised in 1-week modules.
- The Project should also focus on practical implementation of irrigation and water-harvesting interventions implemented through Ward and District committees and tied to signed PLUPLA agreements with villagers.

Current systems of funding management mechanisms in the Lake Basin

The big picture with the success of the TASAF model demonstrates the possible impact should LVEMP-2 strengthen its working relationship with the LGAs. Potentially, LGAs would contribute to LVEMP in kind including community development extension staff necessary to make community-based interventions successful, plus contributing office space and facilities. As it has been proposed that PO-RALG should be brought into the fold to handle the community development (micro-project) component at grassroots level, this would help to have a harmonious administrative system. This in-kind contribution should be monetarized to show the value of the input in real terms.

The Fish Levy trust fund

While awaiting for the take off of the FLTF in Lake Victoria, it is suggested that a commensurate contribution of the export royalties and other revenue accruing to the Fisheries Retention scheme be ploughed back to support fisheries activities in the lake.

Lake passenger fee / levy on freight charges

Based on the Polluter-Pays principle, it is proposed that passengers and vessels plying in the Lake should contribute to the lake maintenance fund. This would imply imposing a small levy on passenger tickets and on freight charges for trans-lake shipments. Charges would be commensurate with pollution caused by these ferries and freighters.

An alternative or even additional possibility would be a small additional levy on all fossil-fuel (mainly diesel, kerosene, fuel oil, petrol; butane/propane gas; possibly coal) sold in the LVB proportional to the N and S contents of the fuel. The rationale here is that the major proportion of these pollutants/nutrients would end up in the lake and thereby contribute to the eutrophication problem.

Involvement of Water Undertakers

Based on consultations with all key parties, the Consultants' proposal for involvement of the various water undertakers in LVEMP-2 would embrace the following:

- The project should support the renovation of some sewerage treatment plants in the lakeside municipalities especially in Bukoba and Mara where they are defective and are a source of lake pollution.
- With both of these water undertakers having a modest but long-term source of revenue, costs of these works could be covered as part of the IDA credit for LVEMP-2.
- LVEMP-2 should verify current baseline data for the key parameters of water quality in the vicinity of the three municipalities and set realistic quantitative targets for improvement in water quality for these areas;
- It would be appreciated that capital costs involved in the improvement in water quality from the water undertakers would be financed on soft-loan rather than grant terms. Introduce sustainability issues for this as for the other components need to be introduced at the start of the LVEMP-2 implementation period.

The National and Regional Management and Institutional structures

Sectoral institutions of the EAC countries have their own plans and programs, the harmonization of these plans and programs may be difficult. The best option to tackle such a situation is to rely on the facilitating functions of the coordinating institution like the Lake Victoria Basin Commission. Moreover lack of strong evidence of supernationality is a basic weakness in organisation and regional economic communities.

Generally core institutional problems include :

- Poor inter-sectoral coordination;
- Poor linkages between local and national government;
- Weak and unclear institutional linkages;
- Poor institutional culture, conflicting mandates and competition;
- Inadequate human and institutional capacity;
- Economic and financial constraints;
- Too much planning, too little implementation;
- Weak enforcement of rules and legislation.

Analysis of Institutional Framework

The Ministry of Water and Ministry of Natural Resources as institutions are expected to the lead in the coordination because other institutions are focused in specific resource development and management like livestock, agriculture, land, minerals and energy, However these ministries (Ministry of Water and Ministry of Natural Resources) are weak institutions in the country are utilized in a sustainable manner.

Local governments (Municipal, district and regional authorities) can play a central role in improved LVB management. They are the bodies closest to the users of the resources of the basin. They have responsibilities for many resource management activities and they also use lake basin resources. They are best placed for facilitating a dialogue directly with basin resource users. Their decisions on land use sold and liquid waste management, transportation, construction and public health all affect water resources.

NGOs and CBOs have an advantage of being more independent of political pressures than formal management agencies and so are well positioned to play an important and frequently leading role in the agenda setting and policy development processes. There is poor coordination between institutions as many of the institutions are engaged in different aspects of the basin. Other problems include: weak human resources, weak material resources, poor scientific and technical equipment; lack of support of local inhabitants and lack of self dependence in operational decision making.

Proposed National Management Structure for LVEMP-2

A Board of Management be at the apex consisting of 6-8 people drawn from permanent secretaries from relevant ministries plus University experts (currently present in research), NGO and Private sector representatives. Below the Board there should be a Technical Advisory Committee comprising 10 – 12 members who are technically competent (experts without political influence). Within the committee there should also members from the Private Sector, NGOs and the Government) Consensus decision making has to be observed by the technical committee Below the technical committee we then have the Project Management Unit like the current National Secretariat. LVEMP 2 Implementation should start by creating awareness to the stakeholders and community at large about management of the LVB and request proposals be made on a demand driven basis

Mechanisms for conflict resolution and peace building

At the national level, the law as it presently stands provides mechanisms for peace building as well as for the resolution of any disputes arising in respect of land use and ownership and the exploitation of other resources. Problems have been as a result of the lack of enforcement of these mechanisms due to insufficient knowledge of or unfamiliarity with them. It must also be understood that there is a limit beyond which communities can actually go to prevent criminal activity without the vigilant intervention of law enforcement agencies. Acts of banditry, piracy and other criminal acts fall into this category. institutions at the community level, for example, the Village Council, BMUs, Village Land Council, etc, which have legal status, need to gain capacity to discharge their functions effectively in order to limit the occurrence of disputes, and to some extent, criminal activity;

Village Councils must be encouraged and assisted in making of by-laws on a variety of matters that affect their lives in a community situation. The making of model by-laws by the Minister or the district councils for adoption as appropriate by the Village Councils would assist this process. The recommendation is that Partner States commence work aimed at putting in place specific rules on States' rights and obligations *inter se*, addressing the issues which lie behind the conflicts. For example, States' claims of the extent of their resource entitlements and the measurement of such entitlements must be defined in order to determine transgressions. Such rules and definitions should be accompanied by an agreed system of monitoring an implementation and compliance plan.

Strategies for involvement of local communities

A number of strategies have been put forward for involving the communities in the wider management of the Basin. Among these include:

- Train, organise and support village institutions;
- Promote and support village banks facilitating access to short-medium term loans at reasonable interest rates
- Promote micro-project planning & management at village / community level

Possible support areas within the Lake Victoria Basin Commission

Management Plans

Fisheries Management – Fish Levy Trust Fund

Review of the Fish Level Trust Fund business plan reveals that it plans to use FLTF revenues to cover a wide range of activities, both within the lake and its immediate environment on the one hand and also for natural resource sustainability in the wider catchment area on the other.

In view of the fact that the FLTF is not yet in operation and that many of the activities being considered for FLTF funding are likely to be covered by grant/soft loan funding under LVEMP-2,

The Consultant is suggesting that the FLTF be implemented in two stages:

- within the next 2-3 years the fund should be introduced, but at a lower rate (say 6-7%)- this would have a more reasonable impact on the fish processors and lakeshore communities;
- the money from the FLTF would go to finance the Fisheries Management component and some of the other lake component activities;
- the remaining activities, which the FLTF would otherwise have covered, would be financed by LVEMP-2 as part of the LVEMP-2 activities (as given in the logframe);
- at the end of the LVEMP-2 period, the FLTF could be reassessed with the possible scenario that it would finance all activities: a higher charge would then be levied to cover this extended role.

Both the fisheries and the water utilities sectors can become self-regulating and self financing in the short to medium term (i.e. within 5 years) as income and revenues from both sectors are considerable. Fisheries levies and taxes should be recycled to support fisheries and lake/water activities of LVEMP (within 5years); the FLTF should be introduced at half the initially-proposed rate (i.e. at 6-7% and not 13%) and should support only fish / lake / water activities (not land-based activities); BMU reform should be handled cautiously and introduced firstly in those areas where BMUs are not working or working only poorly: step-by-step the reform can then be extended to other BMUs.

Water Undertakers are currently losing around half of their supplies through leakages and water theft. Current proposals exist to tackle this problem stage-by-stage over an extended period. Again this could be accelerated, given external resources. Both installation of sewerage lines and extending the current water supply area could be financed under the World Bank loan, as in both cases increased revenues would accrue which would be sufficient to pay back the loan over a long (say 25-year) period.

Proposal LVEMP- 2 to work with water undertakers to come up with detailed business plans which would accelerate development in these two areas (water supply and sewerage). In the case of treatment of drainage effluent and sewerage sludge the feasibility of irrigated / fertilised fuel wood plantations to be run in conjunction with the sewerage treatment need to be investigated.

Proposed LVEMP-2 activities would have a dual thrust. The first thrust would be on continuation with lake / fisheries / water activities but with the objective that these be mainly self-sustaining within a relatively short period (say 5-years). Fisheries in the lake and the water utilities are already have a large annual turnover and the fisheries sector in particular is generating a significant tax revenue. The principle that this revenue should stay in the Lake region to finance the necessary fisheries/lake/environmental programme has been widely accepted. Introduction of the Fish Levy Trust Fund would further extend activities on this front. Also, the water utilities need both to continue

with their planned programmes to reduce / treat sewerage, extend water supply coverage, reduce leakages and increase overall revenue without increasing water rates. Soft-loan finance to undertake this latter programme should be made available, as, extrapolating current projections, cash flows in 5-15 years time would be sufficient to pay back these loans while the environmental benefits from this investment would be achieved very quickly in the LVEMP-2 project period. The transport sector – particularly the lake transport – is contributing to lake pollution and thus should be paying a small fee to help clean-up the lake: a small levy on passenger tickets, freight charges and fossil fuels should be considered in order to do this.

The second thrust would be on trying to make a much bigger impact on the terrestrial land / water / forestry sector, dealing with large numbers of very poor farming (and fishing) communities who at the moment are barely surviving in subsistence agriculture by mining the soil nutrients on the land but contributing to the eutrophication problems in the river and lake water. This continuing downward spiral of land degradation needs to be broken so that the communities can both have a much better life and at the same time put less environmental pressures on the lake and lake catchment resources. This part of LVEMP-2 would have to be covered by aid-finance (grant and soft-loan) as risks are relatively high and pay-back periods (particularly for forestry activities) are long and possibilities for generating tax revenue here not very good.

An initial draft of the *Proposed Project Logframe* which deals with all the activities to be covered under this 'second thrust' has been completed, and is presented with this report. The logframe has the overall objective:
'Quality of life for all communities within the Lake Victoria Basin is improved, reducing the environmental and economic pressures on the Lake and the near-Lake ecosystems.'

The *Specific Objective / Project Purpose* can further be detailed:
'Poverty reduced by one-third in the target villages and urban communities through four key development strategies whist conserving the lake and the surrounding ecosystems.'

Seven *Specific Outputs / Results* are defined:

1. Primary food security obtained;
2. Net incomes from farm and non-farm activities increased;
3. Catchment forests conserved: natural forest areas protected, woodlots and other forest plantations extended;
4. Lake environment and near-lake areas (including wetlands) conserved, and linked economic incentives provided to adjacent communities;
5. Urban lake environment improved and linked economic incentives provided to adjacent communities;
6. Improved capability of village (and neighbourhood urban) institutions, CBOs, NGOs, to promote and support village (and neighbourhood urban) development, and to other activities enhancing the environmental status;
7. Improved capability and infrastructure of the offices of the LVB, the National, Regional and District Administrations to support village (and neighbourhood urban) development, integrated watershed and environmental management interventions, and to other activities enhancing the environmental status of the Lake and the near-Lake areas.

Thirty-seven activities to achieve these results / outputs have been outlined, together with a first attempt at devising objectively verifiable Indicators (OVIs) for these.

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

Institutions are at the core of Lake Basin management. They administer the laws (and sometimes establish the policies and rules and incentives) for management of the resources. They provide a forum for involving those affected by Lake Basin management and for resolving conflicts. Furthermore, they collect and store knowledge for action and they are sutained by finances obtained from local, national and international sources. World Bank (2005) defines institutions as organizatios for persuing the collective aims of a group. They include traditional organizations such as village committees or fisheries groups, NGOs- often representing marginalized groups, private sector organizations such as industry associations as well as formal government-sunctioned organizations such as department of fisheries. Generally Lake Basin institutions are characterised by different functions which include:

- Resource development- to exploit the resources offered by a lake such as fisheries organizations and irrigation groups.
- Service delivery- to promote development in a lake basin by providing basic underlying services such as water supply, sewage collection and disposal and transportation links.
- Regulation- to ensure that the lake's resources are shared equitably or protected from extenalities. They are usually sectoral and can be formed specifically for a lake – such as the Lake Victoria fisheries organization- or be national regulatory organizations (such as Energy and Water Utilities Regulatory Authority (EWURA)) which regulates Petroleum, Natural Gas , Electricity , Water and Sewerage.
- Advisory- to recommend causes of action to the government at a variety of levels.
- Coordination- to promote coherent action across the diverse sectors and jurisdictions involved in lake basin, where there is no overhatching authority, and they need to coordinate across nations as well as across sectors

SMEC International Pty Ltd (SMEC) therefore was commissioned by the Ministry of Water, Lake Victoria Environmental Management Project (LVEMP - the Client), to undertake consultancy services for Preparation of a National / Regional Management Framework: Institutional Component, for the Lake Victoria Basin (Tanzania) (the Project).

1.2 BACKGROUND

1.2.1 The Lake Victoria Basin

Lake Victoria (the Lake) is Africa's largest and the world's second largest freshwater lake. It is one of the most important shared natural resources of Eastern Africa, contained within the borders of three East African Community (EAC) Partner States; Kenya, Tanzania and Uganda. The Lake itself covers 68,870 square kilometres (km^2) and has a catchment area of approximately 180,950 km^2 (LVDP, 2006) (see Figure 1). Approximately 51 percent (35,088 km^2) of the Lake and 44% of the catchment area falls within Tanzania's jurisdiction.

As a socio-economic resource, the Lake and its Basin (the LVB) have critical importance to the region's society and economy as a source of food, potable water, transportation, agricultural water and products, power production, tourism, and mineral products. The gross annual economic product of the LVB was estimated by the Lake Victoria Development Programme (LVDP, 2006) to be in the order of US$5 billion. As such, the EAC has designated Lake Victoria and its Basin as an 'area of common economic interest' and a 'regional economic growth zone' to be developed jointly by the Partner States.

The Lake contains the world's largest freshwater fishery with production estimated at 400,000 to 500,000 metric tonnes per year worth up to an estimated US$600 million per annum, between US$240 to 480 million of this as revenue to the Lake community (LVFO, 2006). Tanzania harvests around 40% of the total fish production. The

Lake is also an ecologically sensitive and important biodiversity zone, providing habitat for 350 endemic species of fish.

The economic potential of the LVB has led to rapid population growth. The LVB supports around 30 million people and with a population growth rate of roughly six percent per annum, is the most rapidly growing geographic sector in the Partner States. The resulting increase in rural population, together with rapid urbanisation and industrialisation has led to poverty among LVB communities, poorly regulated development, and environmental and natural resource degradation

1.2.2 The Lake Victoria Environmental Management Project

Joint management of Lake Victoria and its Basin as a shared ecosystem gained momentum following conclusion of the Rio Earth Summit in 1992. The Lake Victoria Environmental Management Project (LVEMP) was prepared and implemented under a Tripartite Agreement in 1994, as part of this initiative.

The overall objective of LVEMP was *"A stable Lake Victoria ecosystem capable of meeting demand for food, income, safe water, employment, disease-free environment and a conserved biodiversity"*. The Project featured a number of different but integrated components and was conceived as a means to:

(a) maximise sustainable economic and social benefits to riparian communities;
(b) conserve biodiversity and genetic resources for the benefit for the benefit of riparian communities and the global community; and
(c) harmonise the riparian states' management programmes in order to achieve to the maximum extent possible, the above-stated common goals and the reversal of the increasing environmental degradation.

In 2001, the Lake Victoria Development Programme (LVDP) was established by the EAC Secretariat, and in late 2003, the Protocol for Sustainable Development of Lake Victoria Basin (the Protocol) was brought into force. This Protocol was developed in recognition of the need for co-ordinated management approaches to LVEMP, which are essential for strengthening policy implementation for the achievement of the Partner States' shared goals for the LVB. The Protocol provides for the legal and institutional framework for the LVB as well as for establishment of the Lake Victoria Basin Commission (LVBC) as a body for the regional management of the entire basin. Establishment of the LVBC can be seen as having set the tone for taking steps at the national level to support and facilitate the strengthening of the implementation of the objectives of LVEMP.

In 2004, the EAC Council of Ministers adopted the Vision and Strategy Framework for Management and Development of Lake Victoria Basin (the Vision and Strategy Framework) and recommended its use as a planning tool by all LVB stakeholders. The Vision and Strategy Framework defined five main policy areas, and for each of these devised key sector strategies or cross-cutting strategies. For some, but not all, of these Indicators (OVIs) were devised although no quantitative targets were put on these at that stage. The five main policy areas were:

- Ecosystems, Natural Resources and the Environment;
- Production and Income Generation;
- Living Conditions and Quality of Life;
- Population and Demography;
- Governance, Institutions and Policies.

LVEMP Phase 1 (LVEMP-1) and other bilateral efforts developed significant knowledge and technical capacity in the national agencies to enable assessment of the environmental stresses confronting the lake and its catchment. Implementation of the LVEMP-1 resulted in improved ability in the riparian States to embark on a long-term programme of resource management and environmental improvement, including capacity building. Significant progress has been made, particularly in the areas of fisheries management, weed and noxious species reduction, water quality improvement, and multi-sectoral studies.

It was recognised however, that additional research on key issues is needed in order to further prioritise actions and set objectives for management of the Basin and its resources. Of particular relevance to the Project, is the Vision and Strategy's call for harmonisation of national policies and legal frameworks, decentralisation and devolution of power, development of mechanisms for conflict resolution, poverty reduction, and capacity strengthening of local communities, organisations and institutions.

As a result of the establishment of East African Community and subsequent materialisation of an East African Development Strategy (2001-2005), the Basin was designated as a regional economic growth zone. The identification of Lake Victoria Environmental Management Project phase two (LVEMP-2) was done through a process involving review of the performance of LVEMP-1 and through development of the Vision and Strategy

Framework. LVEMP-2 was officially launched in January 2005 during a Regional Stakeholders Concept Workshop. The Workshop identified three priority areas of focus for LVEMP-2 as:

- Applied research
- Strengthening of the national and regional management framework; and
- Sustainable socio-economic growth.

Eight individual consultancies have been established in each Partner State to address the priority areas identified for LVEMP-2 (see Annex A for list of all consultancies). This Consultancy focuses on the second of these priority areas. The aim of the management programme is strengthen the capacity for management of the shared Basin resources with a view to enhancing sustainable utilisation of natural resources by building capacity at the LVBC, and at national and local authorities. The management agenda will also promote an environmentally friendly market driven growth strategy approach by engaging the private and public sector. This report outlines the approach and resources that will be applied to achieve these objectives.

1.2.3 Project Objectives

The overarching objective of this Project is to assist the EAC to design the LVEMP-2 based on empirical findings and results learned from LVEMP-I and other interventions so as to improve and achieve sustainable management and shared utilisation of natural resources in the LVB.

Specific objectives, as relevant to the nominated priority area, are identified in the TOR as:

1. development of a policy, legal and institutional framework for sustainable natural resources management;
2. development of a strategy for strengthening capacity of local communities, NGOs, CBOs and other institutions on management and utilisation of the shared Lake Victoria Basin resources; and
3. development of a strategy for promoting environmentally friendly economic growth by engaging the private and public sector.

1.2.4 Scope and Structure of This Report

This report has the following structure:

Chapter 1: *Introduction.* This Section outlines the background, context and objectives of the Project.

Chapter 2: *Study Methodology and Timing.* This section details the methodology followed by the Team, their activities schedule, the literature reviewed, the stakeholders consulted, and the initial findings determining further stages of the work programme.

Chapter 3: *Review of Existing Policies, Regulations and Laws on Natural Resources Management. Under this chapter two frameworks are addressed i.e. Policy Framework and Legal Framework*

Policy Framework. This outlines the current Policy Framework and reviews existing policies; it then analyses the relationship between the existing policy framework and the proposed LVEMP draft logframe; it undertakes an institutional analysis covering all levels from coordinating ministries through LGAs to local communities; and lastly it makes suggestions for changes and refinements to existing policies.

Legal Framework . This section reviews existing laws and regulations as they affect the management of the LVB;

Chapter 4: Provides an assesment of the status, management structures and funding of the local community organizations in the Lake Basin and propose ways of involvement of the organizations in the wider management of the basin.

Chapter 5: Under this chapter a review of the current systems of funding management mechanisms in the Lake Basin including is done and methods of improvement are proposed at the end .

Chapter 6: Under this chapter a review of the existing National and Regional Management structures is preseted which enables identification of strengths, weaknesses and gaps. An analysis of the institutional structure defined in the Lake Victoria Basin Protocol is also provided and proposal for an efficient National Management Structure for sustainable management of Lake Victoria Basin resources is provided.

Chapter 7: Deals with development of institutional mechanisms for conflict resolution and peace building both at the national and transboundary.

Chapter 8: Proposes a plan to implement the strategies for involvement of local communities in natural resources management as provided in the Vision and Strategy Framework for Management and Development of Lake Victoria Basin.

Chapter 9: Propose possible support areas within the Lake Victoria Basin Commission that would require strengthening during the project implementation phase.

Chapter 10: *Management Plans.* This section deals with management proposals for the different sub-sectors and groups of activities. watershed management planning to be undertaken at local level, and linking this with practical implementation at field level. A draft project logframe is devised.

Annexes A-K: Annexes covering Consultation with the many Key Stakeholders; PRA Exercises with Key Stakeholders; Annotated Bibliography; Comparative Economic Analyses of some major Proposed Rural Land Use Interventions; Proposed Project Logframe; Consultants' Terms of Reference; Written Comments from Stakeholder's Workshop.

CHAPTER 2: STUDY METHODOLOGY AND TIMING

2.1 INTRODUCTION

2.1.1 Background

At the time the TOR was prepared and circulated, it was planned that this Consultancy would take place over a six month period commencing in October 2005. The originally proposed timeframe, Project Team and Work Plan were presented in the Technical Proposal for the Project, which was submitted on 29th July 2005.

Due to grant constraints and unforeseen delays in awarding the Project Contract, the timeframe for the Project was significantly shortened to just under a 3.5 month period from Project mobilisation to completion of the Final National Report. This timeframe was further complicated by the need to substitute key members of the Project Team (see Section 2.1.2.). Thus, there was a need to review the identified Project deliverables, outputs and tasks with a view to appropriately modifying the approach, methods and activities to be undertaken to achieve the Project Objectives.

After discussions with the Client's representative in Dar es Salaam in late June, 2006, and further discussions during the National Stakeholder Workshop in Mwanza in early August, a revised schedule for submission of deliverables and outputs was agreed as presented in Table 2.1.

Table 2.1: Revised Submission and Workshop Timetable

Deliverable	Due Date / Participation Period[1]
Inception Report	21st June 2006
Inception Stakeholder Workshop	26th to 28th June 2006 (Institutional Component presentation on 27th June)
Mid-Term Report / Preliminary Draft National Report	31st July 2006
National Stakeholder Workshop	7th to 9th August 2006 (Institutional Component presentation on 8th August)
Revised Mid-Term Report	31st August, 2006
Final Draft National Report	End-September/ early October
National Stakeholder Workshop	30th October – 1st November
Input to Regional Report	Early November
Regional Stakeholder Workshop	Early December

2.1.2 Revised Staffing Schedule

Unexpected difficulties were encountered by the Consultant during the Project mobilisation phase. The delay in Project commencement, from October 2005 to May 2006, necessitated substitution of some of the team members nominated in the Technical Proposal, most notably, the Project Team Leader. Replacement Team Members were selected on the basis of their qualifications and experience, and are considered to be equally or better suited to meeting Project objectives. The new Project Team Leader, Dr Hatten, has worked earlier on LVEMP, having been involved with land use planning and management issues for the World Bank LVEMP-2 project pre-preparation

missions to both Tanzania and Uganda in 2001-2002. He has had extensive experience worldwide in land and environmental management projects, particularly those involving poor smallholder farmers.

The revised Project staffing schedule is presented in Table 2.2 and is fundamentally the same as presented in the Inception report on 21st June, 2006. In addition to the professional staff listed below, the Project has also engaged technical and support staff to assist the Project Team with administrative and logistical tasks. Most notably this has included the input of Ms Anu Datta, an experienced Environmental Scientist from SMEC's Head Office in Australia, who has had the major tasks of coordination for the Inception Phase of the Study and of the production of the Inception Report. Ms Datta mobilised on 13th June and worked together with Dr Hatten during the Mwanza workshop and early stages of the of the field work period, ending her input on the project on 6th July.

Table 2.2 : Project Staffing Schedule

Name	Position	Entry-on-Duty	End-of-Assignment[2]	Remark
Dr Christopher Hatten[3]	Team Leader / Environmental & Natural Resources Management Specialist	23 June 2006	15 September 2006	
Dr Priscilla Madzonga	Legal Specialist	14 June 2006	21 August 2006	Part-time position of one month over the Project duration
Dr Suma Kaare	Policy Specialist	15 June 2006	21 August 2006	Part-time position of one month over the Project duration
Mr Hebron Mwakalinga / Mr John Kossima[4]	Business Administration / Management Specialist	14 / 25 June 2006	21 August 2006	
Dr Japhet J. Kashaigili	Natural Resources and Community Participation Specialist	16 June 2006	21 August 2006	

The three long-term consultants (the Team Leader, the Management Specialist, and the Natural Resources and Community Participation Specialist) undertook intensive fieldwork in the LVB during the period 24th June – 18th July and attended the Stakeholder Workshop in Mwanza on 26th to 28th June. The core team spent 8 working days together in the Mwanza region, and six days each in the Mara and the Kagera regions. They were joined by the Legal Specialist in the LVB for the period 11th to 15th July. The Team Leader and the Legal Specialist returned to Dar es Salaam on 16th July, followed by the other two specialists on 19th July. The Activity and Staffing Schedules for this and following periods are shown in Figure 2.1.

2.1.3 Project Outputs and Deliverables

Project Deliverables

The Project deliverables as called for in the TOR are as follows:

- Inception Report;

[2] The date for submission of the Final National Report had been stipulated by the Client as 21 August. .
[3] Dr Hatten was identified as a suitable replacement Team Leader in early June 2006. A formal request has been submitted to the Client for his substitution as Team Leader.
[4] Mr Mwakalinga was nominated by Mr Kossima to participate in Project activities on his behalf until he could join the Team.

- Draft Final National Report; and
- Final National Report.

This report is a revision to the Draft Mid-Term Report which was completed on 1st August, 2006 and presented to the further Stakeholder Workshop on 8th August. The participants brought up a large number of comments and criticisms on this earlier report, and this Revised Draft Final National Report seeks to address these. The fundamental problem was that there was insufficient time between the end of the Stakeholder (Inception Report) Workshop on 28th June and the date of delivery of the Draft Final National Report on 1st August for all the necessary work to be completed as thoroughly as was required. This included fieldwork in the three regions (which the Consultants were careful to do thoroughly), meetings with further key stakeholders in Dar es Salaam, analysis and team discussions on the data collected, further clarifications from stakeholders on outstanding issues, and writing and compilation of the report. It was also clear that many of the Stakeholders had not read the report as it was not circulated to them until just before the workshop.

The Draft Final Report which incorporated comments from the client was submitted in November 2006 and the Final Report in January 2007.

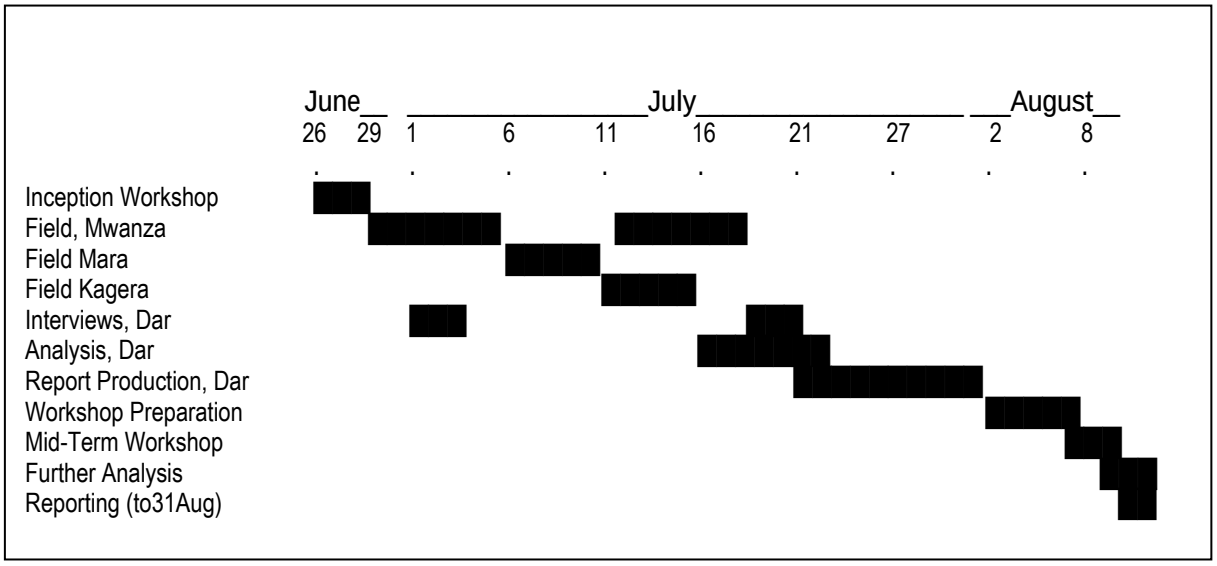

Figure 2.1. Activities and Staffing Schedules: National Report (Mid-Term)

i Project Outputs

Project Outputs are defined as those tools that will be developed as a result of Project activities to achieve the overarching Objective of the Consultancy. The following Project Outputs have been identified following a review of the TOR and discussions with the Client.

Figure 2.2 shows the linkages between Project Deliverables and Outputs.

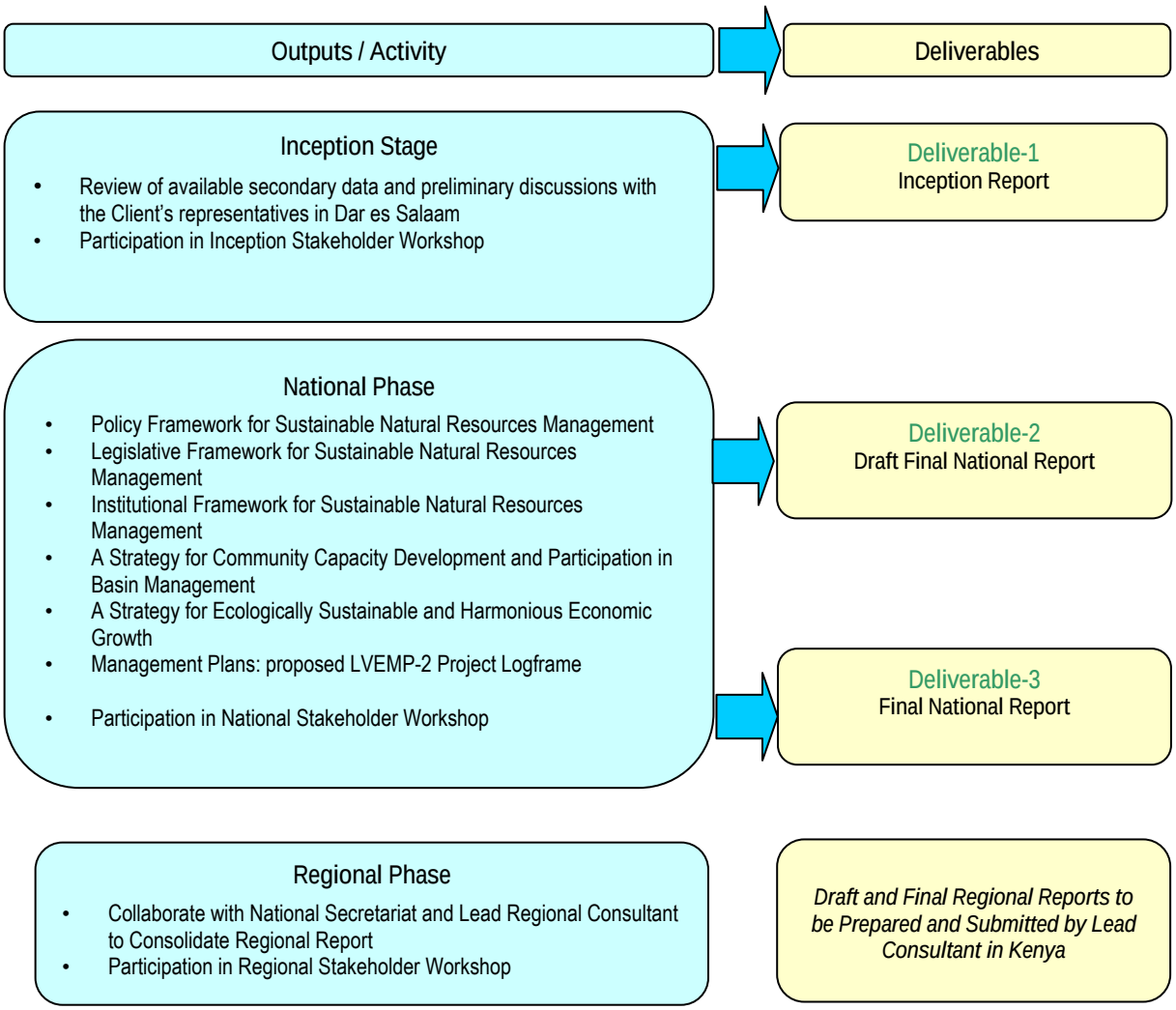

Figure 2.2: Summary of Outputs and Deliverables

2.2 WORK METHODOLOGY

2.2.1 Stakeholder Workshop at Mwanza, 26-28 June, 2006

The Consultants attended the full period of the Stakeholder Workshop held at the BoT institute premises in Mwanza, during which six of the eight components gave their inception (and in one case a draft final) report presentations. The Consultants gave their presentation during the afternoon of 27th June. They found this exercise to be valuable on a number of fronts:

- ideas on areas of work which LVEMP-2 should get involved in: integrated watershed management (water and land management); more of an emphasis on work at the district level; lessons of TASAF; more of a land and agricultural focus; more on poverty alleviation (MKUKUTA);
- current problems with the BMUs and what can be done to rectify these; directives from the EAC on trans-basin approaches on this;

- recommendations were made with respect to further information and data to be acquired and reviewed, and people and organisations that should be contacted;
- several of the presentations of the other components were interesting and valuable in their own right, most notably parts of the completed draft report on Transboundary Diagnostic Analysis (BICO) with excellent information on environmental institutions, on public and stakeholder consultation, and on many aspects of water quality;
- a large number of stakeholders were present and the different members of the Consultants' team were able to meet and discuss with these individuals key aspects of their own work (further follow-up visits were made to many of these staff in the subsequent field period).

Major items brought up in the Stakeholder workshop included:

- the problems of gender and positive recommendations being made to address these (e.g. womens' representation on village groups and women's veto on financial matters at village level);
- introduction to dynamic womens' groups in the field (subsequent visit being made by the team to the Nyerero Womens' Group in Tarime);
- the importance of local knowledge; and the importance of publicity materials, and the requirement to produce these in user-friendly language.
- introductions to representatives of key NGO groups;
- information on on-going and forthcoming projects in the field (FAO Kagera River basin; Mara River);
- current state of operations on several of the LVEMP components in the current transition period, and aspirations of the current component staff.

2.2.2 Stakeholder Workshop at Mwanza, 7-9 August, 2006

The Consultants attended all the sessions of the Stakeholder Workshop held to discuss the Mid-Term reports for six of the components, and made their own presentation to the participants in the afternoon of 8th August. The presentation largely followed the format of the report, but included some further analysis and data. Most notably, the four key development strategies were outlined:

- the need to address poverty alleviation in the rural communities as a central issue and have more of a focus on the land;
- the need to involve the local communities to the maximum extent possible, taking a bottom-up approach and undertaking implementation activities according to the TASAF model which is largely very successful;
- however, (unlike TASAF) to focus on green income generating activities (such as water harvesting, irrigation, and reafforestation) rather than activities with a social function such as dispensaries, clinics, schools;
- in order that water harvesting and irrigation investments be sustainable, they had to be planned on a watershed (catchment) management basis – this necessitates participatory land use planning and land allocation at village / subcatchment level, reafforestation and erosion control, and greater security of land tenure.

The Consultants emphasised that they were severely affected by the time constraint: only 5 weeks had passed since the Inception Workshop, and three of these weeks had had to be spent in the field undertaking the essential consultations with the key stakeholders in the three lake-side Regions.

However, it was also clear that many of the participants had not received the report early enough to read it sufficiently thoroughly to make considered suggestions, and large parts of the report which had already benefited from considerable thought and discussion, received no significant comment in the workshop. Conversely, parts of the work making up only a small fraction of the TOR received much negative comment. Participants were also considering the report from their own particular perspective, leaving out the essential discussion on the larger issues. The participants were also not really representative of the true balance of the stakeholders: i.e. people trying to make a living at grass-roots level, or people directly dealing with these grass-roots individuals. Most notably, representation from the LGAs, particularly the rural districts appeared to be absent from the workshop: this was curious, considering that both the Government Policy and the EAC's Protocol emphasise the increasing importance in the Government's decentralisation programme.

Nevertheless, it was clear that the report showed a number of major deficiencies plus a large number of minor or very minor points of issue. The major deficiency was the TOR (and the structure of the TOR) did not come out clearly enough in the report. Most notably, the strategy for strengthening the local communities, NGOs, CBOs on the management and utilization of the LVB resources was deemed to be deficient as was the institutional analysis. The Consultants have now sought to deal with these and other major comments in the present (revised) report.

2.2.3 Review of Maps, data, Air and satellite photography and importance to LVEMP-2

Maps and data for the area were viewed and studied. These included:

- ArcView (GIS) coverages of the Basin available through two of the LVEMP-1 components; these cover the major themes of towns and settlements; roads (of various classes); rivers and seasonal streams; land use and land cover (various classifications of various dates); major soil types; soil erodibility; gradients; erosion hazard (the Consultants have the specific GIS software required to inspect and analyse these coverages).

- topographical maps (1:50,000 of the early 1990s, contour interval 50feet); detailed maps for selected areas at 1:10,000 and 1:2,500 scale;

- recent satellite imagery (enlargeable up to about 1:65,000 - 1:100,000 scale) covering the entire basin and now available over the internet (*GoogleEarth*) (JPEG images have been extracted from this covering most of the area and are included on the CD containing the soft-copy version of the Final National Report; see the file LVsatIndex1.JPEG for a location map for this imagery);

- recent air photography at very detailed scale (enlargeable up to about 1:5,000) covering most of the western part of Mara Region (also available under *GoogleEarth*) (This imagery is sufficiently detailed for the analysis required for the initial mapwork stages of watershed management work, particularly where good DTM (digital terrain model) data is also available, as is the case for the Mara Region coverage);

- climate, especially rainfall data (particularly that for the last 16years, with analysis carried out on a daily basis: Annex G presents graphically data representing the period 1972-87 for Sengerema, some 30km to the SW of Mwanza City and most representative of large parts of the Tanzanian LVB; also presented is data for 1980-93 for Tarime, in the NE of the Project Area near the Kenya border, at a higher elevation and with a more favourable agroclimate);

GPS points were taken of all places visited in the field. A small selection of this information is given in the Annexes to this (Draft) Report: all of this information will be presented on a CD for the Final Report.

As a result of this analysis together with the ground-truthing undertaken, the Consultants consider that they now have a good understanding of the problems and potential of the 11.5m ha area of the Lake Basin, in spite of the very short time afforded by the Study. Central to the problems and potential of the area is the limitation imposed by rather low and very erratic rainfall, most of the area showing mean annual rainfall of between 700 – 1000mm with a long dry season (end-May to mid-October) plus a short dry season also in January-February. Dry periods are made worse by soils which are limited in rootable depth (shallow soils above bedrock, or more commonly soils with hardpan at a relatively shallow depth), poor structural stability (making the soils more erodible and less easy to cultivate), and relatively low infiltration rates. For the SE of the LVB drought conditions are made worse by higher potential evapotranspiration rates (see *Water Master Plan, 1978*, reviewed in Annex E). Also a major limiting factor is the continued 'mining' of the soil fertility by the large numbers of impoverished smallholder farmers, as very little additions of fertiliser nutrients are made. Most limiting is nitrogen (N), but the consultants also saw severe deficiency symptoms of other elements. The irony for the LVB is that there is too much nutrient in the Lake, but far too little on the Land.

Nevertheless, significant untapped potential clearly exists in the LVB, particularly for interventions in irrigation, rainfall harvesting, and many aspects of forestry. For higher rainfall areas (notably the Lake-fringe areas in Bokoba

and the Tarime highlands) excellent agro-climates are observed and there is great potential for much-increased rainfed agricultural production. Financial and economic data concerning proposed land interventions were also obtained by the consultants and analysed to show projected cash-flow, IRRs etc: this covered irrigation, forestry and agro-forestry activities (see Annex H: *Comparative Analysis of Proposed Rural Land Use Interventions*). Attention now needs to be given to provision and rational use of agricultural inputs and agricultural extension services, particularly in these relatively favoured areas.

2.2.4 Review of Literature

Due to compression of the time allowed for the study the Consultants had to limit their time on review of literature of relevance to the project. This has been very unfortunate as both the quantity and the quality of the literature available on Lake Victoria has been excellent, and is one of the many very positive features to come out of the LVEMP-1 work. The interchange of information between staff of the three countries, much of this through the EAC, has also been a very positive feature, as have the many contacts with research institutes, universities and major international consultancy groups in the outside World. Of further note has been the excellent and very complete LVEMP library and the free access the Team has had to this large repository of information.

Nevertheless, in spite of the short time, the consultants have managed to review most of the major documents available. Of particular note is the *Implementation Completion Report* (ICR-December, 2005) and the series of 'Lessons Learned' reports for each of the LVEMP-1 components, most of which, although fairly critical in some areas, made very positive recommendations for LVEMP-2, and most of these the Consultants are taking on board in their recommendations made in this report. An annotated bibliography is given in Annex E.

Another key reference is the *Institutional and Legal Framework for Environmental Management Project (ILFEMP), March 2000*, for which a team of several specialists was fielded over a period of some 18months and produced a very thorough coverage of the subject. Since that time the parent legislation, the Environment Management Act (2004) has come into force, and the District administrations have become more developed and mature, but essentially everything said in this report still holds true today and is of direct relevance and importance to the present study. Of interest is the requirement for technical staff and functions at all levels (going down to Ward and Village levels). LVEMP-2 needs to work very closely with these Environmental Management Officers and, after appropriate further training and capacity building, to use them and other technical staff in related disciplines in order to undertake the integrated watershed management work (including most notably PLUPLA) at subcatchment level.

Also important have been several of the EAC Secretariat documents which have embraced the work of the three countries. Most notable here is the *'Vision and Strategy Framework for the Management of the Lake Victoria Basin'* the most important information in which is abstracted in tabular format and given in Annex F. Also notable is the *Protocol for Sustainable Development of Lake Victoria Basin, 2004*, which emphasises the requirement for sustainable utilisation and management of the natural resources of the basin. This development focus also extends to irrigation, '*development* and management of wetlands', and negotiation (the three LVB countries) with the lower-Nile countries 'as a bloc'.

The Consultants, through their association with earlier work in LVEMP, are also familiar with some of the work undertaken on the same LVEMP components in Uganda, where distances are shorter and transport and logistics are generally easier than in Tanzania, and where some aspects of decentralisation had progressed further than in Tanzania. Of particular note has been the Ugandan work on the Wetland Component, and on the Soil and Water Management Component undertaken during LVEMP-1 under the direction of Dr Matthias Magunda. Uganda was also strong on certain publicity aspects (LVEMP newsletters and Wetland publications being particularly notable), as well as being home to the major centre for fisheries research (at Jinja).

2.2.5 Fieldwork in the LVB and Stakeholder Consultations

The Consultants core team undertook fieldwork based in Mwanza region over the period 24th June to 5th July and also between 16th – 19th July; in Mara region from 6th – 10th July and in Kagera region from 11th – 15th July (see

Figure 2.1). A total of 65 consultant-days were spent in this intensive fieldwork involving six of the team members. More than 40 groups were consulted over the course of the study, and many of these involved repeat visits to obtain more data or to re-check information, second visits very frequently giving a new insight into a particular aspect of the Study.

During the consultations the consultants were accompanied by technical guides who were specially recruited for their knowledge of the three Regions. All three were experienced graduate / post-graduate staff and knew their technical subjects, the LVEMP project, and their respective field areas very well. These staff accompanied the team for meetings with villagers, and they also took part in the various individual groups in the PRA exercises.

A large number of stakeholders were consulted by the team, these stakeholders representing a very diverse spectrum of interests. These included:

- private business people and entrepreneurs;
- water undertakers and large private companies (Kagera Sugar and Fish Processors);
- business associations (TCCIA and affiliates);
- staff of the Lake Victoria Basin Water Office and the Regional Centres;
- District Administrative and Technical Staff in eight districts (Mwanza City, Magu and Sengerema in Mwanza Region; Musoma Rural and Bunda in Musoma Region; and Bukoba Rural, Bukoba Municipal and Muleba in Kagera Region);
- many smallholder farmers, irrigators, BMU members and other fishermen, village headmen, NGOs, as well as many staff of the LVEMP-1 Project.

The consultants are very grateful to these many individuals for their time and views: many staff were approached at little or no notice yet were prepared to discuss the project and the related issues. A summary of the discussion with the groups consulted is given in Annex C, *Consultation with Key Stakeholders*).

Of particular note were the in-depth PRA consultation exercises undertaken with village groups in the field (see Annex D, *PRA Exercises with Key Stakeholders*). These comprised two BMU groups; two irrigation groups; two forestry / reafforestation groups, one of the latter also being a women's organisation undertaking also a wide range of income-generating micro-projects.

2.2.6 Consultations in Dar es Salaam

Again the time available for consultations in Dar es Salaam was very short but between themselves the Consultants' team was able to meet with staff of the Ministry of Agriculture, the Ministry of Water, and the Fisheries Department, in all cases more than one visit being made.

Ministry of Agriculture: Possible interface with LVEMP-2 activities: District Agricultural Sector Investment Project (for the Lake Zone); District Agricultural Development Plans (DADP); Soil and Water Conservation Project.

Ministry of Water: institutional aspects: possible future position of LVEMP in relation to the LV Basin Water Office; position of the Coordinator in relation to the Focal Point, the Ministry of Water and other Ministries; proposed reporting procedures for LVEMP-2; ideas on creation of a Mwanza base for all operations (ideally in the same large compound);
Physical data: daily rainfall data and related climatic and hydrological data for the Lake Basin;

Fisheries Department: taxation and levies on fish export, fishermen and fishing boats, and amount of taxation in relation to operational requirements for Lake Victoria fisheries work and related environmental programmes.

CHAPTER 3: REVIEW OF EXISTING POLICIES, LAWS AND REGULATIONS ON NATURAL RESOURCES MANAGEMENT

3.1 POLICY FRAMEWORK

3.1.1 General

This section provides a review of existing policies regulating and impacting environment and management of natural resources in and around Lake Victoria Basin. Environment and natural resources management in and around Lake Victoria is regulated by a plethora of framework and sector specific polices and their implementing institutions. However, this section focuses on review of framework and sector policies which have direct impact on the vision and mission of LVEMP. It also provides recommendations on policy issues which LVEMP can contribute to in order to strengthen the enabling framework for sustainable livelihoods in and around the Lake Victoria Basin.

3.1.2 Review of Existing Policies

The policies are reviewed in relation to the proposed outputs / results of LEVEMP-2 (see Project Logframe).

OUTPUT No 1

Improving Primary Food Security and Increasing Incomes from Farm and Non-Farm Activities

According to the LVEMP-2 the achievement of this result implies having a 20% increase in basic food supply for the 80% of the target population. It also implies increasing by one-third irrigation and water harvesting interventions.

The following are the key policies in achieving the above output :

- The National Land Policy of 1995;
- The National Agricultural and Livestock Policy (1997);
- The Draft Livestock Policy 2005;
- The National Water Policy (2002), and;
- The National Environmental Policy (1997)

The National Land Policy of 1995

This is an important policy providing framework for sustainable land utilization in the country including land around Lake Victoria. The Land policy provides positions to guide land protection, allocation, ownership and use, as well as resolving recurring land conflict problems in the country. The policy provides for Land use plans as key instruments for achieving the policy objectives.

Problem Identified

Despite such positions the reality on the ground around Lake Victoria is different from the policy positions. As such the key policy challenge for achieving the key LVEMP-2 objective of improving food security is that of working in any

area where there is mounting pressure on the land resource given the rapidly expanding population around the Lake Victoria shoreline.

Consultant's recommendation

LVEMP-2 should recognise these policy challenges and prioritise capacity strengthening for land use planning at village and ward levels. However, it is important that the village and ward land use plans are in alignment with the Land Use Plan for Lake Victoria Basin to be developed through the Lake Victoria Basin Office Business Plan. Most essential, therefore, is to form a cadre of technical staff capable of undertaking and supervising these tasks at Basin, District, sub-catchment and village levels.

The National Agricultural and Livestock Policy (NALP 1997)

The provides a good enabling framework for achievement of LVEMP-2 results on promotion of food security around the Lake Victoria Basin. Specifically the following NALP 1997 policy objectives are relevant to LVEMP-2:

- assure food security for the nation, including improving national standards of nutrition;
- improve the well-being of the people whose principle occupation and way of life is based on agriculture and livestock;
- increase foreign exchange earnings;
- producing and supplying raw materials and expanding the role of the sector as a market for industrial outputs; (e) developing and introducing new technologies for land and labour productivity;
- promoting integrated and sustainable use and management of natural resources;
- developing human resources for transforming agriculture and livestock;
- providing support services for enhancing agriculture and promoting access of women and youth to land, credit, education and information.

Problems identified

The main controversial issue around NALP (1997) specifically related to sustainable livelihoods security is that of management of wetlands. While in its main objectives NALP resolves to promote integrated and sustainable use and management of natural resources, the policy remains silent on issues related to use of wetlands for agriculture. This is an area that deserves special attention given the importance of agriculture to the livelihoods of the Lake Communities.

Another potentially controversial issue within NALP is irrigation. While NALP is enthusiastic in promotion of irrigation in agriculture it does not explicitly acknowledge the possible adverse effects of irrigation including shortage and pollution of water from sources which may include Lake Victoria. However, policies concerning irrigation abstractions impinge more on the Ministry responsible for Water rather than that for Agriculture, and the institution for regulating this is the Lake Victoria Basin Water Office (LVBWO).

Consultant's recommendations

- There is a need to improve the agriculture policy to ensure it makes a bold statement against agricultural activities on wetlands which are directly or indirectly of high biodiversity value.
- There is a need for the policy to address adverse effects of irrigation including shortage and pollution of water from sources.

The National Water Policy (NAWAPO, 2002)

The policy focuses on water resources and their use, covering issues of water supply for both rural and urban areas. The Policy also covers general issues of water resources management in Tanzania. The Policy recognizes the fact that Lake Victoria is the world's second largest freshwater lake which is shared by three East African countries.

However, the policy does not talk extensively on the problem of Lake Victoria's water resource depletion, due to the fact that the policy was formulated at a time when the problem of the decline in the lake water level was not pronounced. This decline is now threatening the possibility of using such water for irrigation purposes and threatens to become an increasingly serious issue. In addition, the NAWAPO (2002) mentions irrigation agriculture in a few places like Pangani and Rufiji Basins (where water abstraction is much greater and issues of environmental flows in the rivers more critical), but mentions nothing about abstraction of water (irrigation) for agriculture in Lake Victoria Basin. (Although current irrigation demand is modest, the total of the various irrigation schemes which are contemplated at many diverse locations around the lake and adjacent to rivers are substantial.)

The policy is also silent on other important water related activities and issues that are being undertaken in Lake Victoria Basin. These include fisheries, water pollution and environmental degradation. Like all other policies in Tanzania, NAWAPO clearly articulates an implementation framework for achievement of stated objectives. Specifically the implementation framework for NAWAPO recognizes the role of key stakeholders including the Government, specifically the (nine) Basin Water Offices, and the many water user associations as well as private users. Indeed the roles and responsibilities of the various actors are further elaborated in the subsequent implementation instruments including the draft Water Resource Management Bill. However, the policy does not recognize informal institutions which are very influential in regards to water use decisions in many parts of Tanzania. Studies on other Basins in Tanzania (Sokile et al, 2005), provide evidence of instances where informal and traditional institutions have undermined and or supported the working of formal institutional arrangements for water management[5]. As such it is specifically important that LVEMP-2 recognizes the important role of traditional and informal institutions in utilization of natural resources around the Lake Victoria area. The project can also support a process for recognition and alignment of this influence with formal water institutions as defined in NAWAPO.

Increasing agricultural output and food security are desirable results / outputs. However, to be sustainable this must include environmental considerations.

The National Environment Policy 1997 (NEP)

This is a framework to coordinate all aspects of environmental management in the country. The policy was formulated in 1997 through a consultative process and as such, it represents a broad national consensus on national positions on environment including the definition of priority risks. NEP was formulated to specifically address environment coordination issues with a view to undertake environmental management comprehensively in all sectors and local levels. To ensure effective coordination NEP outlines six priority environmental problems to guide sector and multi-sectoral initiatives towards sustainable environment management in the country. These are:

- land degradation,
- lack of accessible, good quality water for both rural and urban inhabitants;
- environmental pollution;
- loss of wildlife habitats and biodiversity;
- deterioration of aquatic systems and
- deforestation.

The NEP recognizes that agricultural sector must be developed sustainably to ensure food security and eradication of poverty. Accordingly, these can be achieved "through the promotion of production systems, technologies and practices that are environmentally sound". Specifically, the NEP aims at "improvement in water use efficiency in

[5] Sokile, S.C., W. Mwaruvanda, and B. van Koppen, 2005, 'Integrated Water Resource Management in Tanzania: interface between formal and informal institutions', in International workshop on '*African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa*', 26-28 January 2005

irrigation, including control of waterlogging and salinization". As such LVEMP-2 outputs for supporting sustainable food security are in line with NEP's objectives. The parameter of water use efficiency (WUE) is an extremely important concept applying to both irrigated and to rainfed agriculture. As in other water-short parts of the World, knowledge of WUEs can direct water use to where it is most efficient.

Increasing agricultural productivity and production levels has a potential for increasing incomes from farm activities. However, increasing incomes from non-farm activities in Lake Victoria Basin involves improving such activities as fisheries, industrial production, mining and tourism activities. The respective sectoral policies for water, environment, energy, tourism and land use are critical in ensuring the increase in incomes from non-farm activities.

The National Environment Policy (NEP) recognizes the importance of wetlands in Tanzania and the need for their protection. As such the NEP sets the scene for regulating sector specific policies related to sustainable utilization and management of resources. NEP clearly articulates Tanzania's commitment to promote international cooperation, and expand Tanzania's participation and contribution to relevant bilateral, sub-regional, regional, and global organizations and programmes, including implementation of Treaties relevant to wetlands protection such as the RAMSAR Convention on Wetlands.

However, since Tanzania, does not have a specific policy on wetlands, the NEP provisions are not sufficient enough to guarantee uniformity of purpose among various stakeholders in the country. While indeed, the framework legislation for Environmental Management in the country does ensure uniformity of purpose across all sectors impacting on environment and natural resources, it is important that the policy document informing the legal framework does indeed provide overarching positions on wetlands. Note that Uganda has in place a National Wetland Policy which provides positions on wetlands for all actors in the country[6].Already concerns are being raised on conflicting interpretation of wetlands between agriculture, natural resources, water and lands sub-sectors. While natural resources and water treat wetlands as areas needing protection, agriculture treats them as ideal for farm activities, (availability of water and plant nutrients being very much greater than in upland areas with well-drained soils); on the other hand the lands subsector perceives wetlands as hazardous and breeding grounds for diseases. Since there are all these interpretations and the fact that NEP in its present form does not seem to resolve the issues, it is important that a national wetland policy is put in place. The proposed national wetland policy will both clarify the national position on wetlands and harmonize wetlands management regimes within the East African region. It will also demonstrate Tanzania's commitment to implement the RAMSAR Convention on Wetlands.

The National Fisheries Sector Policy and Strategy Statement (1997)

The policy reports that Tanzania's Lake Victoria catch is around 200,000 metric tons or about 27.3% of the 730,000 metric tons of fish that can be harvested from the natural waters in Tanzania. The Policy sees this as a potential major source which can contribute to raising non-farm incomes. It recognizes, however, that there are a number of constraints that need to be addressed if such income increase is to be achieved. One of the constraints specific to Lake Victoria as mentioned by the Policy is "Invasion of noxious aquatic plants especially the water hyacinth in Lake Victoria ". The National Water Policy (2002) too points out that there is proliferation of water hyacinth in Lake Victoria.

OUTPUT No 2:

Catchment Forests Conserved

This result / output of the LVEMP-2 logframe aims at having natural forest areas protected and woodlots and other forest plantations extended in Lake Victoria Basin. Critical to achievement of this therefore is the National Forest

[6] Kasoma, P., 2003., Wetland Research in The Lake Victoria Basin, Uganda Part: Analysis and Synthesis Report, unpublished Research Proposal

Policy (1998), the National Environmental Policy (1997); the Agricultural and Livestock Policy (1997), Wildlife Policy (1998); National Tourism Policy (1999); and the National Land Policy (1997). It is clear, therefore that many stakeholders, sectors and policies are involved in the Lake Victoria Basin and these currently include the Ministry of Water, Ministry of Local Government, CBOs and NGOs, Water User Entities, Local Communities and related sectoral ministries such as Agriculture, Energy and Minerals, Industries and Natural Resources. There is a need in this case to establish an effective coordinating mechanism so as to minimize conflicts in natural resources utilization around LVB.

The need to conserve catchment forests arises because they are important sources of water and subsequently critical for sustainable economic development including agricultural activities, livestock grazing and other non-farm economic activities such as tourism and bee-keeping.

The National Forest Policy (1998)

The National Forest Policy recognizes the importance of catchment forests and has a number of policy statements which, however, mention only in general terms the roles of communities, private sector, local governments and NGOs in ensuring sustainable use and conservation of forests. It is important, however, to note that the efforts to conserve forests including in Lake Victoria Basin are being hampered by the current energy crisis that is facing the country as well as the fact that electricity continues to be unaffordable to most people for cooking purposes. In such a situation these people resort to charcoal and thus continue the depletion of the forest cover. This situation is much worse within an hour's trucking distance of the major towns, and most critical in the area around Mwanza (see satellite imagery as JPEG files on appended CD). Furthermore the situation is likely to continue unless other sources of energy are found which are cheaper. LVEMP-2 has thus prioritised issues of re-forestation specifically focusing on promoting fuel wood plantations with short-cycle trees, to meet the ever increasing demand for biomass energy as well as reduce the pace of deforestation. Fuelwood plantations, densely-planted at around 4,000trees / ha can be grown on a 5-6year cycle, after which they are coppiced and allowed to grow for a further cycle. In some countries such plantations are grown in waste-land areas and irrigated from drainage effluent or digested sewerage sludge which increases growth rates enormously. The leaves of some of these fuelwood species (particularly the high-protein leguminous species) can then be harvested and mixed with straw or low-digestibility grass and fed to cattle as a fattening ration, which further improves the profitability of this integrated enterprise which is a win-win situation in four respects:

- it produces large quantities of fuelwood or charcoal (average of 25-35 cubic metres/ha/year);
- it rehabilitates degraded land, boosting the soil fertility;
- it strips nutrient out of the drainage effluent / sewerage sludge, with any run-off water being relatively nutrient-free;
- it produces low-cost high-protein animal feed.

The challenge for the LVB area is to plan and implement such schemes under a long-term integrated watershed management basis. Planning for new areas of urban expansion could incorporate such systems: incorporating these into existing areas would be more difficult, other than on a small scale.

The National Environmental Policy (1997)

This policy also aims at having "development of sustainable regimes for soil conservation and forest protection". However, since failure to conserve and protect forests is partly a result of increased socio-economic activities then it is important for respective sectoral policies to include these environmental management issues. The National Agricultural and Livestock Policy (1997) has two important policy statements in this area:

(i) "The Government will implement measures which will minimize encroachment in public lands including forests, woodlands, wetlands and pasture"; and
(ii) "the Ministry will intensify plant genetic conservation programmes".

Again, however, the Policy does not mention anything specific to Lake Victoria Basin in this area, although the deforestation problem here is much worse than in most other areas.

The National Land Policy (1997)

The policy has two objectives which are important for conservation of catchment forests. These are

(i) "Ensure that land is put to its most productive use to promote rapid social and economic development of the country";

(ii) "Protect land resources from degradation for sustainable development". The first objects focuses on maximizing land use while the second objective puts a caution which will ensure sustainable development. However, because of the increasing prices for firewood/charcoal and for timber, we are rapidly reaching the stage where higher returns can be obtained from short-cycle fuelwood plantations than from annual cash crops such as cotton. In this case the most productive use will now be fuelwood and not cotton, and this will have a further beneficial impact on the lake.

National Tourism Policy (1999).

This policy recognises the importance of protecting environment including conserving catchment forests.The policy presents two policy strategies which are relevant here,

(i) 'To monitor and review environmental protection measures" and

(ii) "To ensure that laws and regulations governing land use along the coast, rivers and lakes are strictly observed'. The strategies need to be extended to Lake Victoria Basin. It is apparent that several policies do recognize and consider issues of conserving catchment forests. However, coordination is important if the various policies are to have an impact in achieving this output / result of LVEMP-2.

OUTPUT No 3

Lake Environment including Urban Lake Environment and Near Lake areas are Conserved and provided Economic Incentives linked to adjacent Communities

The fourth and fifth results / outputs of the LVEMP-2 logframe are namely:
(4) "Lake Environment and near lake areas (including wetlands) conserved and linked economic incentives provided to adjacent communities";
(5) "Urban lake environment improved and linked economic incentives provided to adjacent communities".
The National Environmental Policy (1997) recognizes six major environmental problems in Tanzania. These are (i) land degradation; (ii) Lack of accessible, good quality water for both rural and urban inhabitants; (iii) Environmental pollution; (iv)Loss of wildlife habitats and biodiversity; (v) Deterioration of aquatic systems; and (vi) Deforestation.

In order to address these problems and subsequently achieve the two results / outputs of LVEMP-2 various sectoral policies need to be coordinated. Several policies such as the National Environmental Policy (1997), National Agricultural and Livestock Policy (1997), National Fisheries Sector Policy (1997), the National Land Policy (1995), and National Forest Policy (1998) individually recognize and consider issues of environmental degradation and protection. Even the Tanzania Sustainable Industrial Development Sector Policy (SIDP, 1996) mentions the need to have sound environmental management. This is particularly important in ensuring improvement of urban lake environment. Specifically the policy talks of the need to promote "environmentally friendly and ecologically sustainable industrial development". Accordingly, this can be achieved through sensitization on environmental awareness and establishing effective legal mechanisms to ensure adherence to proper management of environmental issues and anti-pollution activities. There is also need to enforce application of Environmental Impact Assessment (EIA) especially at pre-implementation stage of industrial projects and to promote continuous application of an integrated preventive environmental strategy to industrial processes, products and services. The integrated strategy according to the Policy, includes "propagating efficient use of raw materials and energy; elimination of toxic or dangerous materials as well as reduction of emissions and wastes at source". The various industries including fish industries in Lake Victoria Basin are expected to operate according to SIDP (1996) objectives. The Policy, however, does not talk specific on industries in Lake Victoria Basin. Rather, the policy talks on general environmental issues which can be relevant to conservation of the urban lake environment.

The Mineral Policy (1997) is important for ensuring conservation of wetlands. The Lake Victoria Basin especially in rural areas has many economic opportunities including "mining activities". In this particular case, in addition to the above mentioned Policies, the Mineral Policy (1997) is important in ensuring that such economic activities do not result in the degradation of environment.

The Mineral Policy (1997) recognizes the fact that "sustainable mining development requires balancing the protection of the flora and fauna and the natural environment with the need for social and economic development". Accordingly, there is need to address the rapid increase in the uncontrolled extraction of minerals and the use of unsafe mining methods which lead to severe environmental damage and subsequently appalling living conditions in mining communities. In general, such mining activities can cause land degradation, air pollution and water contamination. These results can endanger the achievement of objectives and results / outputs of LVEMP-2. The Policy talks on establishing effective environmental regulations and monitoring procedures. It also requires undertaking of baseline environmental studies and preparing environmental impact assessment and environmental action plans. The Policy emphasizes the need to abate the use of toxic chemicals and pollutants by promoting environmentally-friendly technologies.

Box. 3.1 Existing and Proposed Policy Coordination for the LVB

Coordination of policies can be achieved through the existing water management structure at the Lake Victoria Basin Water Office. Accordingly, the Basin Water Board comprising a Chairman and nine members appointed by the Minister responsible for water, will act as a National Coordination Unit of LVEMP. Currently the following institutions are represented in the Lake Victoria Basin Board: Ministries responsible for Water, and Livestock, NEMC, Vice Presidents' Office, Civil Society, Fish Industries, Private Sector and NGOs[7]. This will be responsible for coordinating all activities and their related policies.

In the new proposed organization structure of LVEMP-2, these activities include wetland management; water quality monitoring; industrial and municipal waste management; water hyacinth control; land use management; forestry conservation; and fisheries management. These are areas guided by different framework and sectoral policies, as well as implementing agencies. Thus to ensure the Basin Water Board provides an effective mechanism for natural resource management planning in the Lake Victoria Basin, there will be a need to review its composition and terms of reference. With regard to composition it is important that other actors with policy role important for supporting LVEMP-2 activities are taken on board. Given the impact of agriculture, mining and industry on the Lake Victoria water resource, it is important that these ministries are represented on the Basin Water Board.

In regards to the terms of reference, it is recommended that the terms are extended to include planning and monitoring implementation of LVEMP-2 activities. This will ensure policy coordination within and around the Lake Victoria Basin. The need for improved policy coordination at Lake Victoria Basin is underscored in the Water Resources Management Development and Investment Programme of 2006. In this regard in its resolve to improve inter-sectoral policy coordination the Ministry responsible for water proposes to establish an Inter-Ministerial Committee to provide for inter-sectoral coordination. At the Basin level, a Basin Technical Committee will be made up of basin representatives of the same sectors as at the national level, together with selected District Executive Directors will be established[8]. The proposed coordination mechanism provides a good framework for policy coordination by the Ministry responsible for Water. Efforts needed from LVEMP-2 will include supporting establishment and functioning of the Basin Technical Committee.

The success of the Mineral Policy (1997) in addressing environmental problems requires high levels of coordination with other policies including the National Water Policy (2002), the Agricultural and Livestock Policy (1997), Tourism Policy (1999) and the Energy Policy (2003) all of which affect in various ways the conservation of rural environment for sustainable development. Most importantly it requires application of the various ideas in the policy to final assessments and enforcement on the ground, and it is still at District and field level that apparent failures or deficiencies in policies are being experienced due to lack of capacity of staff operating at such level.

3.1.3 Key Emerging Issues

i. Contradiction between some of the reviewed policies and the reality on the ground. This is explicitly the case of policy positions on wetlands. Conservation of wetlands is the resolve of Government in all the reviewed policies. However, evidence gathered during preparation of this document clearly shows that conserving wetlands is a

[7] Extracted from the Draft Lake Victoria Basin Water Office Business Plan, 2006, p.15
[8] Extracted from Government of Tanzania, Ministry of Water, Water Resources Management Programme, Water Resources Management and Investment Programme, 2006,p.13

major challenge around the Lake Victoria Basin. A number of wetlands have been encroached on and are currently used for agricultural purposes. This is particularly the case for small wetlands in Magu and other more densely populated areas within one-hour's travelling distance of Mwanza. This raises a policy issue on effectiveness of Government policy on conservation of such wetlands especially where they do not contain biodiversity of high value. Perhaps this calls for revisiting Government Policy on conservation of wetlands, to specifically address policy issues related to conservation of encroached wetlands which may be of low biodiversity values. Interviews held by different individuals in Magu District suggest for a need for Government to change policy and give away in terms of conservation small and heavily populated wetlands with low biodiversity values. Proposals have been made to turn these into development areas but guided by well articulated and implemented Land Use Plans. Suggestions were further made that any Government revision on its policy on wetlands should treat each wetland area on its own merit and that LVEMP-2 should support the technical inputs necessary for undertaking of such investigations.

ii. Lack of clarity on NALP position *vis a vis* agriculture on wetlands of high biodiversity value such as those in the SW corners of Lake Victoria. While the policy commits to implement measures to minimize encroachment in public lands including forests, woodlands, wetlands and pasture, it does not recognise needs of special and fragile wetlands like those in the latter areas.

iii. Lack of recognition of possible adverse effects of irrigation from fragile water sources such as Lake Victoria in NALP, the biggest danger here being the cutting of canals from the lake through wetland areas;

iv. In any future amendments or additions to Water Policy specific mention should be made to the special case of Lake Victoria in view of the sensitivity of water levels to climate change (notably to periods of below-average rainfall) and the fact that the water is a shared resource for five large and populous countries. The concept of 'Water Use Efficiency' (WUE) should be introduced in any discussion between the five countries as a guide to any future allocation of water between the countries particularly with respect to any new large water-consuming projects. (The parameters of WUE would be: (i) $ value added per cubic metre of water finally consumed; or (ii) permanent employment directly created per litre/second of final water consumption; or (iii) tonnes of maize or rice-equivalents per unit of water finally consumed. Such considerations might have the effect, for example, of justifying supplementary irrigation through centre-pivot irrigators on sugarcane in Tanzania, rather than letting the same water go through the lake system to the downstream countries for use on wetland rice cultivation).

v. Future amendments / additions to water policy should also make some mention to other water-using or water-dependent activities including fishing, mining, and forestry, all of which may have major impacts on the quality or quantity of the lake water resource. The effect of land use changes over wide areas (e.g. deforestation / reafforestation; continuing land degradation associated with over-cultivation) may be another major contributory factor to climate change and should be elucidated in any future Water Policy updates. Likewise the special role of traditional and informal institutions in water resource management in the Tanzanian context needs special mention.

vi. NEP lack of explicit position on (a) wetlands around Lake Victoria (b) Invasion of noxious aquatic plants especially the water hyacinth in Lake Victoria;

vii. Lack of harmony between NEP and Sector policies on issues specific to Lake Victoria Basin specifically the National Fisheries Sector Policy; NALP, NAWAPO. In this case there is need for a comprehensive plan for water use in undertaking different economic activities such as irrigation, domestic, livestock, industries, hydropower, mining, recreation and tourism and fishing. Policy harmonization is required to minimize conflicts since each of these activities require a reliable source of water.

3.2 ANALYSIS OF RELATIONSHIP BETWEEN LVEMP-2 OUTPUTS / RESULTS AND EXISTING POLICY FRAMEWORK

There is general conformity / consistency between the LVEMP-2 Outputs / Results and the Existing Policy Framework. The discussion on existing policies in Section 3.1.2 and the analysis therein, clearly shows conformity between LVEMP Outputs / Results and Existing Policy Framework. The thrust of LVEMP-2 Outputs / Results are

broadly consistent with the overall objectives of Existing Policies including the National Land Policy 1995, Tanzania Sustainable Industrial Policy of 1996, the National Environment Policy of 1997, the National Agriculture and Livestock Policy of 1997[9]; the Mineral Policy of 1998, the National Tourism Policy of 1999, the National Forestry Policy of 1998, the National Water Policy 2002, and the National Energy Policy of 2003. The relationship is presented in summary in Table 3.1.

Table 3.1: Relationship between LVEMP-2 Outputs/Results and Existing Policies

	LVEMP-2 Management Plans	Supportive Existing Policy
1.	Improving Primary Food Security and Increasing Incomes from Farm and Non-Farm Activities	1. National Agriculture and Livestock Policy (1997) and Draft Livestock Policy 2005 2. National Water Policy 2002 3. National Environment Policy 1997
2	Catchment Forests Conserved	1. National Land Policy 1995 2. National Environment Policy 1997 3. National Agriculture and Livestock Policy 1997 4. National Forest Policy 1998 5. Wildlife Policy 1997 6. National Tourism Policy 1999
3	Lake Environment including Urban Lake Environment and near Lake areas are conserved and provided Economic Incentives linked to adjacent Communities	1. National Land Policy 1995 2. Tanzania Sustainable Industrial Development Sector Policy 1996 3. National Environment Policy 1997 4. National Agriculture and Livestock Policy 1997 5. National Fisheries Sector Policy 1997 6. National Forest Policy 1998

[9] Note that the National Agriculture and Livestock Policy is currently under review. Similarly a separate Livestock Policy 2005 has been drafted and is awaiting approval

3.3 SUGGESTIONS FOR CHANGES AND REFINEMENTS TO EXISTING POLICIES

Key Recommendations

Support policy review processes to ensure issues identified as relevant for sustainable utilization of natural resources around Lake Victoria Basin are taken on board. Since a number of policies relevant for LVEMP-2 are targeted for reviews as part of sector specific reform processes, the project support will be mainly related to ensuring the policy reviews take on board their issues. The recommended policy reviews include:-

i. Ensure NALP acknowledge various adverse effects and the policy desire to ensure they are effectively mitigated while promoting use of improved technologies;

ii. Ensure NAWAPO includes positions on: (a) problem of water resource depletion in Victoria Basin; (b) irrigation agriculture in fragile wetlands specifically in Lake Victoria Basin; (c) Recognize role of traditional and informal institutions in water management;

iii. Hamonize wetlands management issues among different sectoral policies to reduce conflict over utilization of wetlands arising from differences in interpretation between key sectors of lands, agriculture and natural resources;

iv. Ensure review of NEP specifically addresses the problem of existence of "water hyacinth" have a national understanding and interpretation of wetlands;

v. Ensure review of the National Forest Policy makes specific positions on environmental management issues associated with impact of increased socio-economic activities on forests;

vi. Strengthen coordination of plethora and multiplicity of policies governing livelihoods activities around Lake Victoria to ensure they all support sustainable management of natural resources.

Institutional

i. More efforts will be needed to strengthen coordination between these various policy institutions. This coordination is necessary to ensure the other sectors prioritize in their policy support functions efforts to support LVEMP-2 activities through the Ministry of Water;

ii. It is important that policy facilitation role of Regional Secretariats is strengthened to ensure they effectively support LGAs around the Lake Victoria Basin, in mainstreaming and prioritizing conservation issues relevant to sustainable utilization of natural resources;

iii. More efforts are needed from LVEMP-2 and other initiatives to support relevant LGAs in formulating and enforcing by laws that are necessary for achieving sustainable utilization of resources around the Lake Victoria Basin; and

iv. It is thus important for LVEMP-2 to support LGA based business associations operating in the Lake to ensure they effectively engage in policy processes that are in support of sustainable management of Lake Victoria resources.

3.4 LEGAL AND INSTITUTIONAL FRAMEWORK

3.4.1 General

A major element in the management of natural resources which are shared by a number of states is the development of national laws and regulations by each of the states, which provide for a common approach by all the states concerned to the protection and preservation of the transboundary resources and the environment. This may take the form of enactment of new legislation or the review and, where necessary, expanding, updating or strengthening of existing legislation. In some instances, it may not be a question of the adequacy or otherwise of the legislation but rather shortcomings in the existing enforcement regimes. In such instances, the required interventions may not necessarily be legislative but administrative although a change of approach mediated by legislative changes may be called for. The multi-sectoral and multi-disciplinary character of the management required of the Lake Victoria Basin (LVB) demands a high level of harmonisation of policies with respect to, for example, preservation of forests, soil and water conservation, management of fisheries, rural and urban health and development planning, mining and industrial activities, prevention of pollution, management of the exploitation of any of the other resources in the basin and the protection of species.

This section will review the legislative position in Tanzania and how the national position factors into the regional situation and requirements. The EAC instruments in as far as they relate to the LVB and other current projects and developments will be taken into account.

This section also reviews the present institutional framework arrangements, both at the national and regional level, and proposals with regard to the possible optimum framework will be made. The dynamism that has characterised institutional developments in the LVB in the last decade or so is testimony to the parties' concern with regard to the establishment of effective institutional structures for efficient structured interventions. This report will review the roles of different players in the LVB and the roles of the various organs that have been put in place and make appropriate recommendations in this regard.

With regard to the resolution of disputes, be they national or transboundary, developments which have taken place point to the areas that now need to be addressed more closely. The nature of the developments and their likely efficacy will be addressed and appropriate recommendations as necessary will be made.

3.4.2 Review of existing laws & regulations as they affect the management of the LVB

The laws and regulations pertaining to the protection and management of natural resources and the environment have general application across the country, and a number of them address specific aspects of the environment. They are administered by different government departments, this being a function of the traditional manner in which different functions are assigned to different ministries and departments of government. Key environmental legislation is set out in the table below. It must be pointed out at the outset that these are the key pieces of legislation, there being many others not dealt with here which touch on matters pertaining to the environment. It must also be pointed out that the non-mention of any such other legislation should not detract on the completeness of the review since the emphasis of the report is on general principle rather than the detailed content of each individual piece of legislation.

The main environmental sectors into which the key legislation has been grouped, the legislation covering the sectors and the administering ministries/departments are currently as given in Table 3.2.

Table 3.2: Major Legislation in the Environmental and Related Sectors

Sectors	Legislation	Responsible Ministry/Department
Overall Environmental Management	The Environmental Management Act (2004)	Vice President's Office, Ministry of Environment (National Environmental Management Council)
Land and Land Use Management	1. Land Act (No. 4 of 1999)	Ministry of Lands and Settlement Development
	2. Village Act (No. 5 of 1999)	Ministry of Regional and Local Government
	3. Public Lands (Preserved Areas) Act (Ordinance 12 of 1954)	
	4. Agriculture Law (2003)	Ministry of Agriculture and Food Security
	5. Local Government District Authorities Act (1982)	Ministry of Regional and Local Government
Water	Water Utilisation (Control and Regulation) Act (1974): Amended by: Acts: 10 of 1981; ……..of 1989; 8 of 1997 (Water Laws - Miscellaneous Amendments); ……of 1999 (Water Laws - Miscellaneous Amendments)	Ministry of Water
Natural Resources and Conservation (incl: Forests and Natl. Parks)	1. Marine Parks and Reserves Act (1994)	Ministry of Natural Resources and Tourism
	2. Forest Act (2002)	Ministry of Natural Resources and Tourism
	3. National Parks Act (1992)	Natural Resources and Tourism
	4. Plant Protection Act (1997)	Natural Resources and Tourism
	5. Public Lands (Preserved Areas) Act (Ordinance 12 of 1954)	Natural Resources and Tourism
	6. Natural Resources Act (Ordinance No. 30 of 1948)	
Wildlife	1. Fisheries Act (2003)	Natural Resources and Tourism
	2. Fisheries Regulations (2005)	Natural Resources and Tourism
	3. Wildlife Conservation Act (1974)	Natural Resources and Tourism
	4. Beekeeping Act (2002)	Natural Resources and Tourism
Minerals	Mining Act (1998)	Ministry of Minerals and Energy

For purposes of this report which will address both national and transboundary legislative aspects, it is appropriate to review and analyse the Environment Management Act, 2004, and at the same time pointing out how, because of its nature and scope, it introduces a measure of harmony to management approaches on environmental matters, regardless of the existence of all the other Acts of Parliament dealing with specific aspects of the environment. The cross cutting character of the EMA and the centralising of the giving of directions on matters of the environment in organs established under it can be used as a tool for the elimination of possible conflicting activities among authorities set up under the other Acts dealing with the environment. The above table also serves to illustrate the aspects upon which legislation exists and the different authorities charged with administering it. The entire range of the legislation now also falls within the framework arrangements set up by the EMA.

3.4.3 Nature and Scope of the Environmental Management Act, 2004 (EMA)

The environmental management regime introduced by the EMA overrides any provision under any other legislation on any aspect of the environment if any such provision is in conflict with any of the provisions of the EMA. For example section 50 of the EMA provides as follows:

> "The management and utilisation of land shall be in accordance with the prevailing land laws provided that where there is any conflict on the environmental aspect of land management, the provisions of "the EMA" shall prevail."

The EMA provides similarly under section 63 (2) of the Act with respect to laws on forests and in section 65 (4) with respect to fisheries and wild life.

In addition, power is granted under various sections of the EMA for the issue by the Minister, the Council or local government authorities, of guidelines and the prescribing of measures or regulations for the environmental management of any aspect of the environment. For example, with respect to the protection and management of rivers, riverbanks, lakes or lakeshores and shoreline, section 55 (1) of the EMA provides that:

> "Without prejudice to the provisions of any other relevant written law, the [Environmental Management] Council and local government authorities responsible for environmental matters shall issue guidelines and prescribe measures for the protection of river banks, rivers, lakes or lakeshores and shorelines."

The same powers are replicated in respect of wetlands under section 56 (5); conservation of biological diversity under sections 67 and 68; the management of rangelands under section 70 (1) of the Act; and various other provisions on other aspects of the environment and environmental management (see Part V of the Act: Environmental Management). The whole range of environmental elements covered by the legislation set out in Table 3.2 is covered by the EMA.

The EMA defines "environmental management" as including the protection, conservation and sustainable use of various elements or components of the environment and the term "element" in relation to the environment means any of the principal constituent parts of the environment including water, atmosphere, soil, vegetation, climate, sound, odour, aesthetics, fish and wildlife. The term "environmental management" is therefore all encompassing both with respect to the activities and the elements encompassed.

3.4.4 Essential Characteristics of the EMA

Some of the key features of the new environmental management regime introduced by the EMA include the following:

(a) the prevention or minimisation of adverse effects on the environment through long-term integrated planning involving preparation of environmental action plans at sector and national levels;
(b) mainstreaming of environmental management (see sections 30-41 of the EMA);
(c) the adoption of the precautionary principle in the treatment of the environment;
(d) the public participation principle requiring the involvement of the people in the development of policies and plans for the management of the environment;
(e) the polluter pays principle requiring persons causing damage to the environment to pay the social and environmental costs so occasioned;
(f) the use of economic instruments as incentives for the protection of, or disincentives to damaging, the environment.

Because the EMA specifically provides that these principles of environmental management are to govern all matters relating to the management of the environment and override any features under other Acts which are inconsistent with the EMA, this provision goes a long way towards bridging the gap that would have existed between the new

EMA and the older environment sector Acts. The overriding nature of the EMA is provided for in section 232 of the Act which states:

> "Where any provision of this Act is in conflict or otherwise inconsistent with a provision of any other written law relating to environmental management, the provisions of this Act shall prevail to the extent of such inconsistency."

In this and other respects where inconsistencies may exist among the specific sector Acts, such inconsistencies have to be resolved having regard to the provisions of the EMA and not as between the sector Acts *inter se*. An example of the operation of this provision is exemplified by section 57 (1) of the EMA which provides as follows:

> "……., no human activities of a permanent nature or which are, by their nature, likely to compromise or adversely affect conservation and, or the protection of ocean or natural lake shorelines, riverbanks, water dam or reservoir, shall be conducted within sixty metres. "

The presently differing widths of buffer zones under different sector Acts are now overridden by this provision. Predictably too, there will be inconsistencies between the offences and penalties under sector legislation and those under the EMA especially with regard to the magnitude of the monetary and custodial penalties (which are much higher under the EMA) (see Part XVI of the Act, particularly section 191 of the Act), the introduction of the polluter pays principle (as exemplified in section 187 of the Act) and the enforcement of environmental restoration, easement and conservation orders (see Part XI of the Act). In such instances, the provisions of the EMA will override provisions of the sector laws to the extent that penalties under those Acts may not reflect the new enforcement and punishment philosophy behind the EMA penalties.

This overriding nature of the EMA is bolstered by the widespread powers granted the Minister, the Council and local authorities under the Act to prescribe regulations, measures, rules and guidelines and to give directions in respect of all aspects of environmental management. This effectively enables the Minister responsible for the environment to legislate across the environment sector and to ensure that the spirit of the EMA is carried throughout.

However, for ease of application of the laws, there remains a need by sector Ministries to examine their legislation for inconsistencies with the new law and to ensure that any such inconsistencies are removed. This exercise will now be much less cumbersome than it would have been but for the existence of the EMA. Now the standard for use in harmonisation will be set from one rather than several Acts. In addition, there also remains the need by each sector Ministry to ensure that those aspects that are specific to their particular sectors are specifically provided for in their sector Acts or regulations. As an example, although the Minister responsible for environment might enact regulations for the carrying out of environmental impact assessments and audits, these may only be framework regulations requiring that different sectors enact regulations which address the threats unique to the particular sector. EIAs for a hydro-electric power station, or for an irrigation scheme, or for mining, or for timber harvesting, dam construction or for a chemical plant cannot be the same. What is necessary in this instance is the customising of certain aspects of legislation to the requirements of the sector. This is a task which must be undertaken specifically for the activities taking place in the LVB due to the nature of the resources and the resources in the basin. Sector ministries may require expert assistance sooner rather than later in developing any necessary legislative changes whether for purposes of harmonisation or customisation.

3.4.5 Institutional Aspects

Set out in Figure 3.1 is the institutional structure with respect to environmental management provided for under the EMA. This is a superstructure for purposes of the management of the entire environmental sector. The structures which exist within the respective departments will operate internally but must ultimately align themselves to demands of the institutional structure at the national level.

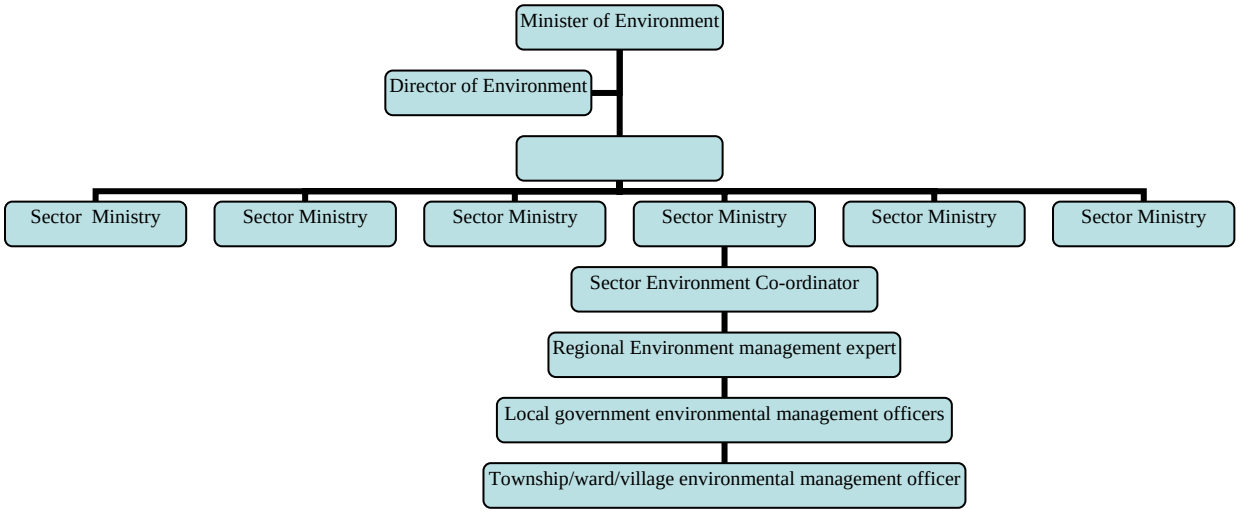

Figure 3.1: National Institutional Structure

What is evident from this structure is the total integration of the institutions dealing with environmental management at the national level.

3.4.6 Overall Status of Environmental Legislation and Implications for LVB

What emerges from the above consideration of the EMA is that, although the sector Acts set out in Table 3.2 are managed by differing authorities, the EMA serves to introduce a single integrated and co-ordinated environmental management regime which transcends these differences and which should eliminate any wanton disparities in approach should this be called for. As matters stand, whilst the EMA is a framework instrument, it nevertheless vests the Minister with wide enough powers to direct the achievement of the objectives of the Act and the national environmental policy. The question of harmonisation at the national level, although important, is however not so crucial in many instances as to hamper the proceeding forward of environmental management initiatives in accordance with the principles introduced by the EMA.

It will be the responsibility of the sector ministries to evaluate existing and proposed policies and legislation and recommend measures to ensure that these take adequate account of any prevailing environmental issues, whether through amendments to the relevant Acts of Parliament or the development of appropriate rules, regulations, measures or guidelines. At the same time however, such changes to legislation must take account of the requirements for harmonisation at the Regional level as required by the EAC especially for initiatives such as the sustainable development and management of the LVB.

3.4.7 Mandate and other overlaps

Given that:

- the Minister is empowered under section 13 (2) to issue general directions to Sector Ministries, Government Departments, the Council, the National Environment Advisory Committee, Municipal or District Environmental Management Committees, or any other public or private institution for the purpose of implementing any provision of the EMA;
- the Minister is empowered under section 13 (3) to designate and direct any of the above institutions to perform any function or to desist from the performance of any function; and
- the Council is empowered under section 24 (1) in respect of enforcement and compliance, to direct all other agencies to carry out any duties imposed upon them under this Act or any other Act;

the problems which might have arisen as a result of possible mandate overlaps with respect to the legislation set out in Table 3.2 are capable of being addressed through the Minister responsible for the environment issuing directives as necessary to for the smooth management of the environment in any respect should circumstances require it. Compliance with the directives given by the Minister is mandatory (see section 13 (4) of the Act). In addition, bodies such as the Surface and Marine Transport Regulatory Authority, the Energy and Water Utilities Regulatory Authority Act and the National Land Use Planning Commission will fall to be given directions by the Minister on matters relating to environmental management should this be necessary.

3.4.8 Regulations, Guidelines, etc

The mode of implementation of the EMA will take shape as rules, regulations and standards are drafted, a task which is reported to be underway. The development of these instruments is a big challenge given that the EMA provides for the development of guidelines, regulations, rules and standards on many aspects of the many elements of the environment. The wide consultations and expertise necessary in the development of any of these instruments will need to be broad-based and all-encompassing. Also given the ongoing initiatives at the Regional level, the need for transboundary harmonisation needs to be addressed while the development of these guidelines, regulations, etc, by the Minister responsible for the environment is in progress. This calls for transboundary consultations as has already been happening with respect to fisheries laws through the LVFO. This is also one of the particular emphases of the Protocol on the sustainable Development of the Lake Victoria Basin.

What also emerges, given the scope of the EMA, is the possibility of transforming some of the existing separate sector Acts into regulations made under the EMA Act thus facilitating future changes to the laws.

3.4.9 National-Level Environmental Management in the LVB

From a national perspective, the legal tools necessary for the management of the LVB exist in the form of the EMA as supported by other individual pieces of legislation as set out in Table 3.2. Other legislative developments will continue to add to the strengthening of the environmental laws as subsidiary legislation continues to be enacted.

Noteworthy for purposes of environmental management of the LVB are the following features of the EMA:

- the mandatory preparation of environmental action plans by each local government authority for its area of jurisdiction (section 42). Whilst a plan has to be in overall conformity with the national environmental action plan, the local authority must identify environmental problems prevalent in its area and recommend the measures necessary to mitigate them. This will form the basis of activities on environmental activities to be undertaken in a specific area such as the Lake Basin area.

  A lot of work will be necessary to assist local authorities in the initial preparation of these action plans in compliance with the EMA to ensure that necessary activities get underway.

- the power of the Minister to declare Environmental Protected Areas (section 47 of the Act) if he considers an area to be ecologically fragile or sensitive and if this happens, the area will fall under the management of the NEMC. The NEMC will be required to prepare an environmental protection plan for that area in consultation with any relevant sector.

- the power of the Minister to declare any area to be a protected wetland and such protected wetlands will fall to be managed by the sector ministries in accordance with the relevant sector law or any guidelines, regulations or rules made under the EMA (section 56 of the Act).

At the national level, the co-ordination of any environmental management activities will be in accordance with the structure set out in Figure 3.1 above. The structure is an integrated structure commencing at the local village level through the local village governance set up as provided for under the local authorities' legislation, to the national central government level. It is at the community level that the environmental management initiatives for the LVB have to be founded. The success or otherwise of environmental management initiatives in various environmental

components of the LVB will depend on how much capacity is built into these local level institutions, the support and extension services made available to them from the local district authority and from the various sector authorities at the regional and national levels before transboundary issues are considered.

3.4.10 Regional-Level (Transboundary) Harmonisation

The memorandum of Understanding for co-operation on Environmental Management which was signed in 1998 required the Partner States to develop systems for the management of the LVB and to harmonise the national framework environmental laws. Many sectors are involved in the LVB in carrying out environmental management interventions at different levels, using different modalities and applying different standards. Following the Treaty for the Establishment of the East Africa Community Act No.4 of 2001 which established the legal basis for LVEMP-2, the Protocol for Sustainable Development of Lake Victoria Basin (the Protocol) adopted in 2003 was designed to provide a legal framework to guide regional actions in developing and harmonising the environmental laws necessary for the sustainable management of the basin.

Through the facilitation of the Lake Basin Commission established in terms of the Protocol, the harmonisation mandated by the Protocol should be taking place. Management principles such as “equitable and reasonable utilisation”, “polluter pays principle”, “environmental impact assessment and audit” to which the Protocol makes reference require that the Partner States enact legislation which embraces similar principles. Following the example that has been set by the LVFO through which common regional principles behind the new Fisheries Act and its regulations and the recently completed guidelines for the formation of BMUs were developed and adopted by the appropriate Council of Ministers within the Lake Victoria Fisheries Organisation Convention context, there is a great challenge for the Basin Commission to start the process in line with the stipulations of the Protocol which specifically enjoins Partner States to:

(a) develop national laws and regulations requiring environmental impact assessments; the procedures and guidelines are to be developed through a process of public participation by the Secretariat and approved by the Council of Ministers;
(b) adopt policies, laws and regulations within their jurisdictions to guide operators of facilities likely to have a significant impact on the environment;
(c) introduce legal measures to ensure that a polluter pays the cost of remedying the effects of pollution;
(d) introduce measures for the prevention or minimising pollution and reducing municipal waste input into the Lake;
(e) introduce appropriate legal measures for sustainable forestry practices, agricultural land use methods and planning and enforcement of urban planning;
(f) harmonise water quality standards;
(g) introduce legislation to enforce maritime security and co-ordinate security arrangements ad operations aimed at controlling acts of piracy, banditry and smuggling;
(h) establish, develop and harmonise infrastructure and services such as inland waterways and ports, air transport, meteorological services, information and communication technology;
(i) enact and harmonise laws for the prevention of pollution from vessels and regulating the movement of wastes in the Basin.

A major task of the Commission will be to co-ordinate the preparation of the common policies and guidelines necessary for the harmonisation of policies, laws, regulations and standards among the Partner States. The necessary consultations and the preparation of the common policies and guidelines to cover all the aspects as mandated by the Protocol will be a lengthy process and needs to get under way.

As far as Tanzania is concerned, provided that there is no objection to the principles on any aspect on which harmonisation is proposed, there are no legal impediments to the enactment of any legislation or other measures as may be developed and agreed under international arrangements to which it is a party (see Part XV of the EMA).

CHAPTER 4: ASSESMENT OF THE STATUS, MANAGEMENT STRUCTURES AND FUNDING OF THE LOCAL COMMUNITY ORGANIZATIONS LAKE BASIN

4.1 GENERAL

Assessment of the status and Management structures and funding of the Local Community Organisations aimed at getting a greater understanding of local organisations, thus providing the basis for proposing interventions that lead to widened, deepened and effective participation in LVEMP II. Local Community Organisations assessed include: City, Municipal and District Councils, TCCIA. Beach Management Units, NGOs, and Local Forest Resource Users, The assessment based on *Organisational strength (quantitative and qualitative),* constituencies being targeted and served, effectiveness (achieving set goals/targets) and management systems.

This Section contributes in achieving Objective 2 in the TOR: Design a strategy for strengthening capacity of local communities, NGOs, CBOs, and other institutions on management and utilisation of the shared Lake Victoria Basin resources. It is based particularly on 4 weeks of fieldwork in the three main regions in the LVB with much consultation with a wide range of stakeholders at village and District level.

The experiences in community participation in LVEMP-1 highlighted the need for further action to be undertaken in a manner which appropriately reflects the interests and concerns of local communities and allows for and encourages their participation in the management of the Basin. This requires blending individual sector knowledge and visions with the more general interests of the communities that rely on the Lake and its tributary waters. In many cases, there is also a need to obtain the agreement of the other riparian states and endorsement by EAC via its Secretariat.

Economic development is a desirable and necessary activity. Unfortunately, the way in which the catchment's natural resources have been used in the pursuit of economic development has contributed to most of the problems associated with natural resources management in the Lake Victoria Basin. Significant change in the management of the natural resources will only be achieved through direct community involvement in natural resources management leading to community empowerment and action. This is also well articulated in the *Protocol* and in the *Vision and Strategy Framework* (EAC, 2004). In meeting the overarching Project objective, strengthening the capacity of the local communities, NGOs, CBOs and other institutions for the management and utilisation of the shared Lake Victoria Basin resources is paramount.

4.2 MAIN FINDINGS FROM PRESENT STUDY

Comprehensive field information has been generated following situational analysis about local communities, CBOs, NGOs and other institutions on Management and Utilization of the shared Lake Victoria Basin Natural Resources. The analysis considered an inventory for the existing local institutions, their capacities in the management and undertaking community development approaches, technical capabilities, management of financial resources, entrepreneurial skills, communication, participatory approaches; and issues of socio-economics and governance.

4.2.1 The existing local institutions and activities

Numerous CBOs and NGOs exist in Kagera, Mwanza and Mara regions. An inventory of the existing local institutions engaged in a sample of four of the LGA areas is presented in Annex B. This was compiled from the 2002 NGO list and the Mwanza socio-economic regional profile of 2003 and augmented by the field work conducted in the Lake Victoria Basin between June 28th and July 18th, 2006. Most of these existing CBOs are scattered throughout the area and not organized at the district level. Also there is no close coordination and collaboration between different NGOs and not much sharing of information between themselves. Our interviews with SCC-Vi Agroforestry and LANESO highlighted a need for an NGO forum where different NGOs could meet and discuss their various interventions. This in turn could help avoid conflicts of interest and duplication of efforts.

As presented in Annex B, there exist many local institutions in the Lake Victoria Basin with diverse activities. However, most of the initiatives have similarities / commonalities on the type of activities they are involved in. The major activities (and with the numbers of individual organisations given in parenthesis) include: savings and credit (SACCOS) (23); small business (14); agricultural production activities (12); environmental conservation (12); fish marketing (12); youth training, skills (11); other credit / small loans (10); agricultural marketing (10); general trading and consumer services (10); community development (9); support to vulnerable groups (9); women's groups (6); medical / HIV / AIDS support (3).

To understand the level of their capacities in the management and undertaking of community development, a situational analysis was conducted to reveal their technical capabilities, management of financial resources, entrepreneurial skills, communication, participatory approaches and governance. This was done through consultations and meetings with government officials in eight LGAs (Mwanza City, Magu and Sengerema in Mwanza Region; Musoma Rural, and Bunda in Mara Region; and Bukoba Urban, Bukoba Rural and Muleba in Kagera Region), and selected CBOs and NGOs in these LGA areas. Annex C gives the proceedings of these consultations. The key to these in terms of classification of organisation (i.e. LGA, CBO, NGO, etc) and in terms of area of operation (essentially land-based or lake-based activities, or both) is given in Table 4.1.

Table 4.1: Consultations with LGAs, CBOs, NGOs and other organisations:

Classification of Organisation	LGA	OtherGomt /Project	CBO	NGO	Private – Small	Private - Large	LVEMP-1
No.involved:	11	6	7	6	3	4	8
Where Based:	*Interview No: (Annex C)*						
Lake-based:		33	2, 31			36	4, 6, (22), (33), 34
Both:	1, 5, 8, 9, 15, 21, 23, 24, 27, 32	39		12, (13), 35, 37	11,25	10, 26	7
Land-based	16	14, (22), 30, 40	(3), 17, 18, 19, 20	13, 38	22	28	3, 29

4.2.2 Capacities of the existing institutions: CBOs and NGOs

The main thrust of this part was to understand the managerial and institutional capacity of the existing local institutions including their ability to undertake community development activities and to identify any further capacity needs for environmental and natural resource management. The emphasis was on institutional capacity, management of financial resources, entrepreneurial skills, information and communication resources, and participatory approaches.

Institutional Capacity:

A detailed analysis of the information collected during focus group discussion and field observation revealed a high disparity in the institutional capacities of the existing institutions.

Most of the local institutions contacted had no proper structure and arrangements for management of daily activities, inappropriate arrangements for roles and responsibilities among their members, and inadequate financial and accounting procedures. This situation has led the consultants to conclude that building an institutional capacity represents a difficult task for many CBOs and NGOs, and most people in the Basin are at an early stage of learning how to organise and manage community activities. Therefore, new skills and knowledge are required to set up and operate an efficient and stable public organisation with a proper structure and arrangements for due management, with due allocation of functions and responsibilities, and effective accounting and reporting procedures.

Most critical is the institutional set-up regarding land rights and land allocation at village or ward level, particularly as this affects long-term interventions such as irrigation or forestry. Local by-laws and local agreements have to be in place to allow for land re-allocation so that irrigation schemes can go ahead with land re-distributed equitably to all interested and suitable farming families in the village. The same applies for many areas where forestry interventions are contemplated. Village chairmen and WUG chairmen must have the confidence and clout to deal with any disruptive individual, and get signed agreements from all parties before the scheme can go ahead. Irrigation from a reliable water source is a new concept to most farmers in the LVB and institutional capability in this field is most severely lacking. The experiences of Cheleche Village (Rolya Farmers), Tarime, Mara (C20), and Chirorwe Village, Musoma Rural (C19) need to be considered and any problem areas rectified. Further support and back-up from LVEMP-2 would be needed for both communities. Such back-up, however, is likely to produce good results so that these would turn into excellent demonstration sites for irrigation interventions that might be considered in other areas.

Management of Financial Resources:

This is one of the major capacity constraints. Participatory fieldwork revealed a lack of proper financial management for some of the NGOs and CBOs. It was also revealed that some institutions have closed down due lack of effective financial management and accounting procedures. Therefore, capacity building in this area is urgently required to ensure proper recording and the importance of financial record management. In line with that is the inadequate financial and technical support to community-based micro-projects and this is a shortcoming that needs to be addressed. A communication gap appears to exist between CBOs and financing institutions that support development projects in the Lake Victoria Basin. The lack of continued technical support has also contributed to the failure of some projects, particularly with respect to understanding and planning to sustain projects beyond the donor-funding phase.

Entrepreneurial skills:

The consultant evaluated the entrepreneurial skills by looking at the sales and marketing skills, financial know-how, self-motivation skills, time management skills and administration skills. These are the essential skills required, especially for those conducting businesses as compared to other groups. It was revealed during interviews that most local institutions lacked entrepreneurial skills. Most had no marketing skills and had no proper plans on how to meet their targeted clients and customers. This reflected on the lack of marketing concepts and lack of required written and oral communication skills to help sell the products and services. As Pleshette[10] argued, starting a business is a *"time to get out of your timid self and begin to aggressively market your venture – that is the only way you can succeed"*. On financial aspects, ability to handle money well is very important and this is one of the biggest deficiencies in most of the local institutions. The most affected are the fishing communities where the income is erratic but when it is received it is often lavishly spent and depleted within a very short period. It is also important that local institutions must have extra drive and commitment on how to meet the intended objectives. In addition to that is the ability to plan and manage allocation of time right from the start of the business venture.

[10] Pleshette, L.A. Must-Have skills for entrepreneurs. http://www.powerhomebiz.com/vol69/entreskills.htm

Information and communication resources:

This is another capacity constraint which was revealed during the field work and from LVEMP-1 lessons learnt. The weak technical capability of CBOs and NGOs operating in the LVB puts significant problems on their access to, and dissemination of, natural resources information. It is estimated that about 50% of the NGOs in the Lake Victoria basin do not have direct access to the Internet and electronic mail. Their information sources are limited to mass media (i.e. radio broadcasts, TV broadcasts, etc), contacts by phone, personal contacts and correspondence by mail. Unlike NGOs, many CBOs are operating without proper documentation and there is a lack of coherently detailed information on community participation activities, including details of sites where activities are being executed. There is a need to enhance capacity for NGO and CBO leaders to learn on how to document their valuable information.

Participatory approaches:

Different approaches and methodologies are being used to ensure community participation and a number of these are described in Kessy, (2005). The commonly used approaches entail village meetings, seminars, conferences, and workshops; study tours to different areas to experience sharing and acquiring best practices (i.e. Chirorwe farmers' group visited Buswahilini in Kiagata to learn what others are doing in wetland rice cultivation); distribution of pamphlets, brochures, posters; use of various mass media (radio, TV, newspapers), video; demonstrations and farmers' field schools. Nevertheless, the choice and application of any of the approaches and methodologies depend very much on the nature of the activities under consideration.

At village level, the meetings and workshops employ methodologies such as Participatory Rural Appraisal (PRA) and Participatory Learning and Development (PLD) to identify needs and plans for activities to be executed. This was most applicable in the case of the Microprojects Component in LVEMP-1, where villagers conducted PRA exercises to identify their needs, which were then channelled to LVEP for support. However, the situation was not uniform for all the districts; there were a lot of variations mainly depending on who was conducting the awareness creation and on how knowledgeable the facilitator was equipped with facilitation skills and the understanding of community participation approaches and methodologies. Generally, capacities of these approaches and methods need be strengthened to ensure effective community participation for the LVEMP-2 project.

4.2.3 Capacities of the existing institutions: LGAs

Within the LVB there are some 22 rural districts (see Table 4.1) of which 14 have their entire area within the basin, and a further 5 have a significant proportion within the LVB. The remaining 3 rural districts have only a very minor part of their areas within the LVB. In addition to these rural districts there are three urban authorities within the basin, bringing the total to 17LGAs being entirely within the basin and 8 being partly within. Of the 17LGAs the consultants had interviews with 8 of these, and also undertook field visits to NGOs and CBOs in these eight, and also to a further two districts where the LGA was not visited. Visit reports are presented in Annex C and Annex D.

The LGAs have received a big injection of resources with the Government's decentralisation programs now implemented under the LGRP and the PSRP. Much more money and human resources are now being channelled at this level at the expense of the central (National) and regional (Tanzania's 20 regions) levels. An excellent account of the workings and functions of the LGAs and their daughter institutions at Division, Ward and Village Level are given in the *Institutional and Legal Framework for Environmental Management Project (ILFEMP), March 2000* (see Annotated Bibliography, Annex E).

The LGA structure, and how it relates to the Regional and National Levels, is given in Fig 4.1. The key position at the District level is the District Executive Director (the 'DED') and under him/her are 10 technical directors, each responsible for a range of technical activities and a number of more junior technical staff. The fact that these staff are working together on the same compound and are ultimately responsible to the same officer (the DED) is an enormous potential advantage in terms of organising development activities in a holistic manner. As described by

Blackshaw, 1998: *'one of the most important positive attributes of the current local government structure is that agriculture and livestock extension, natural resources and community development activities have been brought together under a single institution'.*

Several recent 'model projects' (most notably TASAF) have demonstrated that money can be spent both at village and district level to good effect, and there is an increasing trend for projects to operate at District level. Given particular standards of accountability, money is increasingly being channelled through the district but with clear norms on procedures under which it will be spent. It was clear from the Consultants' field visits that many LGA officers are both technically capable and conscientious, in spite of still inadequate resources and particularly poor financial incentives. They were particularly enthusiastic on our field visits and prepared to show the Consultants both the success stories and the problem areas. Furthermore, District technical staff are commonly working much better as a multi-disciplinary team than are their counterparts at National level where a vertical culture still predominates. However, a mechanism still exists for the provision of technical advice and occasionally other support from both Regional and National levels, staff at the latter levels being generally more specialised and more experienced than the average technical staff member at District level. However, staff were quite frank in noting problem areas and various weaknesses in the present set-up.

4.3 OBSERVED WEAKNESSES

- Most of the districts visited, and particularly those away from the three major urban centres (Mwanza, Bukoba and Musoma) are short-staffed in several key technical areas, and with more work being expected of the remaining staff (e.g. through TASAF and other projects) the shortages were severely affecting work in several areas. In general, about 10% of all positions were unfilled, these being mostly in highly technical fields and especially subjects impinging on environmental work. Although there were Environmental Management Officers these staff members often had other roles (e.g. in land development and natural resources, forestry etc) and their technical backgrounds, training and previous experience were often not sufficient for the wide scope of work that they would be expected to undertake.

- The spatial planning framework for the districts so far appeared to be very poorly developed, and this is a major deficiency. This subject is very important for integrated watershed and environmental management planning particularly when significant sums of money are to be spent on integrated irrigation, water harvesting and reafforestation interventions. The spatial planners interviewed in the LGAs were essentially town planners / structural planners, working at very detailed scales for urban infrastructure. The detailed topo maps are excellent in detail and ideal basemaps for the urban and periurban areas and it is clear that good work will continue to be done in these urban areas. The town planners have very recently received a directive from their parent ministry to undertake village area mapping, but instructions on methodology to be followed appear not to have been forthcoming. The methodology and scale of mapping for village level and rural planning is very different from the work in urban / peri-urban areas and this is a clear area of concern.

- Another major area of weakness is in agricultural extension, the agricultural extension officers apparently having been omitted from the initial wave of LGA restructuring and the debates apparently are still continuing on possible privatisation of some if not all of these services. Several thousand officers are involved, extension officers being appointed at Ward Level and covering a very wide range of agricultural and livestock issues. For example, in Magu District, some 31 ward-Level extension officers are available in the agricultural extension field, and a further 31 livestock extension posts exist, also at ward-level (see Fig 4.1). The staff positions certainly exist, but questions arise on staff motivation, organisation and effectiveness. During the Consultant's time in the field in Kagera region, for example, there was major discussion on the effectiveness of these officers with respect to the problems of crop diseases in both coffee and bananas, two major crops in that area. In both cases disease-resistant varieties are available, but are not being very actively promoted. The problem of extension for that region contrasts sharply with the first-class demonstration farm in the same area being run by Mr Dedan Sombe growing a very wide range of agricultural and horticultural crops (see photos on CD of soft

copy version of this report). It might seem that the most effective means of agricultural extension in the country might be to turn the extension officers into managers of small demonstration farms!

- Another possible problem area with decentralisation is that individual technical specialists may lack positive interaction of work with other staff in the same discipline (for example a graduate junior staff member can benefit greatly in the first 5-10 years of his/her professional career in working in a team with more senior staff of the same discipline) and this is particularly important for the highly-technical fields where exposure to staff who have had wide experience in the wider world is very important. Because they are relatively junior staff, some individual technical staff also lack the technical experience to tackle problems and tasks required in district (e.g. irrigation design; new crop varieties / pests / diseases, village land use plans). It was also clear from the Consultants' visits that some good technical staff now feel somewhat isolated in their district – i.e. they feel that their professional career is at a dead end.

- Planning and implementation of irrigation schemes is a particular concern. This is correctly a high priority area for government, and the rural districts all had proposals and plans for rehabilitation and extension of the irrigation schemes. However, in no District did the Consultants see any evidence of feasibility studies, financial / economic analysis, or even preliminary physical designs for such schemes, let alone any catchment area maps. Also at the irrigation schemes visited, adequate spillways were not yet constructed: this is a major deficiency as maximum daily rainfall in the area has been recorded at 188mm, and small earth dam and spillway design must cater for such high rainfall (and consequent run-off) intensities. The Consultants support the Government's prioritisation of irrigation and this could be a major activity in LVEMP-2. However, a major technical advisory, planning and supervision input from the LVEMP-2 project is clearly required in this field.

- Additional problems were also apparent in the remoter districts due to lack of quality schooling, medical facilities, etc. In spite of money have been spent at District Level, some staff are still working under Dickensian conditions: some poor offices, lack of modern facilities, equipment; lack of transport (even motor-bikes). The Government and the Aid-Agency red-tape factor needs also to be considered.

4.4 CONSULTANT'S RECOMMENDATION:

- The Project should focus on on-the-job training activities covering the main fields, using both national and regional ministry staff and consultants/advisors, as required. This is most important on those activities where significant sums of implementation money are likely to be spent (irrigation; land and water management, reafforestation).
- On the job training should be conducted at the district centre and in the field: the work should have a practical field-bias, and organised in 1-week modules. Although implementation is recommended to be concentrated in a limited number of districts in the first 5-years of the project (a maximum of 7), technical staff from the other districts should also be brought in to benefit from these training programmes. Subjects to be covered would include: PRA; PLUPLA; computer skills; watershed and environmental planning & management; soil conservation; forest plantation management; JFM with Natural Forest Areas; agricultural extension; irrigation (both engineering & agronomy); community-forestry; business skills ToT.
- The Project should also focus on practical implementation of irrigation and water-harvesting interventions implemented through Ward and District committees and tied to signed PLUPLA agreements with villagers.
-
- The structure of project operations with respect to this Watershed Management Framework and operations at both District and LVBasin levels in shown in Figure 4.2. The three shaded areas in this diagram represent the three operational areas:

- LVEMP-2 Premises in the LVBasin Water Office compound in Mwanza:

- District Office premises in the initial districts being covered by the project (it would be suggested that no more than 7 be tackled in the first 5 years of the project in terms of practical implementation, although staff training would be provided to benefit staff also from other districts)
- Sub-catchment / Ward level, where plans would be made and implemented in the field on a subcatchment basis. Monitoring and Evaluation would be concentrated at this level and would include both improvements in the vegetation/crop/tree growth and resultant economic performance on the one hand, and benefits to the lake in terms of reduction of nutrient, organic matter and sediment loss on the other.

- The Project should also support continuing re-vamp of District and Regional Offices; provision of equipment (e.g. motor bikes, solar-powered laptops); project to put many tasks out to tender, for which the District would be invited to bid for (in competition with NGOs, CBOs and private-sector). *See particularly Results/Outputs 7 in Logframe but other Results / Outputs also included.*

4.5 PROPOSED STRATEGIES FOR STRENGTHENING CAPACITY OF LOCAL COMMUNITIES, NGOS, CBOS AND OTHER INSITUTIONS

Recognizing the limited participation and involvement of communities during LVEMP-1 and related shortfalls, a major effort on community capacity development is imperative for the LVEMP-2 project. Principally due to a lack of facilitation and empowerment, the impact of some major development initiatives during LVEMP-1 at the community level has been minimal. Part of the problem here was that methodologies were not yet developed in LVEMP-1 and thus rapid extension of implementation activities in many of the components was not possible. All components now are at a stage where they know what actions need to be implemented on a larger scale. A further problem was that organization and finance of project activities was not undertaken through the LGAs. This problem again will be rectified during LVEMP-2, with the local communities and the LGAs being proposed to be central to the implementation of most project activities.

Awareness of programme opportunities amongst community members and their leaders remains low. Apart from a lack of facilitation, attempts to raise awareness and participation have often suffered from design flaws in community initiatives. Specifically, programmes have not addressed causative constraints to community development, nor placed emphasis on ownership and sustainability. Capacity in the public sector, whether at the national or district level, to promote community awareness, to assist in mobilization and organization and to develop management skills, is required. Likewise the capacity to effect awareness raising in academia needs to be enhanced.

Proposed Strategies of involving Community Organizations in wider Management of the basin:

i) Train, organise and support village institutions, CBOs, NGOs in participatory appraisal, planning and development activities:

ii) Promote and support village banks facilitating access to short-medium term loans at reasonable interest rates

iii) Promote micro-project planning & management at village / community level

4.6 PERCEPTIONS AND LEVEL OF COMMUNITY PARTICIPATION UNDER LVEMP-1

There is great variance in the level of community involvement in each of the LVEMP-1 components. For example, the level of community involvement for the micro projects was much greater than that on water quality and ecosystem management components. This observation coincides with that of Nyirabu (2005) who argued that, in general, the pattern of responses given by officials ranging from component task leaders, district officials, groups and communities closely involved in the Microproject Component was very positive. Furthermore the Microproject approach has shown a re-emergence of social dynamics within the communities, exemplified by an increased awareness of their own capabilities, and of their existing resources and potential, and by the start of spontaneous collective initiatives. A general view indicates that there was relatively more community involvement in components which had more impacts on peoples' livelihoods and those that had a developmental focus than the ones aimed at conservation of the catchment's resources. In particular there was a notable success for the Microproject Component. This was probably due to the value that people put on the Microproject Component, viewing it as bringing more benefits to the community than the other components.

However, the response from communities revealed the fact that there was a general lack of community participation skills with most of the LVEMP components' staff. Coupled to that was the way these staff interpreted the issue of community involvement. In line with that was the level of involvement of communities at village, district and regional levels. For some of the districts it was difficult to trace the level of community involvement that had been achieved. *An account of the different levels of community participation observed among the communities interviewed by our team is presented in Tables 4.2, 4.3 and 4.4.*

Generally, some issues are still unresolved and these centre particularly on how the community was mobilized, facilitated, empowered and involved in the implementation of the project activities. A general scrutiny reflects on the lack of skills on community participation approaches and methods among the project implementers.

Table 4.2: Community understanding of LVEMP-1 and perceptions, nature of community involvement and participation: Local Village Communities

Institution/ Level	Name of the Institution	Understanding of LVEMP -1, perceptions, nature of community involvement and participation
Local/ Village communities	Ihale Village and BMU	• Almost half of the members were not aware of the LVEMP-1 project at its start. • The community define/ understand LVEMP-1 as a project which was dealing with the conservation of Lake Victoria Basin resources, e.g. combating illegal fishing, cleaning the environment at the landing sites/ beaches, catchment afforestation, and prevention of soil erosion. • They got to know LVEMP-1 through the Magu district fisheries department who presented the project to the Ward Development Committee (WDC) • LVEMP-1 assisted with the formation of BMU but not all people were involved • Awareness on LVEMP-1 was done through a one day seminar and the community was not fully involved. However, there has been some few subsequent meetings for awareness creation • Communities were involved in: o Collection of sands, stones, aggregates (payment in kind) o Skilled laborers (i.e. masonry) from Ihale and Ijitu got employed for masonry works o Brick making for construction (payment in kind) • Community role in the implementation of LVEMP-1 activities has not been adequately done
	Nyarero Women Group	• Heard of the LVEMP-1 environment project through awareness campaigns that were conducted by LVEMP-1 in the lake regions. • Meetings and seminars were used and communities were asked to tell what had to be done for their development. LVEMP-1 guided the process to bring an understanding of the problem what had to be worked out. • The support of the LVEMP-1 project to the group enabled it to expand its activities. Added 18ha of land requested from the village and bought tree seedlings. LVEMP-1 supported the group in two instalments of Tsh 2.5 million (9ha) and 2 million (9ha) making a total of 4.5 million. The money was used for cultivation of new land acquired from the village and for tree planting.
	Soil and Water Conservation & Afforestation groups (HIMABU, HICHABU and MWAROBAINI)	• LVEMP-1 officials introduced the project to the village government. The village government introduced the project to the villagers through meetings and conscientized the community to form groups. • LVEMP-1 provided training on environmental conservation and entrepreneurship, however not all the groups were involved
	Chirorwe farmers group	• Not much is known about LVEMP-1 and not been involved. • Have a constitution but not registered; process ongoing to under basin water office to form Water User Association (WUA). Use rainwater harvesting to grow paddy.
	Rolya Farmers Group	• Not much is known about LVEMP-1 and not been involved. • Construction of embankment for an earth dam (2000 – 2002) for rainwater harvesting was supported by IFAD with a contribution of 7,500/= per an individual member.

Table 4.3: Community understanding of LVEMP-1 and perceptions, nature of community involvement and participation: District Councils

Institution/ Level	Name of the Institution	Understanding of LVEMP -1, perceptions, nature of community involvement and participation
District/ Council	Magu	• The project financed different microprojects and steered the process for forming BMUs in the district. The district officials were involved in executing the LVEMP-1 activities but there were no clear mechanisms for reporting. • Level of community involvement was very minimal and whenever need arose, meetings and seminars were used but mostly conducted once. A major shortfall is that the project did not fully involve the district in the planning of the project activities
	Sengerema	• The district was involved in formulation and execution of LVEMP-1 activities. The most involved departments were forestry and fisheries. The project supported the formation of BMUs, forest conservation groups, water hyacinth control and the microprojects Seminars, meetings and various mass media were used to raise awareness
	Musoma Rural	• The district was less involved under LVEMP-1 • With the exception of microprojects, not much is known for other components Level of community involvement questionable
	Bunda	• The district was partially involved. • Officials from LVEMP-1 office in Mwanza asked the district to select two villages for funding under LVEMP-1 project and later visited the selected villages. To start with, one village was selected and a village assembly meeting was held to address what was to be done. For each sub-village, two village members were selected to join the soil conservation committee. The committee acted as a focal point and had to monitor the day to day activities. Out of the committee, six members were sent for training to Babati to learn what others were doing on the field. Awareness created through the training enabled them to facilitate training to other people in the village. LVEMP-1 perceived as a Top-Down, as there was less involvement and no feedback on activities by LVEMP-1 at the district.
	Muleba	• Supported formation of BMU, but did not create good governance along the shore (beaches), harassed people and mostly appeared like doing police work.
	Bukoba Rural	• There was less involvement of the district on LVEMP-1 activities. Not know when and how LVEMP-1 started, and how it worked. The district provided some technocrats on request by the project but not in the planning of what was to be done by the project activities and not reported back to the district. Nothing was done on catchment conservation and afforestation. • It was only involved in micro projects to villages which were believed to have an impact on the lake. • The level of community involvement and participation was very poor. • Notable success on rehabilitation of believed extinct fish species
	Bukoba Municipal	• No direct participation and involvement of community and not known at the council level. Only a committee chaired by DC to oversee all the microprojects (i.e. construction of dispensary at Kilolo ward, latrines and rehabilitation at Rugambwa Secondary School). Technical staffs were hired and nothing was reported.

Table 4.4: Community understanding of LVEMP-1 and perceptions, nature of community involvement and participation: other Groups

Institution/ Level	Name of the Institution	Understanding of LVEMP -1, perceptions, nature of community involvement and participation
NGOs and Other programmes	LANESO	• Member of Project Implementation Committee (PIC) for LVEMP-1 • Involved in manual removal of water hyacinth • Involved in awareness raising and capacity building to communities • Involved in community participation and mobilization through seminars, meetings and trainings • However, LVEMP-1 did not involve NGOs and communities in planning its activities
	TAHEA	• Participated in the project management team by appointing one personnel from TAHEA. But there was no concrete activity for intervention by TAHEA. • Chaired World Bank evaluation team for LVEMP-1 but could not get report. Greater involvement of community from planning to implementation is highly lacking and need be streamlined
	ECOVIC	Moderate involvement in LVEMP-1 activities
	NTEAP Microgrants	The micro grants Program a WB and GEF funded program was formed after learning from LVEMP-1.
	SCC-Vi Agroforestry	Collaborated with LVEMP-1 on meetings (2000-2004) during the formed joint forum in the Magu District, but had no direct involvement in its activities.
Lake Victoria Basin Office	Basin Officer	• Worked closely with LVEMP-1 and the office provided support on water quality and flow measurement. *It was a personnel relationship, not formal* and no reporting mechanisms to the basin officer. But Tanzania decided to embark on basin-wide management and to that the water management in the basin is vested to the basin water office.
TCCIA	TCCIA Bukoba	• Not quite sure of what LVEMP-1 was doing. But recognize in one way the improvement in fish stock though was not fully participatory at grassroots.
Research Institution	ARI - Ukiriguru	• Little involvement under LVEMP-1, partly involved the soil and water conservation section; also during meetings and the WB evaluation mission.

4.7 SUPPORT IN CAPACITY BUILDING IN PRACTICAL IMPLEMENTATION ACTIVITIES FROM A CORE TECHNICAL ASSISTANCE TEAM

Given the scale and the complexity of the proposed programme and the fact that major capacity building of staff at all levels would be involved for mainstream implementation activities it would be recommended that a core technical assistance team be included. This core team would comprise predominantly National and Regional (three countries) full-time experienced professionals and have predominantly an advisory and training role and would be based at the Project Offices at Mwanza. The team's main function would be in training and capacity building of technical staff at District, catchment, and Regional (Tanzania and three-countries) levels. The team would also be of assistance in terms of reporting, monitoring & evaluation, website & other communication & publicity activities, plus some liaison, communication and advisory role with respect to the funding agencies.

The team would comprise seven long-term professionals: a Chief Technical Adviser/Team Leader; a Community Participation Specialist; an Irrigation Engineer; a Rural Land Use Planning / Watershed Management Specialist; an Agronomist / Agricultural Institutions Specialist; a Fisheries Specialist / Freshwater Ecologist; and a Forestry Specialist.

The Team would comprise National/Regional Specialists to embrace both in-depth knowledge of the region and its peoples and also the physical, economic and institutional possibilities presented by physically similar environments elsewhere in the Region and possible also in the wider World. The use of Regional (three countries) specialists would be particularly encouraged. The team would be covered by international grant finance money and be under 30-month contracts which would be reviewed at mid-term as part of the mid-term review. The team together would cover all the main technical activities being covered by the project so that all project activities would be covered by at least one member of the technical assistance team. The team would work closely with the National Coordination Unit and the component task team leaders. They would have a permanent office base in Mwanza but would work extensively at regional, district and village level for up to 65% of the time.

4.8 FUNDING OF LOCAL COMMUNITY ORGANISATIONS IN THE LVEMP AREA

There are a number of funding sources in the basin which include Local government, projects/programmes outside LVEMP, like TASAF, local government subvention, internal (local) sources e.g. cess, levies, royalties, etc. Formal credit from Micro Finance Institutions and banks are limited. The Consultant consulted a few financial institutions on opportunities and challenges of credit and financial services to communities. Nominal and real interest rates and default rates also were studied in relation to business experience. Locally generated funds, such as water user fees, fish levies and pollution charges, can provide a stable and important part of the financial base for lake victoria basin management. However, unless there is a high value use extracted from the lake's resources, these funds may not e sufficient for the management of the basin.

It is important that locally generated funds are largely retaind locally and that there is involvement of resource users in establishing and administering the fees.

4.9 CONCLUSIONS

Key to the successful implementation of LVEMP-2 - and particularly for the catchment-based activities - will be the full involvement of the communities from the very start of the project. As recommended in the 'Lessons Learned' reports a new component (Community Participation - CP) would be added to the ten existing components of LVEMP as soon as possible, with a CP task manager being appointed to lead this essential work from the LVEMP-2 base in Mwanza. It is also recommended that a CP specialist would be included in the Advisory Team, whose main function would be on training activities, particularly ToT.

The three main areas of operation for LVEMP-2 would be at sub-catchment / village level; District level; and at the LVEMP HQ at Mwanza working in association with LVBWO. It is strongly recommended that a watershed management approach be taken for the planning and implementation of activities at village and field level. Model CBOs at village level, covering irrigation, forestry, and integrated rural development / women's groups are operating in the area and already achieving some impressive results. These CBOs need to be strengthened and their various problem areas – both generic and very specific – need to be rectified. They will then serve as generic models for development throughout the LVB and ideal sites for study tours for participants from other villages, in demonstrating the impacts of LVEMP-2 interventions. Basic strengthening of CBOs (and NGOs) on a wide range of business skills (basic accounting; marketing etc) also need to be implemented. The same applies for the other well-established group of CBOs, the BMUs, some of which are working very well.

Key to early success for the project would be a rapid start on effective PRA activities in the key sub-catchments and associated villages plus community awareness programmes on LVEMP activities. These would also involve local NGOs selected after a local NGO database had been set up and NGOs assessed for their respective areas of capability. Also vital for project success would be PLUPLA in order to resolve the land tenure issues with respect to reallocation of land for irrigation and forestry and the securing of upper catchment areas under perennial vegetation (preferably forestry).

As for implementation activities, capacity building would be specific to LVEMP requirements and activities. Activities to be supported would be those that are (a) selected by the villagers as being of high priority; (b) being 'green' activities of benefit to the environment and particularly to the lake; and (c) being potentially income-generating and conforming to a business plan. Although TASAF is a commendable model for LVEMP-2 to follow, LVEMP-2 must concentrate more on criteria (b) and (c) which are not priority areas for TASAF.

In order to support this village-level activity, the LGAs would also benefit from training and capacity building from the project, the technical LGA staff being instrumental to most of the village-level activities. Mechanisms for support from the Regional and National technical staff in terms of technical advise and support also need to be built up by the project. Close working relationships with staff of NEMC / MoE need to be developed by project staff at an early date so that the programme of environmental plans at particularly district level can be integrated into the watershed management/development approach being proposed under LVEMP. The project would adopt the TASAF model (with some differences of approach as noted above). 'On-the-job' training would be emphasised with course modules usually of 1-week duration and emphasising practical fieldwork as much as classroom/seminar room teaching.

CHAPTER 5: REVIEW OF THE CURRENT SYSTEMS OF FUNDING MECHANISM IN THE LAKE BASIN

5.1 GENERAL

Sustained financing of LVEMP is critical if it is to realise its long-term objectives (sustainability literally means internalisation (at project, community or national level) of resources needed to keep the activities over a long period). While there could be a number of existing and possible options, the establishment of a Fish[11] Levy Trust Fund (FLTF) has been identified as one of the strategies for sustainable financing of Lake environmental management activities.

5.2 FISHERIES RETENTION SCHEME

The Tanzania Fisheries Retention Scheme was established in 1997. The scheme collects funds from a number of sources, the major ones being export royalties, export licences and fees from fish vessels above 11 metres in length. 100% of the money from the retention scheme is retained for fisheries management activities. The Fisheries Department / Division gets an expenditure ceiling from the Ministry of Finance. A budget has to be prepared as usual which is passed by the parliament in the normal way like other government budgets.

Money collected in the retention scheme is used to support fisheries surveillance, fish quality control, extension services and salaries to Fisheries Department staff.

The retention scheme has so far enabled a number of activities to be undertaken. These include:

- Procurement of office facilities and equipment
- Rehabilitation of landing sites
- Construction of Laboratory for fish quality control in Mwanza
- Construction of beach structures etc.

5.3 FISH LEVY TRUST FUND

5.3.1 Status of the Fish Levy Trust Fund

The EAC States conceived the idea of establishing a Levy Trust Fund through the LVEMP, as one possible means of generating funding for sustaining development activities that are being initiated under the LVEMP should donor funds eventually come to an end. The three countries intended to have a harmonised Fish Levy Trust Fund. A report was then prepared which recommended separate Business Plans for the FLTF of each country. Given the fact that the FLTF has not yet moved forward LVEMP-2 has a challenge of putting it into operation.

The fund is seen to be more focused on the conservation of the Environment of Lake Victoria to ensure that fish stocks are not depleted. It is important to note that the funds in the retention scheme are for operational and development activities, similar to those being undertaken for the wildlife activities in the country. There is therefore adequate experience in the management of such funds in the country.

[11] The word 'Fish Levy' may be narrowing the scope, would it be possible to say "Lake Resources Levy" instead?

It is anticipated in future that the Lake Victoria Fisheries Organisation (LVFO) which is funded jointly by the three countries of Tanzania, Kenya and Uganda will ensure contributions are made from the countries' Fish Levy Trust Funds into a regional Fish Levy Trust Fund. A Fish Levy Trust Fund was therefore proposed as a pilot project so that once proven successful, the model would be expanded to cover other resources being exploited in the Lake Victoria Basin (soil and water, land, forestry etc).

A proposal was also made by Kenya and Uganda to have direct collections from fishermen to contribute into the FLTF but this was rejected due to the fact that the District Councils in Tanzania are already collecting fees at the moment. Direct collection from fishermen would therefore mean double taxation. Moreover in Tanzania, the Local Government Act requires councils to use part of the collections in their respective districts for development activities. This is not the case with Kenya and Uganda.

5.3.2 Review of the Fish Levy Trust Fund Business Plan

The Fish Levy Trust Fund's mission is to realize its vision by collecting and mobilizing financial resources largely from within the fisheries sector and facilitating the availability of funds in a cost effective way to its core functional areas of natural resources sustainability, industrial development and human capital development

The component / subcomponent breakdown of the Fund's planned expenditure is as follows:
Management, R&D (85%)

- Natural Resource sustainability: 47%
  - -Habitat protection & enhancement**;
  - -Water hyacinth control
  - -One-off patrols
  - -Training & awareness raising
- Industrial development: 30%
  - -Improvement in fish landing, handling & storage
  - -Construction of dry & cold storage facilities
  - -Encourage use of ice in artisanal fishing vessels
  - -Encourage value-added products
  - -Fish post-harvest losses study
  - -Construction of access roads**
  - -Construction of fish and fishery products consumer markets
- Human capital development 8%

Administration (15%)
(Items marked thus:** are those where overlap with LVEMP-2 'mainstream' activities (see activities under Proposed Logframe, Annex I) or TASAF activities would be occurring and as these items are somewhat further removed from the fishing business and fishing communities it would be proposed that they be financed by these programmes (and thus financed under grants / soft loans).)

(a) Fee collection mechanism and its impact on the overall economic growth objective

The fee collection from the fisheries on the Lake Victoria can be divided into three separate flows:

i) Fee collected at local or district levels which are retained and applied at that level. These include fish levy, landing fees, trading licences, fisher and vessel licence fees and registration fees for small vessels (<11m length).

ii) Fees collected through regional fisheries representatives and submitted to the central government. These include export royalties and registration fees for larger vessels, and

iii) Those accruing to consolidated central government funds by way of the Tanzania Revenue Authority. These include personal income taxes, VAT and corporate taxes.

Fees falling under category iii) above are treated strictly as central government revenue destined for the consolidated treasury fund and there is no precedent for such monies being earmarked for any specific purpose or subsector (e.g. LV fisheries). The taxes and levies applicable to the fishery on Lake Victoria essentially follows the major economic agents in the fishery, including vessel owners, traders, processors and exporters.

The FLTF business plan does not clearly indicate the mechanism of fee collection bearing in mind the above three flows of fees. Moreover, Guiding Assumptions and Risk Analysis have not been given adequate attention. It has been pointed out in the report that the FLTF funding heavily relies on contributions by stakeholders, especially fish levies and export royalties. Should these fall because of export market difficulties the Fish Levy Trust Fund will suffer financially. Moreover, revenue streams from local government sources depend on third party efficiency in collection of dues and fees. If collection efforts worsen as a result of evasion and misappropriation, revenues accruing to the Fish Levy Trust Fund will equally suffer. Another important factor to consider is that, export royalties depend heavily on Nile Perch availability in the Lake. Short supply or decrease of Nile Perch in the Lake will have initially direct impact on the export royalties and consequently inadequate funds for the FLTF.

Funding priorities for the FLTF have already been agreed at 85 percent of Gross Fund Income going towards Management, Research and Development Component (see above). Within this component there are three other sub-components which are Natural Resources Sustainability, Industrial Development and Human Capital Development. These areas do not include the Administration component for which a maximum of 15 percent of the Gross Fund Income is earmarked.

Cash Flow Projections have been prepared under two scenarios. Scenario 1 utilises historic data generated from records of export royalty obtained from the Ministry of Natural Resources and Tourism for the previous years between 2000 and 2004. This scenario assumes the lowest Export Royalties Retention rate of 2 percent. This scenario makes available a total of TZS. 128 million in the first year of the Business Plan [2005/06]. Clearly this is grossly inadequate considering the initial year FLTF programme costs of TZS. 827 million.

Scenario 2 therefore seeks to establish the level of funding that can sufficiently cover the envisaged initial programme component costs. It is found necessary to set an Export Royalties Retention rate of 13 percent in order to generate a sufficient amount that is needed.

This retention rate makes available a total of TZS. 834 million, in the first year [2005/06] which covers well the envisaged initial programme component costs. This is the recommended Scenario.

In comparison, Kenya plans to avail US$ 845,000 for the Fish Levy Trust in the initial year of operations while Uganda has set aside UGX. 8,531 million for the Fish Levy Trust in the initial year of operations. Both Kenya and Uganda appear to set aside slightly higher allocations than what is provided for Tanzania under Scenario 2. In this respect with a retention rate of 13 percent brings Tanzania to a position where it can support sustainalby activities envisaged in the programme components.

b) Review of the Proposed Organisational Set up and Required Supportive Environment:

Central to the successful implementation of the FLTF to achieve LVEMP vision are the institutional set up, mandate and operating (policy, legal and regulatory) environment. Review of the organisational set up and required supportive environment in the FLTF business plan has revealed that the planning and implementation process of activities are adequate to ensure compliance of the projects with LVEMP vision, goals and objectives; Moreover the Fish Levy Trust Fund's vision closely mirrors the vision of the Lake Victoria Environmental Management Project because it seeks to achieve the same ideals envisaged in the LVEMP project formulation. The Fish Levy Trust Fund's vision is stated as:

To utilize funds generated from within the fisheries sector to create conditions whereby all actors and stakeholders work together to attain a Lake Victoria Basin with resources that are sustainably managed and communities that have a high and equitable standard of living

The FLTF business plan has in place adequate information needed to facilitate rational decisions on funds management and policies; however, more emphasis could have been put on the basic assumptions used for the financial projections.

(c) Investment Strategy and Funding Management

The Fish Levy Trust Fund is expected to be managed on a going concern Business Plan. All aspects of fiduciary conduct in respect of the Fish Levy Trust Fund's investments will be undertaken in a prudent manner. The investment of the Fish Levy Trust Fund's assets has to comply with the requirements of the relevant legislation. In this regard the Fund shall have to prepare Financial Regulations to guide financial practice and encourage financial discipline. The plan, however, does not clearly show a complete process of investment including the actual strategy or strategies to be adopted.

The FLTF Business Plan provides different ways of accessing funds. Funds from the Fish Levy Trust would be accessed through annual competitive applications, commissioning an MR&D provider, collaborative joint venture MR&D activity, and under activities related to sustaining the fisheries activities in the Lake. Furthermore the plan has narrated areas for consideration when developing evaluation criteria for accessing funds. The areas include:

i. Projects proposal from persons with institutional linkages;
ii. Co-financing ability of the applicant;
iii. Attractiveness along the line of clearly defined outcomes relevant to the Trusts' Management, Research and Development objectives; and
iv. Feasibility attractiveness with planned outputs sufficient to achieve the planned objectives.

It is recommended that an ellaboration of the ways of accessing funds be done to bring to local community and the public at large an in-depth understanding and interpretation. Furthermore, a timely development exercise of the detailed criteria should be undertaken.

d) Basic Evaluation Procedures for the Performance Monitoring of Funding Management Mechanism

Monitoring and evaluation are indispensable in ensuring that the predetermined objectives are achieved efficiently and effectively. The FLTF business plan provides a sound monitoring and evaluation system. The system needs to be backed up by performance indicators to allow for evaluation of achievement of the set objectives. The implementation of the Business Plan will be through the annual plans and budget, prepared within the framework of the Business Plan. However, management will have to ensure that all programme components are prepared and reviewed on the basis of the Business Plan. Dissemination of information within the organisation between sections will be very important in facilitating a sound periodic reporting system.

It is proposed that within the reporting timescales it is better to have routine monitoring of implementation success by recipients of Trust funds. Management will then discuss performance reports preferably on quarterly basis after which a comprehensive performance report will be presented to the Board of Trustees. Reports shall also be made available to the the Lake Victoria Basin Commission under the EAC and to the supervising Government Ministries.

5.4 WATER UNDERTAKERS

5.4.1 General

Lake Victoria and its catchments provide water to cities and towns around the Lake and beyond through urban and district water authorities. Water undertakers could be one of the potential sources for LVEMP activities. The Mwanza Urban Water Supply and Sewerage Authority is among the water undertakers in the Lake Victoria Basin. The Authority is a government agency for the provision of adequate and sustainable water and wastewater management

services in Mwanza City. The Authority was established in July 1996 under Water Works Ordinance Cap 281, as amended, as a semi-autonomous authority and was declared fully autonomous from January 1998. The Authority is fully owned by the Government of the United Republic of Tanzania. Mwanza city has an estimated population of 524,000 people of which about 434, 920 are under the water service coverage area. This water service coverage area is about 72% of the supply area. Sewerage Services covers the central part of the City and Pasiansi Majengo Mapya and is about 7% of the area of the City that can be connected to a sewer. The Residents of Mwanza City, on the other hand, have a responsibility to pay for the full cost of Water and Wastewater Services rendered to them so as to enable the Authority to continue providing and improving the services.

5.4.2 Existing and Potential Relationship between the Authorities and LVEMP

Water undertakers have been providing facilities for research activities during the implementation of LVEMP-1. There has been considerable participation of workers in stakeholders meetings. Water undertakers have benefited in terms of their staff being trained by the project. A case in point is that of Mwanza Urban Water Supply and Sewerage Authority whose staff were sponsored for MSc and PhD studies. In Bukoba Municipal Council LVEMP-1 had a plan to have in place a facility for water treatment but this plan was not implemented. It is important that this collaboration is deepened and LVEMP-2 strengthens the capacity of Urban Water Supplies and Sewerage Authorities so that they could eventually contribute to LVEM.

5.4.3 Customer Base and Tariffs: Mwanza Urban Water Supply & Sewerage Authority (MUWSSA)

The Authority started implementing its four-year 2004-2008 Performance Improvement Plan (PIP), 2004/2008 during the year 2004/2005. The Performance Improvement Plan is considered as the road map for the Authority's performance and service delivery. Table 5.1 shows some of the key performance indicators relating to the Authority's performance for the year 2004/2005 out of which the customer base and tariffs are depicted.

For the last three years (2002/3 - 2004/5) the Authority's annual operating income has been Tshs 2.203 billion, 2.838 billion, and 2.903 billion respectively. The operating expenses for the three years were Tshs 1.878 billion, 2.625billion and 2.861 leaving surpluses of Tshs 0.325billion, 0.213 billion and 0.042 billion respectively. There is some capacity given that the Authority loses approximately 50% of its water. Efforts to increase recovery of Unaccounted for Water (UfW) to only 20% could enable the Authority to increase sales.

Looking at the performance indicators it is clear that industrial customers are supporting domestic customers due to the fact that average domestic tariffs are less than unit costs of water sold.

Table 5.1. Key Performance Indicators, MWASSA, 2002 -2005

Category	Indicator / Ratio	2002/2003	2003/2004	2004/2005
Water Production	Quantity of Water Produced per year (cubic metre)	14,278,543	14,336,530	14,572,604
	Unit Cost of Water Produced (Tshs per cubic metre)	132	*183	196
Water Delivered (for whole city)	Quantity of Water Sold per year (cubic metre)	6,139,773	7,168,265	7,432,028
	Target Population (in area with water network)	381,000	380,500	458,493
	% age of Area covered	70	72	72
	Number of all Water Connections	15,313	16,303	18,141
	Average Supply Hours per day	20	22	22
Efficiency	Unaccounted for Water	57%	50%	49%
	Unit Cost of Water Sold (Tshs per cubic metre)	306	366.30	385
Consumption	Consumption Metres in good working Order (%)	95	95	92
	Quality of water delivered (%of samples accepted)	96	97	97
Sewerage	Service Area Coverage (%)	7	7	7
	Sewer Maintenance (No of Blockages attended /year)	140	130	126
	Sewer Treatment (% of wastewater treated)	0	100	100
Productivity	Staff / 1000 all Water & Sewerage connections	*12.3	*10.8	10.5
Financial Sustainability	Average Domestic Tariff (Tshs)	250	275	275
	Average Commercial Tariff (Tshs)	375	490	490
	Sewerage Tariff (As % of Water Tariff)	50	50	50

* As restated

5.4.4 MUWSSA: Level of Financial Self-Sufficiency

The Authorities Vision is to become self reliant in financing both its Recurrent and its Capital expenditures in near future. In view of this vision, the Authority has continued strengthening its capacity in financing capital investments using its own internal financial sources each year. The Authorities Recurrent Expenditure is fully financed by internal sources. The Authority spent Tshs 524 million to finance capital investments from its internal financial sources for the year 2004/2005. Internally Funded Capital Investment stood at Tshs 513 million and Tshs 327 million for the years 2003/2004 and 2002/2003 respectively.

5.4.5 MUWSSA: Constraints Facing Revenue Collections

The Authority is faced with the following constraints

- High Unaccounted for Water (UfW) Averaging 49%: Physical leakages and unlawful consumptions (water theft) are high. Some customers are dishonest and steal water by different methods. Some of the methods used by dishonest customers to steal water include illegal connections, bypassing water metres, tampering with water meters and corrupting staff.
- Customers' willingness to Pay being relatively low: Customers willingness to pay for the rendered services is relatively low. Coercive means like intensive disconnections are sometimes used by the Authority to realise reasonable collection. This is due to the fact that water is a natural resource considered by many to be a God-

given gift and cost-free commodity that should be supplied absolutely free and hence the legacy that water should neither be sold nor paid for.

- Small Coverage of, and low Public Awareness on, Sewerage Services: The current sewerage system covers only about 7% of the Mwanza City. Very few customers are connected to the existing sewerage system. Phase II of the on going Mwanza Water Supply Program Regional Centres is expected to extend sewerage connection network to cover at least 30% and expand the treatment plant's capacity. It is expected to finance connections of about 3,000 sewerage customers, the cost of which will be recouped by the Authority gradually from the customers.

Aged Water Network System: The existing water networks systems in all the Authorities are old and a heavy investment will be required to replace them.

5.4.6 MUWSSA: Implication of Increased Tariff to Contribute to LVEMP

Increase of tariff is considered by the Authority as not the best option towards increasing revenue. The immediate implication will be increase in the amount of money the customers are going to pay which in turn will be reflected by decrease in number of customers. Tariff increase has to go hand in hand with improvement in efficiency.

5.5 PROPOSED METHODS FOR IMPROVEMENT OF THE FUNDING MANAGEMENT MECHANISMS, THE FTLF AND INVOLVEMENT OF WATER UNDERTAKERS.

5.5.1 The Funding Management Mechanism

- The system need to be backed up by performance indicators to allow for evaluation of achievement of the set objectives.
- An elaborate fee collection mechanism has to be put in place in order to pave way for transparency and accountability
- District Authorities Contribution - The big picture with the success of the TASAF model demonstrates the possible impact should LVEMP-2 strengthen its working relationship with the LGAs. Potentially, LGAs would contribute to LVEMP in kind including community development extension staff necessary to make community-based interventions successful, plus contributing office space and facilities. As it has been proposed that PO-RALG should be brought into the fold to handle the community development (micro-project) component at grassroots level, this would help to have a harmonious administrative system. This in-kind contribution should be monetarised to show the value of the input in real terms.

5.5.2 The Fish Levy trust fund

While awaiting for the take off of the FLTF in Lake Victoria, it is suggested that a commensurate contribution of the export royalties and other revenue accruing to the Fisheries Retention scheme be ploughed back to support fisheries activities in the lake

5.5.3 Lake passenger fee / levy on freight charges

Based on the Polluter-Pays principle, it is proposed that passengers and vessels plying in the Lake should contribute to the lake maintenance fund. This would imply imposing a small levy on passenger tickets and on freight charges for trans-lake shipments. Charges would be commensurate with pollution caused by these ferries and freighters.

An alternative or even additional possibility would be a small additional levy on all fossil-fuel (mainly diesel, kerosene, fuel oil, petrol; butane/propane gas; possibly coal) sold in the LVB proportional to the N and S contents of the fuel. The rationale here is that the major proportion of these pollutants/nutrients would end up in the lake and thereby contribute to the eutrophication problem.

5.5.4 Proposal for Involvement of Water Undertakers

Based on consultations with all key parties, the Consultants' proposal for involvement of the various water undertakers in LVEMP-2 would embrace the following:

- The project should support the renovation of some sewerage treatment plants in the lakeside municipalities especially in Bukoba and Mara where they are defective and are a source of lake pollution.
- With both of these water undertakers having a modest but long-term source of revenue, costs of these works could be covered as part of the IDA credit for LVEMP-2.
- LVEMP-2 should verify current baseline data for the key parameters of water quality in the vicinity of the three municipalities and set realistic quantitative targets for improvement in water quality for these areas;
- It would be appreciated that capital costs involved in the improvement in water quality from the water undertakers would be financed on soft-loan rather than grant terms. Introduce sustainability issues for this as for the other components need to be introduced at the start of the LVEMP-2 implementation period.
- Water undertakers should be involved in the project through forums of which they should have their financial contribution to project activities directly related to the environment. The Mwanza Urban Water Supply and Sewerage Authority has already undertaken initiatives in the environmental conservation. Last year the Authority planted trees at water sources, reservoirs and sewerage oxidation ponds to conserve the environment.
- There should be enhanced co–ordination of activities between the Water Undertakers and the respective Municipal / City councils and also these should be better integrated into the Project's activities.
- More sensitization in sanitation is needed by educating the communities residing in the key areas;
- Low income groups need to be supported in the construction of sanitary facilities and public water kiosks;
- There is need for the Authority to subcontract to local communities for the supply of water in peri–urban local communities. This could be done by having bulk metres and leaving the communities themselves to look after domestic distribution lines in order to minimise water leakages attributed to illegal connections, the bypassing of water metres, the tampering with water meters and the attempts to bribe staff of the Authority.

5.6 CONCLUSIONS: ENVIRONMENTALLY FRIENDLY GROWTH STRATEGY

The most fundamental strategy for growth would be to continue with a business-friendly national and regional (3-countries) policy which would reduce business costs and welcome free movement of goods, services, investment capital and people across the country, the LVB and the wider world. For Tanzania easier access to EAC markets (better transport links and less red-tape on both sides of the border) would improve business climate especially for Kagera and Mara Regions (with Uganda and Kenya respectively).

Both the fisheries and the water utilities sectors can become self-regulating and self financing in the short to medium term (i.e. within 5 years) as income and revenues from both sectors are considerable. Fisheries levies and taxes should be recycled to support fisheries and lake/water activities of LVEMP (within 5years); the FLTF should be introduced at half the initially-proposed rate (i.e. at 6-7% and not 13%) and should support only fish / lake / water activities (not land-based activities); BMU reform should be handled cautiously and introduced firstly in those areas where BMUs are not working or working only poorly: step-by-step the reform can then be extended to other BMUs. World Bank soft loans should be extended to the water utilities to finance both extension of the sewerage system and extension of the piped water supply network. Treated sewerage water could be used for fuelwood plantation fertilisation / irrigation to produce large quantities of badly-needed firewood on short-cycle fuelwood plantations which would have also nutrient-stripping and proteinaceous cattle-fodder production functions.

On the land sector integrated watershed and environmental management should determine the planning and implementation of the many activities that are required to be implemented to improve the lot of the smallholder farmer at the same time as reducing the negative environmental impacts of the subsistence farming activities on the lake. The smallholder sector is so important as it dominates the land use, economy and environmental problems of the LVB. A small percentage increase in the economic performance in this sector will therefore have a major beneficial effect on reducing pressures on the lake and associated wetland areas.

For the smallholder sector implementation activities would be concentrated at both catchment level and District Level (emulating TASAF), but unlike TASAF activities would be selected to be both green (environmentally friendly and promoting permanent tree / vegetation cover) and specifically income-generating. A major push would be made on rainwater harvesting and small-earth dam irrigation and forestry activities (individual and village-level fuelwood plantations; JFM of natural forest areas) and support to village or catchment-based CBOs undertaking these activities. Major capacity building of technical staff at District level would be contemplated, linking staff of several different disciplines into multi-disciplinary teams. All of the land-based activities should be financed under LVEMP-2 on the maximum proportion of grant-money possible: the balance would be covered under the World Bank soft loan. Projected IRRs for major land use interventions – notably forestry and small earth dam irrigation – are excellent (Annex H): however, a mechanism for provision of credit to CBOs / farmers to cover these medium to long-term investments needs to be devised as does an equitable formula for redistribution of irrigable land to be put in place by PLUPLA agreements.

Implementation contracts under LVEMP would be largely directed through the Districts and open to small private sector concerns as well as teams put together from the public sector. On agricultural extension and irrigation (and perhaps other activities) the aim would be to strengthen teams of technical staff who could then operate as private agencies after the first 5-years of LVEMP (this has operated successfully on other rural development projects on which the Consultants have been working).

New investments from large land operators would be welcomed within the parameters set by Government and the agreement of local villagers. The well-proven nucleus estates-smallholder model needs to be extended in the area as that will bring the needed investment and increase in productivity as well as bring an equitable share of the wealth to the smallholders. Sugarcane, forestry plantations and tea would appear major crops deserving further expansion: prospects for sugarcane and forestry investments would appear excellent. Major land use changes and major irrigation would be the subject of EIA requirement and provision of information to partner countries.

CHAPTER 6: REVIEW OF THE EXISTING NATIONAL AND REGIONAL MANAGEMENT STRUCTURES

6.1 INTRODUCTION

The Lake Victoria Environmental Management Project phase two (LVEMP-2) has been developed based on review of performance of LVEMP-1, held in 2001-2002; the Stock taking exercise in 2003; and the development of a Lake Victoria Vision and Strategy Framework for management and development of the Lake Victoria Basin 2003. LVEMP-2 which is now under preparation is based on three broad program areas that address a regional program of Applied Research, strengthening of a National and a Regional Management Framework and sustainable Socio-economic Growth and Development.
The coordination of the project preparation activities in the three Partner States of EAC and also in Rwanda and Burundi is under the responsibility of the East African Community Secretariat

The LVEMP-2 preparation phase was formally launched on 17th January 2005 at the EAC Secretariat headquarters in Arusha, Tanzania during a regional stakeholders workshop. The objectives of the LVEMP-2 launch were to:

- publicise the start of LVEMP-2;
- build capacity in the design teams of the five countries (Kenya, Uganda, Tanzania, Rwanda and Burundi) in programme preparation;
- engage donors in the preparation phase of LVEMP-2 and
- Introduce the logical framework as a tool for planning LVEMP-2.

LVEMP-2 is a complex multidisciplinary project that demands strong coordination at the Regional, National Secretariats as well as close sectoral supervision at the various implementing agencies/institutions. LVEMP-2 has to be implemented within a framework covering both regional and national activities. The arrangement should recognize that the project cuts across many sectors and therefore implementation involves more than one country, government department and/or institution and the regional and national Secretariats that are responsible for coordination and supervision.

6.2 COMPONENTS OF LVEMP -2

LVEMP -2 has the following components:

- Applied Research
- Management Framework (with sub-components of Institutional Framework, and Monitoring)
- Social Economic Development (with sub-component of Private Sector development and Natural Resources Intervensions
- Communication, Awareness Creation and Education, which is a crosscutting component)

6.3 THE LAKE VICTORIA BASIN COMMISSION

The Lake Victoria Basin Commission was established by the council of Ministers as provided by Article 33 of the proptocol (Institutional Framework). The main objectives of establishing the Commission are to promote equitable economic growth; measures aimed at eradicating poverty sustainable utilisation and management of natural resources; the protection of the environment within the Lake Victoria Basin: and compliance on safety of navigation. The broad functions of the Commission is to promote, facilitate and coordinate activities of Different actors towards sustainable development and poverty eradication of the Lake Victoria Basin Article 34 of the protocol of LVB on the other hand provides for the Organizational Structure of the commission. The Lake Victoria Basin Commission is an institution of the East African Community as provided for in the Treaty and operates within an organizational structure comprising of the Sectoral Council; the Coordination Committee; the Sectoral Committees; and the Secretariat of the Commission

6.4 REGIONAL INSTITUTIONS

There are several Regionl Institutions which include the following:

- National Level Governments of the EAC and those of Rwanda and Burundi
- The Lake Victoria Basin Commission
- Lake Victoria Fisheries Organization (LVFO), whose legal mechanism is an international agreement and its major function dwells mainly on regulation of fisheries related activities for all EAC countries
- Lake Victoria Basin Water Office in Tanzania, charged with regulating activities within the basin by making use of National laws as legal mechanism
- Lake Basin Development Authority of Kenya whose major function is resource development

Since the Sectoral institutions of the EAC countries have their own plans and programs, the harmonization of these plans and programs may be difficult. The best option to tackle such a situation is to rely on the facilitating functions of the cordinating institution like the Lake Victoria Basin Commission. Moreover lack of strong evidence of supernationality is a basic weakness in organisation and regional economic communities.

6.4.1 The Secretariat of the LVB Commission

Articles 39 of the protocol provides for the Secretariat of the Commission which is headed by the Executive Secretary appointed by the Council. The Executive Secretary is assisted by two Deputy Executive Secretaries also appointed by Council. Some of the functions of the Secretariat is to : -

coordinate all activities within the scope of the Protocol; initiate the coordination and harmonisation of the policies and strategies related to the development of the Commission; establish a regional database and

promote sharing of information and development of information systems and data exchange; develop a sustainable funding mechanism for facilitating sustainable development in the Basin.

6.5 THE REGIONAL MANAGEMENT STRUCTURE

The existing management structure of the LVB commission comprises 7 staff members who are within the secretariet. They are ; the executive secretary, two deputy executive secretaries, a project officer, a senior program officer, a program officer and an accountant. In addition to these there are two workers who are directly involved in the LVEMP- 2. these are the Regional Coordinator and the Operations officer. Figure 7.1 below provides an organization chart to illustrate the different positions of the members of the secretariat.

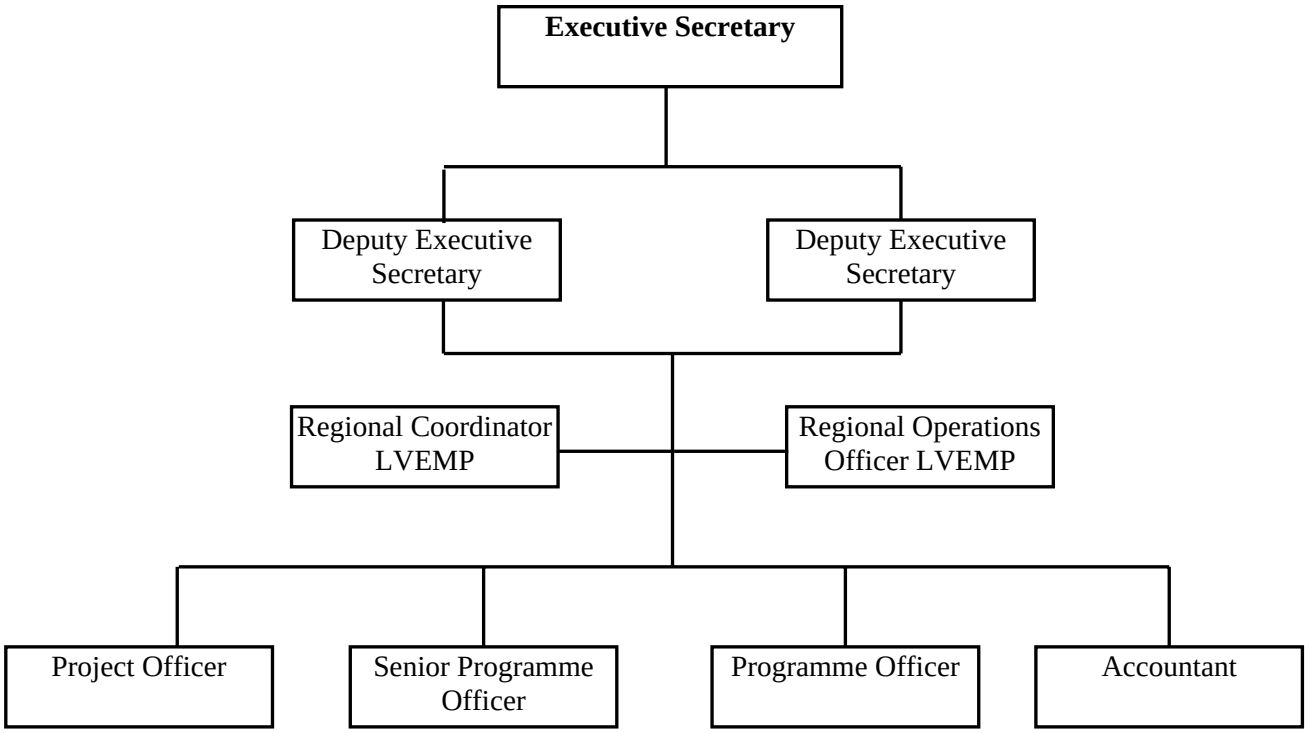

Figure 6.1: Existing Lake Victoria Basin Commission (LVBC) Organisation Structure

The existing structure of the LVB Commission has only two employees who are in the implementation Unit of LVEMP -2. Given the a complexity and multidisciplinary nature of the programme there is need to have a much more strong coordination at the Regional, National Secretariats as well as close sectoral supervision at the various implementing agencies/institutions.

The Regional Secretariat has limited role: basically just to service the Regional Policy and Steering Committee. As noted by the Stocktaking Mission in 2003 the Regional Secretariat should be given a wider role in coordination of planning and reporting, and in the dissemination of best practices. There is also a

need to strengthen it by supoting the LVEMP–2 Implementation Unit. Details of the possible support are provided in chapter 9

6.6 THE NATIONAL MANAGEMENT STRUCTURE

Analysis of Institutional Framework

The national LVEMP Secretariat in Tanzania is under the Ministry of Water. The other implementing ministries are the Ministry of Natural Resources and Tourism, the Ministry of Agriculture and Food Security, and the Ministry of Livestock Development, Ministry of Land and Human Settlement, Ministry of Energy and Minerals, Ministry ocf Community Development, gender and children. Implementing institutions are the National Environment Management Council (NEMC), under the Vice-President's Office, the Tanzania Fisheries Research Institute (TAFIRI), the University of Dar es Salaam. A number of NGOs, CBOs Civil Societies, private sector operators and Local Governments

Ministry of Water and Ministry of Natural Resources and Tourism

The Ministry of Water and Ministry of Natural Resources as institutions are expected to the lead in the coordination because other institutions are focused in specific resource development and management like livestock, agriculture, land, minerals and energy,.However these ministries (Ministry of Water and Ministry of Natural Resources) are weak institutions in the country. They do not understand the complementary nature of their responsibilities and normally they do not work together. It will take time and even compell the ministries to be in crisis for environment and water resources to realize that they need to work together to ensure that the lake basin resources are utilized sustainably.

Local governments

Local governments (Municipal, district and regional authorities) can play a central role in improved LVB management. They are the bodies closest to the users of the resources of the basin. They have responsibilities for many resource management activities and they also use lake basin resources. They are best placed for facilitating a dialogue directly with basin resource users. Their decisions on land use sold and liquid waste management, transportation, construction and public health all affect water resources.

NGOs

NGOs and CBOs have an advantage of being more independent of political pressures than formal management agencies and so are well positioned to play an important and frequently leading role in the agenda setting and policy development processes.

Coordination between institutions

There is poor coordination between institutions as many of the institutions are engaged in different aspects of the basin. Other problems include: weak human resources, weak material resources, poor scientific and technical equipment; lack of support of local inhabitants and lack of self dependence in operational decision making.

Sustainable Development of Lake Victoria Basin

Under the EAC Protocol[12] for Sustainable Development of Lake Victoria Basin the partner states expressed determination to address issues of sustainable development of Lake Victoria Basin by cooperating in sustainable development of the basin through:

- Equitable and reasonable utilization of water resources;
- Monitoring and taking precautionary measures to prevent environmental degradation;
- Exchange of data and information; and
- Develop national strategies, that integrate conservation and sustainable use of basin resources into policy, plans and programmes

6.7 IMPLEMENTATION MECHANISM

Coordination of LVEMP is achieved by integrating the diverse interest groups in a decision-making process, at both the regional and national levels, through the following mechanisms:

Regional Mechanism:

- Regional Policy Steering Committee (RPSC)

This is the top policy organ for the project comprising 9 members (3 Permanent Secretaries, from each member state) representing Natural Resources, Fisheries, Environment and Water.

- Regional Secretariat

Responsible for coordination of regional activities:
Ensuring there is uniformity in approach

- International Panel of Scientists

Ensure that riparian states derive maximum benefits from activities of the international scientific community.

National Mechanism

- National Secretariats

Coordinated through the National Executive Secretary LVEMP by the designated Focal Ministry.
Among its coordinating responsibilities, the National Secretariat is mandated to procure common user items centrally. Other items can be procured directly by implementing institutions in collaboration with the National Secretariat. The organization chart of the National Secretariat is as depicted in diagram

- Implementing Institutions

  The components and sub-components of the project are implemented by various institutions. In principle, the departments charged with the responsibility of the sector implement the respective components per Table 6.1.

[12] *Protocol for Sustainable Development of Lake Victoria Basin, 29th November 2003*

Table 6.1: Resposibilities among different institution in implementation of LVEMP component

SNo.	Institution	LVEMP Component
1.	Ministry of Water *LVEMP Regional/National Secretariat*	Coordination and Supervision of Project Implementation at Regional and National level
2.	Ministry of Natural Resources and Tourism – *Fisheries Division*	Fisheries Extension, Policies, Laws and their enforcement
3.	Tanzania Fisheries Research Institute (TAFIRI)	Applied Research
4.	Ministry of Agriculture and Food Security – *Plant Protection Division*	Social Economic Development
5.	Ministry of Agriculture and Food Security – *Land Use Planning Division*	
6.	Ministry of Water – *Water Laboratories Unit*	
7.	National Environment Management Council (NEMC)	
8.	Ministry of Natural Resources and Tourism – Forest and Beekeeping Division	
9.	University of Dar es Salaam – *Faculty of Aquatic Sciences and Technology*	Applied Research

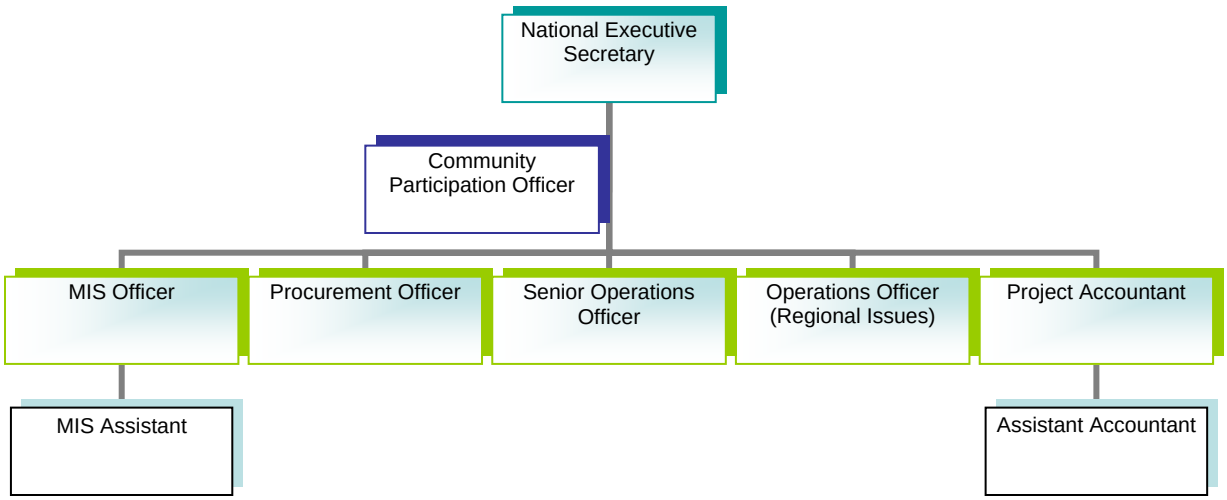

Figure 6.2 Organization Structure to be adopted by LVEMP -2

6.8 IMPLEMENTATION FRAMEWORK FOR LVEMP - 2

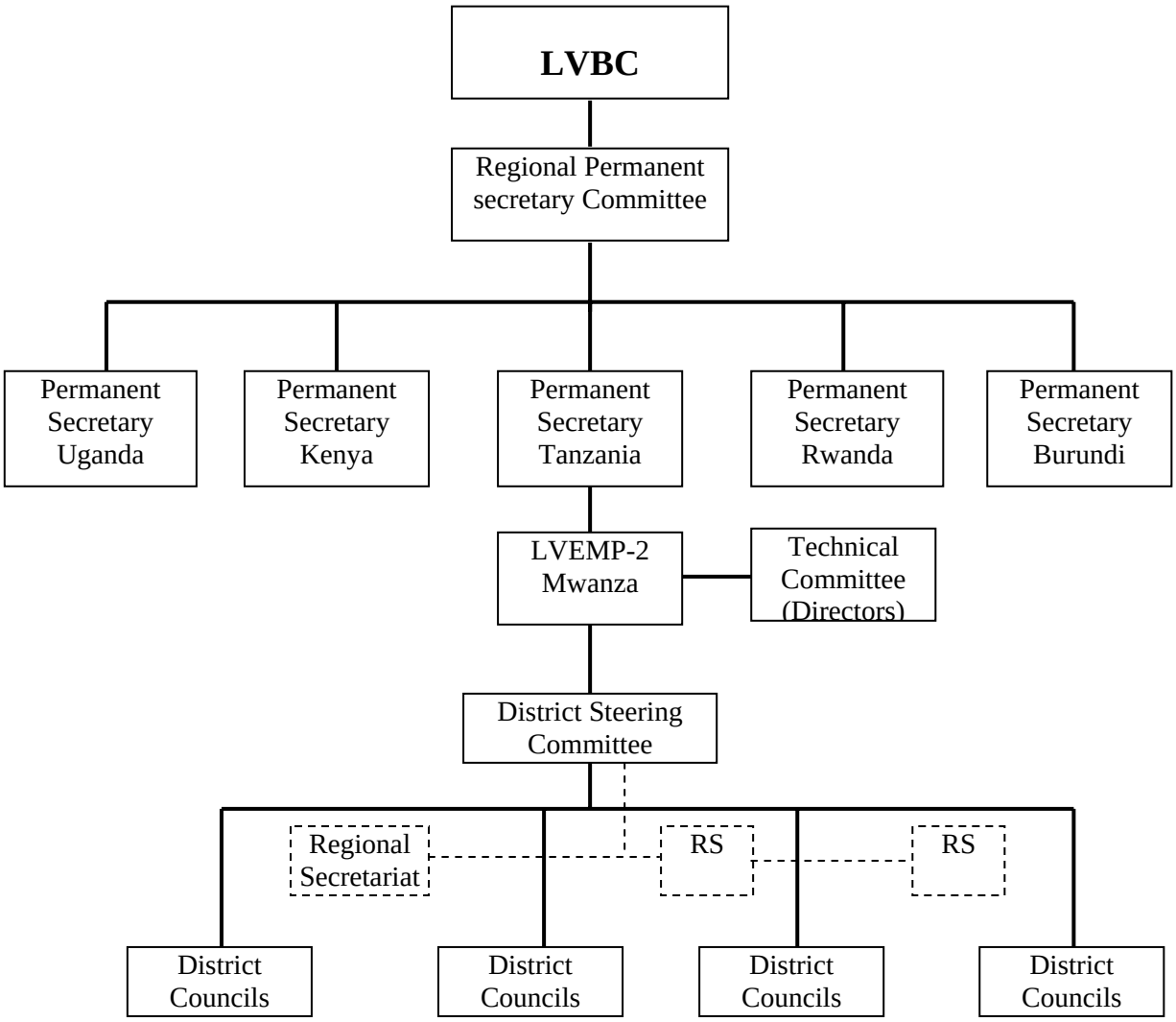

Figure 6.3: Proposed Organisation Structure for LVEMP-2

6.9 PROPOSED NATIONAL MANAGEMENT STRUCTURE FOR LVEMP-2

The following is proposed:

- A Board of Management be at the apex consisting of 6-8 people drawn from permanent secretaries from relevant ministries plus University experts (currently present in research), NGO and Private sector representatives.
- Board's Terms of Reference (TOR) to include the following key functions:

  - Providing Policy Guidelines
  - Approving Annual Projects Plans and Cost estimates
  - Approving Investment Projects
  - Have meetings on quarterly basis chaired by Permanent secretary from focal point ministry

- Below the Board there should be a Technical Advisory Committee comprising 10 – 12 members who are technically competent (experts without political influence). Within the committee there should also members from the Private Sector, NGOs and the Government)

- TOR for the Technical Advisory Committee to include be:

  - To appraise and recommend to the board: work plans and cost estimates, investment projects,
  - Setting appraisal criteria for projects at desk and field levels
  - Reporting to the board on the project progress and impact

- Consensus decision making has to be observed by the technical committee
- Below the technical committee we then have the Project Management Unit like the current National Secretariat.

To achieve the above proposed National Management structure for LVEMP-2 the following additional inputs shall have to be taken into account:

i) Qualifications of members at different levels need to be documented
ii) Members to originate from the following ministries: Water, Natural Resources and Tourism, Agriculture, Land, VPO, PO-RALG, Minerals and Livestock
iii) High level Policy member: PS(s), Private sectors (Chamber of Commerce), University Experts, NGOs
iv) Technical Advisory Committee: recommended ten (10) members – Directors/ Commissioners for Fisheries, Forest, Land, Water, Human settlement, Crops, Irrigation, Mineral, COSTECH and Basin Water Officer.
v) Project Management Team: National Coordinator, Accountant, Procurement Officer, IT Specialist, Operation Manager, Monitoring and Evolution Officer, Secretary, Drivers, Messengers
vi) Management Board to meet 4 time a year unless had an extraordinary issue for urgency
vii) Lower level meetings should also coincide with the high level meeting as they responsible for preparing the meetings for the higher level.
viii) The role of Basin Water Officer should be realised under LVEMP-2

- *Priority Areas for LVEMP 2 Investment need to be defined and could include:*

  - Enterprise Development
  - Waste Management
  - Applied and Strategic Research
  - Education, Awareness creation and capacity building
  - Integrated Water Resource Management
  - Social Economic Development
  - Monitoring and communication
  - Institutional development
  - Health and Disaster Management and;
  - Governance and Environment Policy which are crosscutting (are in all the above areas)

6.10 PROPOSAL FOR LVEMP 2 IMPLEMENTATION

- There is need of creating awareness to the stakeholders and community at large that there are funds and request proposals on a demand driven basis

- Qualities or Eligibility for money could have the following
  - Contribution to above priority areas
  - Existence of the organization (in Private/public sector) of at least two years
  - Have Community Participation element
  -
- Research must have a regional dimension (e.g. Makerere University and Sokoine to work together)
- Harmonization of Policy issues to be handled by the EAC
- Monitoring of the lake also requires an integrated approach by the EAC
- It is also important to say clearly how much should go on which activity propose budget. Put limits to Administration expenses

Summary of implementation Steps to be followed then is:

a) Awareness Creation
b) Receiving Proposal
c) Approval (Desk and field)
d) Contract with beneficiaries

CHAPTER 7: DEVELOPMENT OF INSTITUTIONAL MECHANISMS FOR CONFLICT RESOLUTION AND PEACE BUILDING

7.1 NATIONAL ARRANGEMENTS

7.1.1 Land tenure disputes

Increasing population pressures on land, continued commercialisation of land use, land degradation and inappropriate procedures for acquiring smallholder land have been cited in the *Guidelines for Participatory Village Land Use Management in Tanzania (December 1998)* prepared by the National Land Use Planning Commission, as reasons behind the increasing conflicts over land. These have led to land grabbing and the marginalisation of the weaker members of the society. Some of the conflicts have been the result of the introduction of formal ways of conducting business in an environment generally dominated by informal or traditional ways of conduct.

In an extensive analysis of the position in the Guidelines referred to above by the National Land Use Planning Commission (the Commission) writing shortly ahead of the enactment of the Village Land Act, 1999, suggestions were made for addressing these problems and these included strategies for encouraging implementation of land management measures to improve production per unit area thereby reducing the need to expand land under cultivation. It was suggested however that such management practices were likely to become effective in villages where there was security of tenure, where land rights are well known and accepted and where boundary conflicts are minimal.

The Vision and Strategy Framework for Management and Development of Lake Victoria Basin also relates at pages 84 to 85 the sources of other conflicts most of which stem from a competition for resources.

7.1.2 Village Land Act, 1999

The Village Act has in fact extensively addressed the question of security of tenure of village land. One of the stated underlying principles in land tenure is to have in place an independent, expeditious and just system for adjudication of land disputes to hear and determine land disputes without delay. Working around the traditional land occupation practices on village land, the Act elaborates a formal system of registrable land use rights based on the grant of communal or individual rights of occupancy or derivative rights obtained through a disposition of the land. These tenure systems, if generally exploited, will lead to more secure land tenure thus reducing disputes. For example, investment in irrigation infrastructure requires the land to be irrigated to be known and secured from other uses.

Conflicts between different users such as between pastoralists and crop cultivators, or residential development and farming or cultivation and forest reserves/conservation have tended to be resolved through dialogue or through land use agreements. These situations have also been addressed by the Village Land Act through the introduction of a system of adjudication elaborated in the Act, which leads to the preparation of an agreed land sharing arrangement. A land sharing arrangement will include arrangements for resolution of disputes by a joint mediation panel of members from each group of land users. This is designed to educe the incidence of disputes. The land sharing arrangement is registrable in the Village and District Land Registries.

The Village Land Act also elaborates a dispute resolution process which commences at the village level with the village adjudication committee with appeals lying to the Village Land Council, a key organ in settlement of land tenure disputes, to a district adjudication officer, a land tribunal and finally to the courts.

If these land tenure processes were to be more widely adopted, they would go a long way towards the reduction in land disputes. Present findings on the ground indicate that these land tenure systems have hardly been exploited, one of the reasons being that villagers are not aware of or familiar with the processes involved. The system of land rights elaborated under the Village Act is however a very basic system which excludes formal land surveys which would be even more involved and therefore even less likely to be used. However, there seems to be need for a re-examination of the land tenure processes with a view to facilitating securing land tenure rights to support other development initiatives, especially those aimed at the poverty alleviation.

7.1.3 Mechanisms for determination of land use/ rights of occupancy

In terms of the Local Government (District) Authorities Act, 1982, the executive authority of the village vests in the Village Council which is elected by the Village Assembly, the supreme authority on all matters of general policy making in the village. Governance is conducted through a system of committees charged with different aspects of the affairs of the village.

Under the provisions of the Village Act, no village land can be allocated and no grant of any customary or other right of occupancy can occur without the prior approval of the Village Assembly at a meeting of the Assembly. The Village Assembly has the right to complain to the district council if the Village Council is not managing village land in accordance with the law. This right to turn to the district council allows interventions by the district council officials in concert with the Village Council for an amicable resolution of the matters before the development of a full-blown dispute causing serious disruption in the village occurs.

Before the development of, for example, an irrigation scheme a request for which must come from the community and not imposed on the community, the irrigation authorities must first be satisfied that the village has gone through the necessary processes to obtain the consent of the villagers with regard to land use and tenure by the villagers in the irrigation scheme. This will include an agreement as to land contributions by each of the villagers towards the common irrigation infrastructure. This agreement must be recorded in writing and the arrangement will be recognized under the Village Land Act. It is crucial to formalise agreed land rights once they have been negotiated and agreed.

A more developed form of this agreement may include, depending on the institutional form adopted by the villagers for the irrigation scheme, a constitution or by-laws incorporating dispute resolution procedures.

The entire process, if adhered to, is designed to promote a peaceful determination of land use and settlement rights supported by an institutional settlement of disputes process which starts at the village level before appeals go up the institutional structures.

7.1.4 By-laws

Although the above stated processes are provided for by law, they have not always been followed either because the villagers are not aware of them or because corrupt practices have crept in. To assist in creating a general awareness of measures that are intended to limit the occurrence of disputes, Village Councils need to be encouraged and assisted in formulating by-laws for the better management and administration of land matters within their areas of jurisdiction. Because by-laws are required to be developed at the village level with the participation of the Village Assembly, this becomes the beginning of an educational process and also a process of creating an acceptance of the formalising of matters, thus institutionalising peaceful approaches to the determination and settlement of rights and obligations.

By-laws regulate the affairs of the village. They provide the legal basis and necessary tools for enforcing local level agreements concerning natural resource management and village land use plans and agreements. They can be created to allocate land for different uses, to impose restrictions or give directions for the management of different

defined uses for the protection of land resources such as water, soil and vegetation. Village by-laws are necessary in areas with serious land conflicts where agreements approved by the Village Assembly are not respected by all members of the community. By-laws are essential for the enforcement and maintenance of peace with respect to any range of conflicts arising in the community.

The process could be assisted by the exercise by the Minister of his powers under the Village Land Act to make regulations for the procedures to be followed by village land adjudicating institutions in order to improve the discharge of their functions. This would include the proper incorporation and application of the rules of natural justice and the prescription of the form and scope of the joint village land use agreements.

7.1.5 Other disputes

The current measures to reform Beach Management Units (BMUs) within the framework of the guidelines agreed by the Partner States within the LVFO provide another formal community organisation based at the beach level through which fishing communities co-manage fisheries with national and local governments. Their establishment is mandated by the Fisheries Act, 2003 and the Fisheries Regulations, 2005. BMUs are located within the institutional set-up of the Village governance. Their main functions are fisheries planning, management, conservation and development within their locality, in collaboration with the local and national governments.

With the formalisation of BMUs under the law, the fisheries co-management approach will enable local people to exercise the legal rights granted by the law to take care of fisheries resources, among other responsibilities and this responsibility will involve them, of necessity, in monitoring the activities of all persons in the community to ensure compliance with sustainable use, management and conservation requirements. The legal empowerment of BMUs places them in a position to effectively discharge their functions. They provide another front from which community disputes related to fisheries can be managed resulting, as was found in the areas where BMUs were operating effectively, in the creation of a fairly peaceful environment, the reduction in conflicts whilst at the same time providing a formal legal institution through which conflicts related to the functions of the BMUs are dealt with. The reformed BMU whose membership will now be more broad-based than it has been today is an institution which will serve to promote the general maintenance of peace.

7.1.6 Challenges

The main challenge at the moment is to secure the development of management parameters through a systematic and progressive formalisation of governance through legal instruments such as by-laws, regulations etc. This will begin the creation of an informed community which recognises the need to formalise the conduct of aspects of their lives in order to create peace. This in turn facilitates enforcement of rules and dispute resolution by the institutions charged with this responsibility. The efficacy of the existing institutions has not yet been fully tested due to the fact that the necessary work to inform and build capacity has not yet been fully undertaken and the formalisation of processes has not yet been fully internalised. This needs to be addressed. The proper use of the mechanisms and institutions which are in existence with respect to a range of governance issues also need to be addressed.

7.2 TRANSBOUNDARY DISPUTES

In the *Vision and Strategy Framework for Management and Development of Lake Victoria Basin (2005)*, it was pointed out that latent as well as manifest conflicts are apparent in several policy areas. These cover territorial conflicts stemming from unresolved disputes over international boundaries in parts of the lake basin, which is in fact also a conflict over access to resources. It is also claimed that there is a disproportionate distribution of fishermen, gear and catches having regard to particular countries' shares of the lake. It was also observed in 2005 in the above

publication that well over 2 years after the harmonisation of fishing laws and the existence of mechanisms within the EAC for dispute resolution, conflicts are still occurring. The problem is always with respect to enforcement.

One of the actions immediately indicated by this situation is the need for an explicit articulation of parameters of agreed individual States' actions, rights and obligations in the areas in which disputes abound. The range of areas of conflict at the transboundary level is set out in the *Vision and Strategy Framework for Management and Development of Lake Victoria Basin (2005)*, pages 84-85. The setting of agreed parameters constitutes the biggest challenge because, agreement at this level is crucial and without the development of specific rules and obligations in the problem areas to which Partner states undertake to adhere and with continued generalisations about the nature and causes of the conflicts, conflict resolution mechanisms become redundant. Once rules have been worked out and agreed at the transboundary level, the place where main enforcement activities should occur is at the national level through States ensuring the observance of the law by their nationals. Dispute resolution mechanisms would be invoked at the transboundary level if it is evident that an individual State has is not taking the necessary measures to ensure respect for the position agreed internationally.

A more specific definition of State obligations makes it possible for States to monitor implementation and compliance. There should be an elaboration of clear primary rules against which compliance or non-compliance can be determined. Because of the dynamic nature of developments with respect to a shared resource, any parameters set need to be under constant review. The objectives of this should be to facilitate, encourage and ensure compliance with obligations in a manner that is not confrontational, at least, not in the first instance. Any existing EAC dispute resolution mechanisms in these areas are likely to have no impact until there is a measure of specificity with regard to prohibited actions.

7.3 CONCLUSION AND RECOMMENDATIONS

7.3.1 Conclusions

- at the national level, the law as it presently stands provides mechanisms for peace building as well as for the resolution of any disputes arising in respect of land use and ownership and the exploitation of other resources. Problems have been as a result of the lack of enforcement of these mechanisms due to insufficient knowledge of or unfamiliarity with them;

- it must also be understood that some conflicts will of necessity, because of their very nature, have to be resolved through the ordinary court system as this will be the appropriate route to be taken. This will be the case with respect to contractual disputes which could arise between communities or individuals within communities and big business;

- it must also be understood that there is a limit beyond which communities can actually go to prevent criminal activity without the vigilant intervention of law enforcement agencies. Acts of banditry, piracy and other criminal acts fall into this category.

7.3.2 Recommendations

- the necessary work to inform and build capacity with respect to the existing mechanisms for peace building and the resolution of disputes needs to be fully undertaken and steps to encourage communities to internalise the operation of formal ways of dealing with matters such as land must be taken. The proper use of the mechanisms and institutions which are in existence with respect to a range of governance issues also need to be addressed;

- institutions at the community level, for example, the Village Council, BMUs, Village Land Council, etc, which have legal status, need to gain capacity to discharge their functions effectively in order to limit the occurrence of disputes, and to some extent, criminal activity;

- Village Councils must be encouraged and assisted in making of by-laws on a variety of matters that affect their lives in a community situation. The making of model by-laws by the Minister or the district councils for adoption as appropriate by the Village Councils would assist this process.

With regard to transboundary conflicts, the conclusions are that:

- even with resolution mechanisms in place, enforcement across borders has proved to be a challenge as it often will be in such inter-state arrangements if the full commitment of the Partner States to fulfil their respective treaty obligations is not shown. Enforcement is best effected by Partner States at the national level by ensuring that their citizens obey the law.

- although the areas of conflict are known, it is understood that the fundamental reasons behind the conflicts have not been addressed by the Partner States with a view to devising more lasting solutions and build peace.

The recommendation is that Partner States commence work aimed at putting in place specific rules on States' rights and obligations *inter se*, addressing the issues which lie behind the conflicts. For example, States' claims of the extent of their resource entitlements and the measurement of such entitlements must be defined in order to determine transgressions. Such rules and definitions should be accompanied by an agreed system of monitoring an implementation and compliance plan.

CHAPTER 8: PROPOSED PLAN TO IMPLEMENT THE STRATEGIES FOR INVOLVEMENT OF LOCAL COMMUNITIES IN NATURAL RESOURCES MANAGEMENT

This chapter outlines the proposed plan to implement strategies for involving communities in Natural Resources Management. Implementation of the strategies will also enable strengthening community participation for LVEMP-2 project.

This is tied into the proposed Project Logframe with specified Results/Outputs, Activities, and Sub-Activities, essentially under Result/Output 6- Improved capability of village institutions, CBOs, NGOs, to promote and support village development and to other activities enhancing the environmental status...

It is proposed that an additional component be immediately added to LVEMP, that being the *Community Participation Component with a Task Leader again based at Mwanza within the LVEMP / LVBWO compound*. Community participation would represent an essential part of nearly all LVEMP-2 individual activities (see Logframe).

The Proposed Plan to implement the strategies outlined in chapter 4 above is as provided below: Note number in bracket is according to logframe

Strategy No 1 (6.1) Train, organise and support village institutions, CBOs, NGOs in participatory appraisal, planning and development activities:

- undertake rapid PRA exercises in target villages to establish development priorities in each village that would improve and protect the environment:
  (Villages not having had PRA under TASAF or other programmes to have PRA to determine priorities (Months 1-6);
  Villages with TASAF PRAs but high agricultural or forestry potential to have new PRA to determine additional priorities (Months1-6);

- develop methodologies for PLUPLA in 2 critical areas for integrated watershed management programmes (Months 1-3);

- extend PLUPLA over most critical watersheds for good integrated watershed management programmes and improved security of tenure for rural families (Months 4-36)

- create awareness to the communities on the importance of the different components of LVEMP work: soil and water conservation; wetland management; catchment reafforestation; water quality and ecosystem management; water hyacinth control; fisheries management, etc (Months 1-6);

- strengthen information and communication resources and sharing among NGOs, CBOs, LGAs, existing and potential funding agencies and other institutions

(Establish a comprehensive database of all institutions, with geo-referencing (link to GIS) (Months 1-6); put information on specific or project website (Months 7-9); organise workshops/discussion groups in local areas/districts for representatives to meet to compare experiences (Months 7-9); ensure funding agencies receive well-packaged information from project (Months 7-9))

Srategy No 2 (6.3) Promote and support village banks facilitating access to short-medium term loans at reasonable interest rates

- o strengthen capacity of village institutions, CBOs, NGOs on financial accounting and business management skills Months 4-24);
- o facilitate formation of village banks / SACCOS with support from the Project (Months 7-36);
- o strengthen skills in village banking, extending amounts and terms of loans (Months 13-36);

Strategy No 3 (6.7) Promote micro-project planning & management at village / community level

- strengthen capacity of village institutions, CBOs, NGOs on entrepreneurial / micro-project management skills Months 4-24);
- strengthen marketing systems in the LVB (links to Activity 2.5 in Logframe) (Months 7-36)

(Improve trade/trans-border procedures facilitating marketing of products in other countries; establish website or section on project website with respect to marketing/current commodity prices etc; improve fee-back to villages & local communities with respect to market requirements, quality control etc)

- strengthen agriculture, forestry and apiculture (beekeeping) extension services (links to activities 2.1-2.6 in Logframe)

CHAPTER 9: POSSIBLE SUPPORT AREAS WITHIN THE LAKE VICTORIA BASIN COMMISSION

9.1 INTRODUCTION

The modalities of possible support to LVBC may be best done through strengthening of the LVEMP–2 implementation Unit so that it is well resourced in terms of personnel and equipment. In addition LVBC needs support to operate as an apex body coordinating management of all natural resources in the Lake Victoria Basin

9.2 STAFFING

It is proposed that the following additional staff need to be recruited:

(i) Project Coordinator who should also be an expert in Monitoring and Evaluation
(ii) Communication and Operations Officer
(iii) Information Technology Expert
(iv) Procurement Officer
(v) Accountant
(vi) Accounts Assistant
(vii) Drivers

The Project Coordinator cum Monitoring and Evaluation Expert shall be responsible for making follow-ups of different projects and participate in the preparation of indicators against which monitoring and evaluation shall be based.

9.3 EQUIPMENT

The LVEMP– 2 implementation Unit has to be supported with equipment such as Computers and GIS Laboratory to enable proper data keeping (database).

CHAPTER 10: PROPOSED MANAGEMENT PLANS

10.1 INTRODUCTION

This Section aims to tackle the last of the Specific Tasks / Activities of the TOR no v:
Propose a management plan to address key National and Regional issues with emphasis on:

- Sustainable fisheries.
- Integrated water resources management
- Land use and natural resources management;
- Integrated waste management (municipal and industrial waste);
- Clean water and safe water and sanitation;

10.2 SUSTAINABLE FISHERIES

The Fisheries management component is aimed at promoting, supporting and ensuring proper management and optimum utilization of fisheries resources in the Lake Victoria Basin. The issues being addressed include decline of fish catches and fish biodiversity for sustainable fisheries and food security. Other issues include weak extension services, poor information dissemination systems and lack of involvement of fishing communities in fisheries management.

10.2.1 Challenges Facing Sustainable Fisheries

- Low public awareness education for government leaders at all levels and particularly village leaders on sustainable exploitation of Lake resources and therefore perceiving that it is responsibility of BMUs only;
- Despite the training undertaken during LVEMP-1, there is still inadequate trained fisheries staff to implement planned activities;
- There are inadequate working facilities both at the Laboratory and the field due to budgetary constraints. Some of the planned procurement under LVEMP-1 was not undertaken e.g. Atomic Absorption Spectrophotometer (AAS), Current Profiler, etc.;
- The performance of Beach Management Units (BMUs) has been uneven with the majority performing below expectations due to inadequate incentives; the mobilisation has focused mainly on fish levy collection;
- There is weak collaboration between Fisheries staff, BMUs / CMUs and law enforcers affecting the effectiveness of each party;
- There is inadequate post-formation facilitation for Beach Management Units;
- Lack of fisheries Officers who are trained and gazetted in law enforcement and prosecution;
- Inadequate training of personnel in fish feeds production techniques ;
- Weak organized fisher community for participation in the fisheries management ;
- Inadequate sustainable system of fish catchment assessment in the region;
- No clear separation of responsibilities between law enforcement and extension services ; and
- There is need for further documentation on indigenous knowledge.

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10.2.2 Proposed priorities for fish management under LVEMP-2

It is being proposed that LVEMP-2 should continue with all the activities undertaken in LVEMP-1; however, priorities should be as follows:

- Continue with initiatives to harmonise laws and responsibilities;
- Promoting community participation in Lake Management through strengthening and expanding of BMUs, harmonization of incentive packages for BMUs and awareness raising on the role of BMU to communities, Government Leaders, law enforcers and fisher folk to enhance cooperation among stakeholders;
- Improvement of fish quality along the chain through continued investment in infrastructure (especially landing sites), working equipment, sanitation facilities and education, quality assurance, etc. in order to minimize the risk of any future import ban on grounds of fish quality;
- Establishment of Lake Victoria fish management funding through internally generated funds by operationalising the FLTF. The Fisheries Retention Scheme already in place offers a stepping stone for (Tanzania's) FLTF. There are two issues that influence the pace of establishing the FLTF: firstly procedures for amending the Fisheries Act to accommodate the Fund and secondly the fact that Tanzania already has a Fisheries Retention Scheme that ploughs back 100% of the funds generated to the sector;
- Strengthen Management Information System to include feedback to BMUs, communities, the Government and other partners;
- Continue to train fishermen in Business Management Skills and Environment Management;
- Continue with Fisheries Research Activities as will be identified by the Applied Research Component. These would include: -
  - Preparation of a strategy for sustainable research capacity utilization through exploring income generation activities;
  - Strengthening dissemination of scientific findings to the community (in user-friendly media),
- Initiate market intelligence research under the research sub-component and quality assurance to enhance competitiveness of Lake fish in the global market.

10.2.3 Establishment of Sustainable Funding

- Evaluate the Fisheries Retention Scheme to ascertain contribution from LV in the Scheme.
- Establish modalities for ensuring that revenue generated from LV re-cycled to finance LVEM activities (suggestion is that only fisheries / water/ lake activities should initially be covered by the fund).
- Liaise with the Ministry of Natural Resources to Amend the Fisheries Act to accommodate the establishment of the FLTF.
- Prepare an operational plan for the FLTF.
- Appoint Board of Trustees and the Fund Manager.
- Conduct a study to identify other opportunities that will contribute into the FLTF.
- Launch the FLTF.
- Evaluation of the FLTF (after 2 years).

10.3 INTERGRATED WATER RESOURCES MANAGEMENT

Water Resources Management would be planned and implemented as an integral part of Integrated Watershed Management Planning, the other key component here being Land Use and Natural Resources management. The key institution here is the Lake Victoria Basin Water Office in which the LVEMP Secretariat and Component Task Leaders would be based. During the course of LVEMP-2 it would be expected that the LVBWO would evolve into a larger organisation with more expanded roles, particularly in the interface between land and water use planning and

management. In the Logframe, the LVBWO (together with the existing Land Use Management Component of LVEMP) has the key role in Activity 7.3 Strengthen Land Use Planning and Integrated Watershed Management Capabilities at District and Regional Levels.

The PLUPLA activities (see Section 8.2 above) would focus on water use planning to as great an extent as Land Use Planning and the water resources specialists / hydrologists of the LVBasin Water Office / LVEMP Secretariat would have a key role in the direction of the PLUPLA teams. Currently there is no such an officer at LGA level, although the Water Engineer and Irrigation Officer (under the DALDO) together cover much (but not the entirety) of this subject. There is a similar division at Regional (Tanzania) Level, where officers in three areas would have some dealings in this subject: Agriculture (Irrigation), Natural Resources, Environmental Management (all in the Economic Development Supporting Services Division); Water Engineering (in the Physical Planning and Engineering Support Services Division) and Domestic Water (in the Social Sector Support Services Division). The unit of planning would have to be catchments and subcatchments from a technical viewpoint, and this would have to be matched with villages and clusters of villages from an administrative viewpoint. The PLUPLA water resources specialist / hydrologist would also have to combine top-down with bottom up approaches. The teams planning PLUPLA activities must be aware of the most promising locations for small-earth dam irrigation and other interventions, and then focus their activities in those areas.

Activity 3.4 envisages PLUPLA starting within individual villages (subcatchment area within a village) and then expanding to two or three villages spanning a larger sub-catchment. Later in the project there is scope for expansion of the scale of this activity to embrace a much larger area, hence Activity 6.2: Train organise and support clusters of adjacent villages in drawing up watershed management plans and water user groups for rational water and land use management of small catchment areas (5-100sq km).

An important initial assessment for water resources planning would be the amount of run-off which could be expected in any given catchment / subcatchment given the daily / hourly rainfall and soil infiltration / run-off characteristics for that area. Depending on these characteristics, and depending on the size of the subcatchment and also the financial resources / aspirations of both the local communities and the LGA / project, the appropriate water harvesting or small earth dam investment would be made. This can be a very capital-intensive activity (see Annex L, Table L.1; also Annex H, LUT1) but returns should also be very large: with good planning and organisation the investment should easily be justified. Part of the planning and organisation would have to be directed at land use planning in the upper catchment areas from where the collected water would be derived. For small earth dams it would be extremely important that very good soil conservation and maximum catchment reafforestation is practised so that siltation in the dam is minimised. The need for integrated team work for these activities can not be overemphasised: staff of different backgrounds and from different parent ministries must work together as a team, ideally from a District centre or from a District Resource Centre with better qualified and better equipped LGA technical staff serving a group of two or three adjacent districts.

Activities to be covered in the Logframe by water resources management staff are: Activity 1.2 (irrigation); 1.1 (water harvesting/spreading); 1.7 (lakeside irrigation); 4.4 (village water supply and perhaps also irrigation for very small horticultural plots – this could also be overlapping with Activity 1.7). All of these are fairly capital-intensive so the various issues of: sources of funding; possible credit; sharing of resources / collective responsibilities; and management at the village level, would all be fundamental to the success of these activities. Consultation at village level and building and strengthening of the appropriate CBOs would be essential before any appreciable investment could be contemplated.

For irrigation from pump-up water sources operated at village level previous experience has not been good: there has to be good discipline for collection of dues for O&M fees which are essential for maintenance of diesel pumps and to pay for fuel. A further problem adding to the cost of pumping has been the 2metre decline in lake level over the last few years. However, if village discipline in the village community is sufficient to successfully run a BMU it should also be sufficient to operate a diesel pump to provide water for domestic use plus an additional quantity for irrigation on a horticultural (if not agricultural) scale, with each individual in the lakeside village perhaps having 100sq metres for irrigated vegetable cultivation.

All of the above concerns consumptive use of water, irrigation for agriculture probably representing more than 90% of this consumptive use. The Government's policy is to encourage further irrigation (within certain parameters set by the BWO, for example, on maintenance of minimum dry-season environmental flows in water courses). The possible impact of further irrigation on lake levels, groundwater and microclimate deserves further study, which would best be directed by the LVBWO/LVEMP Secretariat. Also justifying further study would be the concept of Water Use Efficiencies (WUEs) for irrigated crops and land management systems. This puts a physical cost on irrigation (e.g. cubic metres of water consumed per kg of paddy or sugar produced). It is likely that there could be many surprises in this work: e.g. paddy on some more permeable soils may be extremely inefficient under wetland conditions; conversely supplementary irrigation in sugarcane (using irrigation only to establish the plant crop in the first dry season) may be extremely efficient.

Work in ascertaining WUEs which prevail with irrigation in the different parts of the LVB will be essential baseline information in any discussions with downstream countries in the Nile Basin, and the principle that if water were to be short it should be rationed first in those areas and those consumptive uses where the WUE value is low. Thus a cubic metre of water used in supplementary irrigation for say sugarcane in the LVB is likely to be 50-100times more efficient than letting that same water flow into Lake Nasser and be used downstream for wetland rice.

Water Resources Management also heavily involves Water Quality with both the Water Quality Component and the Industrial and Municipal Waste Component continuing activities under the LVEMP secretariat and the Ministry of Water.

10.4 LAND USE AND NATURAL RESOURCES MANAGEMENT

10.4.1 Planning framework

Planning means different things to different people. In the context of village and district development three types of planning are called for:

- financial planning (the sort of planning undertaken, for example, by the District Planning Officer)
- sectoral planning (e.g. planning for the next 5-years activities by the Project's forestry component);
- spatial planning (e.g. devising village-level land use plans to decide where to allocate land for catchment reafforestation, village irrigation, etc).

For planning for Land Use and Natural resource management we are dominantly concerned with spatial planning, but we must be aware of links with both sectoral and financial planning.

In this spatial planning we must emphasise bottom-up approaches: the spatial plan must be essentially the work of the people in the village community, and essentially 'owned' by them. However, the Land Use Planner must help to guide the villagers in making the correct decisions from a technical point of view. He must also be aware – eg from topomaps, airphotos, satellite imagery, and his own technical experience what features there are on the landsurface, and what the problems and potential of the land may be. A certain element of 'top down' also has to be integrated with the 'bottom-up' approaches.

The village land use planning exercise must also include other technical staff inputs besides that of a land use planning officer, particularly if a lot of a certain land use intervention (irrigation, reafforestation etc) is called for. The planning exercise should thus cut across various different subjects – irrigation, rainfed agriculture, improved crops, applications of fertiliser, pesticides, livestock, links with agricultural extension, etc.

Another key component of the planning is water resources management. Agricultural productivity can be increased by a very large factor if most of the water constraint can be removed. Thus possibilities for irrigation and for water harvesting interventions are at the top of the list in any planning interventions. These interventions are likely to be expensive, and thus returns must be maximised. The resultant final plans for the area are thus essentially Integrated Watershed management Plans, planning for the optimum use of both land and water.

These plans are extremely important as they will determine income-generating activities in the village which will have long-term benefit and impact. In many cases they will be a pre-requisite for the land/water use intervention – eg. For irrigation, an investment of some $2500/ha may be required, and it is vital that maximum yields are obtained, the benefits are shared between as many people in the village as possible, that no negative impacts are experienced because of the irrigation, and most importantly, that catchment management in the upper part of the catchment is very good so that silting will not occur in the irrigation facilities.

Another aspect which now must be promoted is the use of logframes & M&E approaches to plan and undertake land use and other interventions. This must also be part of the planning framework. The proposed logframe for this part of the proposed LVEMP-2 programme is given in Annex I. Seven results or outputs are defined (numbered 1 to 7), and each of these have between three and seven main activities (From 1.1 in Result 1 to 7.4 in Result 7). Figure 8.1 further lists these activities (a total of 37 in number) and shows linkages to the various LVEMP components, Ministries, and Divisions within these ministries. In the following discussion links are given to the specific activity numbers (1.1, 3.4 etc).

10.4.2 Participatory Land Use Planning and Land Administration

Result 3, Activity 3.4: Facilitate Participatory Land Use Planning and Land Allocation in each Village within defined Catchment Areas (PLUPLA)

PLUPLA would follow initial PRA activities which would help establish a prioritisation ranking for the particular village, and whether the village should be covered in isolation or as one in a village cluster/subcatchment.

Procedures for PLUPLA would mostly follow procedures already used and tested in Tanzania, but these would be updated and refined both to incorporate new techniques (most notably use of GPS and links to GIS) and also to (eventually) accelerate the process so that a much bigger proportion of the total area can be completed within the project period.

The process would start with a training programme for all relevant district staff and any bugs ironed out at an early stage. Standard procedures would be developed so that the PLUPLA process can be completed in a reasonable time – experience elsewhere is that this can be exceedingly time consuming unless some work discipline and reasonable short-cuts are imposed. Ideal scale for this work would be 1:10,000 (certainly no more detailed); a possible scale of 1:25,000 would be used in areas of less intensive landuse.

a) Levels of Planning: Village; Village Clusters; Sub-Catchments; Catchments (Watersheds) & links to District; establishment of resource centres at District level (or 2 or 3 districts working together)

b) Plans to be made:
Ideally, plans to be made would include the following:
- existing land use – what is on the ground at the moment;
- plot boundaries (or groups of plots, if plot size is very small);
- environmental overlay showing environmentally sensitive areas (wetlands; natural forest areas; steep / rocky areas; any protected areas;
- future potential landuse, including land allocated for:
    i) village residential areas
    ii) village water supply
    iii) potential irrigation areas
    iv) potential water harvesting areas
    v) other soil & water conservation areas
    vi) forestry conservation (protection, reafforestation, forestry conservation plans)
    vii) forestry plantations (individual & communal)
    viii) livestock / grazing areas

c) Lead to other activities:
Successful completion of Activity 3.4 (PLUPLA) would then lead to village prioritisation and planning as far as other development activities are concerned, i.e. the full menu of activities under Results1, 2 and 3.

10.4.3 Small-Scale Irrigation Development (Activity 1.2)

Small-scale irrigation development is the single most important activity that could boost smallholder food security and farm income in the LVB and the potential to extend this irrigation during the LVEMP-2 period would appear very good. Irrigation would be by small earth dams (with concrete spillways), water diversion, supplementary irrigation from temporary sources, and various associated techniques.

Small earth dams are likely to be the most important means of irrigation. Direct diversion from rivers and streams would be more problematic with respect to permission from the LVBWO and also likely to run into hydrological and engineering problems due to seasonality and unpredictability of flows. Small earth dams, by contrast, would store water which would otherwise run-off small subcatchment areas in very temporal streams which might only flow for a few days during the peaks of the wet seasons. The ideal size for irrigation area served by the small earth dam, and the subcatchment area in turn serving the dam, would likely to be in the range 5-50ha and 50-1000ha respectively. Smaller than these figures, then the cost per ha irrigated would likely be more than $2500; larger than these, then the dam and spillway design have to become more sophisticated which again will put up the per-ha costs.

The Consultants studied two village-level irrigation schemes in Mara District which have been running for 2 years and 5 years respectively (see Annex C, C19 and C20). Both schemes showed the enormous potential that irrigation can provide in increasing yields, although both schemes had a catalogue of problems that now need to be rectified and avoided on new schemes. Put simply, these problems are:
- need to have a PLUPLA-type exercise conducted very thoroughly before starting any implementation activity;
- need for agreement on redistribution of land with fair shares between all families and no going back on signed agreements;
- need for good catchment afforestation / soil conservation practises in upper catchment areas to dam;
- need for good cooperation between farmers, irrigation discipline, etc: workable WUG essential;
- need for further seasonal / temporary redistribution of land to cope with occasional very dry season;
- need for further 2nd plots of irrigated land that can be irrigated in the best seasons;
- urgent need for improved agronomic practises: new varieties, some fertiliser; insect & disease control; possibility for 2nd season (dry season) irrigated crop.

The situation is described in further detail in Annex H, and on the basis of results so far from the two schemes a 1-ha the crop economics for such irrigation has been worked out (LUT1) and figures are very promising (IRR approaching 20%; return per labour day in excess of $4.50; gross revenues in excess of $1000/ha by Year 4).

10.4.4 Improved Water Harvesting (Activity 1.1)

Improved water harvesting showed good results under LVEMP1, albeit on a very small scale and at still fairly high unit costs (around $500/ha). With much larger areas contemplated for LVEMP-2, unit costs should be reduced (ideally to half these figures). Unlike with irrigation, large areas of land within the LVB are already under some form of (usually natural) water harvesting: for these areas a small incremental benefit would be contemplated, possibly by diverting more water from areas of construction, roads, tracks etc. In-field activites aiming at better water conservation also need to be scaled up in LVEMP-2.

10.4.5 Other agricultural interventions (Activities 1.3 – 1.7; 2.1 – 2.6)

These activities are mostly less area-specific and generally would involve less spending per ha than are Activities 1.1 and particularly 1.2. The exception to this would be Activity 1.7, promotion of small vegetable plots in lake-side villages (effectively benefiting from the extension of village water supply schemes). This might involve only a very small area of land per person – possibly just 100sqare metres – but such an area when managed intensively can have a marked beneficial effect on the diet of the most vulnerable groups in the village.

The other area-specific exception is Activity 1.5, the nutrient stripping lake-fringe tree-belt. The idea here would be to manage this belt both for firewood and for green leaves which would be removed and fed to animals kept further inland, away from the lake. Tree growth in this lake fringe would be extremely good due to high water tables, good soils in many areas, and also presence of nutrients in groundwater associated with human activity along the lakeshore. Future research needs to be done on in the influx of nutrients to the lake from groundwater: in similar peri-urban environments elsewhere concentrations of nitrate can be appreciable (from toilet pits) as can movement of groundwater into rivers/lakes.

10.4.6 Forestry Activities

Result 3: Catchment Forests Conserved: Natural Forest Areas Protected; Woodlots and other Forest Plantations extended.

Forestry activities must assume top priority for LVEMP-2, and six specific activities under Result 3 would aim to bring this about. Activity 3.4 (PLUPLA), discussed above, is the first and most essential of these activities: until the villagers have to agreed to earmark particular areas for protection of remaining natural forest, or for planting of forest plantations, much of any subsequent implementation may prove pointless. In numerous cases forestry has assumed a fairly low priority by villagers because of clouded land tenure / insecure property rights, or because forestry is perceived as being a long-term luxury rather than an immediate necessity. Often forest plantations have been established on very poor land so that plantation growth has been poor; in other cases fire has spread to the plantation from surrounding land being used for cultivation. Activities would thus have to be tailored to overcome these problems.

Top priority starting with the PLUPLA exercises would be identification of remaining natural forest areas and seeking to establish Joint Forest Management (JFM) agreements with the neighbouring villages for the long-term management of these areas (Activity 3.1). Considerable success has already been achieved in areas viewed by the Consultants in Sengerema District (Mwanza) and Musoma District (Mara) with hundreds of hectares being conserved over the last 3-4years and the natural forest regenerating well. Strengthening of the village communities in the formation of suitable CBOs to undertake these activities requires long-term patient work but this has already shown clear signs of success. The CBOs need further strengthening in their policing role in order to deter illicit timber / fuelwood fellers and charcoal burners. More visible support needs to be given from the LGAs and all sections of the community for this essential work. Also LVEMP-2 should provide more rewards to the village communities for success in long-term forestry activities: more money should be directed towards those villages willing to make a bigger effort in forestry conservation, and it is suggested that further microprojects be specifically tailored to provide such rewards.

Support to local communities in the setting up of village nurseries for timber, fuelwood, fodder fruit and ornamental species needs to continue (Activity 3.2): seedlings were shown to be produced more efficiently and at lower cost from these village nurseries during LVEMP-1. While most activity tends to be with only a few high-performing species, more attention now needs to be given to a wider range of species, particularly multi-function indigenous species and species (mainly leguminous) which can be used for animal (and human) feeds. There are clear links here with other activities: improved feeding regimes for cattle (Activity 2.2), promotion of agroforestry (2.4) bee-keeping (2.6) and also ecotourism (3.6).

Again under LVEMP-1 success has been seen in timber and fuelwood plantations both in communal village plots and also as private individual holdings, and this now needs to be scaled up by a large factor in LVEMP-2 (Activity 3.3). Greater care needs to be exercised on species selection with respect to local agro-ecological conditions and soil types; also planting of many species of *Eucalyptus* near water sources needs to be exercised with care as water tables may rapidly fall due to *Eucalyptus* growth. Larger planting holes, breaking of hard-pans occurring at shallow depth, provision of manure in the planting hole and during the first two years of establishment, spot weeding, and the fencing of the young plantation to keep out animals are all necessary to give optimum plantation establishment.

Given the severity of the fuelwood shortage, particularly in the Mwanza area, attention has to be given to short-cycle closely-planted coppiced fuelwood plantations, which can be harvested after 5-7 years. Some of these could also be

grown under both well-drained and imperfectly-drained conditions with a nutrient–stripping function. The increased nutrient and water content of the soil conditions in this case would lead to greatly-increased growth rates, and MAIs of 25-35cu metres/ha/year can be expected on the best sites where water is not limiting. The green loppings could be used as a high-protein animal feed, or used as mulching material or compost for vegetable plots elsewhere (Activity 1.5).

10.5 INTEGRATED WASTE MANAGEMENT (MUNICIPAL AND INDUSTRIAL WASTE)

Water pollution in the lake basin has been linked to industrial discharges. Wastewater treatment plants are either not installed or generally malfunctioning. Laws and regulations intended to control pollution are regularly outdated, their enforcement is weak and penalties too small to act as an incentive for installing effective treatment systems. There are also few incentives to use environment-friendly technologies. Fishing industries in the basin are not able to reduce pollution to the lake due to inadequate technology. A case in point is that of Mwanza Fishing Industries which started activities as a fish processor in 1994. They export filleted fish to main markets in Israel, Amsterdam, Portugal, UK and the Far East. Waste products of the fish processing are ground up as fishmeal which is exported for chickenfeed. The industry currently lacks the technology to treat waste water which is contaminated by fatty/oily residues from the fish. The company must cut BOD of effluent water to meet strict environmental requirements, and new technology which is considered expensive by the industry has to be developed

Sustainability of industrial and municipal waste management cuts across a number stakeholders: they include the Ministry of Water via Urban Water and Sewerage Authorities, Local Government Authorities (Municipal Councils), investors especially in industries, the general public whose livelihood is in one way or the other linked to the Lake. Municipal by-laws and their enforcement are being strengthened thus providing hope for continued improvements in management of pollution loading. This is addition to the grassroots efforts being taken or expected to be taken in future.

10.5.1 Challenges Facing Waste Management

Despite the achievements registered by LVEMP-1 still a significant amount of work has to be done to reduce Lake pollution from Municipal and Industrial wastes. Proposed priority areas include: -

- Mwanza City the main polluter in Tanzania has a sewerage system that covers only 7% of the Municipal area: the City plans to cover 30% by 2008 which is an ambitious target;
- There is inadequate integration of waste management in the Land Use plans especially in highly populated settlements outside major urban areas;
- While from scientific point view the artificial wetlands and use of microphytes in Waste Management has been demonstrated to work, there is no clear strategy for its replication basin-wide;
- Under LVEMP-1, it was planned that the public would participate in the preparation of the legislative incentives and deterrence. However, the results of this activity have not been well documented and enforcement of waste management by-laws is still weak.
- There is no mechanism in place to link revenue generated from Lake Water and Industrial / Municipal Waste Management, an essential facet of a sustainability strategy.
- Some environment management targets for Fish processing industries are difficult to achieve as necessary technologies for demobilising fatty residues from the effluent water from the Nile Perch processing are not available in the market: this area may necessitate further applied research.
- The capacity of water and sewerage authorities to generate funds is still low except for Mwanza which is operating with a net surplus.

10.5.2 Proposed LVEMP-2 priorities in waste management

The following priorities are proposed together while taking into account key result areas. More emphasis should be put on the rehabilitation of existing treatment plants and use of the same by stakeholders, demonstrating the wise use of artificial or natural wetlands in waste treatment.

- Continued renovation and building of sewerage treatment plants in the lakeside municipalities need to be undertaken. This is more pressing for Musoma and Bukoba Authorities sewerage facilities do not exist. Currently Mwanza is better off, but still only 7% of the municipality are covered by central sewerage facilities.
- Introduce sustainability issues early enough and preferably at the commencement of project implementation. These sustainability issues need to be made clear to the community members right from the beginning. Later on, it becomes a more difficult task to make people understand that project has an end and that activities need to be owned by the community members themselves.
- Integrate the activities of the Water and Sewerage Authorities and the respective Municipal/City councils with respect to aspects related to the LVEM; put in place forums to do this. A concern has been raised that the Authorities are not currently working sufficiently closely with the Municipal/city councils in undertaking pollution control and waste management. Such a relationship should provide for more efficient utilization of resources especially for similar activities targeting same beneficiaries.
- Sensitization in sanitation by educating the community in the respective localities:
- Experience has shown that people's behaviour towards sanitation contribute significantly towards pollution in the lake waters. Efforts should be made to continue educating, training, and raising awareness of all stakeholders on water quality issues.
- Support particularly for low income communities to install some sanitary facilities and public water kiosks.

10.6 CLEAN / SAFE WATER AND SANITATION

In the LVB, water resources are unevenly and inadequately distributed leaving some areas depending heavily on rainfall. Boreholes, reservoirs and wells are inadequately developed, exposing people to contaminated water from unprotected sources. It is estimated that overall in the LVB less than 40% of the population in the rural areas and only somewhat more than one half in the urban centres have access to clean and safe water within an acceptable distance. According to the *Vision and Strategy Framework for the Management and Development of Lake Victoria Basin (2005)*, none of the Urban centres are currently able to meet the demand for clean water due to poor infrastructure. Inadequate access to clean and safe water contributes to greater exposure to water-borne diseases and increased mortality, particularly with children, from diseases like dysentery, diarrhoea and typhoid.

Challenges

As for household sanitation to communities, priorities should include: -

- Support community participation in planning, construction and management through concessioning of their water supplies. Here there are already models in place that have high success, e.g. Tanga City;
- Continue with sensitization of communities in construction and enforcement of use of sanitation services / facilities,

In order to improve safe water supply, the following activities are needed:

- Concessioning of Water Undertakers activities to local communities on the supply of water in respective community areas in the peri–urban fringes.

- Communities should be sensitised to investigate and police domestic distribution lines in order to minimise water leakages attributed to illegal connections, bypassing of water metres, tampering with water meters and attempting to bribe water authority staff.
- Identify all the urban / per-urban areas which are currently not served by water supply and draw up a suitable water-supply plan for these areas.
- Implement this plan to extend water supply to these areas.
- Mobilise customers to connect to this system with the cooperation of the Municipal Council.
- The community members should be charged with responsibility for protecting and conserving the water sources and the water supply infrastructure.
- The Authorities should improve the efficiency of the water treatment processes.
- The Authorities should prepare and enhance the schedules for water quality monitoring, flushing and cleaning of water storage tanks.
- Identify potential sources for water contamination in the distribution network and institute counter measures.
- Protect water in the distribution system from any further contamination.

10.7 LOGICAL FRAMEWORK (LOGFRAME) AND DETAILED BUDGET.

The Logframe approach and structure developed here applies to the major issues of both land use and natural resources management and integrated water resources management. Most crucially, it focuses on poor rural communities and their interaction with local government structures. Management aspects here emphasise the need for inclusion for all of the following elements:
- community participation and ownership at all levels from the start of any project;
- largely bottom-up planning and implementation approaches (but including some links with top-down approaches);
- establishment of strong linkages with rational spatial planning;
- strengthening of capacity of institutions at both village and district levels, particularly village-level or sub-catchment level CBOs, LVB-level NGOs, and LGAs; and
- applications of concepts of integrated watershed management embracing both land use and natural resources management (see Section 8.2) and water resources management (8.3).

The structure embraces four main development strategies. These are:
- Continue with the TASAF formula in its dual approach: with a) National Village Fund emphasising community consultation, empowerment, ownership and direct payments; and b) capacity enhancement, particularly benefiting LGAs; but, *unlike TASAF:*
- Concentrate on 'green' income generating activities including irrigation, water harvesting, reafforestation, agroforestry etc with planning under:
- Integrated Watershed Management approaches embracing Participatory Land Use Planning and Land Allocation (PLUPLA);
- Provision of Agricultural Support Services (credit; improved crop varieties; marketing; extension; rational use of organic manure, fertiliser and pesticides).

It would be assumed that external finance would be available to cover much of the funding for such a project. The Logframe thus covers all the relevant activities which would be under such a project. However, in keeping with Government Policy and with recently-agreed projects and programmes – and illustrated by projects such as TASAF-2 – the local communities would be expected to put up a sizeable proportion (say 15-25%) of the finance required (contributions being in kind as much or more than they are in cash). Government would also contribute 10-15%, leaving the balance (60-75%) to be covered by the external sources.

The tentative management plan drawn up for this huge area – about 98% of the 11.5m ha area and involving more than 80% of the 6m population – calls for a phased approach with 7 Districts being included within the first phase of the Project, and this would be scheduled to run for 5 years Figure 8.1 These districts have been selected on the criteria of i) impact on the Lake; ii) ease of access and logistics; iii) being together a representation of the full range of agro-ecological zones and problems and potential of the entire LVB area.

Three major subjects in the TOR on which management plans are called for however do not lend themselves to such a project and such a logframe approach. These three subjects are:

- Integrated Waste Management (Municipal and Industrial waste) (8.4);
- Clean/safe Water and Sanitation (8.5).
- Sustainable Fisheries (8.6);

In these subjects internal funding sources are available to cover most if not all of the total funding required. Management plans for these subjects are thus drawn up separately with source and operation of funding being one of the key components of the plan. In the case of the first two of these – Integrated Waste Management and Water and Sanitation – management resides with a few entities having a relatively small cadre of staff with a relatively high technical and managerial capacity and level of education.

In the case of Sustainable Fisheries (8.6) an (outline) management plan was prepared relatively recently (November, 2001). This defined six 'strategic goals' each of these leading to a proposed 'project' which were the following:

- Enforcement of fisheries laws and regulations;
- Development of a training programme for fisheries staff and stakeholders;
- Integration of community participation in the management of the fisheries of Lake Victoria;
- the adoption of CCRF (Code of Conduct for Responsible Fisheries), the integrated development strategies, and the Lake Basin Management models;
- enhanced information gathering and dissemination and continuation of research on biological, limnological and socio-economic aspects of the fish species of Lake Victoria;
- development of appropriate handling, preservation, processing and storage methods for harvested fish both for local and export markets.

Section 8.6 briefly reviews this (outline) management plan and updates some of the material in line with recent developments in the sub-sector.

10.8 CONCLUSIONS: PROPOSED MANAGEMENT FRAMEWORK, LVEMP-2

The Consultants' proposed emphasis for LVEMP-2 includes the following:

- a refocus on the land;
- attention to poverty-alleviation, poverty being the source of many of the lake's problems;
- full consultation at the grass-roots level from the very start of the project and continuation with the bottom-up approach already adopted by other successful projects (notably TASAF);
- further strengthening of administrative and particularly technical capabilities at District level, in order to support development at village and village-cluster (i.e. sub-catchment) level;
- attention to integrated water / land / agricultural / forestry activities following principles of rational watershed management;
- project management which will give due attention to logframe methodology, routine reporting schedules, and objective M&E activities, all of these being essential now to attract any foreign funding;
- a focus for project management in the Basin (and not in Dar es Salaam): Mwanza would be the best centre, and staff of all components should be housed on the same site and monthly coordination meetings be instigated as the main focus of project activities;
- a continuation with the basic monitoring of the lake ecosystem so that the scientific basis for the management of the lake and its catchment can continue.

ANNEX A: LIST OF CONSULTANCIES

1. Consultancy Service on the Preparation of Applied Research for the Lake Victoria Basin
2. Consultancy Services on the Preparation of Assessment of Potential of Land Suitability Mapping With Environmental Overlays and Potential Usefulness of Spatial Planning for the Lake Victoria Basin
3. Consultancy Service on Economic Development - Natural Resources Intervention and Investment for the Lake Victoria Basin
4. Consultancy Service on Economic Development - Private Sector Development for the Lake Victoria Basin
5. Consultancy Service on National/Regional Management Framework: Institutional Component for the Lake Victoria Basin
6. Consultancy Service on Preparation of National/Regional Framework: Monitoring and Communication for the Lake Victoria Basin
7. Consultancy Service on Other Studies for the Lake Victoria Basin
8. Consultancy Service on the Preparation Of Transboundary Diagnostic Analysis (TDA) for the Lake Victoria Basin

ANNEX B: CBO AND NGO INVENTORY IN 4 OF THE LGA AREAS

An inventory for the existing CBO and NGO and the type of activities they are involved in (Magu District, Mwanza City, and Muleba and Bukoba District)

Magu District in Mwanza Region

SNO.	Name of CBO/NGO	Location	Type of activity
1	Busega Development Fund (BUDEF)	Bukabile/Nyashimo Kabita ward	Credit Support to members
2	Bega kwa Bega	Kisesa	Group agricultural activities
3	Rural Initiative and Relief Agency (RIRA)	Kabita	Provision of relief services
4	Busega Children and Development Services	Lamadi	Development projects geared at assisting children
5	Community Development Agency and Relief (CORDA)	Nyalikungu	Support Community Development Projects
6	Panda mbegu ya maendeleo Inua hali ya Waathirika (PANUA)	Ihushi/Bujashi	Provision of small loans to PLWAIDS
7	Mtandao wa Maendeleo ya Vijana Magu (MAYODEN)	Nyalikungu	Networking Body for all youth business groups and individuals
8	Concern for the Elderly Tanzania (COEL)	Kisesa	Assistance to elderly persons
9	Baraza la Ushauri na Maendeleo ya Vijana Magu (YADEC)	Nyalikungu	Provision of advisory servises to youth development groups
10	Chama cha watu wenye Ulemavu (CHAWATA)	Nyalikungu	Assist disabled members start income generation projects
11	Tanzania Youth and Elderly Employment Development Organization (TAYEEDO)	Nyalikungu	Help youth and the Elderly to start self-employment projects
12	Nassa Brotherhood Society (NABROHO)	Mwanangi/Nyasho	Assist members with financial and social support
13	Umoja wa Vikundi vya vijana vya uzalishaji mali na uelimishaji rika Magu (UVUUMA)	Nyalikungu	Networking Body for all youth business groups and individuals
14	Magu Agricultural and Livestock Development Organization (MALDO)	Itumbili	Assist small scale farmers to improve their agricultural yield
15	Anglican Youth Care Programme	Itumbili	Provide technical and moral support to youth Development Groups
16	Huruma Peace,Mercy Foundation (HUPEMEF)	Nyalikungu	Provision of advisory services to all social groups
17	Calvary Assemblies of God Gropup (CAG)	Nyalikungu	Assist members to start investments as a better way to sustain their religious values.
18	Nassa Development Trust (NADET)	Bukabile/Nyashimo	Support Community Development Projects
19	Lamadi Agriculture, Environmental Conservation, Water and Sanitation (LAECOWASA)	Lamadi	Agricultural activities
20	Bujora Cultural Centre (BCC)	Kisesa	Eco- tourism
21	Kikundi cha kuhifadhi Mazingira (RAFE)	Nyanguge	Environmental Conservation
22	Beach Management Unit (BMU)	Kayenze/Lutale/Ihale	Beach Management
23	Upendo Community Based Organization (UCBO)	Nyalikungu	Small business activities
24	Kikundi cha Bustani Langi (BBL)	Langi/Lutale	Vegetable Gardening Project
25	Input Marketing Association	Matale	Small Business Enterprises
26	Msichoke na USUSI	Bugabu/Mahangara	Hand craft activities
27	Uhamasishaji wa Maendeleo ya Jamii	Nyalikungu	Development projects
28	Magu Tumaini Group (MATUGRO)	Nyalikungu	Small Business Enterprises

29	Magu Peasants Association (MPA)	Nyalikungu	Farming Projects
30	Maendeleo ya Vijana Magu, Shirika la Jamii (MAVIMA)	Kisesa	Small business Enterprises
31	LOWIMA	Magu	Small business Enterprises
32	Kikundi cha akina mama Furahisha (KCMF)	Ilungu/Nyigogo	Small business Enterprises
33	Kilimo Vijana-Busekwa	Busekwa/Ihushi	Farming Projects
34	Mkombozi Group (MG)	Nyalikungu	Credit services
35	Umoja wa kusaidiana Magu (UWAKU)	Magu	Savings and Credit
36	Care International	The whole Magu district	Credit services
37	KATAYOMA	Magu	Skills training
38	CHAWATA	Magu	Skills training
39	Magu Food Security	Magu	Environmental Conservation, Afforestation and alternative energy sources

Muleba and Bukoba Districts in Kagera Region

SNO.	Name of CBO/ NGO	Location	Type of activity
1	Biirabo Rural Transformation Scheme Trust Fund (BRTSTC)	Muleba	Provision of small loans to CBOs and Protection of water catchment areas
2	Kagera Development Trust Fund (KADETFU)	Bukoba	Offering small loans to Women and youth in the Kagera region
3	Kagera Community Development Foundation (KCDF)	Bukoba	Promoting improved performance in agriculture, environmental management and fight against spread of diseases (i.e. HIV/AIDS)
4	West Victoria Development and Health Association (WEVIDHA)	Muleba	Sustainable environment projects and Vocational training for youth
5	World Vision Tanzania (WVT)	Bukoba	Supports Water and agricultural projects
6	Muleba Agriculture and Livestock Industries (MALI)	Muleba	Promotion of good farming practices and preservation of fruits
7	Women Savings and Credit Association (WOSCA)	Muleba	Provides Credit Services to Community Based Groups
8	Victoria Empowerment Programme (VEP)	Muleba	Empowerment to Women especially on Development issues
9	Tumaini Letu	Muleba	Provision of Credit services to Women, especially widows
10	Tanzania Red Cross	Muleba	Provision of First Aid Services
11	Swiss Aid Tanzania	Muleba	Provision of Credit Services to Community based Groups
12	Ruhanga Fishing and Environmental Rehabilitation (RUFER)	Muleba	Environment Protection Projects
13	Kanisa Katholiki na Ukimwi (KAKAU)	Muleba	Support for HIV/AIDS persons
14	Huduma ya Watoto (HUYAWA)	Muleba	Support to Orphans
15	MKAKAT	Muleba	Promotion of Innovative Agriculture
16	Buchwaihembe Savings and Credit Society LTD (BSCS)	Rubya	Savings and Credit servises
17	Environmental Conservation of Lake Victoria	Muleba	Environmental Conservation Activities
18	Buyaga and Ikondo Association (BUYEIKO)	Muleba	Savings and Credit services
19	ACORD	Muleba	Environmental Conservation Activities
20	Village Development Society (VIDESO)	Muleba	Supports village Development Projects
21	African Consolidated Youth and Women Association (ACYWA)	Muleba	Environmental Conservation Projects for women and youth

22	FINCA	Muleba	Provision of small loans to women
23	Bisore, Kangantebe, Mayondwe, Nyakashenye Development Association (BIKAMANYA)	Kagondo Parish	Provision of Vocational Training to youth
24	Gemahyo Youth Foundation (GYF)	Muleba	Small Enterprises for Youth
25	Mazingira Club	Muleba	Protection of water catchment areas
26	TAWODA	Muleba	Support for Women Development Projects
27	Rubya Development Association (RUDEA)	Muleba	Development Projects
28	Muleba Polytechnic Centre	Muleba	Polytechnic Project
29	Ihangiro Farmers Development Association (IFADEA)	Muleba	Support for Agricultural and Environmental Projects
30	Kagera Islamic Development Organization (KIDO)	Muleba	Supports Community Development Projects
31	Socio-Economic Promotion and Consultancy	Muleba	Promotes and Advises Community Development Projects
32	Jisaidie na kusaidia Jamii	Muleba	Small Business Enterprises
33	Boresha Maisha	Muleba	Small Business Enterprises

Mwanza City

SNO.	Name of CBO/ NGO	Location/ Identity	Type of activity
1	Wauza samaki mwaloni	Mwanza	Buying and selling fish
2	Tupendane matunda Mwaloni	MZR 647/1990	Buying and selling fish
3	Uwasa co-operative Society	MZR 866/1995	General services to community
4	Ibanda Fish Dealers co-Operative Society	MZR 85/1997	Buying and selling fish
5	Wafanyabiashara soko J	MZR 48/1990	Buying and selling fish
6	Mwanza vegetable co-operative Society	MZR 85/1997	Supply of vegetables
7	Matunda na Nafaka pasiansi	MZR 5228/1986	Production and selling of fruits
8	Biashara ndogo mlango mmoja	MZR 42/1989	Small business enterprises
9	Wafanyabiashara soko F	MZR 891/1998	Small business enterprises
10	Mwanza co.CABS	MZR 879/1997	Car hire services
11	Ushirika Nafaka soko kuu	MZR 852/1997	Transport services
12	Wafanyabiashara soko kuu C	MZR 870/1996	General buying and selling
13	Biashara soko G	MZR 877/1997	General buying and selling
14	Wafanyabiashara soko kuu B	MZR 5443/1987	Small industries
15	Wafanyabiashara soko A	MZR 878/1997	Consumer services
16	Mungu hana choyo	MZR 882/1997	Consumer services
17	Ujamaa Pamba Co-operative	MZR 15/1976	General services
18	Imara Co-operative	MZR 5216/1986	Consumer services
19	Wahudumu bandari kaskazini	MZR 632/1988	General services
20	Wauza samaki Igoma Mashariki	MZR 886/1997	Buying and selling fish
21	Ushirika akina mama mwanza mjini	MZR 394/1987	Buying and selling fish
22	Ushirika akina Mama Soko Kuu	MZR 1/1974	Consumer services
23	Chakula ni Uhai	MZR 639/1989	Consumer services
24	Mkombozi Fish Supply Co-operative	MZR 5112/1985	Fish Supply
25	Ushirika wa uchumi Igogo	MZR 865/1995	Small industries
26	Mwanza Diary	MZR 14/1976	Selling of milk
27	New Miembeni Diary	MZR 651/1981	Selling of milk
28	Mwanza Young Fish Supply	MZR 54/1981	Buying and selling fish
29	Mwanza Fish and Drying	MZR 859/1994	Fish Drying
30	Mwanza Civil Servant Savings and Credit	MZR 17/19987	Provision of Loans
31	Nyanza savings and Credit	MZR 1716/1966	Provision of Loans
32	BCS Savings and Credit	MZR 1444/1964	Savings and Credit
33	RTC savings and Credit Co-operative Society	MZR 867/1995	Savings and Credit
34	Pel Savings & Credit Co-operative Society	MZR 396/1987	Savings and Credit
35	Neema Savings and Credit Co-operative	MZR 856/1993	Savings and Credit

	Society		
36	Muwakapa Savings and Credit Co-operative Society	MZR 893/1998	Savings and Credit
37	Fumashili AGR. Marketing Co-operative	MZR 895/1998	Savings and Credit
38	Isangijo AGR. Marketing Co-operative	MZR 714/1993	Buying and selling of Agricultural products
39	Sakanya AGR. Marketing Co-operative	MZR 712/1993	Buying and selling of Agricultural products
40	Ipandikilo AGR. Marketing Co-operative	MZR 716/993	Buying and selling of Agricultural products
41	Nyaigombe AGR. Marketing Co-Operative	MZR 713/1993	Buying and selling of Agricultural products
42	Bulwa AGR. Marketing Co-operative	MZR 715/1993	Buying and selling of Agricultural products
43	Luchemko AGR. Marketing Co-operative	MZR 711/1993	Buying and selling of Agricultural products
44	Lake multipurpose	MZR 710/1993	Buying and selling of Agricultural products
45	Mwanza Fisheries Proffessional	MZR 902/1999	Multiple fish activities
46	Mwanza South Porters	MZR 876/1997	Fishing
47	Ushirika Matunda Kilumba	MZR 892/1998	Supply of fruits
48	Mwanza African Fish Supply	MZR 5214/1986	Fish suppliers
49	Wadoki savings and Credit co-operative Society ltd	Mwanza	Savings and Credit
50	Fahari Savings and Credit Co-operative Society	MZR 919/2001	Savings and Credit
51	Mwandoi savings and Credit Co-operative Society	MZR 920/2001	Savings and Credit
52	Vijana wanunuzi na wauza samaki Mwaloni co.op.Society	MZR 925/2001	Savings and Credit
53	Kuleana savings and Credit Cooperative	P.179	Savings and Credit
54	Ushirika wa Mama Lishe	MZR 914/2001	Savings and Credit
55	Ushirika wa wakulima Nyamadoke	MZR 989/2003	Savings and Credit
56	BMC SACCOS	MZR 999/2004	Savings and Credit
57	UMOJA SACCOS	MZR 1000/2005	Savings and Credit
58	FSA IGOGO	MZR 1124/2005	Savings and Credit
59	FSA MKUYUNI SACCOS	MZR 1125/2005	Savings and Credit
60	FSA MKOLANI SACCOS	MZR 1126/2005	Savings and Credit
61	FSA BUHONGWA SACCOS	MZR 1127/2005	Savings and Credit
62	FSA SANGABUYE SACCOS	MZR 1128/2005	Savings and Credit
63	LANESO	Mwanza	Environmental conservation and Community mobilization activities

Source: Field work (June 28th – 18th July 2006) plus 2002 NGO list and the Mwanza Socio-economic regional profile of 2003. However the list is not exhausitive

ANNEX C: CONSULTATION WITH KEY STAKEHOLDERS

Note: views expressed in this section are those of the participants (with some light editing) and are not necessarily those of SMEC consultants and associates. Any Consultant's comments are shown in italics.

Mwanza region (C.1 to C.14.; C.29.-C.39.)

C.1. Mago District Offices. Thurs29Jun06.

District Commissioner Mr E.Kajeli Maarugu 04 0784 491149

The DC expressed appreciation for LVEMP-1 as population in Mago is heavily dependent on Lake, with 76 villages spread along the Lake shore. Major problems stated as soil and water conservation and problems with the lake reservation (60m) which is impossible to enforce as most villages show cultivation right up to the lake shore. Pump-up irrigation from the lake has not been fully successful due to retreat of lake (vertical fall of 2m in 2 years) and breakdowns of pump equipment (see Kalemena example). Kenya is abstracting more than its share of lake water (a possible transboundary issue). Very high lake levels were seen in 1997-98 associated with the el Nino phenomenon.

On forestry he mentioned that due to tse-tse eradication in 1942-43 there was a major campaign to cut down trees (which harboured the flies). Now aerial spraying has cut tse-tse infestation to small pockets within Serengheti. Reafforestation is back in vogue, and demand for timber and firewood is very high. The Australian project has been particularly successful in reafforestation, with a seedling survival rate of 80%.

District Executive Director Mr Lucas Buremo

The DED discussed Government decentralisation programme / Local Government Reform Programme (less a movement of staff and more a restructuring of departments: e.g. staff of the Ministry of Natural Resources were formerly accountable to their Ministry, now they are accountable to the District.)

Current staff positions – at Director Level (as for all Districts) are:

Human Resource Development	(S.D.Kabuka);
Finance & Trade	(Amede E.Andrea: 028 2530110; mobile 0784 581086);
Planning & Statistics	(Richard M Mihayo: 028 2530002; mobile 0744 811898);
Community & Social Welfare (formerly Community Development)	(J.K. Makinda);
Education	(Benedict M.Masaga);
Health	(Dr P.Kasubi);
Land Development / Natural Resources	(M.K.Mnyeti);
Agriculture (DALDO)	(L.Mabimba; mobile 0784 496468),
Livestock Development & Cooperatives	(Eng.H.Salala);
Infrastructure & Water Development	(Eng.R.Ha.Ruyango);
Legal Affairs & Security	(A.Amir);

District Fisheries Officer Mr Justin F.M. Mugurula 028 2530002/0094 Email:mfsp@africaonline.co.tz
Also responsible as: District Coordinator, Govmt.Reform Process; District Coordinator, Anti-Corruption.

Discussed Beach Management Units (BMUs). Established after EU import ban in 1998-99: ban for 6months due to food quality / health concerns. Consultations with local communities on the establishment of the BMUs started in 2000. BMU has 3 main functions:
-ensuring quality / cleanliness of fish (keeping landing sites v.clean, freezing / chilling fish immediately after catching, etc),
-enforcing fishing regulations (ensuring fishing nets meet specifications, no illegal fishing/fishing out-of season is undertaken, etc);
-collecting revenue on behalf of the Local Government.

Effectively BMUs do the local work of fisheries officers. They are set up in different ways in different localities and function to different degrees of efficiency. In Magu BMUs are set up on contract with the LGA after annual tenders which can be put in by any group of people. The BMU group will contract to pay the district Tsh X per season for the right to collect revenue from the sale of fish from that particular landing site. This contracted amount will be put down as a 50% down-payment to the LGA, the other 50% being paid later. The BMU then collects revenue over the fishing season, charging a levy of Tsh10/kg of fish sold and

keeping detailed records for their site. The resultant revenues are then split 50:50 with the LGA. The BMU then uses its share of the revenue for their own activities.

On paper, the system is fair and open and should work well:
- there should be fair competition between competing groups (i.e. open tenders);
- it should maximise revenue for the LGA at the minimum of cost in terms of staff-time;
- being from the local communities, the BMU members are best placed to keep a watchful eye on potential law-breakers in their respective areas;
- there should be a good level of cooperation between the BMU and the LGA and if any major problems develop, the LGA should provide the required backing;
- in particular, if there are major problems of illicit activities, the police can be called in to take the required action.

In addition, by establishing BMUs and getting them to work well, the LGA / Project is setting up model CBOs which can act as a catalyst for a wide range of other development activities in these and adjacent communities. For example, running pump-up water supply and minor irrigation schemes, where local revenue collection is essential to cover (relatively high) operation and maintenance (O&M) costs.

In practise many (or most) of the BMUs do not work well. In Magu there are 40 BMUs but, according to the LGA, only 5 are really effective. The problems here seem to be the following:
- to put in the annual tender for the correct amount, the BMU group must undertake quite a sophisticated calculation (too low a bid and they lose the contract; too high a bid and they reduce their share of the income to below a sensible amount). They need good statistics on fish landings, and faith that next year's season at their site will be the same (or better) than last year's.
- there is a requirement for quite a sophisticated banking / credit system: the BMU will have to borrow money for its bid, and have to bank money day-by-day and month-by month.
- the back-up and 'policing' activities by both the LGA's fisheries officers and the police may be lacking (either through lack of energy or incentive, more probably through lack of resources – vehicles, fuel etc).
- there is a need for fast patrol boats and good communications in order to catch major law-breakers, and these resources are commonly lacking.
- most fundamentally, in many communities there is insufficient will to take on the law-breakers, particularly as there often insufficient financial incentive to individual BMU members.

In general, BMUs work best at beaches nearer key population centres (e.g. Kayenze, Mwanza), particularly those where there are larger and more active fishing markets. Remoter areas seem to have inactive BMUs (e.g. Kalemela, Magu).

Follow-up visit on 13July to check on potential conflicts in fisheries and irrigation: met with:
Mr Lutandela Mabimbi, District Agricultural Development Officer; Mr Halid Mashaka, Acting head; Me Mabula Munyeti, district land officer; Mr Mangara Leo, Fisheries

Foresees no problems in developing irrigation schemes; plan to include everyone from the outset; once agreed, no going back; work through village governance structures and CBOs; extension and enforcement weak because of lack of resources; agricultural land, minor disputes; BMUs under Council: 40; 5 effective; hoping that new BMUs make own by-laws and be strong on enforcement

C.2. Ihale BMU,

Leo Wajimila	Village Chairman	0784 931918
Joseph John Lunyela	Hamlet Chairman	0784 983635
Pius Mazima	Chairman, BMU	0784 678347
Dionese Donald	Secretary	0784 599652
Paul Dominic	Treasurer	

Note: Full PRA undertaken: see Annex D

C.3. Kalemela Village

Field visit to Ilemela - Simiyu catchment
The following areas were visited:

Pilot plot on soil water conservation – also preventing soil erosion
In-situ conservation plot
Plots v. well established: essentially 4m-wide vegetated strips (grass and trees) spaced every 25m on the contour. Site was only gently sloping (c.2%). Well-weeded maize field, maize widely spaced and apparently reasonable yield given very dry conditions for the season (better performance than in nearby farms with maize under 'control' conditions). Trees well established: nearby fuelwood plot showed near canopy closure (after 5years) - planted to a number of species (mainly acacias) all of which were growing well.

Rain water harvesting - paddy cultivation plot
Paddy cultivation in the locality was showing a very poor harvest due to drought conditions, but these plots showed much better vegetative growth due to influx of extra run-off water from adjacent road.
Ilemela landing beach (no BMU)

Rearing nursery (but not functional at the time of visit)
Well-established site for nursery with wind-break trees and some shade trees all v.well established by LVEMP-1 project. Many further trees established by project around the village include *Grevillea, Eucalyptus, Casuarina*, and nearly all are growing very well and providing a pleasant shady environment to the village.

Pumping station (not functional)
Diesel pumping station and 4in steel pipe to supply domestic water to village from the lake. This is now not functional due to lack of O&M and funding and also further fall of 2m of lake level. The non-functioning BMU may also be symptomatic of lack of community organisation, c.f. other beach-side communities. However, where communities can organise themselves (e.g. for BMU activities) resuscitation of water supply may be considered, with further provision of water for irrigation for small-scale vegetable plots. Surrounding land is flat to gently sloping, and soils would appear deep.

Pine plot at Simiyu bridge
(Seen from a distance)

C.4. Ministry of Water, Mwanza Offices. Fri 30June.

LVEMP Snr Operations Officer (Ag) / Task Leader, Water Quality & Ecosystem Management: Mr Dickson Rutagemwa, mobile: 0744 303 867 tel:2502523/2502684 Email:dicksonrutagemwa@hotmail.com
Senior Scientist: Management of Pollution Loading: Mr Omari Iddi Myanza, mobile: 0787 071 189

Water Quality and Ecosystem management Component cover both catchment-based and lake-based activities. The catchment activities included Municipal & Industrial Waste Management, non-point sources of pollution, and wet and dry deposition (much of the N &P deposition in the lake coming from the atmosphere via dust, smoke, etc). The lake activities include in-lake water quality monitoring, management of eutrophication, sedimentation studies, hydraulic conditions, modelling and management of effluents.

The component contributed significantly to baseline studies on the lake and to our fundamental understanding of nutrient movements and lake processes. Some 21 graduate student theses were completed with this work, and the component thus made a major contribution in terms of capacity building and transfer of technology

This was one of the largest components in terms of disbursement of funds (c. $500,000 per year). Spending on sampling vessels and associated technical equipment was appreciable. A major problem the component faced was on delays in getting the necessary equipment delivered (e.g. 5-year delay in procurement of atomic adsorption spectrophotometer which is basic to a wide range of water analyses). The Government tendering / procurement system can not cope with technical specifications!

High cost of equipment (esp. boats) has meant that sharing between the three countries is required: EAC has thus acquired a research vessel (just reassembled) which will be used between the three countries. The laboratory can undertake private work (the AA, with high capital costs, should be used for 12hours per day and not just 12hours / week). A further major problem is vandalism of monitoring equipment which needs to be left in place in the Lake: 40% damage is being recorded, and education of local communities is essential here.

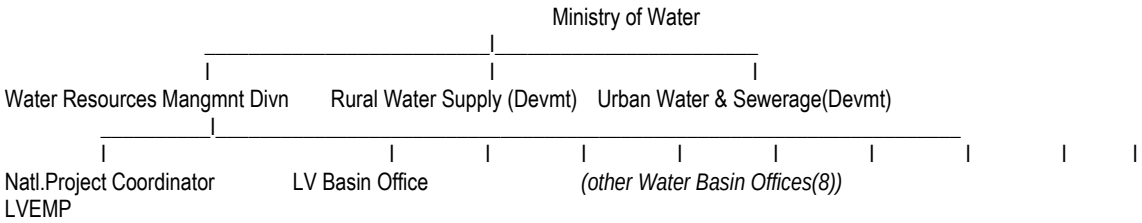
Considering that mercury is being used in gold mining, that soils/waters in these areas may be acidic (making the mercury more available / mobile), and that possibilities for the mercury getting in the food chain (and especially Nile perch imported into the EU) what steps were being taken to monitor this mercury? Apparently mercury contamination was highly localised; there was no

evidence that it was being transported any significant distance; that fish are being monitored for Hg (and other contaminants) and that there had been only 1 fish sample that was near the max.safe limit; but continued Hg monitoring would be essential.

As this component is fundamental to the continued health of the Lake and its fisheries, there is a strong case for taxes / levies on both fish and water utilities to cover some if not all of the cost of this. (i.e. Fish Levy Trust Fund and a levy on the Water Undertakers). A further levy on the mining operations (to cover costs of monitoring contaminants in nearby rivers and streams) would also be justified.

The current bridging period (Jan06-Jun07) is supported by SIDA and hopefully also EU with some $1.2m being committed. The current LVEMP structure is very similar to the former LVEMP-1 structure, the main differences being i. the Project being under the Ministry of Water / Focal Point Ministry instead of NEMC/VP's office; ii. Base of project to move from Dar to Mwanza; iii. National Policy Steering Committee (PSs covering each component's parent ministries) and National Technical Committee (Directors of Implementing Agencies) have just been introduced.

Under Ministry of Water: structure is:



C.5. Lake Victoria Basin Water Office: Mon 3July06

LVBWater Officer: R.M. Muhabuki. 0713 307935 email: lvbwo@africaonline.co.tz
Hydrologist: Lusekelo Mwambuli 0745 318616

Basin Water Offices (9) have been set up, covering whole country. The first office was established in 1993-4; LVBWO established in 2000. The main office is in Mwanza, with two sub-offices in Bokoba (1 professional) and Musoma (2 professionals). Currently there are 6 professional staff in LVBWO (13 are required), plus 18 technicians and 15 support staff. A draft business plan has been prepared (in Dar).

Main functions of Basin Water Office:
Water Resources Management is the overall task, comprising:

- regulation of water rights: giving water rights to wide range of users;
- control pollution;
- discuss pollution problems: seek mitigation; make recommendations on preventing pollution;
- try to solve water use conflicts.
- Assist Water Users Associations (WUAs) – help in registration;
- Maintain hyudrological stations, measuring stream flows at key gauging points;
- Collate rainfall and other meteorological measurements.

Conflicts of Interest between Villagers and Gold Miners:
- small miners in Geita District (Mwanza): major problems over many small localised areas including highly-localised mercury pollution (needs close monitoring);
- Buhane Mining Company in Mara Region: conflicts over water extraction from small dam, arguments over water rights.

Regulation of Water Rights: sequence of events:

- request for water right made by potential user;
- office makes assessment of minimum flow for environmental purposes i.e.'environmental flows'- generally 10% of mean flow must be for environmental purposes;
- apply fees schedule (different rates for domestic, irrigation (small & large), industrial
- different pattern in the three regions: all rivers seasonal in Mwanza; only Mara River is perennial in Mara; most rivers are perennial in Kagera;

Structures at lower level (catchment and subcatchment)

- Catchment board

- Sub-catchment committee (In Mara region have started to form sub-catchment committee in Mara sub-basin – this is a trans boundary resource)
- Water User Association (WUA). Now there are over 28 WUAs. These use the same source, have committees for finance, security and environment. (Note interests of 'tail-enders' and livestock owners must be included.)

Legal and Policy Issues:
Abstraction of water from Lake for Irrigation:
Cooperative framework allows certain abstractions without notification. Kenya is abstracting more than other countries, but abstractions could increase in both Uganda and Tanzania. Water level has declined 2m in the last few years due to prolonged lower-than-average rainfall (and policies of Uganda operating the Owen falls dam). However, the water can fall only another 50cm before an all-time low is reached, and the situation at Owen falls becomes critical. Egypt is most concerned over lower Blue Nile flows, although much of the water evaporates before it reaches the Aswan dam.

Tanzanian Government policy is to encourage irrigation, and particularly rainwater harvesting, making better use of run-off water before it reaches the lake. Water Use Efficiency is higher (kg of extra agricultural production per cubic metre of water), and the water flow is by gravity. Use of Lake water involves pumping, and the economics must be closely studied before any scheme is implemented. It is likely that this would be economic only for domestic water and for higher-value crops.
Policies and Legislation on water are currently being revised at the moment, with all parties being consulted on this.

Lake and River reservations:
According to the Tanzanian water law, agricultural activities should be 200 m away from river banks and 500 m from the lake shore (this requires harmonization). Contradicting laws on the Lake buffer zone:

- Land law – 30 m
- Water - 500 m
- Fisheries – 60 m (which is which?) Meetings to harmonize the figures – started among ministries

However, due to the fact that much low-lying land near the lake is both better suited to agriculture and has high population pressure, it is likely that enforcement of anything more than a minimal reservation (say 30m) would be politically unacceptable.

Understanding of LVEMP-1
The Basin Office worked closely with LVEMP-1 and the office provided support on water quality and flow measurement. However, it was much more a personal relationship than a formal (official) relationship – reporting mechanisms were not formalised, although in this case staff kept each other well-informed. (Working on the same compound helped considerably in this respect.) But Tanzania has decided to embark on basin-wide management of water and water management in the basin is vested in the LVBWO. The LVEMP-1 project was planned for some years back before the initiation of the LVBWO in 2000 and because of that there was no such coordination. But what should the reporting mechanisms be for LVEMP-2? The basin water officer would like to have a close touch and overseer too – e.g. the WWF project in Mara catchment management

Problems of LVEMP project

- Formulation of the project is a major concern. The project design did not show how the basin relates the Ministry
- Legal issues bi-passed

Special issues for LVEMP-2

- Limnologist not available but highly needed
- Activities by LVB on water resources should be financed by LVEMP-2
- Whatever pollutes the Lake comes from the catchment
- Capacity building at district and village levels required.

C.6. Ministry of Natural Resources, Mwanza Region: Fisheries Management:

Regional Fisheries Officer:	Mr Angelous T.Mahatane	Mobile: 028 250 3314
Fisheries Officer:	Mr Charles Rwekaza	Mobile: 0744 440 898

Understanding of LVEMP I
Requested us to meet Director in Dar – Most of the information referred to the Director of Fisheries in Dar and 'Lessons Learnt Report' for that Component;

Funding sources
Retention schemes; IFMP – Implementation Fisheries Management Plans (some funding available)

Management issues
Revenue collection: 15 cents (-12cents) per kilo from big exporters paid to government
Fish stocks are not a worry (IFMP stock assessment)

Legal Issues:
Regulations re. BMUs: under law, every member of the community must be a member (enforced since 1Aug05); (Fisheries Act no.22 of 2003, Section 18.1 – Management of Fishing Industry; Sub-regulation 3: 'fishing community in association with village government….- every fisherman must be a member; - fish licenses; - keeping a tally book;')
Regulations include specifics for Lake Victoria – eg Regulation 52F (Lake Victoria) re 6" mesh for Nile perch fishing etc.
This has been harmonised also with Kenya & Uganda;

C.7. LVEMP Wetlands Management Component, Ministry of Agriculture. 3July06

Task Leader:	Ms Anna Mdamo.	Mobile 0784 376 611	Annamdamo@yahoo.com
Wetlands Agronomist:	Mr Jamal Baruti.	Mobile 0784 684189	wetlands@lvemp.org

Major Activities
- Wetland buffering capacity in 4 pilot areas (Nyashishe –Mwanza, Mtakuja and Mabubi wetlands – Geita, Kagera and Ngono wetlands) (Work with DUFLOW model and Arcadis/Euroconsult – see Annex E).
- Sustainable management (Biodiversity and sustainable utilization) – soil characteristics, carrying capacity, biodiversity and demonstration plots in Magu – Simiyu catchment
- Rapid assessment of fringing wetlands

Community involvement and participation
- Level of involvement in *Phanix reclinata* (doom palm) was not good at the beginning; communities later participated after realizing its importance for handcrafts
- Community was not sure if it wanted to work with LVEMP and thought they are going to take their land

Activities aimed at sustainable management of the wetlands
- Seeking alternative ways of getting water instead of cultivating in wetlands
- Beekeeping
- Improve productivity in arid areas
- Improvement of extension services
- Handcraft making (papyrus)
- Tourism (i.e. in Kitaji wetland in Mara region could be turned to wetland of international importance and tourist area if funds could be made available). Presently serving as a damp site
- Economic valuation of wetland products. Information on wetland yields, biomass, etc. If people can earn money from wetland can feel a sense of ownership.

Wetlands policy issues
- There is no wetlands policy in Tanzania
- The Wildlife policy (MNRT) incorporates the wetlands issues
- Now preparing wetlands conservation strategy
- Wetland issues also under NEMC

Transfer of LVEMP to Ministry of Water
- The Ministry of Water is acting as a Focal Point Ministry
- Being under the Ministry of water it sounds unfair, would like to be under a big organ – it was okay under VC
- A neutral body is required, likely to have been transferred for some interest of some people
- Likely to affect LVEMP-2 because other components might be highly marginalized. So what will be the role of Ministry of Environment?

Some issues to consider
- Food security must be achieved if the environment is to be well conserved
    - Improve livelihood performance
    - Encourage business on animal fattening

  - Encourage irrigation through rainwater harvesting
- Sensitization and capacity building to the community for sustainable wetland management
- Assessment of non fringing wetlands
- Increase number of technical people (at present – only 3 are available). It difficult to move to other areas
- No field work since Dec. 2005 (only skeleton funding currently available)
- NEMC do not have staff at the district levels (in spite of NEMA, 2004)
- Capacity building on environmental matters to village, ward, district and regional levels
- Seek possibility of having a better-funded resource centre in one district to serve a cluster of several districts
- Mercury pollution from gold mining (especially artisanal mines). Heavy metals are found in wetland areas, and sediments, but contamination is highly localised.

Conflicts

- Farmers vs livestock keepers (Resolution requires village level land use planning)
- Farmers vs fishermen
- Hunters vs handcraft makers
- Small fishermen vs large fishermen (still existing – growing). Large scale fishermen do not allow small scale fishermen to fish in some areas, but law requires a free access
- Artisanal miners vs large miners
- Sector conflicts (agriculture vs environmental protection)

Expectations for LVEMP-2

- Much interaction required with the community – community participation officers are required from the start of the project
- Capacity building on community participation to staff (ToT)
- Detailed study on biodiversity (wetlands and other areas)
- Component coordination and more on integrated watershed management
- Bringing together different actors
- Networking at village level to higher level
- Resources allocation to operationalize different plans
- Addressing poverty levels and alternative income generating activities
- Strengthening enforcement, and compliance with the law
- Search for the markets (i.e. handcraft items)
- Microfinacing / micro projects
- Ploughing back – financing development programmes
- Providing special attention to communities
- Establishing environmental conservation trust fund that will be contributed to by different Lake users
- Prepare guidelines for wetland cultivation (refer to already prepared Ugandan guidelines).

Follow-up visit on 13Jul: Strategies on use of wetlands must be developed in collaboration with the community; wetland degradation serious especially this year due to drought conditions and people being forced to cultivate in areas close to water; further drying-out of wetlands due to 2m fall in lake level and hence fall in water table; need to regulate land use but provide alternatives as this will give relief in enforcement.
Wetland Atlas of Tanzania undertaken on 1:50,000 basemaps now available as GIS ArcView shapefiles delineates all the key wetland areas.

C.8. Sengerema District Offices. 4Jul06

Acting Admin Officer.	Mr Joseph Mfangavo	Mob:0744 213920 028 2590039
District Executive Director:	Mr Sebastian A. Masso.	Mob:0744 492392; 028 2590162;
District Forestry Officer:	Mr Ernest J.S. Mkilindi	Mob:0744 854685
District Natural Resources Officer (Ag):	Mr Innocent S.K. Shang'ambo.	Mob:0784 542383

Basic Statistics: District land area: 3300sq km; water area: 5500sq km; total 8800sq km. Total population: 501,000 (2002 census) (152/sq km). Area includes 28 islands, and 160 landing sites.

Priorities for allocation of funds: 1.Education; 2.Agriculture; 3.Water; 4.Health; 5.Public works/infrastructure – especially feeder roads, which are handled by the district. 6. Environment (regarded as crosscutting and given little attention). Issues of soil and water conservation and watershed management given little budgetary funds. More awareness in this area is essential.

Understanding of LVEMP-1
The district recognizes the support from LVEMP-1 and the level of involvement from project activities formulation and execution. The most involved departments were forestry and fisheries. In the fisheries department, major activities carried involved formation of BMUs at most of the landing sites. The most active BMUs include Kaunda, Mchangani, Katunguru and Kijiweni. At Kijiweni, there is construction of Tishari – landing site and removing people within 60m of the lake shore. In the forestry department, major activities include production of seedlings and reafforestation activities.

Involvement of communities in natural resources management
Community is involved through meetings. Mchangani formed a committee for forest conservation.

LVEMP activities in Sengerema
- Micro-projects
    - Construction of shallow wells (i.e. at Kamanga)
    - Construction of dispensary (Kokwa) Bukoko
    - Construction of laboratory at Kome – Bukombe Island (secondary school)
- Water hyacinth control (Buyegu)
- Construction of classrooms at Busisi primary school – 5 classrooms
- Provision of engine and boat at Kijiweni BMU

All the projects started by LVEMP are fully operating.

Beach management units / Co-management
The district appreciates support by LVEMP on the formation of BMU and that has helped in the fisheries management. Inline with this is the support on micro-projects and researches conducted by TAFIRI.

Minor irrigation: pump schemes from lake, but again this have failed (Uchili, 40Ha, installed under Japanese funding some years ago – process underway to revive this). Katunguru (100ha).
Small earth dams: deemed to be expensive and requiring heavy equipment. Community would be expected to contribute 10-20% of costs, mainly in-kind.

Catchment reafforestation: activities were carried out for only 1 year under LVEMP-1, before being shifted to Mara Region – this change was regretted as significant progress had been made and also some commitments made by the District (Tsh600,000 in field allowances) were not reimbursed by the Project.

Subactivities here included:
- nursery establishment, with 3 species being most widely grown (*Grevillea robusta, Albizzia lebek, Lucaena leucocephalla*);
- sale of seedlings at a subsidised price to farmers & demonstration of planting / sylvicultural techniques (eg ideal spacing of 2.5*2.5m @700plants/ha, thinned to c.350plants/ha);
- sensitisation and support to villagers on forest regeneration (449ha being regenerated by 5 villages);
- survey & demarcation of forest areas (services of surveyors provided by project);
- enrichment planting to mainly native species (plus some exotics);
- establishment of beehives in forest (major honey production);
- formulation of local by-laws to control forest;
- trees are property of villagers but simple management plans need to be drawn up before harvesting can start.

Full range of timber / fuelwood species are: *Eucalyptus camaldulensis; Grevillea robusta; Cedrella oderata; Markania lutea; Maesopsis luminii; Azadirachta indica (neem); Mellea azedrach; Leucaena leucocephalla;*
Fruit trees: *Mangifera indica* (mangoes); *Psidium guava* (guavas); citrus;

Inspection in the field made to several villages and associated natural forest areas where regeneration had been undertaken. Most areas well-establlished/regenerated with indigenous species (most of these being seasonal/deciduous and with less leaf-cover in peak of dry season). (GPS points & photos taken; route cross-checked with satellite imagery and natural forest areas could be clearly delineated in most areas);

C.9. Mwanza City Council (visit of 3July; follow-up 13July)

Agriculture CD	Jane L.Binamungu	0713 451307
Agriculture Officer	J.K.Lutatina	0713 297432
Human Resources Officer	Lwinga M.A.F.	0744 809284
Assistant Agricultural Officer, LVEMP Soil & Water Conservation Component-Agrochemicals:		
	Peter M.Lupeja	0744 064419
Kilimo ISWC LVEMP	Crydon M Gondwe	0744 / 0784 775702
DALDO	Dr Stephania Mbululo	0744 301982
City Planning Officer	Patrick Karagwa	0744 274772
Community Devmt Officer	Said L.Tofiri	0784 598448
Town Planning Officer	Alfred Luanda	0744 813944

Officials of the Mwanza City Council had dealings with LVEMP-1 in the two major areas of Natural Resources (specifically in fisheries) and Agriculture. In these areas Council workers participated in activities together with community members. This was as a result of a request from the project. Some of the LVEMP-1 activities were part of the Mwanza Sustainable Progamme. One major benefit reported to have accrued from LVEMP-1 has been reduction of water hyacinth infestation in Lake Victoria through the use of biological control (weevils). There is now a weevil rearing unit at Nyegezi in Mwanza. The council through its Fisheries and Water Department also participated in the Water Quality Monitoring and Control Component through activities in Mlongo River. The relationship was, however, said not to be so direct as there was no formal reporting mechanism in place. Even some of the council officers were not aware of the LVEMP-1 activities. The involvement was viewed by the council to be more fragmented (and not holistic). Also the way LVEMP-1 started was not transparent. There was also lack of coordination.

The council thought it could have been better to recognise the existing structure of the local government. The council could have been involved by contributing to LVEMP activities to at least 5% of some of the budgeted activities. It was also noted that during LVEMP-1, community ownership of the activities was not clear. The project was said to have been operating on a Workshop basis at the grass-root level and a normal community member was not aware of the initial stages of the project. Moreover Mwanza City Council was not in the Pilot area. A request is now put forward to involve more agriculture and livestock during LVEMP-2.

The Council provided a number of ideas for future Implementation of LVEMP-2:

- Council Officers be involved and awareness creation be undertaken on the nature of the project and its benefits including ownership by community members. This will improve ownership and facilitate sustainability process;
- The entire council be taken on board, that is Council Officers and the Community at large in a transparent participatory approach;
- There should be in place feedback, communication network and a reporting mechanism;
- LVEMP-2 Head office be moved from Dar es Salaam to facilitate communication and reduce bureaucracy;
- LVEMP-2 to link with established SACCOS which are still not well developed thus need capacity building;
- Due to the falling level of water in the lake LVEMP-2 has to concentrate on the issue of afforestation;
- The LVEMP / Environmental issues need to be under Vice President's Office;
- Decentralization is important during implementation of LVEMP-2. Activities need to be streamlined in the council structure and support be given in terms of Funds. A Project Coordinator should be appointed at Council level;
- There should be Advocacy Meetings with the District Administrative Secretary (DAS) and District Commissioner (DC) and down to Ward Development Committees (WDCs).

C.10. Mwanza Urban Water Supply & Sewerage Authority.

Managing Director: Zephania Mihayo 0713 530 094 mwauwasa@yahoo.com

Lake Victoria and its catchments provide water to cities and towns around the Lake and beyond through urban and district water authorities. 'Water Undertakers' could be one of the potential components of LVEMP-2 and well as a possible long-term source of funds for these and other LVEMP activities. Mwanza Urban Water Supply and Sewerage Authority one of the water undertakers in the Lake Victoria Basin. The Authority is a government agency for the provision of adequate and sustainable water and wastewater management services in Mwanza City. The Authority was established in July 1996 under Water Works Ordinance Cap 281, as amended, as a semi autonomous Authority and was declared fully autonomous as from January 1998. The Authority is fully owned by the Government of the United Republic of Tanzania. Mwanza city has an estimated population of 524,000 people of which about 434, 920 are under the water service coverage area. The water service coverage area is about 72% of the supply area. Sewerage Services cover the central part of the City and Pasiansi Majengo Mapya and together these represent only about 7% of the area of the City that can be sewered. The Residents of Mwanza City , on the other hand, have a

responsibility to pay for the full cost of Water and Wastewater Services rendered to them so as to enable the Authority to continue providing and improving the services.

Existing and potential relationship between the Authorities and LVEMP

Mwanza Urban Water Supply and Sewerage Authority has been providing facilities for research activities during the implementation of LVEMP-1. There has been considerable participation of workers in stakeholders' meetings. The Authority has also benefited in terms of its staff being trained by the project, most particularly staff members being sponsored for MSc and PhD studies.

Customer base and tariffs

The Authority started implementing its four-year performance Improvement Plan (PIP), 2004/2008 during the year 2004/2005. The Performance Improvement Plan is considered the road map for the Authority Performance and service delivery. Following are some of the key performance indicators relating to the Authority's performance for the year 2004/2005 out of which the customer base and tariffs are depicted.

Category	Indicator/Ratio	2002/2003	2003/2004	2004/2005
Water Production	Quantity of Water Produced per year(cubic metre)	14,278,543	14,336,530	14,572,604
	Unit Cost of Water Produced (Tshs per cubic metre)	132	*183	196
Water Delivered (for whole city)	Quantity of Water Sold per year (cubic metre)	6,139,773	7,168,265	7,432,028
	Target Population (in area with water network)	381,000	380,500	458,493
	% age of Area covered	70	72	72
	Number of all Water Connections	15,313	16,303	18,141
	Average Supply Hours per day	20	22	22
Efficiency	Unaccounted for Water	57%	50%	49%
	Unit Cost of Water Sold (Tshs per cubic metre)	306	366.30	385
Consumption	Consumption Metres in good working Order (%)	95	95	92
	Quality of water delivered (%of samples accepted)	96	97	97
Sewerage	Service Area Coverage (%)	7	7	7
	Sewer Maintenance (No of Blockages attended /year)	140	130	126
	Sewer Treatment (% of wastewater treated)	0	100	100
Productivity	Staff/1000 all Water & Sewerage connections	*12.3	*10.8	10.5
Financial Sustainability	Average Domestic Tariff (Tshs)	250	275	275
	Average Commercial Tariff (Tshs)	375	490	490
	Sewerage Tariff (As % of Water Tariff)	50	50	50

* As restated

For the last three years (2002/2003, 2003/2004, and 2004/2005) the Authority's annual operating income has been Tshs 2.203 billion, 2.838 billion, and 2.903 billion respectively. The operating expenses for the three years were Tshs 1.878 billion, 2.625billion and 2.861billion leaving surpluses of Tshs 0.325billion, 0.213 billion and 0.042 billion respectively

Level of Financial Self Sufficiency

The Authority's Vision is to become self reliant in financing both Recurrent and Capital expenditures in near future. In view of this vision, the Authority has continued strengthening its capacity in financing capital investments using her own internal financial sources each year. The Authority's Recurrent Expenditure is fully financed by internal sources. The Authority spent Tshs 524 million to finance capital investments from its internal financial sources for the year 2004/2005. Internally Funded Capital Investment stood at Tshs 513 million and Tshs 327 million for the year 2003/2004 and 2002/2003 respectively

Constraints Facing Revenue Collections

The Authority is faced with the following constraints

- *High Unaccounted for Water (UfW) Averaging 49%:* Physical leakages and unlawful consumptions (water theft) are high. Some customers are dishonest and steal water by different methods. Some of the methods used by dishonest customers to steal water include illegal connections, bypassing water metres, tempering with water meters and corrupting staff
- *Relatively Low customers' willingness to Pay:* Customers' willingness to pay for the rendered services is relatively low. Coercive means like intensive disconnections are sometimes used by the Authority to realise reasonable collection. This is due to the fact that water is a natural resource considered by many to be a God given gift and cost free. It should thus be supplied absolutely free and hence the legacy that water should neither be sold nor paid for. The cost of water, however, arises from the need to abstract it from the source, treat it, store it and bring / pump / transport it to where it is required. Water is cost free only when nothing has been done to bring it to the location / or condition necessary for its intended consumption.
- *Small Coverage of, and low Public Awareness on, Sewerage Services:* The current sewerage system covers about 7% only of the Mwanza City. Very few customers are connected to the existing sewerage system. Unfortunately, some of those few connected customers are reluctant to pay for sewerage services rendered. Phase II of the on going Mwanza Water Supply Program Regional Centres is expected to extend sewerage connection network to cover at least 30% and expand the treatment plant's capacity. It is expected to finance connections of about 3,000 sewerage customers, the cost of which shall be recouped by the Authority gradually from the customers.
- *Aged Water Network System:* The existing water networks systems in all the Authorities are old and call for heavy investments to replace them.

Implication of increased tariff to contribute to LVEMP

Increase of tariff is considered by the Authority as not the best option towards increasing revenue. The immediate implication will be increase in the amount of money the customers are going to pay which in turn will be reflected by decrease in number of customers. Tariff increase has to go hand in hand with improvement in efficiency

C.11. TCCIA Mwanza

Regional Executive Secretary Hassan Kalambya 0784 751 220

Except for some individual members (e.g. fish processors) TCCIA didn't participate much in LVEMP-1. However, they are interested in LVEMP-2 and in proposed activities especially possible links between public & private sectors.
TCCIA has 3 categories of members:
1. Corporate companies, including 5 big fish processors (10% of members);
2. SMEs (75%);
3. v.small business associations (associated to reduce business fees) (15%)
TCCIA's main function is as a lobby group with respect to Government, to encourage Govmt to cut taxes and red-tape.

The v.small business people have several major problems:
i. inadequate capital to expand / improve businesses (75% of SMEs are not well established and need financial support);
ii. High cost of borrowing and high demand for collateral;
iii. Low education level;
iv. Over-confidence of doing business on their own and lack of realisation of potential problems and pitfalls;
v. need for a closer association between City Council and business (City Council not particularly business-friendly);
vi. Clearer information required on rules, regulations, charges, etc.
However, many of the SMEs represent a well-established business group and have no problem of funds. It's the 'start-up entrepreneurs' that have the major problems.

C.12. Lake Victoria Environmental and Sanitation Organisation (LANESO), Mwanza Head Office. Wed5Jul.

Benedict Kwangu	Executive Chairman	Phone 0713 242 522,
Lucas Wambura	General Secretary,	Mobile 0784 366 866

LANESO functions & activities

- Control of water hyacinth;
- Awareness-raising on environment with fishing communities;
- Mobilizing communities to encourage them invest in organic farming;
- Environment-friendly activities with farmers cultivating in the lake shore and rivers;
- Programmes on afforestation;
- Programmes on solid waste management.

Number of staff

- Has 24 staff operating in three regions: Mwanza, Kagera and Mara. In Mwanza, 12; Mara 6 and Kagera 6.

Involvement in LVEMP-1

- Member of Project Implementation Committee (PIC) which met every 3 months;
- Involved in manual removal of water hyacinth (Tsh14 million);
- Involved in fisheries - gave data on illegal fishing and this helped the patrol activities;
- Involved in awareness-raising and capacity building with communities;
- Involved in community participation and mobilization.

With no funding from LVEMP-1, what is the impact on LANESO?

With the tree nursery and weevil breeding centre managed by LANESO, due to current state of limited funds and transport, both are just making ends meet and supplying nearby communities.

Presently they are receiving funding from the Nile Transboundary Environmental Management Project (NTEMP), and 5 staff members are supported.

Alternative use of water hyacinth

- Making fibres and which are woven together and used for making chairs
- Papyrus-type paper – 30 people have been trained

However, the mechanical extraction of the water hyacinth has proved difficult, and there has been a further risk to people by wildlife hiding in the material – notably crocodiles, snakes and mosquitoes. Although the material would be of interest as a soil mulching material, it is very bulky and difficult to handle, with high costs of transport. Movement of water hyacinth is also illegal, due to spread of the very persistent seed. Drying and composting with (say) chicken or cow manure or dried sewage sludge might be possible with a view to rehabilitating degraded and eroded soil areas.

Organic farming

Sensitized farmers to use organic waste / garbage to make compost manure. This is one way of creating employment to communities and a way of controlling solid waste in urban areas (Mwanza city is producing about 700 tons / day of solid waste). This is done by a contracted small group of people (CBO) who then sell compost manure to farmers involved in horticulture (in Msweru and Nyamadoke). Farmers pay Tsh200-300 per tin of 20 lts. It is recommended to use organic farming products instead of inorganic as they are free from chemical contamination. However, chemical composition (especially NPK levels) of this compost manure has not yet been determined.

Is mushroom farming falling under organic farming? What are the requirements for mushroom production?

YES. One CBO in Mwanza is engaged in Mushroom production. However due to the bureaucratic process of obtaining fungi spores for this mushroom production, the enterprise failed. To get fungi spores from Ukiriguru Institute which is in Mwanza requires following a lengthy bureaucratic process in Dar. This process is very costly and this lengthy process is unnecessary. Despite that, the project is seen to be an alternative source of income to indigenous farmers, which is environment-friendly and needs be promoted under LVEMP-2.

To undertake such a project the following are required:

- A room – clean and dark room
- Plastic bags
- Shelves
- Initial cost (3-5 million if including room) or (about 500,000/= if room is available)

More experience on mushrooms could be obtained from Mr Bitulo of Kuleana Pizerria in Mwanza. It was noted that 2people from LANESO were employed at Kuleana Pizzeria.

Chicken farming
Chicken manure is rich in Nitrogen and useful as composting manure. It needs to to mixed with a much larger volume of straw or other inert material or the resulting compost is too rich.

Afforestation programme
Pilot areas / plots in Bunda. Balili Bunda was selected following degradation of the natural forest there (originally very species-rich) by charcoal burners, leading to significant soil erosion. Started with 5000 seedlings of *Grevillea* and *Neem* (could not give more due to limited funds). Each household was given 20 seedlings. Survival rate is around 80% - previously the survival rate was around 20%.

What is important in afforestation programmes is raising state of ownership. The process / planning should be participatory. The local community now understands that trees represent money. Income is about 50,000 – 60,000 per tree.

Awareness on nursery rearing to local communities is required. They lack capacity in nursery management and access to reliable sources of water. Local communities also need be educated on livestock keeping.

Local government relationship with LANESO
- Useful as a source of poly- tubes (for nursery) and seedlings;
- Local government is helpful with respect to activities that generate revenues but are much less helpful in the provision of services;
- Local government leaders need to change their attitudes on issues related to environment
- Projects under district councils sometimes fail due to improper practises. For example for IERMP, LANESO was selected to execute the work but the execution was disturbed by the directives of the DC.

What needs to be done to harmonize the situation?
- Awareness creation with district officials;
- Monitor funds through a committee and ensure conformity with contracts and guidelines.

TASAF MODEL
- TASAF model seemed the best. It has a programme coordinator at the district level. Money is channelled to committees of beneficiaries.
- Community committees write proposals to the programme coordinator who is a LGA employee. The coordinator assesses and compiles the proposal and sends it to the secretariat which then makes a decision on the funding. Through this process, the district benefits from DSA, fuel, etc.
- This differs totally from LVEMP-1 whereby coordination of funds were made from DAR.
- This should be changed under LVEMP-2: an office needs to be established in the LVB with all project components working together.

Solid waste management
- Training communities;
- 6 CBOs involved in solid waste and compost manure making trained.

Funding sources
- Donors, most notably SIDA;
- Nile Transboundary Environmental Action Project (NTEAP) under UNDP – on control of water hyacinth
- Fire Right Conservation
- CUSO Canada (Canadian student) but this foundation has recently collapsed due to internal conflicts

Generally funding is increasing. First funds were received from SIDA and the funding from NTEAP is now increasing.

Do you find it easy to work with some districts?
Yes, many of the districts are very welcoming and integrate well with the NGOs activities. However, some LGAs think that NGOs are in competition for funding and reduce their capacities to collect revenues and benefits from DSA payments.

Districts easy to work with
Magu, Bunda, Misungwi, Sengerema, Bukoba Rural and Karagwe

Difficult districts include Tarime, Mwanza (community are very difficult to persuade due to political differences. Most think that any development is for CCM and thus a tug of war!)

Use of Lake Victoria water for irrigation
It is important that this continues so as to fight against poverty. Capacity building on irrigation is urgently required.

Nile Basin involvement
LANESO benefited through capacity building under the Nile Basin programme. It further use knowledge gained to train further people at village level.

What are your expectations under LVEMP-2 and what would you like see done differently?

- The LVEMP Secretariat needs to move to Mwanza;
- LVEMP-1 did not involve the NGOs and local communities in its activities: much more involvement is needed for LVEMP-2;
- LVEMP-1 bought a boat but did not use it. This is because of poor communication / consultation between the procurement officer and the user. Procurement procedure did not involve the end user (the community). Need to understand facilities that are pertinent to project execution (procurement issues);
- Involve NGOs (subcontract) in executing some of the work, for example, on awareness raising and capacity building through training.
- Avoid undue bureaucratic processes;
- Need to address issues of HIV/AIDS;
- Expand the soil and water conservation component through community involvement to other regions and districts;
- Think of alternative income sources, also people need be made aware of saving some money for their development. For example, fish and cattle keepers earn a lot of money but live in poverty. Where does the money go?
- Dissemination of information to communities in simple language.

C.13. TAHEA (Tanzania Home Economics Association): Wed5Jul.

(Based at City Council premises)
Lake Zone Coordinator: Ms Asia K. Kapande (Food Nutrition Specialist).
Mobile: 0744 579 289 email: asiakapande@yahoo.com; taheamwanza@yahoo.com
Assistant Coordinator, TAHEA: Mrs Mary Kabati. 0744 443226 Email: Marykabati2006@yahoo.co.uk
Mr Arcard Rutajwaha 0744 597083 lugayana@yahoo.com
LAZARF (Lake Zone Agriculture Research Funds): (Chairperson: Ms Asia Kapande)
(also: Project Manager, Water Care and Health Training Project - WCRHTP).

Short History of TAHEA
Tanzania Home Economics Association (TAHEA), is a national Non-Governmental organization founded in March, 1980, with a mission or primary goal to promote improvement of quality of life of families and particularly women. It is registered, No. SO. 6179 under the Tanzania Societies ordinance by 17 members (Home economists). TAHEA membership expanded from 17 to over 1000 by the Year 2000. TAHEA obtained a CIDA Excellence Award in 2002, in Ottawa, Canada.
The TAHEA office is housed in the Lake Zone Rural Development Centre, Mwanza.

Activities (see brochure for more details)

- Farmers' education in the Lake Zone – solving livelihoods problems
- Sustainable agriculture and rural livelihoods
- Water care
- Rural health training

TAHEA involvement in LVEMP-1

- Participated in the project management team by appointing one representative from TAHEA. However, the appointee was not very active in the management team;
- No concrete activities for intervention by TAHEA;
- Chaired World Bank evaluation team for LVEMP-1 but did not get final report of that mission.

Specific areas of agricultural development and research under LVEMP-2

- HIV and food security;
- Interventions on livelihoods.

HIV infection rate is generally < 10% overall but is more prominent in the fishing villages. Find out why??

Priority for community development programme

- Intervention required on food security;
- Utilizing wetlands in Misungwi for agriculture. This may require more interventions to find out to what extent the wetland could be utilized without affecting its hydrological and ecological balance. Need for capacity building in making such assessments.
- Emphasize growing root crops – cassava and sweet potato, as these are more important for food security and nutrition of vulnerable groups than are rice and maize. (Short-term varieties exist for sweet potatoes which need promotion – i.e. 3-4mo varieities, and some just 2.5mo).

TAHEA relationship and collaboration with the local government on environmental issues
Not working in isolation - working closely with the local government. However not done much on the environmental education. Seem rural areas forgotten, and would like to have good environment.

Noted that working with LGAs can be very challenging. It is suggested that there is a need for forming a District Management Team (DMT) as an overseer and supervisor of all activities. Money should not be channelled to the District alone, and still less through an individual in the District, but that all transactions should be transparent and approved by the DMT.

There should also be motivation through competition among clusters implementing activities at village / ward level (i.e. performance in financial management and good performance)

Information on economics of root crops
No economic evaluation on root crops has been conducted

Soil Fertility Problems
There is a major soil fertility constraint in the LVB and 3-4-fold increase in yield can be obtained by application of fertiliser or manure. However, with sandy soils predominating in the LVB frequent small applications are required, particularly if inorganic fertilisers are used. It is much better to use organic manures or composts as these release nutrients more slowly, as and when required by the crops. Also they are likely to be cheaper, per unit of nutrient supplied.

Promotion of agroforestry
Mixed cropping of Luceaena leguminous trees with root crops need to be promoted.

Women Loan Fund
Started between 1999 and 2000 and during that time a student from Canada was doing her study on community development from which her findings formed the basis for the Loan fund. The fund targets the disadvantaged women in the rural poor. The fund for opening the account was collected through a barbeque dinner. At present, the fund loans up to Tsh50,000 and the borrower pays Tsh5,000 after 3-6 months. The loan funds serve more that 100 within the Lake Zone.

Vitamin A and orange fresh sweet potato promotion in Ukerewe. Came about after a research by TAHEA that vitamin A was very deficient in communities in the LVB area.

What are your expectations on LVEMP-2 and what would you like to see done differently?

- Involving stakeholders in doing a number of research activities in improving the livelihoods and food security of the LVB communities;
- Emphasis for interventions on implementation should be equally considered;
- Research on food security to urban and rural areas will lead to interventions that will reduce food insecurity
- Economic / financial support – improvement
- Particularly, how to assist orphans and widows
- Availability of drought-resistant crops
- Cassava Mosaic Disease (CMD)- resistant cassava – (acquire land for CMD cassava resistant crops).

Later follow-up visit on 13Jul discussed problems with current drought situation. The limitations intended to be placed on cultivation in wetlands must take into account the environment in which this is happening; people in the rural areas are dependent on agriculture and in drought years such as this, people follow the water; their economic status must be taken into consideration; must have alternatives before preventing use of wetlands.

C.14. Ukiriguru Agricultural Research Institute (LZARDI) – Wed5Jul. pm.

Ag Director: Mr Donald Gilvas Sayi (Cotton Agronomist) Mobile:0744 750541 Dsayi2002@yahoo.co.uk
Soil Scientist: Deusdedit Peter Mob: 0713 580438 Email: pdmlay@yahoo.co.uk

Ukiriguru Research Institute started in the early 1930s, initially as a seed production and cotton research centre. It later became involved in work on many more crops, including sorghum, maize, roots & tubers, cassava, rice and pearl millet. Some grain legumes are also covered (chick peas, cowpeas, pigeon peas, green gram). In the early 1990s work also expanded into livestock research. It now has a special supporting programme including natural resources (soils, agroforestry, etc) and socio-economic issues. It is mandated to undertake research on crops and livestock in the Lake Zone's 4 Regions (including Sheniyanga). It has a sister institute (Moroko in Bukoba) covering a higher-rainfall zone and dealing with banana, cassava, sweet potatoes, maize, beans, and spices (recently started).

The Institute is mainly funded by Government but a significant proportion is covered by international money (including current rehabilitation of several buildings). The Institute covers some 400ha of land, but only 25% of this is currently used. Buildings cover an appreciable area and are also not used to full capacity. There is a large library and also a good seminar room which can accommodate up to 70 people. The nearby sister institute MATI Ukiriguru has a hall with a capacity of over 400 people.

Cotton makes up 40% of the cropped area within the region, but yields are low (300-700kg/ha). Main problems include sowing practises (broadcasting still followed), and no fertilisers are used. Cassava/ sweet potatoes yield 7-10 tons/ha, but this is for traditional varieties with no fertilizer application. The Institute obtains 1.5 times these figures. New varieties yield up to 46 t/ha.

Crop research includes the following:
Rice: Applied research undertaken on rice varieties in collaboration with KATRIN in Morogoro;
Cassava: screening trials undertaken on mosaic-resistant crops (CMD) and multiplication plots for the best varieties;
Sweet potatoes: similar trials and multiplication plots for virus-resistant cultivars.

Economics of fertilizer use
Fertilizer prices are v.high (Tsh500–700 per kg) due to small volumes and high transport costs: these are about double world market prices. However fertility is being mined by current farming practises and attention to this problem is urgent. Some work on fertilizer requirements was carried out in the early 1970s and approximate recommendations (for rainfed conditions) were as follows:

- cotton (30kgN/ha, 15kgP/ha, 25kgK/ha);
- rice (30kgN, ?some P?)
- maize (40+kgN)
- sorghum (not economical)
- cassava (not economical).
-

The soil testing laboratory is currently being rehabilitated. The new lab should have a capacity of 500samples per month for the full range of fertility analyses plus CEC, pH, EC. The charge per sample (for private individuals) would be Tsh12,000 (a reasonable figure).

Pesticides research
This is undertaken and funded by the industries concerned. Spraying for cotton bollworm was advocated for6 times / season but this was found to be uneconomical. With good pest scouting the number of sprayings can be reduced from 6 to 3.

How are the communities at grass roots level being involved in identification of priority research areas / problems?

- In the past, internal planning meetings invited district representatives and this was done once per year before the start of the cropping season. But due to budget constraints in the last 2-3 years, this has stopped.
- Stakeholders meeting in every region once per year: get information from DALDO and Extension Officers.

How are the findings disseminated?
Field notes are prepared indicating what has been found. From these posters and brochures are prepared. But both financial and human resources are severely limiting.

Do you have extension?
YES. Research Extension Liaison Officer (RELO) (6 Extentionist – Graduate + Diploma)
Zonal information Management Office (2 + zonal information management committee)

Do you conduct farmer field school?
NO. but are used to farmers field days show, also stakeholder meetings
However, one staff is doing farmer field schools in Bukoba (Byamutemba – Misenye and Kikomelo)
In Bukoba there is also a FAO supported LAMP

Involvement of the Institute in LVEMP-1 was limited: the soil and water conservation work involved cooperation with staff in Magu and Tarime. The WB supervision/evaluation mission also liaised with the Institute.

What are your expectations on LVEMP-2 and what would you like to be done differently under LVEMP-2?

- Collaborate closely with LVEMP-2 in soil and water conservation, crops and socio- economics (have enough expertise);
- Should aim to assist small scale farmers to raise their income and livelihoods;
- Planning meetings and workshops.

Mara Region: C15-C21

C.15. Bunda District Council Offices. Thur6July & Mon10July

District Natural Resources Officer	Mr Eliuter Nywage	078 4444773
Ag District Planning Officer	Mr Jeremia Masolwa	078 4601565
Ag District Fisheries Officer	Mr George Masalu	078 4303907
Land Use Planning (Kilimo)	Mr Asel Kabugumila	078 4820630
District Forest Officer	Mr Samuel G. Mtei	078 4580722
Agricultural Officer	Mr Charles Masawa	078 4461495

Understanding of LVEMP-1
Soil and conservation practise, overcoming gully problems in one of the pilot areas hoping to extend to other villages (Nyamatike Buchare ward). The district was engaged on this activity last year (2005) at the near end of the LVEMP-1 project. It involves construction of contours to prevent soil erosion.
LVEMP-1 supported a study tour of 6 officials (facilitators) to Babati.

Process of engagement under LVEMP project
Officials from HQ asked the district to select two villages for funding under LVEMP-1 project and later visited the selected villages and the World Bank selected one village to start with. Officials from Mwanza visited the area and held a village assembly meeting to address what was to be done. For each sub-village, two village members were selected to join the soil conservation committee. The committee acted as a focal point and had to monitor the day to day activities. Out of the committee, six members were sent for training to learn what others are doing on the field. Awareness created through the training enabled them to facilitate training to other people in the village.

Involvement in afforestation component
District was not fully involved, except a Task leader located at the Regional Office was mainly involved.
Reared tree nurseries and distributed. Two pilot woodlots at Nyatwali village.
Groups: (LVEMP paid for the seedlings reared): Milimani; Tamali; Sazira.

The major bottlenecks of LVEMP – It was a 'top-down' project. There was less involvement and no feedback on activities by LVEMP at the district level.

Microprojects under LVEMP-1

- 7 shallow wells
- Classroom at Nyabehu
- Ilamba secondary school

Composition of steering committee – microprojects

- Dictated members for the committee
- Councillors know very little about LVEMP-1

How is TASAF working in the District?

TASAF allocation for the district in 2006 Tsh 800 million

- Plans/ concerns come from the village, discussed at the district and forwarded to HQ for funding decision.
- Funds go direct from HQ to villages through district

Do you think TASAF model can be adopted for LVEMP-2?

May be the District Development Programme (DDP) model could more appropriate. The DDP came-in after HESAWA. It has three main components:

- Capacity building
- Income generation
- Development of infrastructure

The programme is monitored under the Prime Minister through the National Coordinator under TAMISEMI. At the district, there is a team leader (SIDA) and district DDP officers. The programme covers three districts namely Bunda, Ukerewe and Serengeti. The DDP model started in the year 2004 with the emphasis of the government on the use of Obstacles and Opportunities for Development (O and OD). In the year 2004, underwent practise in 93 villages.

Under the DDP model, the village is given mandate to give a three years plan and the district draws activities for funding from village plans. However noted that most of the priorities by villagers are directed on problems surrounding the communities and these include education, health and water.

Initially DDP started with four wards (Bunda, Salama, Igundu and Namuhura). In 2003/2004 budget started expanding (Tsh 100Million) and the whole district budget rose to Tsh 700 Million.

UNDP supported irrigation pilot project that uses water from a storage tank of 100,000lts (not completed) at Nyatwali and Kisolya villages.
Wind Mill pumping water to the storage tank at Bwanza village close to Ukerewe (but currently not operational). Cost of wind mill, 45 million.
Irrigation project (though not specifically demanded by farmers) is required so as to avoid continued degradation of the wetlands due to cultivation.

Is there a difference between priorities identified under TASAF and those of DDP that require funding?

- Planning process under DDP is through O and OD
- Not going for the same area? though same priorities
- Primary Education Development Programme (PEDP)

How many BMUs are there in Magu District?

- 34 BMUs
- 15 performing better
- No structures at the landing sites, not collecting revenues for the council. Private firm given.
- BMUs need capacities through training for revenue collection
- Joint training between BMUs and the village government

What are your expectations for LVEMP-2?

- LVEMP-2 should come very close to the district council. Reports should be given to the council including the district. The council would like what LVEMP is doing. vi agroforestry not working closely with the district council.
- Plans should be included in the district
- Need to be transparency in disbursement of funds, and information sharing.
- LVEMP-1 seem to have been operating from regional office.
- How LVEMP was started not known.

Which activities contribute more to the livelihoods of the people in order of priorities?

- Agriculture
- Livestock
- Fishing
- Trade + industries (cotton ginnery)
- Shops + kiosk
- Petty mining at Kinyabunda
- Forest (no trees – embarking on this)

- Tourism – tented camp at Nyatwali

C.16. Mara Regional Office: Musoma District Forestry Office. Thur6Jul

District Forestry Officer, Musoma: John Nnko. Mob: 0787 492686; 0713 440415;
Forestry Officer: John Kindia. Mob: 0784 401116.

Activities done for/ by LVEMP-1 (success and failure)
Implemented LVEMP activities

- Conservation of natural forests
- Extension activities: sensitizing community on conservation
- Production of seedlings for planting by farmers in the basin

Concentrated in three districts around the lake (Musoma, Tarime, Bunda) also Musoma Municipal.
Collaborating with the district people

How are the communities sensitized to conserve natural forest?
Involving people in conservation of natural forest: the process

- Initial meetings: sensitisation;
- Formulation of conservation by-laws;
- Further meetings with villagers and detailing procedure for forest protection

On seedlings production:

- 2 central nurseries for production of seedlings

Extension: how?
Mobilizing on tree planting
Installed water catchment structures- (measure siltation and aeration capacity after conservation)

Years with data on rainfall
3 years; Run-off Plots established < 30 km from Musoma

What species are grown?
The most preferred by people
Grevillea, Abizzia, Acacia neolotica, Agrocarpus, Eucalyptus saligna

Plantations (area) established:
Groups have their area and promoting people to have tree plants – woodlots (see next visit, C.17)
Total area of natural forest = 620ha Kigambobitale, with 2 villages, immediately to the NE of Mara River after crossing main road bridge;
1440ha Lake Magana (total proposed area 2765 ha)

In which ways the community based forest management formed?

- Draft forest management (with selected few village member)
- Village management
- Meetings on public
- Council assembly (baraza)

How the community (perceptions and participation)

- Most had alternative means of livelihoods – well received
- Areas with no alternative means had some resistance. But generally, there is not much resistance.

C.17. Bukabwa Village, Musoma Rural District. Forestry Activities. Fri 07July06

Chairman, MWAROBAINI BUKABWA: Mr Joseph M. Watilya
Secretary, HIMABU: Mr Christopher Oswago
Secretary, HICHABU Mr William Jongore

(for account of PRA discussion, see C.17, Annex D)

GPS points 78-88, 1185m amsl.

3 Forestry Groups, established under LVEMP-1 in 2002, with up to 20 members per group. Intention was to have a collective woodlot of 5ha for each of the groups, plus each individual holding his/her own woodlot of at least 0.5ha. Numbers of trees owned per individual varied from 500-2000. Nursery activities were re-starting for another season, with one group observed collecting forest soil for this nursery. Plantation inspected was established 4+ years ago on an excellent site (Site Class I) adjacent to a small reservoir. Spacing was 2.5*2.5m. (Arguably, this land should have been reserved for agriculture with forestry being pushed into a higher site.) Plantation was mixed species: *Eucalyptus siligna* (Class 2 timber, H=7-8m; dbh 6-13cm (10cm common)); *Grevillea robusta* (Class 1 timber, H=4m; dbh=5cm); *Cassia* (H=5m; dbh=5-7cm); some native *Acacia* were also observed. Performance was variable, but generally good, some parts excellent (complete canopy closure; straight timber, dimensions much greater than expected), some parts poor, with high weed infestation.

Plantation management would involve thinning at 7years, taking out 1/3 of the timber (poles of 15-20cm, 7-8m, selling for Tsh2,000-3,000) and 15yr taking out 1/5 of the timber (small timber of 25-35cm,). Firewood would be selling at $6.4/cu.m; poles $50 and small timber $70/cu m. (For financial analysis, see Annex H: even with very conservative figures, returns are very favourable and mean revenue per ha per year is >$800, albeit with >92% of this being realised in Year 25.)

C.18. Nyerero Womens Group. Fri7July

Nyerero Village, Nyerero Ward, Ichage Division, Tarime District, Mara Region.

Group Chairperson	Anna John	0744 261345
Group Secretary	Mary Imari	0746 517178
Chairperson:Environment	Yunes Mwita	
Group Treasurer	Veronica John	

Address: Nyerero Womens' Group, c/o Nyerero Dispensary, PO Box 7, Tarime, Tanzania.

(For fuller description of activities & PRA discussions, see Annex D)

V.active, well-established (founded in 1984) and very exclusive Women's Group of 22 members. Activities include forestry (18ha plantation established 2000-2004 under LVEMP-1), canteen, roofing-tiles, plant nursery, dairy farming, self-help farming activities.

GPSpoint#157-158: 1681m AMSL; S1.39342deg; E34.53744deg. Agroclimate is clearly very much more favourable than lower-elevation areas, being reflected in much higher intensity of landuse.

Main crops in this locality are: maize, fodder, coffee, bananas, cassava, sweet potatoes, wheat, Irish potatoes.

Inspected forest plantation some 3miles further east, on slightly sloping land with apparent hardpan problems. GPS positioning taken around entire perimeter of plantation (points 115-141: S1.39320; E34.56052; 1600m amsl). Plantation established over period 2000-04, on 18acres of poor land made available by the village, with *Grevillea, Eucalyptus* and *Casuarina* being grown, together with a few trees of *Khaya anthotheca* (Class 1 timber) and *Acrocarpus sp* (light timber for boxes; trees growing extremely well).
A huge variation in performance of the plantation was observed. Canopy closure in the older and better areas was observed; growth around termite mounds was v.much better than that in other areas (land was apparently v.infertile): some areas of trees were disappointing (fertility problem, or hardpan?), but 50% of the area was growing well. *Casuarina* growth>*Eucalyptus*>*Grevillea*. Best *Grevillea* trees showed H=>7m, dbh>15cm, after 6 rainy seasons, but poorest trees were 1/3 of these dimensions.
Plantation was being well maintained. Short grass cover over nearly all areas (grazed, or cut for fodder?) – complete ground cover, and almost no current erosion.

C.19. Chirorwe Village, Musoma Rural. 50ha irrigation. Sat 8July06

Chirorwe Solidarity Water Harvesting Group:

Secretary:	Mr Samwel Ruhumbika	
Dpty Chairman:	Mr Dema Mwendwa	
Member:	Mr Balige	0713 597660

(See full PRA report in Annex D: GPS points #164-213 taken: 1148m elevn; S1.81055deg; E33.67681; many photos)

Substantial earth dam (curved, 6m high and 600m long) installed to supply supplementary irrigation water to wetland rice fields established initially under rainfed conditions. Idea is that this water would be made available at the most critical stage for determining paddy yields. Scheme funded by WB/IFAD, with LGA 10% and Ministry 5% contributions. Local farmers had small entry fee (only Tsh7,500) plus agreeing to a land redistribution and contributing 1acre plus providing 2-3bags of paddy as O&M payment each year. 81 members of the scheme. Construction undertaken in 2004. Tsh80m spent on bund; Tsh45m spent on canal infrastructure; but no proper spillway (concrete spillway with increased WL of 1m to be installed shortly).

Last season (2005) excellent yields were obtained (35bags/acre) in comparison to average yields under rainfed conditions of around only 5 bags. A few farmers who originally had larger holdings but had agreed to release their land for redistribution now want to rescind on the earlier agreement in order to have their original land back. There is a current court case dealing with the issue.

There is scope to increase the storage capacity of the dam (increasing spillway height) and also scope to take in more land downstream (up to 400acres may be available, although water is very clearly the limiting factor here). There is also much scope for introduction of new paddy varieties, fertiliser, and perhaps have a second short-term dry-foot crop (say mung beans) to make use of residual soil moisture. There are also possibilities for undertaking aquaculture in the reservoir. The reservoir also guarantees water supply for domestic and livestock use.

However, sedimentation in the reservoir is a problem and puts a heavy premium on catchment afforestation and other watershed management practises which have not yet been integrated into the scheme. Health issues could also be problematic (malaria and bilharzias) and both need monitoring. But the biggest problem remains the ability of scheme members to work together as a group and cultivate the maximum area collectively that can be managed given the water resources available for that particular season. In one season that may be 200acres (80ha): in the next it may only be 20acres (8ha). As in similar terrain in cultures that have long practised small-dam irrigation (S.India, Sri Lanka etc) there is need for integrated community management to manage this resource effectively.

This is an excellent demonstration of both the potential and the pitfalls of irrigation in the LVB (Tanzania) context.

C.20. Cheleche Village, Tarime, Mara. 65ha irrigation. Sat8July

Rolya Farmers (HH600, each c. 6-7 people):

Secretary(1998-2004)	Mr Charles Lwomba
Chairman	Mr Ezecka Mkura
Secretary	Mr Karume Amko

(See full PRA report in Annex D: GPS points #214-227 taken: 1150m elevation; S1.37971; E34.07009; many photos)

Substantial earth dam (c. 6-7m height, 650m-long) installed to supply irrigation water to wetland rice fields, 120acres of which were established initially under rainfed conditions. Area lies in a broad alluvial valley with potential to extend to approx. 600acres. Scheme funded by IFAD. Local farmers had small entry fee (only Tsh7,500) plus agreeing to a land redistribution and contributing 1acre plus providing 1bag of paddy as O&M payment each year. 300 members of the scheme, 250 active and some 200 actually farming in the 65ha irrigated area. Construction undertaken in 2000-2002. Tsh110m spent on bund; Tsh65m spent so far on canal infrastructure (canal still being extended); but again no proper spillway (concrete spillway with increased WL of 1m to be installed shortly).

Last season (2005) poor yields were obtained (10-20bags/acre) due to disease and insect problems. This year very much better yields are expected (35-40bags/acre). This compares with average yields under rainfed conditions of around only 5 bags, and rainfed yields in the best years only reaching 7-10bags/acre. For most areas fertiliser is not used at all, although some farmers apply cow manure at around 3-4tonnes/acre. This year 2 farmers have begun to apply modest applications of urea at around 30kgN/ha. Agricultural advisory services and farmer training are urgently required, with training on pesticide use very pressing. Virus yellow disease and grasshoppers are common problems.

C.21. Musoma District Rural. Mon10Jul06.

District Executive Director:	Mrs Eliza Bwana.	Tel: 028 2622163; Mobile: 0744 438 846
Irrigation/Land Use:	Mr Balige	Mob: 0713 597660

Covers 126villages in District. Office site: GPS points: 402-404

Understanding of LVEMP Project
The Director worked with LVEMP and served as Task Leader for the water hyacinth sub-component. Appreciates what LVEMP did, but highlighted that the district was less involved. At the district level, the project was viewed as being more zonal, covering the whole of the LVB. With the LVEMP-1 small microproject funds meant for construction of dispensaries, money was channelled through the sub-component manager. The microproject committee was chaired by the DC and works were ultimately supervised by the steering committee. With the exception of the microproject sub-component, what was undertaken in the other subcomponents is not known in the district.

What are the problems affecting the Lake?
Activities by the communities are contributing to the silting of the lake. These include among others poor agricultural practices and cultivation along the Lake shore.

What are your opinions of the TASAF model: could it be adopted for LVEMP-2?
The district was not involved in TASAF Phase One. TASAF Phase two has just started through O and OD ('Opportunity & Obstacles for Development'-PRA technique for prioritising problems and activities) in 2003 and now this is being updated to get peoples' major concerns. The TASAF model functions on a first come first served basis, and it covers all the 126 villages. It also depends on how the community is ready to contribute. The TASAF model is likely to be an appropriate model and best way to handle LVEMP-2.

Reporting mechanisms and relationships between DED and DC
- DC Government Head for District (a political post);
- DED is effectively a technical coordinator, directing technical staff;
- DED is accountable to the councillors; sits on committee where issues are tabled;
- WDC ward development committee is chaired by councillor; technical people report to WDC;
- There is 27 wards in the District, average of 4-6 villages per ward.

Expectations for LVEMP-2
- Would like to see things done differently under LVEMP-2, with more participation and involvement of local communities and district in the preparation, planning and execution of project activities;
- Should start micro credit funds (i.e. SEKAWA Global 2000);
- Land management, and soil and water conservation should have much more emphasis;
- Water hyacinth control is still a problem (water hyacinth seeds are viable for 10-20 years);
- Catchment afforestation should have much more emphasis;
- Reducing pollution
- Big industries and municipal effluent be minimized (Fish factories, Buhemba gold mine, Nyamongo gold mine)
    - Mercury complaints by villagers (effects on animals likely observable)
    - No waste water treatment plant in Musoma – Direct sewer

Discussion on Land Dispute at Chirorwe:
Government invested a lot of money in this scheme (Tsh96million for dam alone) on the basis that villagers had agreed to constitution which had sorted out all land issues. The minutes for these meetings and the signed agreement need to be adhered to (and all documents kept under lock and key).

Bukoba Region: C.22. – C.28.

C.22. Model farm, Bokoba Rural (12km NW of Bokoba town) Wed12Jul.

Mr Dedan Sombe: Farm Manager /entrepreneur /(Ag.DALDO, Bukoba Municipal Council).
Mobile: 0784 836 180. Email: dedansombe@yahoo.com

9-ha model farm owned by Govmt and leased by Mr Sombe since 1989 when it was in a run-down state. The area serves as a good demonstration farm for farmer training. The area has one of the best agro-climates in the Lake Basin, with almost 2000mm/year, a pronounced bi-modal rainfall pattern and only 2 months per year (July & August) when the monthly rainfall is less than 50mm. Soils are predominantly sandy loams, overlying sandy clay loams and a common hardpan at 50-120cm depth.

The farm includes:

-perennial crops: coffee, bananas, plantains; vanilla;
-annual crops: maize (grown throughout the year);
-horticultural crops: tomato; egg plant; sweet & chilli peppers;
-fodder: Napier and Guatemala grass;
-legumes: *Calliendra, Desmodium, Lucaena*,
-dairy unit: 6 cows.

Manure from the dairy unit goes into a digester for biogas – spent slurry is then dried / composted and used on the farm. Mulching material is also grown (grasses etc) and provides further nutrients for beneficiary crops.
Coffee (robusta clones) have been grown since 1989, under *Grevillea* shade.
(See details on LUT2 for this Robusta Coffee.)

Trials with improved banana varieties are on-going: resistance to various diseases is the main feature here. Heavy manure applications are being used, and yields appear excellent. Banana is also used as a shade crop for coffee (particularly young coffee).
Egg plants under cut-grass mulch were growing very well.
Maize field at dry harvest stage – yields would appear >4t/ha.

Vanilla was being grown both in nursery (1*1.5m) and main field conditions (2*2m), growing up live supports (need to be planted 2-4mo before the vanilla). Vanilla requires 30-50% shade, this being provided by dried palm fronds on a 2+m-high frame. Yields are 2kg green beans / plant / year to 6kg (max), with Tsh25-35,000/kg being obtained last year for green beans and up to Tsh100,000 for quality dry beans. (2kg green=1kg dry). But vanilla is a high-input crop (for both materials and labour). 1ha has required 7million Tsh on this site between Sept05 and Jul06. Shoots need to be cut to accelerate flowering. Hand pollination required. 1/2kg green beans/cluster. Requirement for compost with lots of leguminous dry leaves (nb fresh manure will burn). Good market for shoots for propagation.

Consultants' Conclusions:
i. The farm shows that excellent results are achievable from a good site (good agroclimate, adequate soil) and excellent high-tech farm management. However, what is very clear is that adequate (or even generous) nutrient applications are being made here (largely through cow manure and mulching material), whereas elsewhere there is a major nutrient deficiency problem which is not being addressed because of difficult access to organic manure, lack of technical knowledge across a broad front, and also v.high prices for agrochemicals.
ii. With the very sandy soils in this location, the cow manure and mulching material gives added benefit (over and above the nutrients they contain) in that they improve the physical structure and nutrient retention capacity of the soil, and they slowly release nutrients they contain over a prolonged period.
iii. Of interest is the wide range of activities being carried out – this provides essential diversification of income sources so that farm is not over-dependent on one crop.
iv. Maximum use should be made of this farm both as a demonstration site, and as a site for further practical experimental work for LVEMP-2 agricultural sub-components.
v. Given the clear success here, why are other entrepreneurs not following the same model in a big way?

C.23. Bukoba Rural District Council. Wed12Jul.

DED	Alhaji Zuberi Mbyana	
Planner	Charles Kiberenge	0744 436943 kiberenge2006@yahoo.com
DALDO	Muganyizi Kagisha	0744 549370 / 0784 302354
District Planning Ofc	Cosmas Ngangaji	0744 678685
Natl Resources Ofc	Finias Kagenda	0784 720488 finias@yahoo.com
Planning Ofc TASAF	Mbenje Isaya	0744 770643 / 0786 168100 / 028 2222613

Email: Mbenje_isaya@yahoo.com

Understanding of LVEMP-1
LVEMP-1 was only involved in microprojects in villages which were believed to have an impact on the lake. The microprojects supported include: a ward dispensary at Bugando, construction of access road at Mushozi and Igabilo, classroom construction at Kemondo, Nyungwe and Bugolola. The district was involved as a steering committee member.

Did not know how LVEMP started and how it worked. The district provided some technical staff to the Project as requested but it did not contribute in the planning of what was to be done in the project activities. The Project also did not formally report back to the district on progress of activities. LVEMP-1 is believed to have been operating at the regional level. Nothing was done on catchment conservation and afforestation, which would have been high-priority activities for the District.

What can you say of any notable success of LVEMP-1?
After the intervention that required stopping use of illegal fishing tackle, it seems more fish species have been rehabilitated. Also water hyacinth infestation has been reduced.

What plans are there in the district to ensure environmental conservation?

- Ward nursery programme
- Bylaws for catchment conservation
- Enforce 60 m reservation from water sources (wells, rivers banks)

Other ongoing projects in the district

- TASAF : people's demand-driven microproject activities;
- TAMP : Transboundary Agroforestry Management Project;
- Vi Agroforestry : in Bugabo, promoting agroforestry. One of its objectives is to conserve Lake Victoria

With respect to soil conservation, a by-law exists to ensure that any cultivation is undertaken on the contour and not up-and-down the slope, but due to lack of resources this is not enforced.

Priorities of district for funding

- Education
- Health
- Administration
- Infrastructure including water
- Agriculture
- Environment – cross cutting issue

There is no enforcement of by-laws. In former times Kagera was praised for conserving wetland areas, but now much cultivation is occurring in these areas. There's thus a need to find the means of enforcing the bylaws. But what is the law saying about cultivation in wetlands?

In which ways the communities can take care of the environment?
Awareness to communities including politicians and decision makers on environmental issues

What can you say on the adoption of TASAF or DDP model for LVEMP-2?
Comparing TASAF and DDP models one would advise to go for TASAF. TASAF is well established at the district LGA and grass roots levels. Its targeted beneficiaries are the communities themselves. Adoption of TASAF means that there will not be a need for piloting unlike the DDP and it may also help in improving environmental concerns at the grass roots. However, adoption of the TASAF model needs to be highly streamlined considering its objectives which might not be tallying with the objectives of LVEMP-2. Analysis for the integration of LVEMP-2 into TASAF is highly recommended.

How is TASAF operating?
Two officials – Village fund officer (VFO) and village fund justification officer (VFJO). These work as desk officers to facilitate management of village funds. Village fund officer at the district level: VFO is a secretary to the council management committee (Technical committee). Decision making committee, the finance management committee.
At the villages level, Community Management Committees (CMC) are village sub-committees.

TASAF targets:

- Capacity building
- Food-insecure people
- Vulnerable groups
- Social development services.

To make decisions on what activities should be pursued, the general meeting has to be attended by over 70% of the people. This is followed by an extended PRA to identify any undue bias in the process.

What should LVEMP 2 do?

- Rehabilitation of catchment areas – rehabilitation / re-functioning of dried-up springs
- Emphasize community empowerment. Buying from local knowledge in the management and sustainability of environmental resources.
- Bylaws enforcements. However does not know if they cover all the intended areas. Compare bylaws with the main law and if these are not sufficient modification should be made.
- Extension services at district, ward and village levels. Existing ones not fully used.

- Alternative energy sources; including fuelwood plantations and knowledge on how and when to cut. Planting more trees.
- Village Land use plans
- Microprojects focusing on environment. Intensive agriculture, credit schemes, productivity and efficiency use of resources.
- Control illegal fishing and ensure control at consumer areas
- HIV/AIDS matters – infected people moving to fishing

C.24. Bukoba Municipal Council. Thur13Jul.

Bukoba Municipal Director	Mr Faustin Q.M. Fissoo	0744 565144; 028 2220226
Email: Bukobamc@yahoo.com		
Economist/TASAF Coordinator	Mr Samwel A Manumbu	
Ag.DALDO	Mr Dedan Sombe	0784 836180

Understanding of LVEMP-1
The Director is very new to the Municipality (2 years now). Realizes that LVEMP-1 did not operate at the council level. However, noted that there was a committee chaired by the DC to oversee all the microprojects (i.e. construction of dispensary at Kilolo ward, latrines and rehabilitation at Rugambwa Secondary School). Therefore the municipality was involved just as a committee member. At the council level, technical staff was hired but nothing was formally reported. Also, it was difficult to access the project reports. There was no direct participation of the community and the district. Despite the above setbacks, awareness on environmental matters was created, but the impact was not as great as it might have been.

What problems does the council face?
Water hyacinth in rivers and landing beaches (but good improvement after the introduction of weevils)
Kalolo river pollution;
Cowshed drainage in the lake

Priorities for funding at Municipal level
Education, Health, Water, Environment (cross cutting issue).

What are you doing on the ground to ensure environmental conservation?
- Council does not have a nursery but it is encouraging people to plant trees
- Bylaws being introduced for conservation of water sources
- 30 m along the beaches protected
- Brick making, car washing along the shoreline and near water sources prevented
- Master plan improvement.

What are you doing to people cultivating in wetlands?
- Problem is still there: there are no bylaws on wetlands.
- There are 84 ha of wetlands in the region (10 ha along lake shore and 74ha inland)

What is the source of funding?
- Revenues 20%
- Grants 60%
- Donors 20%

What can you say on the TASAF model: could it be adopted for LVEMP-2?
TASAF is more appropriate and addresses MKUKUTA strategy and the council is in support of it. With TASAF, the council acts as a post office – receives money from Central Government and gives to the district. Total allocation for council in 2006 is Tsh810million.

Despite good plans and implementation of the TASAF, there are challenges:
- Capacity of the council needs to be looked at as it may impair progress. The resources at the council are very limited. With such resources, access to different areas may be difficult.
- No capacity building to council and this is likely to be a setback to TASAF. No new offices for TASAF.

- The process under TASAF involves a lot of forms and no money is paid to the council – motivation of staff is thus a factor. However, there is money for meetings under the TASAF coordinator.

TASAF's objective is to alleviate poverty but LVEMP-2 is more on the environment. Maybe LVEMP-2 should take a different approach although copying some features from TASAF.

What is the level of community involvement in natural resources management?
Communities are involved in the management of beaches and information is shared through seminars, meetings, brochure and pamphlets.
They need motivations?

What level are the BMUs involved in revenue collection?
Presently BMUs are not involved in revenue collection. They lack capacity in tendering. Thus they need to be trained on:
Fish data keeping (total fish catch, cost, income, profits, ets)
Bylaws on fishing
Methods of data collection
How to go about tendering / how to bid.

At the district level, the capacity is available. But BMU are not committed to the council. Under LVEMP-1 BMUs were paid and worked as fisheries officers and were involved in policing. In this situation the BMUs became unpopular.

How is the council collaborating with Uganda?
In most cases, commodities sold in Bukoba municipality are purchased from Uganda. Also have regular meetings with Uganda, for example on 27th June 1997 had an Executive Committee meeting on Lake Victoria Region Urban Authority Cooperation.

What do you see as major problems affecting the Lake environment?
- Pollution due to activities in the catchment area, no proper sanitation – direct raw sewer discharge
- Illegal fishing

What should LVEMP 2 do?
- LVEMP-2 should address all environmental problems in the catchment
- Address relation between poverty and environment
- Focus on poverty eradication and social services programme
- LVEMP-2 should be linked to MKUKUTA objectives
- Should undertake capacity building at council, ward and community level (training, equipment-motor cycles, bicycles, extension services, etc)
- Should involve other stakeholders and actors, especially CBOs, NGOs;
- LVEMP should have a role in coordination at District level;
- LVEMP should facilitate access to research findings.

What is the FAO Kagera River Basin project doing?
Project on watershed management and adopted a bottom-up approach.
- Credit HEIFER – offering daily cattle, approx. 3000
- Involving 107 farmers (those under credits and ones who could buy themselves)
- Started by sensitization of the communities.

What are the major conflicts/problems at the municipal level?
Not enough technical personnel to undertake all the functions that are really needed, particularly:
Planning; Community Development; Livestock; Agriculture; Environment
Originally – the organizational structure adopted a town planning focus!!?

What should be the structure of LVEMP-2 at the district?
Should have a coordinator of LVEMP-2 at District level
Community must participate
LVEMP-2 should adopt different structures for different components
Example:
- Microprojects – should take a TASAF model

- Scientific part (be handled by universities, well centralized, TAFIRI). Information created should be put in a simple consumable ways, i.e. popular version also the research findings should be widely accessible (dissemination issues)
- Catchment afforestation – taking a TASAF model.

C.25. TCCIA, Bukoba. Thur13Jul.
Regional Executive Secretary: Mr Kamugisha B.R.Rwiza. Mobile: 0787 086612
Email: tccia@bukobaonline.com; kamugisharwiza@yahoo.com;
Vice Chairman Dept of Industries (Area Coordinator): Mr Faustine K.Kaiza Mobile: 0784 558 996; 0745 068 659;

Understanding of LVEMP-1
Not quite sure of what LVEMP was doing. But recognize in one way the improvement in fish stock, though LVEMP was not fully participatory at grassroots.

Recommend continued tree planting by communities and awareness creation to communities on the importance of environmental conservation so as to conserve the water sources.

What role is played by the chamber?
- Lobbying the government on behalf of stakeholders that people would like to work in conducive business environment
- Kagera Regional Business Council (Forum). It is a public private (PP) relationship. Members come from private and public sectors.
- TCCIA is a secretariat of the forum, the Regional Commissioner is the chairman. It is a branch of the national organisation (where the President is the chairman). It involves 20 private and 20 public representatives. In total there are 458 members, each district has a TCCIA branch.

What interventions by TCCIA on the environment?
- It is not so direct to stakeholders, but during meetings stresses to stakeholders that have to take care of the environment. However not knowledgeable with environmental matters, but even having that requires funding. Receive funds from SIDA for running office, etc. Source of income → selling some business publications.

What groups under TCCIA?
- Individual groups – formed by communities
- Cooperative societies
- Companies

A village can register, even as an individual one.

What problems are facing TCCIA members?
- Licensing - payment by licence category
  -TRA
  → Reduce the size of capital
- Municipality not yet approached by TCCIA

Are you doing anything to promote new development?
- Act as clearing house for marketing information;
- New business information centre to be opened soon;
- Marketing coffee to oversees customers – advise the union to increase price of coffee.

How is the community at grass root involved in TCCIA business?
In the programme of member sensitization, conduct meetings to key target areas, inform on what one can get from the activities. Through awareness creation people pay Tsh4000 for membership, Tsh6000 annual subscription and Tsh 1000 constitution. The registered groups are given certificates. No bylaws-??

What should LVEMP-2 do?
Establish within the municipality a bylaw dealing with environmental protection, specifically articulating areas and stakeholders to be involved, the formation of a sub-committee, and approaching other institutions which should be involved in this.
Capacity building, financing and monitoring.

Environmental degradation is like fuel consumption.
Facilitated by any organisation → but sustainability can be achieved if there is a continuous programme of awakening people → by a person/institution that this and that is wrong!!
Awareness as a continuous process

C.26. Bukoba Urban Water & Sewerage Authority (BUWASA). Thur13Jul.
Technical Manager Eng.V.K.Mutubasibwa 0713 350060 028 222 1744; Email: Buwasa@bukobaonline.com

Understanding of LVEMP-1

- Partially involved in LVEMP
- Appointed as scientist in Municipal and Industrial effluent in Bukoba town
- Basically, involved in collection of samples from streams in the municipality
- Coordinating wastewater disposal facility planned to be implemented under LVEMP-1 but did not take place.

Shortfall of LVEMP-1

- Office in Mwanza which was supposed to be coordinating the municipal and industrial effluent, had no clear brief on how things should be done.
- Uncertainty on frequency / timing of collection of the samples and which parameters were of interest. Task Leader appeared not to have been well equipped for the study.
- No feedback on report sent to them.

Problems on funding
Not involved in handling of funds. Financing system was not smooth. Procedure for payment of allowances was not followed as stipulated.

Do you have a waste treatment plant?

- No waste treatment plant.
- Pollution by municipal effluent occurs due to poor control
- Tsh 20 billion is required to install a sewerage system
- Sludge pond – was to have been constructed under LVEMP-1 but did not happen.

What percentage of the population is using pit latrines?
About 40-50% using pit latrine. Sanitation issues are under the Municipal Health Officer

What efforts are being done to minimize pollution from sewerage to the lake?
This is a very big issue under discussion at the moment. No soak pit emptier vessels for the past 8 years

Coordination between Municipal and BUWASA most lacking
Best way: Integrating BUWASA in the municipal planning
Private companies can do the waste collection in the Municipality by where to damp?
Municipal have decided to sub-contract
Financial management in the Municipal is not so much transparent and well managed.
BUWASA – reports to the Principal Secretary – Ministry of Agriculture

What are constraints on maximization of revenue collection?

- More than 50% not metered. Use fixed rate 4000/= per month
- For metered, pay Tsh 375/= per cubic meter
- Cost of production of 1m3 Tsh 300/=
- People connected to meter 2400
- Roughly 5000 pay bill monthly (additional customers 600-700)

What do you do normally to increase tariffs?

- Do annual budgeting – revise tariffs after every 2-3 years
- Structures are very much old
- Leakage accounts for over 45% - soliciting some funds

What would you like to see happening under LVEMP-2

- Promised sludge pond highly needed
- Sensitization education programmes to community in sanitation
- Low income groups in putting up sanitary facilities – subsidized

Pay water fee to the basin water office as per the given water right

C.27. Muleba Municipal Council. Fri14Jul.
District Executive Director: Mr Cyprian Oyier. Mobile: 0784 413 632. 028 2222768 / 613

District has population of 386,000 people on 3,900sq km of land area (i.e. 1 person per ha, a rather low density). TASAF-2 allocation is 1.4bln over 5 years, with >Tsh200m allocated for this year (and now in application process). TASAF has allocation for capacity building, with Tsh30m now in the process of being spent.
Priorities for funding in district: Education, Agriculture, Water, Works, Natural Resources & Environment, HIV/AIDS.

Very critical on LVEMP-1: 'not much was done':
1. Funds were not channelled through District Council, and source of funds was remote (in Dar). TASAF is now channelling funds through the council (and other councils with 'Clean Certificates' re use of funds, accountability etc.)
2. LVEMP-1 spent most of funds on meetings, seminars, training, consultancy services etc and little on actual implementation activities;
3. Not much was done on consultation & awareness programmes – this again should have been done through the District Councils;
4. LVEMP-1 was harassing people, eg confiscation of fishing gear etc

Town Planning Officer: Mr Catres Rwegasira; 0744 623938; Crwegasira2001@yahoo.com
District Land Surveyor: Mr B.D. Rweikiza; 0743 287 031; 0745 992 598;
Staff were formerly under the Ministry of Lands & Human Settlement Development, Urban Planning Division before being re-assigned to the District Administration. But they maintain technical links with their former Ministry.

Office facilities were fairly rudimentary.
1:50,000 topomaps (1991) with contours at 50ft intervals were available (note highest point in District is at 5,200ft; top of scarp near lakeshore is at 4,600ft). Topography shows a pronounced N-S strike.
1:10,000 map of Muleba General Planning Scheme 2004-14 was available, showing generalised structure plan for Muleba Municipal area, this was prepared by Property Management consultants with maps produced in Mwanza (and not in Kagera region).

In March2006 received instructions from Ministry of Regional Administration & Local Government that the District was to assist the villages in the preparation of their own land use plans. For Muleba the budget for this for 2006 was fixed at Tsh56m. Work was to begin with 31 of the 130 villages (emphasis on the lakeside villages) with preparation of basemaps at a scale of 1:10,000 (?and 1:2,000?) being completed first. Meetings should be held with the villagers, and then training on this process given to the village councils. No training had been given to the technical staff of the District on the technical specifications required for this work. After basemap production, work would proceed onto potential land use map.
(Note: clearly there is a need for i.uniformity of methodology; ii.technical staff training, especially in existing & potential land use mapping.)

Mentioned conflicts of land use and land ownership at Kyemyarwa where a private company (ITENTE) has bought rights to land (15yr lease) on 400ha and intend to start planting pine later this year. The land is fertile (more suited to cropping than forestry) and the villagers now want to rescind the agreement.
(Note: again this is another land dispute where traditional land use practises and rights conflict with national legislation. Lack of full consultation and transparency at the time of the initial agreement may be responsible here.)

28. Kagera Sugar Ltd (component company of Tanzania Sugar Industries)
Personnel Manager: Mrs E.T. Uriyo Mobile: 0784 203417; Email: elly@kagerasugar.co.tz

Previous (bankrupt) enterprise privatised and re-launched in Dec 2001: operations really started in early 2002. Current season (June-Dec2006) represents the 2nd season, with a production target (which won't be met, because of the drought) of 50,000tonnes of sugar. Last year (June-Dec05) 16,000tonnes were produced.

Currently 7,000ha are under cane and a further 15,000ha are earmarked for future expansion, bringing the proposed total to 22,000ha. Irrigation is currently being installed on 3,000ha, including centre-pivot irrigators (up to 10 towers each). Irrigators are of South African origin and powered by electricity, generated by the factory. Source of irrigation water is the Kagera River (sediment etc is not a problem). Fertilisers are being used, even on the rainfed cane (urea and TSP) – presumably much higher applications will be made on the irrigated cane.

The company is keen to support outgrowers, and has recently begun consultation / training. Currently 72 outgrowers are registered. They will grow sugarcane in production units of 20-50ha.

The factory is gearing up to eventually have a capacity of 100tonnes cane/hour (i.e. 2,000tonnes cane/day, which is an economical size).

The company will employ 3,500 people during the cane season. Currently 700 are employed, including 120 (mostly full-timers) at the factory unit.

Cane is burnt shortly before cutting (to drive out snakes and cut the volume of trash, making harvesting safer and easier). No green cutting is undertaken, and no feeding of tops to cattle yet takes place. A cattle unit has been established (and animals are being fed grass, not cane). There is also a small dairy unit.

The Sugar Board of Tanzania monitors sugar trade and fixes prices. Current retail price is Tsh1,000/kg. (The company's selling price is much less than this.) The entire production from Kagera is – and will be – for home consumption.

The company is very aware of issues of pollution. Waste water from the factory goes into settlement ponds prior to re-use for irrigation for the cane. Any effluent water is tested.

Mwanza region (C.29.- C.39.)

C.29. Ministry of Agriculture, Mwanza Office. Tue11Jul.

LVEMP Soil & Water Conservation Component.

Task Leader: Mr Emmanuel R.Mang'ombe. 0744 578906. Mangombe_er@yahoo.com;
Scientist: Mr Deogratias Peter Email: Deopeter2005@yahoo.com

Overview on soil and water conservation component
It was implemented under the Ministry of Agriculture and Food Security (MAFS).

Objectives

- Conserve the soil;
- Test various approaches and select the best for implementation over much larger areas;

This was done in Nyamagana, Ilemela, Bunda and Musoma.
Trained farmers using simple survey tools on gully control measures, conservation tillage, Agroforestry, in situ conservation (Ngitiri), rainwater harvesting and promotion of women's involvement in energy-efficient stoves.

- Prepare baseline information and draw-up action plans for the medium and longer term

Mapping land use and cover for Lake Victoria Basin. Maps of seriously eroded land and areas of erosion hazard produced. This constituted about 80% of component 1. From these maps the land resources available and what should be done to manage these were identified.

Inventory of agrochemicals in the basin which might affect the Lake. Identified misuse and handling of agrochemicals. Not using protective clothing during applications and use of agrochemical containers for storing brews: both represented a danger to life. Provided training on handling of agrochemicals.

Using map of land use and soil erosion hazard came up with the joint action plans addressing how the district can work with LVEMP to solve the problem.

Processes of introducing the joint action plans to the villages
Two approaches were used:

- Catchment approach
- Individual approach (utilizing local knowledge and past history)

From the two approaches, the catchment approach was found to be most promising. Therefore it was adopted in drawing up the joint action plans with the communities. The step involved holding meetings with the Village Executive Officer to introduce the idea. This was followed by a Village Council Meeting (25 members), then a Village Assembly (mkutano wa wanakijiji). During the village assembly, communities were conscientized to form Soil and Water Conservation Catchment Committees (SWCCC). The committee comprised 12 people (7 men and 5 women) nominated at the Village Assembly. This was done for Bunda and Sengerema. However, the process required conducting PRA with the communities but since there were inadequate funds, it was not conducted in all areas.

Means of dissemination of information to the communities included:

- Video shows
- Study tours (Soil Conservation Agroforestry Project Arusha; - SCAPA, Kenya, Dodoma and Babati)
- TV programme via StarTV
- Posters
- Training Manuals
- Radio programmes (Under Mkulima wa Kisasa)

Among the various approaches used, the study tours and video shows had the greatest impact.
A point worth noting is that all of these were implemented in pilot areas within the selected districts and did not cover all the villages.

How sustainable was the programme / initiative?

- Presently no money, but catchment committee in other areas are still working
- Afforestation

How was the catchment committee formed?

- Formed during village assembly
- Facilitators brainstormed on the importance of having a catchment committee to oversee the issues
- Qualities of catchment committee members
    - Permanent residence within the area
    - Should have a farm plot
    - Hard working
    - Over 18 years with a sound mind
    - Literate.

Functions of the committee

- Oversee daily works on soil and water conservation
- Measuring and preparing contour bands
- Making bylaws that aim at conservation of soil and water
- Sourcing income generating activities that conserve the environment .

Benefits

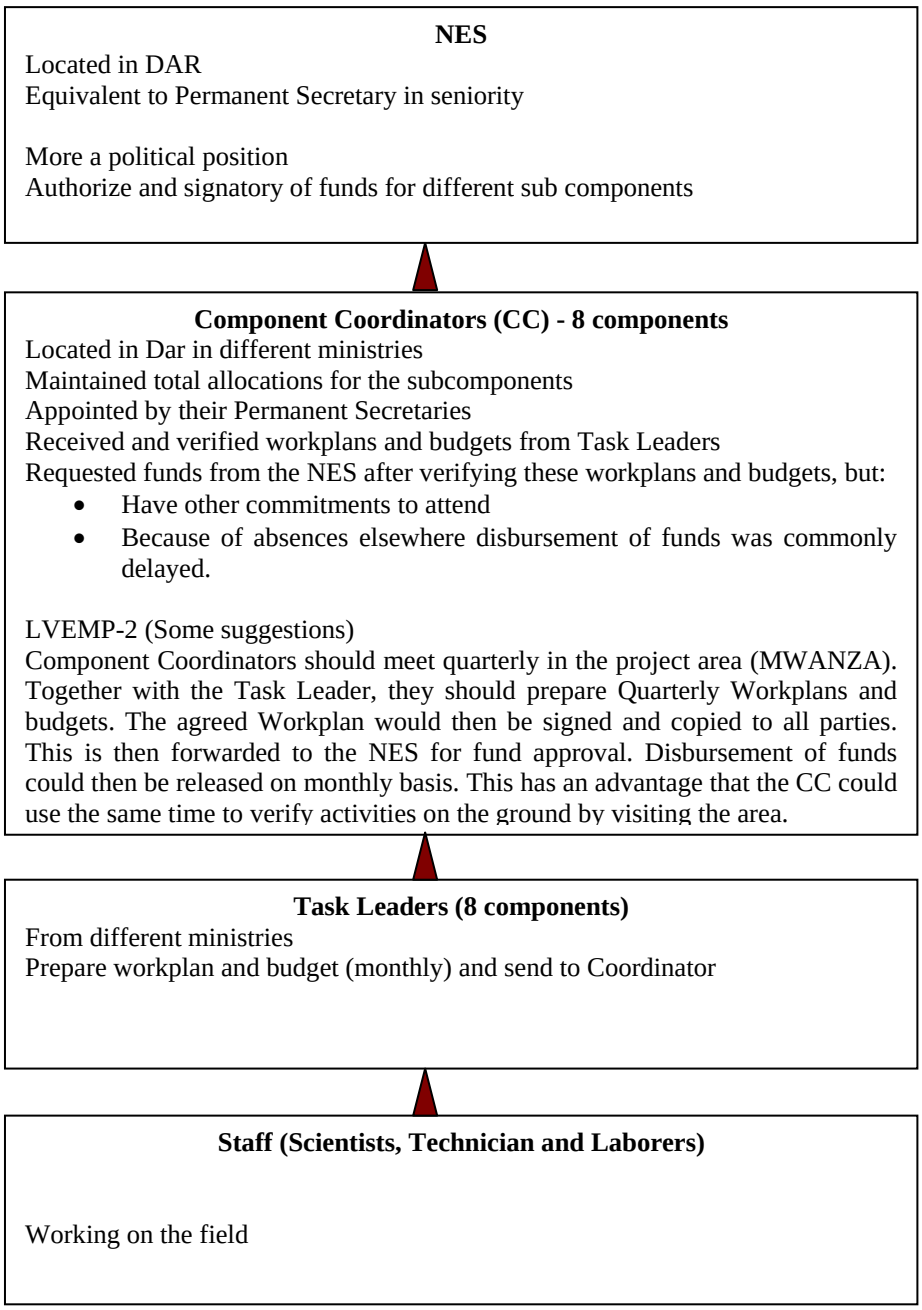
- Income generating activities (i.e. energy saving stove, micro credit schemes with 10% interest)
- Improved housing conditions and livelihoods.

Constitution and registration
All the formed groups under soil and water conservation subcomponent do not have constitution and are not registered. If these groups are to access the loans or become recognised, constitution and registration are urgently required.

Advise on adoption of TASAF model for LVEMP-2
The TASAF model might work at some levels and this needs to be scrutinised. For microprojects, the TASAF model might work very well including micro irrigation projects. However, it has some limitation for some of the works (eg. water quality monitoring, soil conservation practices, etc).

If the TASAF model is intended to be used for some of the components, a Coordinator to oversee the funds will be required while the District Council will act as verifier. However, the council should not have the mandate on the funds. Injecting / channelling funds through the district council may cause problems which could deter progress for the intended work.

Financing Structure for Sub-Component under LVEMP-1:



Strategies for community involvement on environmental management and conservation

- Involvement of communities from the planning and start of the project (i.e. the 'Planning with People' approach)
- Create awareness within communities and sensitization on environmental issues
- Capacity building at village level on land management through training, farmers' field schools, study tours, etc
- Capacity building at district level on land management to ensure sustainability (Councillors are very important as they are influential and need to be aware of environmental issues). Means (farmers field schools, in order to hear from community on the benefits of the project to them).

- Benefits from environmental conservation (i.e. wetlands functions and products) translated into monetary terms – economic analysis. Need to know the economics of trees planted as they are long-term investments.
- Need to have Extension Officers and equipment and tools at district level;
- Need to have Village Agricultural Extension Officers and these should have at least a certificate.

C.30. TASAF, Mwanza Office. Wed12Jul.
Mrs Gaudencia Bamugileki, TASAF Co-ordinator,
Mr Ngowi, Co-ordinator of Programmes and Reform,
Mr Eric Nyoka, Environmental Officer, Mwanza City Council

Have just launched Phase 2 of the project (1July, 2006); obtained excellent project hand-out (see Annex E – Annotated Bibliography - for summary of contents)

C.31. Kayenze Beach Management Unit Wed12Jul; 17July
Mr Emmanuel Mtemi (BMU Sec.) 0746 811561
Mr Elias Lugwisha, Deputy Sec
Mrs Constantia Pastori, member
Mr Kulwa Dede, member

Kayenze BMU is located in Kayenze village, Sangabuye Ward, Ilemela Division, Mwanza District. The BMU was initiated in January 2000 when a delegation from the department of fisheries under the LVEMP-1 project visited Kayenze and conducted a one-day seminar with the community members. The core objectives of the BMU are to maintain cleanliness of the beach and to control quality of the fish (both of these to satisfy EU import requirements); also protection of the Natural Resources of the Lake (essentially to ensure fishing regulations are observed and illegal fishing is curtailed).

A committee of 20 people was established to form the BMU. The idea was easily accepted as the community had almost an identical entity already established with 6 landing sites in this area.

The BMU has own regulations and structure, operating under BMU guidelines, but as yet no formal constitution and is not yet registered. Of the 20 original members, 16 remain (4 members having failed to cope with the tasks assigned to them). Ten of its members have attended several training sessions (2weeks) including leadership and statistics, and one member attended a training session on establishment and management of cooperatives. The BMU committee has 8 members.

The BMU has brought a lot of benefits to the community members several of these being through microprojects which have been introduced as incentives to the community. These include income generation, construction of a primary school, and good houses. The government constructed the landing platforms and associated facilities on the beach and commissioned these to the council in 2004.

Currently the BMU is collecting revenue on behalf of the council. With a stable level of operating expenses of Tsh500,000 per month (in the form of allowances, provision of water pump, cleaning, transport fuel and stationery) the BMU managed to collect Tsh30 million in 2001/02 and Tsh26.4 million in 2002/03.

The distribution of the surplus funds is as follows: 40% to BMU members, 25% to BMU bank account, 10% village, 10% SACCOS 10% maintenance and remaining 5% for contingencies. Reporting/accounting is undertaken every after three months, showing income and expenditure to Fisheries Dept, Mwanza City Council. Other items being reported include Quantity of fish landed; events organised / attended, guests / visitors received and available cash on hand.

The BMU has integrated into village governance and relies on support of village governance in order to be effective. Policing activities and settlement of disputes have proved successful; have receive co-operation from the community. Major incentives on the establishment of the BMU have been received from LVEMP's micro projects.

C.32. Regional Irrigation Office. Thur13Jul.
Mr G. R. Moshi, Zonal Irrigation Engineer;

Mrs Mariam Lugaila, Irrigation Agronomist

Discussed Policies and Laws affecting smallholder irrigation after field-visit to two schemes in Mara Region where there had been some controversy. Policy is not to displace any farmers when a new irrigation scheme is planned: as far as possible, small farmers should stay where they are when such a scheme is introduced. Irrigation is only introduced where this has been requested by the community and after the community has gone through all the processes of determining how much each member has to contribute in the form of land for common infrastructure and any other in-kind or cash contributions. The Irrigation Department must see a written agreement of the community with the terms of the agreement; it must also have a constitution and rules.

C.33. TAFIRI. Fri14Jul

Mr Paul Onyongo, TAFIRI, Social Scientist, Co-ordinator, Implementation of the Fisheries Management Plan

Co-operating with Region through LVFO; produced common guidelines on which new Fisheries Regulations were based; common guidelines on BMUs; new initiative to reform BMUs and build capacity in them; BMUs are formal organisations which are provided for under the fisheries legislation; strengthen their capacity in monitoring, control and surveillance; BMUs will be expected to make own by-laws; cannot work outside village governance structures; regional study on effectiveness of BMUs found that they are viable but not effective; now seeking to make them effective.

C.34. Fisheries Management, LVEMP. Fri14Jul

Acting Task leader, Mr Tiba,

New fisheries regulations were enacted in 2005 and the new Act and regulations have been operational since October 2005; this fact has not yet reached the BMUs; the Act is harmonised with the Acts of the two other countries; Enforcement a challenge with less than 100; 416 BMUs are in the lake zone according to a March 2006 census; they are very much needed because of shortage of resources and manpower in the Fisheries Management Dept.

C.35. Lawyer's Environmental Action Team (LEAT).

Mr J. Njelwa, lawyer, Mwanza branch manager. Mobile: 0744 489973; Tel 028 2502802

EMA has achieved a level of harmonisation of environmental legislation at the national level as it cuts across all sectors; preparation of regulations is the next major challenge.

C.36. Mwanza Fishing Industries Ltd;

Mr Edwin Okong'o, Quality Assurance Manager, Mobile: 0748 521 027;
Tel: 028 257 0035. mwanzafish@africfaonline.com.tz; also met: Mr Sherali

Mwanza Fishing Industries Ltd (fish processor) started activities in 1994. They export filleted fish with main markets in Israel, Amsterdam, Portugal; UK and Far East also import 'fishmaws'. Waste products of fish processing ground up as fishmeal and exported to Kenya & Dar es Salaam for chickenfeed.

They have 3 a year moratorium to achieve compliance with the required Dept of Water standards for the treatment of waste water (BOD reduction of 40% in first year; 60% in 2nd and full compliance by 3rd); Nile perch is a v.fatty fish and no available technologies exist for this; technologies have to be developed and this will be expensive;

They further assist in law enforcement by not buying anything illegal or illegally obtained; have to give suppliers capital support to help meet the export standards.

Current Tanzanian export levy is making the pricing of Tanzanian fish exports not competitive compared with Uganda and Kenya where they do not have the levy;

Further challenge coming from catfish from Vietnam which EU is also buying; can be reared in aquaculture unlike the carnivorous Nile perch.

37. ECOVIC (East African Community Organisation for management of Lake Victoria Resources). Visited 18July.
Ag Coordinator: Mr Jackson Ndobeji Mobile:0744 606 934 Email: Ecovic_tz@yahoo.com

ECOVIC Tanzania is an affiliate of ECOVIC, a regional forum founded in 1998 in Jinja, Uganda. Membership includes NGOs, CBOs, Cooperative Societies, professional institutions and grassroots organisations. Financed by SIDA (& housed in SIDA Mwanza office). Gives grants to local communities of up to $30,000 each to finance microprojects of benefit to the Lake environment.

38. Vi Agroforestry. Visited 18July.

Project Manager:	Mr Stephen Uhlas	0784 614633; 028 2500111	Svenuhlas@viafp.org
Personnel Officer:	Mr Jonas Magina	0784 868 158	
Training Officer:	Mr Elikana Manumbu	0713 468 107	Elikana2004@yahoo.com

Overview (More on leaflet)- what is it doing?
Originally started in Mwanza in 1999 and was known as Vi Agroforestry project, but soon after it joined with the Swedish Cooperation centre (SCC) to form SCC-Vi Agroforestry Project. Prior to amalgamation, Vi was involved in tree planting. After joining, they have expanded the areas of focus including microprojects, gender, HIV, Farm enterprise development, etc.

The process involved in getting peoples' concerns include PRA exercise. This tries to target communities' needs. Targets include mixed cropping – getting enough food and reducing shifting cultivation, Organizational development to different group without bias to who formed it– Leadership, Constitution, and registration.

Understanding of LVEMP
Understood as a project on management of the Lake Basin which tried to oversee issues pertaining to the environment. Collaborated with LVEMP in meetings (2000-2004) and the joint forum formed in Magu District. However, the forum collapsed due to lack of management & drive. However,the forum is very important to avoid duplication of efforts and conflicts of interest within the same location. This could work well if the Districts showed interest in the forum.

The Lubinza Handcraft which was initiated by LVEMP was supported by Vi to access the market and funding sources and is now doing better.

How are you collaborating with other institutions?
NGO Forum – this formed in MAGU district but people are not meeting (included LVEMP-1, Magu Food).
Joining farmers and research institutions (No demonstration plots for project)
Collaborating with other institutions, i.e. MUWADA, MAGU FOOD, CARE INTERNATIONAL
Not repeating prior work done by other institutions – but building on it.

What is needed to have NGO forum?
- Common plans
- Borrowing facilitators
- Sharing human resources
- Initiate NGO forum fund
- Participatory planning meeting (VEO, WEO need be involved in NGOs activities – the issue of sustainability)
- Local leader training – HIV / AIDS, environment
- Councillors need be involved in NGO forum
- Cost sharing among members.

Funding sources
- Individual farmers in Sweden - 30000 Swedish (supported by Consumer Cooperative of Sweden, Norway)
- SIDA, NORAD

How is the community involved?
- Prepare business plans with the assistance from officers
- Bringing villages together
- Capacity building to farmers – organization development

- Provides advises on financial issues on the importance having credit funds. Merging different groups and forming Ward Banks.
- Situation analysis by the communities themselves
- Form learning groups, advises / trains on what needs to be done.

Advice for LVEMP-2

- LVEMP-2 should understand activities of the existing NGO's and other initiatives also understand their human resources
- NGOs should be part collaborators and share human resources.

39. Nile Basin Initiative: Nile Transboundary Environmental Action Project (NTEAP): Nile Transboundary Microgrants Program

Local Microgrants Coordinator Mr Victor M. Kamagenge 0744 398893; 028 2500475
Email: vkamagenge@nilebasin.org

Started in Feb05, funded by GEF / WB, with HQ in Sudan. Microproject programme with ceiling of $25,000 per project; proposals for funding go through various steps, UNOPS office in Sudan making final assessments. 16

Overview

NTEAP's 5 Components include:

- Institutional strengthening to facilitate regional cooperation
- Community-Level, Forest and Water Conservation
- Environmental Education and Awareness
- Wetlands and Biodiversity Conservation
- Monitoring and Evaluation

Nile Transboundary Microgrants Program is an activity within the Community-Level, Forest and Water Conservation component of NTEAP. The microgrants Program is operational in nine Nile riparian countries including Tanzania. NTEAP is coordinated by the Vice President Office, Division of Environment whereas the Microgrants Program is implemented in collaboration with the UNDP / Small Grants Program. The Program is hosted by ECOVIC Tanzania Chapter, with headquaters in Mwanza.

Understanding of LVEMP-1

Have heard of water quality monitoring, water hyacinth control and microgrants, but not much on other LVEMP-1 components. The microgrants Program (WB+GEF funded program) was formed after learning from LVEMP-1.

How is microgrant program operating?

- Operating with local government
- Conducts meetings, seminars and workshops inviting NGOs and civil societies
    - Stakeholder workshops, including council members - presents and discusses proposal format

What is the funding mechanism under the microgrant program?

Proposals are screened by a local consultative board (Mwanza NGO, LVB, and National Coordinator ECOVIC). This gives recommendations and forwards to National steering committee (UNDP) which then gives final recommendations for funding. In case there are observations, the proposal is referred for back revision and resubmitted. If funding is approved, the Country representative (UNDP) signs the application and sends it to UNOPS at the HQ in Sudan for funding.

The steering committee meets every 3 months. From proposal formulation to funding may take 3 months. It is clear that the funding procedure is very lengthy and not very efficient.

Types of funds under the NTEAP

- Country operating grants – managed by local microgrants coordinator. Used for meetings, seminars, etc
- Microgrants – managed at HQ Sudan (UNOPS)

What is the level of involvement of communities?

- Funding programs designed by / or for local communities
- Funds given to NGOs – verified

What institutional mechanisms need be put on place to ensure coordination of different NGOs and other initiatives?

- Require database for different NGOs in the basin including other initiatives
- Need a coordinating body for different development partners
- Networking among different initiatives
- Cooperating in different works

Organizational structure (NTEAP)

- Nile secretariat Committee (Minister of environment or water)
- Technical Advisory Committee
- Executive Director – NBI
- Regional Project Manager (for 7 countries)
- Lead specialist (Head of Dept.) in Regional Office
- National Project Coordinator (in each country)
- Local Microgrants Coordinator (If UNDP exist otherwise Microgrants Coordinator)

C40. Ministry of Agriculture, Dar es Salaam:

District Agricultural Sector Investment Project for Lakezone.

Started in April, 2006 covering 25 Districts within the Regions of Mwanza Mara, Kagera, Sinyanga, Kigoma. 30 villages to be taken within each District (villages already identified). Funding of Tsh94bln over 6 years under ADF (African Development bank). (i.e. approx. $120,000/village over 6 years: sufficient to cover 40-50ha irrigation / village). Support follows TASAF model, essentially giving money to committees and using existing specialist staff at District level (some incentives provided in the form of top-ups to salaries and transport).
Four components:
- capacity building to farmers;
- microfinance ('microprojects') incl agricultural marketing;
- implementation support;
- coordination.

Heavy component of local co-financing: if village community: 20%; if groups 50%.

District Agricultural Development Plans (DADP)

Implemented country-wide as just one component of Agricultural Sector Development Strategy. Money channelled from Ministry of Finance to PMO-RALG to Districts and managed by District Agricultural and Livestock Development Officer (DALDO). Tsh4.5bln/year: 2% retained at Ministry; 4% at Region; 6% at District; further 5% contribution made from community.
Villages to come up with agricultural activities; integrated into Ward plans; integrated into District Plans – copy of plans sent to Regional Agricultural Adviser and also senior staff in PMO-RALG, and original plan forwarded to Ministry of Agriculture for approval.
Criteria for funding: 1. population; 2. nature of agricultural activities; 3. rainfall index, but some activities also have strong environmental focus.
Ceiling put on funding per district: range is Tsh80-200m, average is Tsh100m.

Soil and Water Conservation Project.

Covers entire country. Implemented & funded by Government.

Lessons of Min of Ag for LVEMP-2

1. All Min of Ag projects are working at District Level.
2. Govmt currently rationalising guidelines for all community development support, especially on M&E activities and reporting; lots of field experience already obtained; guidelines are due in August06;
3. Integration with other projects and programmes important so that experience is gained, local resources most effectively used, and duplication of activities avoided.

ANNEX D: PRA EXERCISES WITH CBOS AND VILLAGERS

Note: All of these exercises were conducted with an appreciable number of local participants (in some cases up to 25) and recorded in Swahili. Appended below is an English translation undertaken by Mr Japhet Kaisigili who together with Mr John Kossima and a local guide were facilitators in the exercises. Opinions expressed are entirely those of the participants and not necessarily those of the consultants. Numbers here refer to interview numbers whose sequence is given Annex C above.

C.2. Field visit to Ihale BMU at Ihale Village 29June2006
Officials met.

Sno.	Name	Title	Contacts
1	Mr Winceslaus Lihasile	Member	0744 891194
2	Mr Leo Wanjila	Village chairperson	0784 931918
3	Mr Joseph John Lunyela	Ihale Hamlet Chairperson	0784 983635
4	Mr Pius Mazima	BMU Chairperson	0784 678347
5	Mr Dioniz Donald	BMU Secretary	0784 599652
6	Mr Paul Dominic	BMU Treasurer	

The construction / improvement of the Landing site at the Ihale BMU was ongoing at the time of the visit. The discussion with the Village chairman and BMU members highlighted a number of requirements:
- training of BMU staff on BMU activities and functions;
- awareness creation to village members on importance of BMU activities;
- adequate tools and equipment (eg. fast moving patrol boats);
- some financial incentive to BMU members for time spent on BMU activities;
- support from LGA / Project re empowerment of local community.

The Ihale BMU presently has a Bank Account is now planning to open SACCOS. The major income sources in the village are from fishing (75%) followed by agriculture (20%) and other activities (5%). About 90% of the catch is Nile Perch of which 80% is sold and the remaining 20% used locally for food. Sale is by whole fish with price ranging between Tsh1400 and Tsh1600 per kg.

Despite the problems faced, the BMU has recorded successes which include: confiscation of illegal fishing nets (30 cases), 2643 under fishnet, construction public toilet (payment of Tsh100 per entry), Bank Account Tsh200,000 also Tsh1,000,000 available in credit somewhere??, local planting of 2 ha of trees creating a nice shady environment (600-700 trees), collaboration with other groups in the village (i.e. HIV, women group).

PRA Exercise - Ihale BMU and Village officials 1July2006

Group 1: Names of group members
1. Yusuph J. Lunyela – Chairperson\
2. Sikitu Ngulila – Secretary
3. Wenceslaus Luhasile – Member
4. Mtesigwa Paulo – Member
5. Leah Slyvester – Member
6. Samwel Singi – member
7. Magese M. Chule – member
8. Mathias Mbokeji – member
9. Simon Kasheku – member
10. Jackson Wabanhu – member

Understanding of LVEMP-1
The community understands LVEMP as the project dealing with the conservation of Lake Victoria resources eg. combating illegal fishing, cleaning the environment at the landing sites / beaches, undertaking catchment afforestation, and prevention of soil erosion.

Initial LVEMP contacts & awareness raising
Initial approach and information was brought to the village by District fisheries department

seminar was held for one day and the community was not fully involved

What has LVEMP done?
- Has established a BMU in order to manage/ maintain sustainable fisheries activities and cleaning the environment at the beaches
- It has constructed a Dispensary at Ihale (Ijiha)

Benefits from anything done by LVEMP
- The community gets Health services near the village

Community role in implementation of LVEMP activities
– Awareness creation of the community has not been adequately done and this accelerates the existence of illegal fishing

STATUS AND MANAGEMENT STRUCTURE OF IHALE BMU
When was it established?
- The MBUs in Magu district were established from 6th – 11th Jan 1999

Objective of establishing BMU
- To Involve the community in co management of their resource

Does the BMU have a constitution? Is it registered?
- the BMU has no constitution and not registered

What is the management structure of the BMU?
The management committee comprises the following;-
- Chairperson
- Secretary
- Treasurer
- Two members

How often does the BMU meet?
There is no specific time/ duration for conducting meeting

What is the level of education of the Leadership of the BMU?
Chairperson and one member are form four and the rest are standard seven.

Type of training offered to BMU members
Only the chairperson went for the study tour in Uganda organized by LVEMP

What are the other organizations working with the BMU?
None

Where does the BMU get its funds?
The BMU has been commissioned by the district council to collect revenue, whereby the BMU for the past years was paying 450,000/= to the district council every month, but now the BMU is paying 500,000/= per month to the council.

What are the conflicts between the community and the BMU Management Committee?
Illegal fishing and pollution of the environment
How often these conflicts occur?
All the time/ frequently

What are the social, economic and political impacts resulting from these conflicts?
BMU members as part of the community who practice illegal practice fail to perform their function efficiently by fearing their security.
Illegal fishing cause the economic status of the community and consequently the economy of the national, generally the fillet market can be burned.

What are the conflict resolution strategies?
The community requests the capacity building both materially and other incentives to enable them to be efficient in performing their duties.
The government assists in resolving conflict very closely

How are these conflicts are addressed to the community in the main laws or by-laws?
There are has been no enough community awareness to address these conflict to the community.

What are the weakness and the strengths of the current institution arrangement and which improvement can be recommended?
-The community involvement during establishment of the BMU was very poor
-The government has forgotten the BMU for incentives and materials/equipment for the efficient performance of their work works.
-There is no stipulated period for the management committee to be on their leadership

Improvement to be recommended
- Increased employment eg revenue collection
- Contribution of the earning from the BMU to the village development program
- Capacity building in financial management aspects
- To get opportunity of being a leader under village government

What are the 3 key things that make the BMU work well?
- The BMU does NOT perform well

What are the 3 major items for improvement in the efficient performance of the BMU?
- The BMU should be empowered in terms of the legal aspects
- Provision of working tools and equipment
- There should be provision of alternative sources of income generation / diversification of economic activities.

Group 2: Members

1. Mr. Leo	Wanjila	Village Chairperson – Ihale	0784 599814
2. Ms Anagrace	Meleka	Secretary (BMU member)	
3. Mr. Kabalaja	Tanda	Member	
4. Mr. Julius	Shimangwe	Member (Village Chairperson Ijitu)	
5. Mr. Sato Ngima	Balele	Member	
6. Mr. Joseph	Majiji	Member	
7. Mr. Mabula	Ilaga	Member	0787095073
8. Mr. Jella	Masanga	Member	
9. Mr. Edward	Ndaki	Member (BMU member)	0746432984
10.Mr. Justin F.M. Mugarula		Member (DFsO)	0784761512

Understanding of LVEMP-1
Almost half of the members (4/10) were not aware of the LVEMP-1 project at its start. It appears that the level of community involvement at the beginning was very limited and few people especially the village leaders heard about it. It was highlighted that there were some meetings for awareness creation. The Ijitu village chairperson for example explained that he heard of the LVEMP-1 project during the WDC (ward development committee) and that the information on the project was already spread to the village. The start of the project coincided with the UNDP road improvement project and many people who knew the project thought the road project was initiated by LVEMP-1. However, it was highlighted that the LVEMP-1 did not build the road, instead it supported the construction of a dispensary at Ijiha village. At some point it seems they also later contributed to road improvement.

A general scrutiny indicates that those who said they were not aware of the project at the beginning had recently moved to the village so they could not have had the information at the time.

Benefits from LVEMP-1
The community at Ihale village benefited from the LVEMP-1 project in many different ways which include:

- Eased transport communication through constructed road which in particular has helped pregnant women to gain prompt access to service;
- Constructed dispensary at Ijiha village which has eased health services to sick people;
- Managed to form a beach management unit (BMU) which takes care of the environment and peoples' safety. Also compliance with environmental standards.

Community participation activities
Communities at Ihale village were involved in different developmental activities during LVEMP-1. These include:

- Collection of sand, stones, aggregates (payment by the villagers in kind – nguvu kazi);
- Skilled laborer (i.e. masonry) from Ihale and Ijitu got paid employment on the works;
- Brick making for construction (payment in kind).

Objectives - start of BMU at Ihale Village (in 2000)
The core objectives of BMU are to ensure proper utilization and conservation of Lake Victoria resources. Specific objectives include:

- To prevent illegal fishing (the use of unwanted fishing nets and makokoro)
- To ensure cleanliness of the landing beach
- To protect water sources (i.e. preventing tree cutting along the river and dams)
- To plant trees alongside the lake, protection of indigenous trees (uoto wa asili) and prevention of unnecessary burning.
- To improve life standards of the community. This is achieved through:
    - People are getting employment
    - Community getting nutrition (kitoweo) at a close distance
    - Helping people to reduce poverty
    - BMU is raising awareness on protection of Lake natural resources
    - Maintaining peace within the community
    - BMU is playing a uniting role between the village government and other stakeholders.

BMU Constitution
There is no constitution governing Ihale BMU, instead BMU are operating following village government.

Bylaws – BMU (Formation of bylaws)

- All BMU activities and orders *(taratibu)* are passed by the village government
- The village government *(inaratibu)* helps in the preparation of bylaws and in passing them.
- The formed bylaws are submitted to the district council for certification *(idhini)* and effecting changes where necessary.
- The council with its lawyer goes through the proposed bylaws and compares them with the national laws *(sheria mama)* and the policies to ensure compliance.
- The effected changes in the bylaws are taken to the management meetings of the district council.
- After the management meeting is satisfied, all the bylaws are returned to the community indicating areas where any changes have been effected.
- The bylaws are then forwarded to the council's higher decision making committee (i.e. finance and planning committee) and the Councillors' Assembly *Baraza la Madiwani*.
- At the council's higher decision making committee, approval on the use of new bylaws is given and application of the new bylaws is started.

Formation and composition / Organization of BMU
Members forming BMU (steering committee) are drawn from village community through meetings by proposing names.

The steering committee (BMU) meets once a week and comprises:
BMU Chairperson; Secretary; Treasurer
Five village members (Note: the group should have 2 women)

Qualities to be a member of steering committee (BMU)
A person should be a resident and not an illegal fisher and should be able to read and write.

Training / capacity building
Community participation officers (wawezeshaji) from Magu district normally conduct meetings with local communities. However, more seminars and workshops are required.

Problems facing BMU
Insufficient working gear:
a. Transport (bicycles and motorbikes)
b. Lake transport (life jackets and fast-moving boats)
c. Uniforms
d. Communication tools (mobile phone, radio)

Source of funds
- Uwakala for Magu district council revenue collection
- Twenty (20) percent of the revenue collected is retained
- Seminars funded by fisheries institutions

Economic activities (in priority)
- Fishing
- Agriculture
- Small kiosk (biashara ndogondogo)

Conflicts type
- Community vs BMU steering committee. The village community is not informed on the use of revenues collected.
- Community vs thieves. Theft of nets and boats (frequency 3-4 in a year)
- Community vs environment. Community utilizing the green belt (60 m along the shore) for cultivation

Conflicts resolution
- Through meetings organized by the village government
- Office of the village executive office (VEO) helps
- Taking thieves to the court when caught
- Holding village general meeting (mkutano wa hadhara) to receive information on income and expenditure. If the information is unsatisfactory, BMU is dissolved.

What needs to be done under LVEMP-2?
- Improvement of the landing site – build infrastructure including water and public toilets
- Improvement of road between Ijitu and Ihale
- Construction of Ice area
- Karakana for making canoe – mitumbwi
- Fishing tools shop

C.17. BUKABWA VILLAGE FORESTRY GROUP: Wadau Uongozi wa vikundi BUKABWA HIMABU, HICHABU, MWAROBAINI Groups Musoma Rural District: Date of visit: 07/07/2006

	Name	Title/ Organization	Contacts
1	Magesa Oswago	Member HIMABU	
2	Oswago Mabere	Member HIMABU	
3	Nyanjara John	Vice Chairperson, HIMABU	
4	Christopher Oswago	Secretary HIMABU	
5	Joseph M. Watilya	Chairperson, MWAROBAINI BUKABWA	
6	William Jongore	Secretary, HICHABU	
7	John Nnko	DFO, Musoma	0787 492686, 0713440415
8	John Kindia	DFO, Musoma	0784 401116
9	Deogratias Peter	LVEMP-1	

Understanding of LVEMP-1

LVEMP-1 officials introduced the project to the village government. The village government introduced the project to the villagers and organised them into forming groups after awareness creation. Groups were formed and the constitutions drawn including leadership.

Objectives of the Groups
Raising tree nurseries, distributing seedlings and planting trees in the groups' plots.

Leadership of groups
Chairperson, Secretary, Treasury
Village agriculture extension officer
Village steering committee (6 people - 3 male, 3 female)

Election of leaders
MWAROBAINI after 3 years; HIMABU after 5 years; HICHABU after 5 years

Meetings
HIMABU (once per month)
MWAROBAINI (three times per month)
HICHABU (three times per month)

Any training / seminars
- Only directives given and mostly to leaders
- LVEMP provided training on environmental conservation and entrepreneurship

Planned activities for the group
- Raise income through fruit cultivation
- Seeking market for their products
- Beekeeping
- Starting credit schemes – SACCOS (but lack training on this)
- Poultry keeping

What encouraged them to join the group?
- Awareness created on the importance of groups
- Wanted to conserve the environment
- Start joint activities
- Fighting against poverty – provision of fuelwood
- Starting future plans through tree planting

Why do others not like to join?
- Low level of education and awareness

What needs to be done?
- Awareness to neighbouring villages through farmer field visits and tours
- Awareness and capacity building on importance of tree planting

Account
- Each group has account
- Each group provides 7% of their earnings to their bank account

Conflicts
- Small conflicts existing within the group but managed internally using the bylaws.

Main source of income
Agriculture

Expectations from LVEMP II

- LVEMP should link the groups with other stakeholders inside and outside the country and other micro financing sources
- Seek market for selling farm harvest
- Buying seedlings produced by the group and raise the income
- Provide some work equipment
- Assist with study tours and farmer field schools

C.18. NYARERO WOMEN'S GROUP Date of visit: 07/07/2006

Village: Nyarero, Ward: Nyarero, Division: Inchage

Officials met.

Sno.	Name	Title	Contacts
1	Mrs Anna John	Group Chairperson	0744 261345 (Mr John Mululyo) Nyarero Women Group, C/O Nyarero Dispensary, P.O. Box 7, Tarime, Mara.
2	Mrs Mary Imori	Group Secretary	0746 517178
3	Mrs Veronica John	Group Treasurer	
4	Mrs Yunes Mwita	Chairperson –environment	
5	Mrs Nyagi Imori	Member	
6	Mrs Nyanokwi Mwita Bululyo	Member	
7	Mrs Selina Japhet Mangala	Member	
8	Mrs Mariam Mjesi	Member	
9	Mrs Chausiku Imori	Member	

Group history

Nyarero women group was started by 10 women in 1984 with the intention of helping each other in farm weeding activities. It is a registered group and possesses a constitution.

The group has a canteen which was started by contributions of items and utensils from each individual. The group allowed possibilities for other people to join and this made a total of 22 members. The group continued with the canteen and assisting each other on weeding and other related farm activities. Also the group started dairy farming under a process of – 'take and give cow' (chukua rudisha ng'ombe) – essentially each member taking turns in looking after the cow until it has reared a calf, which then becomes the property of the member. The money collected was apportioned for families' use and some savings were accumulated. The accumulated money enabled the group to buy a plot of land and a house, and expand the canteen. They also started weaving (kufuma) and bean cultivation activities.

In 2000, they heard of the LVEMP environment project through awareness campaigns that were conducted by LVEMP in the lake region. The start of LVEMP-1 enabled the group to expand its activities. They requested 18ha of land from the village and bought tree seedlings. LVEMP-1 supported the group in two instalments of Tsh 2.5 million (9ha) and 2 million (9ha) making a total of 4.5 million. The money was used for cultivation of new land acquired from the village and for tree planting.

The group has also a project on roofing-tile-making and possesses a demonstration house roofed with these tiles.

The group has a programme that whenever one of its members retires, her membership is replaced by another member from her family. In case of financial problems and requirements to buy something for oneself, decision of fund release is reached after a board meeting. The board comprises: Chairperson, Secretary, Treasurer, and two further members from the group. If a group member is in need of firewood they have to seek permission from the board which normally meets every Sunday.

Which project contributes more income? Arrange in order of priority

- Forestry
- Agriculture - 2 acres
- Trees – 5 acres of eucalyptus (bought at Tsh.300,000/=)

What benefits are accrued from being a member?

- Money for paying school fees and meeting families needs (i.e. clothes for household members)
- Distribution of money earned in accordance of ones time input (ranging between Tsh 10,000 and 60,000)

Any previous training or seminars?

- On Nyaro, pastures and nursery

How did you get to know LVEMP-1?
Got information from Mr Ntilya (??) after expressing problems of finance.

Village requested the group to plant trees. The forest belongs to the group, and whoever wants firewood has to ask for permission.

Constraints/ Problems

- Lack of expertise on tree rearing and planting (Utaalamu zaidi hakuna – hasa ktk upandaji miti)
- Termites destroying trees
- Destruction of trees through grazing of cattle in the forest by the surrounding villagers
- Others
    - Commotions by women who are not in the group (when advised are not ready to join the group) nevertheless the ceiling is 22 members.

Organisation structure of the group
Board (Chairperson, Secretary, Treasurer, and members from different departments – forest, ufinyanzi, canteen, agriculture and dairy keeping)
Chairperson, Assistant chairperson, Secretary, Assistant secretary, Treasurer
Forest committee (Composition – 7 members with chairperson selected within the members)

Expectations on LVEMP -2

- When started the forest project, used to buy trees seedlings. Under LVEMP-2 would like to be capacitated (educated) on how to raise tree seedlings by themselves in order to reduce the breakage when transporting them. (Initial capital too). Water availability is not a problem, they have a water source within their area. Had started fish keeping - perege but fishes did not increase in size and the project ceased.
- Think of starting poultry keeping and beekeeping, however worried that bees might sting people as happened sometimes before.
- Seek market for their products
- Machine for sunflower refinery

Have 7 acres of ulezi at Mikokoteni

The group has a potentially very useful tree locally know as “umunyinge” which cures different types of diseases using its bark.

C.19. Chirorwe Solidarity Water Harvesting Group

(Mshikamano Kikundi cha Kingamaji la Chirorwe) Musoma Rural. Date of visit: 08/07/2006

Officials met.

Sno.	Name	Title	Contacts
1	Mr. Balige		0713 597660
2	Mr Samwel Ruhumbika	Secretary Chirorwe project	
3	Mr Dema Mwendwa	Deputy chairperson	
4	Ms Abigael J. Simiti	Farmer	
5	Mr Elikan M Makuke	Farmer	

History on the project
The idea on the project was started in the year 1998 during the MARAFIP (Mara Region Agricultural - Project). In 2004, the DC called for a village meeting to sensitize people on the project.

Between 1998 and 2004, the land owners prevented (boycotted) their land to be used for the project. After the DC’s meeting in 2004, the land owners decided to release the land for the project. The project started in 2004 with an area of 40 acres, and the first harvest under the project was 518 sacks (1 sack = 100kgs). Their expectations were to cultivate 100 acres, but were failed by the seeds. Out of 120 seedbeds, only 108 germinated.

The conflict
In 2005/2006 season, a big conflict emerged. The members' land-plots which were given under the project were taken back (wanachama wakanyanganywa ardhi). This conflict still exists and the Chairperson and Secretary of the group have been taken to the Mara regional court. They are presently incurring unnecessary costs for travel.

The conflict is believed to have emerged after members realized what improvement in yield was possible after the good harvest in the first season (i.e. 35 bags of paddy per acre). Thus, land owners who gave land to the group wanted their land back so as to maximize their profits in renting their land back to others. It is believed that the conflict has been accelerated by a landowners' son / daughter living outside the village having pushed their parents to withdraw from the scheme and have their land back. *It is important to recognize that the government invested a lot of money in the project, and it would be wrong for any individual now to go against the agreement he/she signed prior to the scheme starting and on which the scheme went ahead.*

Following the conflict, the village government is trying to consult other landowners downstream on possibilities to acquire (and redistribute) their land in order to rescue the project.

The village government after a meeting has consulted Mr Steven Kunaga who owns a land approximating to 400 acres and has agreed to give his land for the project. It has also requested the district to help in surveying the given land and find out how the water can reach the plots.

The Director for irrigation advised the change in water infrastructure layout / arrangement.

Among project members, there are two groups:

- Those who are ready to continue with the agreement
  - Mr Dema Mwendwa — 5 acres motivation
  - Mr Isirael Kanyele — 3 -

- Those who are against the agreement
  - Mgonya Magesa — 3 acres motivation
  - Chiberenge Bwana — 3
  - Makanu Maiba — 3

Organization structure
Chairperson
Vice chairperson
Secretary
Vice secretary
Treasury
Project Steering committee (Chairperson and vice, secretary and vice - existing on their position including 4 members from environmental committee, 5 member from agriculture committee and 5 member from water committee).

Benefits
Harvest from members' plots.
Each member is required to contribute 1 bag (100 kg) to the project development fund (mfuko wa maendeleo ya mradi).

Conflicts

- Livestock vs Farmers: Livestock keepers grazing in farmers land/plots. A case is in the court – no. 72/2005, opened at the Primary court, Ngambono Musoma.
- Conflict on land access / availability?

Constitution and registration

- The group has a constitution, but is not registered (process ongoing under LV Basin Water Office to form a Water User Association – WUA)
- The group has a bylaw (eg. if one fails to cultivate the plot without reasons, and if migrates to other areas, membership ceases)

Meetings
General meeting – 3 times a year
Leadership (free to any member) criteria – should know how to read and write, tenure 3 years

Seminars

- Had training on paddy cultivation in December 2005 Chilolo Primary School (conducted by Mr Kilo Rashid Lusewa from Ukiriguru) for 2 days.
- Visited Buswahilini in Kiagata, Makongoro division, Musoma Rural to learn what others are doing
- Would like to have more training through farmers field schools and visits and more exposure to identification of crop diseases
- The group was visited by different groups from Musoma (Nyamisanga, Bweri and Diocese (sisters))

Reasons for joining the group

- To rise income and reduce poverty (also online with government directives/plans and MDG objectives)
- Change from poor to better condition

How many people are in the village?

- 388 Households, each approx.10 people
- Group has 81 members each with 1 acre

Importance of becoming group member

- Raising education through expertise training
- Know how to use water sustainably –difficult if working alone
- Know crop diseases
- Assurance of good crop yields

Why other people fear to join the group?

- Notion / fear that the government may double-cross them and take away any increase in income from this irrigation. Concerns have increased due to the situation of the farmers who now want to pull out of the scheme;
- Cultivable land small as compared to population-should things go wrong there is no other land to fall back on.

Expectations for the future:
The dam embankment be raised further;
A concrete spillway be put in so that the max level is raised by 1 meter

Source of income for the group
Just agricultural activities

Other planned means for raising income for the group

- Forest plantation
- Dairy cattle keeping
- Pig keeping
- Poultry keeping
- Fruit farming

Yields and Price of paddy

- 1 acre
- No fertilizer application
- Yield per acre 35 bags (1 bag = 100kgs)
- Price - at time of harvesting (Tsh 20,000 – 25,000/= per bag)
  - at time of planting (Tsh 38,000 – 40,000/= per bag) with 4-5 months
- Growing season: 3-4 months (90-120 days)
- Nursery: 14 days wahiwahi, 20-21 days others

Expectations on LVEMP-2

- Dispensary
- Trees – would like to start nursery
- Extension services
- Sensitization/awareness creation and education

Utilize CARBON FUND

C.20. Rolya Farmers Date of visit: 08/07/2006
Located in Cheleche village, Tarime, Mara. HH approx. 600, each 6-7 people

Officials met.

Sno.	Name	Title	Contacts
1	Mr Charles Lwomba	Secretary (1998-2004)	
2	Mr Mwita Marwa Magorondo	Member	
3	Mr Simion Obunda	Member	
4	Mr Frank Mbagu	Member	
5	Mr Tito Vitalis	Member	
6	Mr Ezecka Mkura	Chairperson	
7	Mr Karume Amko	Secretary	
8	Mr Ezecka Obzechu	Member	

History of Rolya Farmers group
The idea of forming the group was initiated by three people in 1994. They agreed to form a farmers group, made a constitution, prepared a write-up and submitted a request for loan to CRDB to enable them start cultivation. Prior to that 120 acres land had been allocated for cultivation by the village government. During that time, the CRDB Bank Branch was still at TARIME.

The request was submitted at the CRDB – Tarime branch, loan forms given and the date to go back for a follow-up given. But before the return on the specified date, the CRDB Tarime branch was moved to Musoma Municipality. Because of that they got scared (walikata tamaa) and their plans remained on paper.

In 1998, IFAD created awareness (hamasisha) on the need for forming farming groups. Since the group was there with its plans, they agreed to form a group and increased the number of members to 120 and registered. IFAD required people to contribute towards the construction of the water retaining structure (the earth bund) with the arrangement that each 1 acre contribute Tsh. 7,500/= which amounted to Tsh750,000 for the 100 acres. Having collected the contribution from the beneficiaries of the project (the Rolya farmers community), IFAD sponsored the construction of the bund between 2000 and 2002. After that, the canal construction started followed by arrangements for cultivation. The Tarime District Council Land surveyors with the assistance of irrigation officers surveyed and apportioned the agricultural land into 1 acre plots and the plots were distributed to members. After the survey work, IFAD provided a tractor for tilling the land.

The group has its bylaws which were created after the start of cultivation that governs the day to day operations. The bylaws include issues like:

- Legal land ownership for 1 acre
- To enforce (himiza) development activities
- To solve conflicts and misunderstandings among the members
- To ensure discipline of the group

Understanding of LVEMP-1
Not much is known on LVEMP-1

Problems facing the group

- Canals not reaching the end farms ('tailenders');
- Not cultivating and planting on the same date (growing season January-May/June, from nursery to harvesting);
- Water hyacinth expanding to occupy a large portion of the reservoir;
- Birds (kweleakwelea) affecting the yields;
- Prevalence of diseases like malaria and dysentery;
- Some farmers are not originating in the village.

Source of income for the group

- Each member when harvesting is required to contribute 1 bag (100 kgs) of paddy. However this is not yet effected due to poor yield as a result of yellow infection)
- 3 acres of land has been set aside purposely for the group.
- Livestock

Yield per acre = 25 – 30 bags (each 120 kgs – lumbesa)

- Price - at time of harvesting (Tsh 21,000 – 25,000/= per bag)
  - at time of planting (Tsh 30,000 – 35,000/= per bag)

Production costs

Seed (1 acre = 20 kgs)	10,000/=
Weeding (3 times) 3 x 30,000/=	90,000/=
Paddling/ tilling	60,000/=
Planting (per acre)	40,000/=
Harvesting (per acre)	30,000/=
Bird scaring	40,000/=
Purchase of bags	

Organization structure and leadership

Chairperson; Vice chairperson; Secretary; Treasury.

Project Steering committee (Chairperson and Vice, Secretary, Treasurer- existing on their position including 10 members from different sub-committees, i.e., water committee 6, within farm boundaries committee (4-7 acres) and security committee -10).

Meetings

Steering committee meets 4 times a year (every three months)

General meeting meets twice a year (every six months)

New members

The experts recommended the scheme serve 120 acres only, however this advise has not been adhered to and this seems to be spearheaded by politics.

Future plans for the group

- To have a loan - credit scheme (SACCOSS);
- Start cultivating Kunde (mung beans), fiwi (lentils), onions;
- To raise awareness and to have more advisory experts on irrigation;
- To continue planting trees (the group has a seedling centre near the bund - Rolya Tree Planting Environmental Conservation – RTPEC).

TAHEA is helping with the protection of the bund through provision of fertile topsoil in which stabilising grasses will be planted.

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ANNEX E: ANNOTATED BIBLIOGRAPHY

Arcadis Euroconsult, July, 2001. Buffering Capacity of Wetlands Study (BCWS). Final Draft Report. Tanzania / World Bank.

Includes good review of history of lake and current problems (Box 1 – changes in Lake Victoria since 1960;
Box 2 – Characteristics of lake Victoria:
Area: 68,800sq km, basin area 193,000sq km, of which Tanzania 84,920sq km (44%), Uganda 30,880sq km (16%), Kenya 42,460sq km 22%, Rwanda/Burundi 34,740sq km 18%;
Altitude: 1134m, average depth 40m, max depth 68m;
Lithology: - predominantly Precambrian bedrock;
Rainfall: 900-1000mm in most of basin, max 2000mm in west and for much of W.part of Lake;
Source of water: >80% from direct rainfall, <20% from terrestrial basin areas;
Water quality: DO 4.6-9.4; Na 10.4ppm; K 3.8; Ca 5.6; Mg 2.6; Cl 3.9; SiO2 4.2;
Age 400,000yrs; lake dried out entirely 14,600 yearsBP;
Raised beaches seen at 1, 10, 18m above present lake level.)

Selection of sites based on 1:50,000 topomaps differentiating permanent swamps, seasonal swamps & floodplains, tree swamps, and open water: areas digitised, and 1:500,000scale compilation undertaken. 28 major wetland areas delineated on the maps.

Category and size of wetlands.

	Wetland Type	Area (ha)	Percentage
1	Permanent Swamp	58,000	14
2	Seasonal swamps/floodplain	308,000	73
3	Tree swamps	33,000	8
4	Open water, mainly inland lakes	23,000	5
		420,000	100

Landsat 7 images of Oct99 and July 2000 interpreted: Nyahishi wetland, S of Mwanza; Ngono wetland SW of Bukoba
Geita wetlands near Nungwe Bay, WSW of Mwanza town.

Biharamulo District Council, 1998. Biharamulo District, Kagera Region, Tanzania. Land Resources Database. Soil-Landscape Map 1:250,000. Key to Map Units. Key to Soil Units.

Excellent and very informative land resources map. Produced under Biharamulo District Rural Development Program, based on Topographical Maps 1:250,000; Geological Maps – quarter degree sheets; Rainfall data from Biharamulo, Runazi, Bwanga, and Nyamirembe stations; LANDSAT TM images172/62 of 3-8-94 and 171/62 of 11-7-94. Aerial photos scale 1:60.000 of Feb-Mar 1987.
Main map based predominantly on physiography and lithology. Main soil types (1, 2 or 3) given for each mapping unit and arranged under columns showing drainage, texture and depth classes. Separate key to soil units give soil description, soil classification and soil fertility status (NPK status, fertility ranking, and indicative maize yields) for each of the soil types.
Small inset maps show major rock areas, main landscape types, major altitude levels, dominant soil textures.
Financed under Ministry of Development Cooperation of the Netherlands; technical work by Business Management Consultants (BUMACO Ltd, TZ) (AP Oosterom); Winand Staring Centre (SC-DLO), Wageningen (AJ van Kekem); Mtingano Agric Research Inst., Tanga (JA Ngailo, JDJ Mbagoni, AS Msangi); and Ukiriguru Agric. Research Inst., Mwanza (RO Kileo).

Bukoba District Council. 1995. Bukoba District Rural Development Programme. Land Use Assessment of Bukoba District. Scale 1:250,000.

Units defined on Land Use/Land Cover Type, but further details given in separate columns on crops and vegetation, and major land features pertaining to each unit.
B&w line map, but hand-coloured. Based on air photography of 1987, field survey and final production, 1995.
(Forms annex to Lorkeers, A. and P.J. van de Kop, 1995 Land Use Assessment of Bukoba District. BDRDP/BDC. Applied Soil fertility research Project. Soil Section ARI Maruku, Bukoba, Tanzania.)

Bullock et al, 1995
Basin Land Use (%)

Country	Arable land	Natural veg	Others
Kenya	33	62	5
Tanzania	20	70	10
Uganda	28	68	4

De Pauw, 1984. Soils, Physiography and Agroecological Zones of Tanzania. Crop Monitoring and Early Warning Systems Project. GCPS/URT/047/NET. Ministry of Agriculture, Dar Es Salaam. FAO.
41pp. (including v. complete bibliography) & appendices (report to accompany maps at 1:2,000,000 scale– no text maps).
1. Introduction; 2. Compilation Methods – Map of Soils and Physiography; Generalised Map of Maximum Soil Moisture Reserves; Map of Agro-ecological Zones; 3. Conclusions and Recommendations for Further Studies.
Appendix A. Soils and Physiography (34pp).
Appendix B. Maximum Soil Moisture Reserves (5pp).
Appendix C. Agro-ecological Zones (75pp).
Table 9. (Ap.C2) Temperature regimes: divisions at 750, 1500, and 2300m
Table 10 (Ap.C3) Moisture Zones (defined on single and double growing periods of between 2-2.5 to up to 8-12 months duration; and responsiveness to moisture storage capacity).

East African Community Secretariat, July, 2005. Policy Brief on the Environment and Natural Resources Sector of the East African Community. EAC, Arusha. 15pp.
Origins of GDP in the three countries (agric, forestry & fishing make up 47.5% of GDP in Tanzania; 39.8% in Uganda, but only 26.4% in Kenya;
Institutional arrangements –

Regional Policy Decisions and Implementation Status:
- LVEMP: Aug94: 1st Tripartite Commission 1996.
- Comprehensive Strategy for control / eradication of water hyacinths, Dec96;
- Sectoral Committee for Environment (Apr98)- expansion to Committee of Envir & Natrl Resources(ENR) in Apr2002 (addition of Water Resources roles) – ENR sectoral committee now v.active;
- MoU on cooperation in Environment Management (Oct98);
- LV Development Programme (1999) (leading to Vision & Framework Strategy);
- review of EIA of proposed S.River Multipurpose Project in Kenya (project subsequently dropped because of severe negative impacts);
- Development of Regional EIA Guidelines for Shared Ecosystems (Nov,2001, studies concluded in 2004);
- Mt Elgon Regional Ecosystem Conservation Project (MERCEP) (Nov, 2001), Phase 1 concluded April, 2005, Phase 2 started August, 2005 (Kenya, Uganda)
- upgrading MoU on Environmental Management into Protocol for Environment and Natural Resources Management (Nov, 2001) (UNEP assistance);
- Customs Union Protocol (Mar; ratified Dec04);
- Protocol for the Sustainable Development of Lake Victoria Basin (2004);
- Ttripartite Agreement for Inland WaterWays.

Opportunities for Development
EAC Organs
New Partnership for Economic Development – NEPAD; also NEPAD Comprehensive African Agricultural Development Program (CAADP), esp on sustainable fisheries & aquaculture; (NEPAD desk now at EAC).
EU aggregate funding to EAC – IFMP

Recommendations on Strengthening Policy Implementation

East African Community Secretariat, 2004. Protocol for Sustainable Development of Lake Victoria Basin. EAC, Arusha. 39pp.
Art.3 Scope of Cooperation: incl: c. agricultural & land use practises including irrigation; d. forestry resources; e. promotion of development & management of wetlands; f. promotion of trade, commerce & industrial development; g. promotion of devmt of infrastructure & energy; h. navigational safety & maritime security; i. public health, specifically sanitation; j. promotion of

research, capacity building & information exchange; k. environmental protection & management; l. promotion of public participation in planning & decision making; n. integration of gender concerns in all activities in the Basin; m. promotion of wildlife conservation & sustainable tourism development.
Art.4 Principles. e. EIA & audit
Art.5 Equitable & Reasonable Utilization of Water Resources (principle of Water Use Efficiencies for consumptive use of water – eg irrigation – not mentioned); 7. with respect to the Nile Basin, the Partner States shall negotiate as a bloc.
Art.6 Protection & conservation of the Basin & its Ecosystems. 1. g. protecting & conserving wetlands; h. restoring & rehabilitating degraded natural resources; 2. Harmonisation of Laws & Policies;
Art.9 Sustainable Agriculture & Land Use Practises: food security & rational agricultural production
Art.12 EIA : transboundary issues; invoking dispute settlement procedure under Article 46 of protocol.
Art.13 Prior Notification Concerning Planned Measures.
Art.14 Environmental Audits.
Art.20 Prevention of Pollution from Non-Point Sources
- sustainable forestry practises, agroforestry, afforestation reforestation & good pasture husbandry; - appropriate land use methods, soil conservation..- general land use planning & enforcement of urban planning laws (could extend to watershed management plans & rural sector); - sanitation & hygiene in the Basin;
Art.24. Exchange of information (should apply to all reports undertaken on Lake basin)
Art.25. Water resources monitoring, surveillance & standards. – harmonisation of standards; exchange of info; (need to standardise laboratories; need to use joint patrols and boats for sampling).
Art.26 Emergencies & Disaster Preparedness. Disaster preparedness plans;
Art.27 Management Plans: infrastructure, commerce & trade, tourism, R&D.
Art.28 Security: National Legislation to enforce maritime security; coordination of security arrangements and operations to control piracy & banditry;
Art.30 Energy: coordinate development of energy policies & supply systems (Art 101 of treaty).
Art 32 Prohibition of Dumping of Waste
Art.33 Institutional Framework: Lake Victoria Basin Commission: promote equitable growth; promote measures aimed at reducing poverty; promote sustainable utilisation & management of natural resources; promote protection of the environment within the LVB; promote compliance on safety & navigation.
Harmonisation of policies, laws, regulations & standards; Promotion of stakeholders participation in sustainable devmt of natural resources; capacity building & institutional development; research development & demonstration; M&E; initiation & promotion of programmes targeting poverty eradication;
Art.34 Organisational Structure:
Art.35 Sectoral Council. Provide overall policy directions for the implementation of projects & programmes in the LVB;
Art.36 Coordination committee.
Art.37 Establishment & Composition of Sectoral Committees – incl. business, industry, civil society; Partner states to establish National Focal Points;
Art.38 Functions of Sectoral Committees: coordinate national focal points;
Art.42 Functions of the Secretariat- initiate coordination & harmonisation of policies & strategies; establish regional database;
Art.45 Reporting
Art.46 Dispute settlement. E.African Court of Justice as final arbiter.

East African Community Secretariat, 2005. The Vision and Strategy Framework for Management and Development of Lake Victoria Basin. EAC, Arusha. 149pp.

The Vision and Strategy Framework for Management and Development of Lake Victoria Basin (2005) prioritised visions, strategies and indicators for five key policy areas:

- Ecosystems, Natural Resources and Environment;
- Production and Income Generation;
- Living Conditions, Poverty and Quality of Life;
- Population and Demography; and
- Governance, Institutions and Policy.

Prioritised sector strategies and indicators were developed for the key policy areas. The major strategies and indicators developed as part of the Framework are presented in Tables 1 to 5 (reproduced as Annex F, below). It is noted that many of the strategies and indicators developed were not necessarily specific to the LVB or its major problem areas.

Geheb, K., Crean, K., Medard, M., Kyangwa, M., Lwenya, C., Onyango, P. 2002. *On Pitfalls and Building Blocks: Towards the Management of Lake Victoria's Fisheries.*
In: *Africa's Inland Fisheries: The Management Challenge.* Ed. Geheb, K and M-T Sarch. Pub. Kampala: Fountain. pp142-173.

Holmes, John, 1995. Natural Forest Handbook for Tanzania.
Vol. 1 Forest Ecology and Management. 520pp.
Vol. 2. Forest Policy, Planning & Utilisation. 360pp.

IUCN Eastern Africa Regional Programme, October, 1999.
Accurate reporting of the real issues of Lake Victoria's management.
Workshop Report, 26-28 April 1999 meeting at Kisumu, Kenya.
Series of 11 short papers oriented towards communication with the media. These included:

- Changes in fish fauna in the last 3 decades & implications for fisheries management;
- Wetland management component of project;
- Status of Water Hyacinth in Tanzania;
- Lake Victoria as part of Nile Basin.(Geoffrey Howard, Prog.Director, IUCN-EARO)

Entire Nile Basin supports 140m people
Mean annual flow of Nile at Wadi Halfa entering Lake Nasser is 84bln cu m (only 6% of Zaire flow; 4% of Niger flow)
Blue Nile, (including Baro and Atbara Rivers) make up 84% of Nile River's flow;
White Nile makes up only 16% of Nile flow - Lake Victoria makes up 40% of flow of White Nile;
Lake Victoria: Area 68,800 sq km; Shoreline 3,500km; Average depth 40m; Max depth 84m; Average volume 2750bln cu m.
Main inflowing rivers: Kagera 45% of river inflow; Nzoia 15%; Mara (Kenya-Tanzania) 10-15%; Sondu and Yala (Kenya).
Annual outflow of Lake Victoria at Owen falls 23.5bln cu m (<1% of storage capacity volume) – reduced to 15bln cu m at confluence with Blue Nile, in spite of large additions from other tributaries.

Lerise, F.S. 1996. Planning at the End of the River: Land and Water Use Management in Chekereni, Moshi District, Tanzania. PhD Thesis, Institute of Town and Landscape Planning, Royal Danish Academy of Fine Arts, Copenhagen.
Excellent account of practicalities of Land Use Planning for irrigation development in N.Tanzania.

LVEMP, October 2005. Tanzania National Water Quality Synthesis Report. (Ed. Prof.Frederick L.Mwanuzi). Consultancy for the Preparation of Lake Victoria Environmental Report: Water Quality and Ecosystem Status Contract.. Draft Final Report.
Ch 1: Synthesis: General Introduction; Ch2: Capacity Building; Ch3: Hydrology & meteorology; Ch4: Final non-point pollution loading; Ch5: Industrial & Municipal Effluent Loadings; Ch6: Hydraulic conditions in Lake Victoria; Ch7: Lake Monitoring; Ch8: Sedimentation; Ch9: Eutrophication; Ch10: Pesticides and metal contamination; Ch11: Health; Ch12: Impacts of Water Quality change.

LVEMP, August 2005. Fish Levy Trust Fund Business Plan for Tanzania.
Fee arrangements and use for environmental protection around LV . Tanzanian retention rate of 13% recommended in order to generate sufficient funds to support necessary activities. 5-year plan drawn up.
Fund's planned expenditure:
Management, R&D (85%)

- Natl Resource sustainability: 47%
  - Habitat protection & enhancement;
  - Water hyacinth control
  - One-off patrols
  - Training & awareness raising
- Industrial devmt: 30%
  - Improvement in fish landing, handling & storage
  - Construction of dry & cold storage facilities
  - Encourage use of ice in artisanal fishing vessels

Encourage value-added products
Fish post-harvest losses study
Construction of access roads
Construction of fish and fishery products consumer markets

- Human capital devmt 8%

Admin (15%)

LVEMP, August 2005. Final Report on Lessons Learned on Micro-Projects. (Dr Mohabe Nyirabu, Univ.Dar es Salaam).

Micro-projects were introduced originally as a means of cultivating partnership with the communities to mitigate any unfavourable effects of LVEMP-1 activities; original LVEMP-1 activities had minimal involvement with communities, and microprojects were also seen as a means of rectifying this.
Revised/improved operations manual introduced in 2004: widened areas of support; local contributions raised from 10 to 15% (80% from LVEMP & 5% for Local Govmt.); VPICs allowed to procure directly from local shops; etc;
Overall Conclusions:
Early identification & full involvement of stakeholders necessary from the beginning;
Question of proposed extent of involvement of donors, government decision makers & private sector;
Question of continuation of funding – esp. as reward for good environmental management practises?
Need for more holistic than a sectoral approach,
Barriers to peoples' involvement must be appreciated;
Need for environmental education;
Better quantitative data required: baseline data, and M&E
Micro-project concept should be extended to cover economic investments & environmental projects;
Bigger geographical coverage in catchment;
LVEMP as funding & supervising agency; (management & admin should go to local government)

LVEMP, August, 2005. Final Report on Lessons Learned on Catchment Afforrestation. (SAO Chamsharma, Morogoro).

Main activities:
- production of seedlings;
- tree planting & management;
- management of natural forests: (survey boundary demarcation & mapping of 6 village forest reserves; by-laws and simple management plan of Kigambabitare Forest; clear signs of recovery of formerly degraded forest).

Main lessons:
- ownership issues and landuse plans important – allocation is otherwise arbitrary;
- individual private nurseries are the cheapest source of seedlings;
-different project components should work more together and have joint programmes in the same village or sub-catchment;
-better species selection is required to match the different site characteristics;
- bee-keeping, N-fixing species, and intercropping all need encouragement;
- animal and termite damage may occur with young seedlings;
- care of seedlings in the first 2 years is critical: inter-planting with crops is OK for this as it encourages weeding;
- more follow-up and M&E visits are essential by technical staff;
- M&E reports should show: planned target (with indicators); status of implementation; problems encountered; corrective measures taken.

LVEMP, August 2005. Final Report on Lessons Learned on LVEMP Institutional Framework. (Dr Samuel Nyantake, Daima Associates)

Discussion of position of each component / institutions of LVEMP:
numerous Ministries and Agencies involved: Ministry of National Resources & Tourism; Agric & Food; Water & Livestock Devmt; TAFIRI; University of Dar;
Role of Secretariats in coordination & supervision;
Regional mechanism: Regional Policy Steering Committee; regional Secretariat; International Panel of Scientists;
Main project purposes: information; capacity building (training); institution establishment;

Recommendations given as:
- National secretariat should move to Mwanza, and have only a small liaison office in Dar;
- regional secretariat should be moved to EAC under LVBC;
- identify high-priority areas and concentrate activities in those areas;
- a logframe approach with planned outputs and process indicators now needs to be adopted;
- M&E and reporting formats now need to be standardised and produced in tabular format;
- each component should have a sustainability strategy;
- training should be orientated to project needs leading to achieving sustainability of project outputs;

- a thorough re-vamp of data management needs to be implemented across the project, leading to the production of annual 'state of the Lake' reports.

LVEMP, September, 2005. Final Report on Lessons Learned on Water Hyacinth Control Component. (K.P. Sibuga)

Biological control: 2 weevils; will breed successfully on still lake but not on moving river (major problems with Kagera River) mechanical means of control faced many difficulties; new legislation introduced to deal with Water hyacinth; seed will survive in dormant state for many years; institutional arrangements/problems on how component would continue, post-project; interface with NGOs.

LVEMP, September, 2005. Final Report on Lessons Learned on Integrated Soil and Water Conservation. (E.T. Liwenga, IRA, University of Dar es Salaam)

-survey & mapping completed for entire area (GIS: ArcView coverages)
Pilot areas: (Simiyu, Magu district: Kalemela, Itumbili subcatchments; Mwitore (drains into Mara River) – beginnings of watershed management)

- contour bund farming;
- rainwater harvesting;
- agro forestry
- in-situ conservation
- gulley control
- conservation tillage: ridging, tie-ridging.

PRA: catchment committees; extension officers;
Study tours for farmers: (highly appreciated)
Practical problems faced by component / activities:
Field: labour shortage; land shortage; lack of capital; limited knowledge/skills; land tenure;
Facilities: only 1 vehicle; 1 old computer; had only 4 staff; had only v.small % of LVEMP resources.
Institutional: poor integration between related components: should have worked closely with catchment afforestation, wetland, but didn't; worked in small isolated office.

LVEMP, October, 2005. Final Report on Lessons Learned on Community Participation. (Dr Flora Kessy)

Community participation was brought in rather late in LVEMP1 and was given much less attention than required.
Common Community Participation Action Plan needs to be formulated;
Community Participation component needs to be added to LVEMP-2, with activities to begin at start of project;
Correct level of financial incentives (cf volunteerism) needs to be devised: eg training needs to be provided as an incentive for volunteering.
Also micro-projects are needed as a financial incentive in making some environmental projects (eg forestry) take off.
Participation skills need to be imparted to all.

LVEMP, December, 2005. Lessons Learned on Wetland Management. (Dr K.N.Njau, Univ. of Dar es Salaam)

Importance in buffereing: filtering nutrients, organic matter sediments before water enters Lake;
LUFLOW on buffereing capacity;
Long learning curve at start of project until local staff trained;
V.high biodiversity for fauna & flora: v. important as breeding grounds for fish, many of which are rare/extinct in Lake;
Much more could be done on handicrafts: design, marketing & quality control;
Need for conservation of Doom Palm.
Canals to provide water for irrigation from lake shouldn't pass through wetland (effect will be to drain wetland);
Alternative economic opportunities will need to be found for population who otherwise would encroach on Wetland;
Much more needs to be done on agricultural extension: provision of improved varieties; farm inputs; technical advise.
Tanzanian National Policy and Legislation should be enacted on Wetlands: this will bring Tanzania in line with the other 2 countries and meet EAC Requirements.

LVEMP, December, 2005. Implementation Completion Report. Lake Victoria Environmental Management Project. Period July 1997 – December 2005.

Main problems: Lack of LFA (LogicalFramework); Lack of M&E
Financial & logistical problems: lengthy & bureaucratic procurement procedures -2.5yr delay in project really getting underway;
Links with other projects & initiatives not pursued - eg HADO, HASHI (Hifadhi Ardhi Shinyanga) on soil & water conservation;
Community participation strategy not developed until 2004.
511 operational BMUs and 15BMUs collecting fisheries revenue
83microprojects implemented;
Influx of nutrients due to untreated sewerage from urban areas & from areas under cultivation & grazing; urban areas have high BOD concentrations and faecal coliform counts
WaterQuality / EcosystemMnmt: total spending (US$m): 5.924m (incl: WaterQual 3.816m; Industrl&MunicWaste 2.106m)
>>management regime for pollution loading into the Lake not achieved in spite of funding being provided.
Moderately satisfactory cost-effectiveness.
Wetlands Management 2.063m (7.4%)
DUFLOW model in 2001; Moderately satisfactory cost-effectiveness.
Microprojects 1.207m allocated, 1.186m spent;
Average cost $14,300. 138,248beneficiaries
Integrated Soil & Water Conservation: 1.019m allocated (3.7%)
2165farmers benefited; 102km of contour bunds implemented; %increase in crop production per unit area 50% in 2000, 80, 30 35, 40% in 2004. $10/m of bund or $500/farmer.
Problem of communal land; absentee landlords; land tenure; lack of security of tenure;
Water Hyacinth 2.767m allocated (10.0%)
Fisheries Research 3.509 m allocated (12.6% of 27.747m;)
fish biology 2.058; aquaculture 0.883; socioecon 0.413; database estab 0.153.
Fisheries Management 4.528m (16.3% of total budget)
Fisheries extension 2.275m, strengthening enforcement 1.090.
Secretariat 4.108m
Catchment afforestation 1.713m
(inadequate harmonisation with other components; low priority for villagers)
Universities 0.766m
Pollution disaster contingency 0.143m

NGOs: TAHEA, ECOVIC, LANESO, consulted by project; CARE, AMREF, CRS, ACTIONAID, PLAN international should also have been consulted
WB should have ensured actual project planning was more systematic, integrated and precise. Compensatory rationale for microprojects. Community participation experiences from other projects elsewhere.

LVEMP, June 2002. Annual Workplans & Budget: July 2002 – June 2003.

Represents peak year of project activities (but note: total spending not related to peak year spending!):
01-02 budget: $2.052m
02-03 budget: $3.217m, comprising:

Microprojects:	225
Wetland management:	74
Water Quality Monitoring	317
Industrial &Municipal Waste Manmt	384
Water Hyacinth Control	180
Land Use Management	154

(incl: Soil&Water Cons 59; Pollution loading 66; Agrochemical assessment 29)

Catchment reafforestation	190
Fisheries management	399
Fisheries research	254
Universities	76
Secretariat	962

Magu District Council. Jun2004. Magu District Profile.
Land Area: 3075 sq km.
6 divisions; 27 wards; 124 villages; 765hamlets; 70,065 households; 431,771 people;
Mean area cultivated annually: 160,000ha (68% of the 236,300ha of arable land). Cash crops rice & cotton (49,000ha, 0.8t/ha); food crops sorghum (19,000ha), rice (14,700ha, 2.4t/ha – grows on best land areas), cassava (20,000ha, 1.6t/ha), sweet potatoes (18,000ha, 1.5t/ha), maize (0.8t/ha), legumes (12,200ha), millet (1,600ha, 2.0t/ha – again grown on best soil areas).
Irrigation: existing area: 900ha; potential area:5,000ha.
Forestry: 8170ha of natural reserves (Ngitiri); 17.2m trees planted since 1999.

Medard, M., Geheb, K., Okeyo-Owuor, J.B. 2002. *Conflicts amongst Resource Users: The Case of Kabangaja Fishing and Farming Community on Lake Victoria (Tanzania).* In: *Africa's Inland Fisheries: The Management Challenge.* Ed. Geheb, K and M-T Sarch. Pub. Kampala: Fountain. pp195-210.

Ntiba, Micheni, 2004?. *Capacity Development in the Lake Victoria Basin, East Africa.* MSW Conference.
Basic statistics for lake: 1143melev; catchment area 184,000 sqkm; lake surface area 68,800 sqkm; lake area as % of catchment 37; shoreline 3440km, max depth 84m; mean depth 40m; volume 2760cu km; inflow 20cu km; outflow 20cu km; precipitation 114cu km /yr; annual fluctuations in lake level 0.4-1.5m; flushing time 138yrs; residence time 21 yrs.

3 groups of issues re shared fisheries resource:
- Traditional practise: artisanal fishers vs rights of others, given that target fish are highly migratory;
- Rights of fishers to land fish in other countries;
- Purchasing fish by commercial processors in one country and export from another

Awareness raising carried out only in accessible, high profile sites: other sites ignored, and highly marginalised;
Artisanal fisheries also ignored;
Adult training needs request from community was for financial management & bookkeeping skills (with PRA, aquaculture, water treatment lowest); request from managers was for conservation & fisheries management.

Overseas Development Administration (ODA), Natural Resources Institute (NRI), 1996. Renewable Natural Resources Profile, Tanzania. 42pp. (By Chris Lewcock, Physical Planner, and Mark George, Socio-Economist).

Excellent discussion of resource potential under 18 defined Land Resource Zones (Map 1), grouped under 6 headings (coast, arid lands, semi-arid lands, plateaux, highlands, alluvial plains. For Lake Victoria Basin, these include:
5c Highlands, Western (W); 4a Plateau, Western (in S and E); 3a Semi-Arid, Central (in SE), 2a Arid, Northern. Tse-tse infestation in most inland areas (not on lakeshore)

Zone	Rainfall	Wet Season(s)			Mean monthly temperatures (degC)		
		Kind	Months	Length(days)	Max	Normal Range	Min
2a	500	Sparse	.mAm.	40-60	34	26-20	15
3a	500-750		DJFM.	90-150	32	24-20	13
4a	800-1000	Long,tends to split	.nDjFMA.	150-180	32	26-21	12
5c	1000-2000	Long drawn out	.oNDjFMAm	200-330	28	24-21	15

Zone	Altitude(m)	Lithology and Soils	Land use	Potential
2a	1300-1800	Volcanic ash and sediments	Nomadic grazing and National parks	Tourism
3a	1000-1500	Uplands: low fertility sands; valleys: alluvium & salt pans	Semi-nomadic herdsmen. Sorghum, millet, cotton.	Limited potential
4a	800-1500	Predominantly sandy soils; clay floodplains	Maize, sorghum, groundnuts, cassava. Some livestock.	Upland crops & paddy rice (requires infra-structure investment).
5c	1000-1800	Hills: low fertility loams & clays; valleys: fertile clays & alluvium	Maize, sorghum, paddy rice, beans, groundnuts, cassava, sweet potatoes, wheat, sunflower, pyrethrum, coffee.	Expansion of cultivated area. Increased yields.

			Cattle, tea wattle, tobacco estates, Forestry plantations.	

Institutional context; Regulatory framework for RNR management;
Key development issues for the RNR sector: Agriculture, Land tenure, Water resources, Wildlife & biodiversity,
Policy environment: absence of legal powers; inadequate penalties for non-compliance; inadequate facilities to implement any enforcement; gaps in, and duplication of responsibilities;
Poverty & pressures on RNR base: Shinyanga has >90% of population below poverty line; Urbanisation & pollution;

Republic of Uganda. October, 2000. Wetlands and the Law. Legislation governing the ownership, use and access to Wetlands and their resources. Kampala. 39pp.

Contents: Wetland ownership, use and access; Legislation affecting wetland ownership, use and access; The National Environment (Wetlands, River Banks, Lake Shores Management) Regulations, 2000.; Penalties; End Notes; Glossary of Useful Wetland Terminology.
Part of National Wetlands Programme in the Wetlands Inspection Division of the Ministry of Water Lands and Environment.
www.ugandawetlands.org

Covers:
- classification and differentiation of wetlands;
- ownership of wetlands; (differentiation between ownership and right to use)
- use & management of wetlands;
- access to wetlands;

Legislation affecting Wetland ownership, use and access:
Constitution of the Republic of Uganda, 1995 – Ch 15: Land & Environment:
The National Environment Statute, 1995.
The Local Government Act, 1997.
The Water Statute, 1995.
The Land Act, 1998.
The Wetland Policy, 1995
Criteria for Establishing Wetland Boundaries
The National Environment (Wetlands, River banks and Lake Shores Management) Regulations, 2000.

Rufiji Environmental Management Project, March, 2001. Rufiji River Basin Upstream Downstream Linkages – Report of the Workshop held at Morogoro on 26-28 March, 2001. Environmental Management and Biodiversity Conservation of Forests Woodlands and Wetlands of the Rufiji Delta and Floodplain. Technical Report No.30.

RUBADA – Rufiji Basin Development Authority set up by Act of Parliament in 1975 to manage the first and largest of Tanzania's 13 main hydrological reserves. River Basin covers 74,000 sq km. Under Ministry of Agriculture – but considered that it should be under Ministry of ??Development Planning??. Office in Dar (but should be based closer or within site). Has regulatory (policing) role. Fundamental initial input is a land and water use master plan. Main failing to date has been relative failure to sensitise stakeholders on the importance of integrated resource management as a whole. Basin generates 60% of Tanzania's electricity and has 83% of installed capacity. Further potential exists, especially at Stiegler's Gorge. RBHydropower Master Plan in 1984 identified 8 potential hydropower sites.

622,040 ha in Basin suitable for irrigation.
Kilombero Sugar Co., privatised in 1998 with Illovo major shareholders, produces 61,000tonnes sugar from 7,000ha, 4,500 of which is irrigated. Jobs for 4,000 workers. Dry-season electricity (firewood needed to start boilers at start of season).
Flows into Ruaha National Park have decreased from 35 to 0cumecs in peak of dry season (irrigation, not deforestation, overgrazing or decreased rainfall is cause of this).
Rufiji Environmental management Project implemented by Rufiji District Council. Programme operates under severe financial constraints: lack of sustainable finance has been a big problem.

Tanzania National Website. www.tanzania.go.tz/government/cabinet.htm

Gives ministries of state under President's Office (3); Vice-President's Office (2, incl Environment); Prime-Minister's Office (24); Deputy Ministers under PMO are 29 Ministers under 23 Ministries.

TASAF II Operations Manual

12 guiding principles:

i. autonomous but working in association with other initiatives within Local Govmt Reform Program;
ii. demand driven: bottom-up planning & decision making;
iii. direct finances for community-initiated micro-projects;
iv. safety net: targets vulnerable households & poor communities;
v. conforms to sectoral norms & standards;
vi. non-partisan & apolitical;
vii. clear modalities to access the fund;
viii. delivery structure to ensure speedy operations;
ix. adequate & timely technical support;
x. transparent & demonstrates full public accountability;
xi. cost effective processing & management;
xii. strengthens community empowerment.

Project has two major components:

1. National Village Fund (NVF)

-access to financial resources to stimulate economic activities allowing poor households to increase their incomes;
-reduce vulnerability and insure against risks;
-improve access & use of social services.
-targeted communities are those lacking access to basic social & market services, have able-bodied but food-insecure households, and have households with vulnerable individuals.

2. Capacity Enhancement

-applies particularly to district/municipal & ward levels
-capacitation for health, education, water & sanitation, incomes for poor, tackling vulnerability, increasing market access by poor
-targeted beneficiaries are agencies (both public & private) supporting communities making best use of resources made available under the NVF and also individuals in savings groups taking advantage of investment opportunities under private-public partnerships.

Resource Allocation Criteria: Allocation to LGAs on formula weighted on population (40%), poverty (40%) and geography (20%). Equity element (25%) is applied before utilizing allocation formula.

Eligibility Criteria for Accessing NVF's Funds
Strict standards for present and passed accountability are applied.

Safeguards: Resettlement Policy framework (RPF) and Environmental & Social management Framework (ESMF) will be applied, with any involuntary resettlement / relocation issues resolved before sub-project approval.

Institutional structure is primary at Villlage Govmt Level (village assembly, Village Council/village exec officer) and district Council or Urban Authorities Level. Technical support & oversight is provided at both Ward level and regional Level.

UNDP December, 1980. Development of the Kagera River Basin. Burundi - Rwanda - Tanzania - Uganda. Multidisciplinary Multidonor Mission. Draft Mission Report.

Executive Summary. (Introduction; Agriculture; Hydro-energy; Transport; Industries; Environment; Conclusions.)
Study involved 27 specialists and 48 staff months, reporting in both French and English. Agriculture: 3 potential projects with reasonable EIRRs identified. Forestry should be attractive for environmental reasons. Irrigation found to be not attractive.
Hydropower dam proposed at Lake Rusomo in the corner of the 3 countries (elev 1321-1345m: 40-130MW, 159-535Gwh/yr of firm production). Building dykes to prevent flooding of certain areas would make the scheme less attractive. Dam at 1335m would appear optimum.
At Kishanda/Bugara (180MW, 1026Gwh/yr firm production), Kakono (40MW, 259Gwh/yr firm production).
Micropower stations appear less attractive.

UNDP, December, 1975. Kagera River Basin Development, Phase II. Burindi – Rwanda – Tanzania. Norconsult A. S. and Electrowatt.
Sectoral Studies – Hydrology. :
Excellent text maps, scale c. 1:800.000, incl. Mean annual rainfall 1930-71. Measured and simulated flow data for the major tributaries.
Sectoral Studies – Ecology.
(Excellent coverage)
Sectoral Studies –general agriculture
PreFeasibility Studies – Kyaka Irrigation Project. April, 1976.
Mean annual rainfall 820-850mm, potential evapotranspiration c.1230mm
Large area surveyed between Kakono and Kyaka, c 10,000ha; smaller area surveyed south of Kyaka, c 1000ha.

United Republic of Tanzania. March 2000. Institutional and Legal Framework for Environmental Management Project (ILFEMP): Phase I: Final Report: Vol.1: Options for an Institutional Framework for Environmental Management.. 257pp.
Summary:
ILFEMP launched in 1998 to determine future framework for environmental management, specifically:
- to assess national and decentralised capacity to perform key environmental management functions;
- to describe institutional and organisational options available to government to improve performance;
- to recommend actions to establish an operational institutional framework.

Continuing environmental degradation in the country: some institutional problems: overlapping mandates & competition for limited resources. 17 underlying problems identified by stakeholders: 4 categories: operational, structural, financial, socio-political. ILFEMP has worked within existing national policy framework, including policies on environmental management; local govmt reform; public sector reform; privatisation; empowerment of local communities.

Core institutional problems identified as:

- poor inter-sectoral coordination;
- poor linkages between Local and national Government;
- weak and unclear institutional linkages;
- poor institutional culture, conflicting mandates & competition;
- inadequate human & institutional capacity;
- economic & financial constraints;
- too much planning: too little implementation;
- weak enforcement of rules and legislation;
- inadequate political will to address environmental problems;
- lack of environmental awareness by planners and decision-makers;
- inadequate private sector involvement.

Recommendations include:
- village & community levels: obtain generic 'best practises' to be quickly and widely applied; key function for village environmental coordinator;
- wards need to be empowered to enact legislation (by-laws??) to improve inter-village environmental management; Key function for Ward Environmental Coordinator;
- District Environmental Management Committee should be established as an additional District Council Committee to focus attention on environmental concerns;
- District Environmental Management Officer should be established under the District Council (new post in some districts; function allocated to existing technician in others);
- Regional Environmental Management Advisor should be appointed to regional Secretariat & a Regional Environmental Management Committee should be established;
- each Sectoral Ministry should create new post of Sector Environmental Coordinator, or allocate that function to existing technical officer;
- National Environmental Enforcement Authority (NEEA) and Tanzania Environmental Development Commission (TEDC) to be established;
- Code of Conduct for environmental management should be negotiated between the Government & the donor community to improve use of external resources;
- 4 options for central ministerial responsibility

LGRP: Regions will have reduced powers and resources; emphasis will go on Districts;
PSRP: gives more functions to autonomous District and Urban Councils.
National Land Policy of 1995: led in 1999 to Land Act Bill, and Village Land Act Bill, taking a completely new approach to user rights of land. Public land divided into 3 categories: general, reserved, village lands.

Environmental Functions are split between DoE and NEMC:
Dept of Environment: DoE (33professional & 8 support staff); Divs are: Environment and Policy Planning; Environmental Pollution; Environmental Impact Assessment;
National Environmental management Council (NEMC): 60professional and 40 support staff; Directorates are: Natural Resources; Research, Environmental Education & Documentation; Pollution Prevention & Control; EIA; R&A;

Regional Authorities: under PMO-RALG; with Regional Commissioner, Regional Administrative Secretariat with 4 Divs: Management Support Services; Economic Devmt Supporting Services; Physical Planning & Engineering Support; Social Sector Support Services; under Economic Devt there are 5 officers dealing with Agric; Livestock; Cooperatives; Trade; Natural Resources (incl Environment);

District & Urban Institutions: now have power to hire & fire staff; organised into 4 tiers: division, ward, village, hamlet; approval of by-laws allows participation of public- full council meetings open to all but not commonly known;
Committees within urban authorities grouped differently from District Councils: Environment is with Urban Planning in first; and with Economic Affairs & Works in second.
'Vertical' culture of technical officers: more integrated activities are required
Blackshaw, 1998: 'One of the most important positive attributes of the current local government structure is that agriculture and livestock extension, natural resources and community development activities have been brought together under a single insitution'
Experiences of participatory village planning (both positive and negative)
District level institutions have shown disappointing performances:

- interference but inadequate resources and technical support from central govmt;
- lack of ownership of natural resources within their areas;
- inter-Distrrict coordination poor.

Authorities and agencies:
River & Lake Basin Authorities: Rufiji Basin Development Authority
National and local projects: 'projectitis' due to inadequate investment guidance & control from national Government; also competition for scarce staff resources; parallel structures;

Constraints to CBEM: -ineffective village by-laws; lack of integration of decision-making; limited operational capacity of institutions; ridigity of conservation legislation; uncoordinated sectoral policy;
- villagers preferring socio-econ devmt to any environmental microproject

Overall issues:
Inadequate human & institutional capacity;
Financial constraints;
Weak enforcement of rules & regulations;
Lack of awareness on the part of planners & policy makers;
Poor linkages between national & local level;
Competing and conflicting institutional culture.

Land Law & the Environment (p145) National Land Policy's main objectives:
i. equitable distribution & access to land by all citizens; ii. Respect of customary rights of smallholders & herrdmen; iii. Protect land resources from degradation for future sustainable development.
Village Land Act allows President to transfer village land to reserved land; also declaration of hazardous land (based on LGA recommendations): can include wetlands, land within 60m reserve, steep land (as specified by Minister), fragile land/ envir. Significant land.

United Republic of Tanzania. June, 2002. Acts Supplement, No.7. The Forest Act, 2002. 174pp.
Part II Objectives; Types of Forests;.. Relations between Ministry, local authorities & other forest management authorities; establishment of the National Forestry Advisory Committee;

Part III Management Plans. Forest Management Plans; Outline..; Detailed forest management plans; village land forest management plans; Private forest management plans; Joint management agreements; Removal of trees in specified circumstances; EIA required for certain developments;
Part IV Private Forests;
Part V Forest reserves: Forest reserved other than…; Village land forest reserves; Community forest reserves;
Part VI Permits and licenses
Part VII Trade in forest produce
Part VIII Conservation of trees, wild plants and wild animals
Part IX Fires
Part X Financial provisions and establishment of a fund
Part XI Offences and penalties Part XIII Miscellaneous provisions

Ministry of Lands, Natural Resources and Tourism, Forestry and Beekeeping Division. Sept. 1989. Tanzania Forestry Action Plan. 1990/91 – 2007/08.
Main report:
Executive summary; 1. Introduction; 2. Review of Forestry Situation; 3. Sectoral Development Strategy; 4. Forestry's Contribution to National Development Objectives through TFAP; 5. Development Program; 6. Institutional Support Program; 7. Inputs; 8. TFAP Implementation Arrangements.

Technical Annexes: Vol 1:
I: Development of Sustainable land Husbandry;
1. Introduction; 2. Intersectoral Interface and Linkage; 3. Land Use Trends;
4. Government Interventions: Lessons from the past and prospects for the future;
5. Land Tenure and land Use Planning; 6. Villagers' Perceptions of the Land-Use Situation; 7. Extension Services and People's Participation; 8. Experience of Land Related Projects.
II: Community and Farm Forestry;
III: Forest Management;
IV: Bio-energy;
V: Forest Industry;
VI: Beekeeping;

Technical Annexes: Vol 2:
VII: Wildlife Management
VIII: Conservation of Ecosystems and Genetic resources
IX: Forest and Land Use Policy (photocopy)
1. Introduction; 2. National objectives and forest policy; 3. Land tenure and land use; 4. Forest legislation and policies – their possible effectiveness; 5. Policy recommendations on forestry, beekeeping and wildlife management; 6. Insitutional arrangements;
X: People's Participation
XI: Training and Manpower Development
XII: Forest Research
XIII: Economic Aspects and Financing of Forestry Development
For 1989 US$1=Tsh150, with poles selling at $7.3/m3 ($14.6/m3 at today's prices);
Fuelwood at $1.3/m3 ($2.5 at today's prices).

United Republic of Tanzania. National Land Use Planning Commission. *Guidelines for Participatory Village Land Use Management in Tanzania (December 1998)*

United Republic of Tanzania. 1974. The Wildlife Conservation Act, 1974. 97pp.

United Republic of Tanzania. August, 1998. Act Supplement, The Mining Act, 1998. 298pp.
Part IV Mineral Rights: Prospecting License & Retention Licence
Nothing said on environmental impacts: nothing on EIA requirements; restoration of disturbed land, toxic minerals and toxic wastes.

United Republic of Tanzania. February, 2005. Act Supplement, No.3. The Environmental Management Act, 2004. 236pp.
Part IV: Environmental Planning: LGAs to identify problems and recommend mitigating measures; undertake environmental management plans for their districts;
Part V: Environmental Management
Part VI: Environmental Impact Assessment and other Assessments
Part VIII: Pollution prevention and control; Part IX: Waste management..
Part XIV: Public Participation in Environmental Decision Making (p205) – outlines rights/responsibilities of public.

United Republic of Tanzania. June, 2006. Ministry of Water. Trans-boundary Diagnostic Analysis for the Lake Victoria Basin. Draft Final Report. Prepared by Bureau for Industrial Cooperation (BICO). 128pp.
Chapter 5: Institutional, Legal & Policy Factors to be Overcome. (16pp)
Includes: (1) Political Map of the LVB; (2) National Environmental Management Strategy; (3) National Environmental Action Plan (NEAP) – a first step; (4) National Environmental Policy; (5) Tanzania Development Vision, 2025; (6) National Strategy for Growth & Reduction of Poverty; (7) National Environmental Programmes; (8) Key areas of National Environmental Policy Development; (9) Institutional framework of Environmental Protection and management; (10) Environmental Legislation; (10.1) National Environmental Management Act, 2004; (10.2) Other Legislation with bearing on environmental protection; (10.3) Water Quality Regulations; (11) Legal Framework for International Cooperation in the LVB; (12)The need for Further Development of Environmental Education in the Riparian Countries.
Chapter 6: Public and Stakeholder Participation (5pp).
Includes: Tasks, Objectives and Activity Areas of Environmental NGOs; Structure of Public Environmental Organizations; Environmental NGO Membership; Relations of Environmental NGOs with other Social Institutions and Stakeholder Groups; Environmental NGOs and the LVB Rehabilitation Programme.

United Republic of Tanzania. October, 2001. Agricultural Sector Development Strategy. 82pp.
Exec.Summary:
1. Background – agriculture makes up 50% of GDP and 56% of FEEs;
2. Status of the Agricultural Sector;
3. Formulating the Strategy;
4. Strengthening the Institutional Framework;
5. Creating a Favourable Climate to foster Commercial Activities;
6. Public and Private Sector Roles in Improving Support Services;
7. Marketing and Outputs;
8. Mainstreaming Planning for Agricultural Development in other Sectors;
8.1 District Agricultural Development Programs (DADPs) and District Development Programs (DDPs); 8.2 Improving rural infrastructure; 8.3 Improving rural electrification and communication; 8.4 Mitigating the effects of HIV/AIDS and malaria; 8.5 Mainstreaming gender in agricultural development; 8.6 Empowering youth;
8.7 Strengthening environmental management.
National Environmental Policy: coordinated, multi-sectoral action involving: National Environmental Management Council (NEMC, 1983); National Conservation Strategy for Sustainable Development (NCSSD, 1992); National Environmental Action Plan (NEAP, 1994); Tropical Pesticides Research Institute (TPRI).
Emphasis of:

- soil and water conservation activities, organised on a catchment / basin approach.
- Public awareness re the environment;
- Promotion of more intensive agriculture and livestock production.

9. Costs and Implementation Arrangements. Annex 1. Participatory Process for the Preparation of the Agricultural Sector Development Strategy; Annex 2. Agricultural Legislation in Tanzania; Annex 3. Logframe.

United Republic of Tanzania. Tanzania: Agricultural Sector Development Programme Framework and Process Document. Final Draft, March 2003.
Agric Sector Devmt Programme have several subcomponents: Subcomponent A covers District Agricultural Development Plans building capacity of districts, wards & villages to plan and implement agric.projects. 100% govmt funding of Tsh4.5bln/yr.

United Republic of Tanzania: Ministry of Natural Resources and Tourism. Fisheries Division. August, 2005. Draft Guidelines for Beach Management Units (BMUs) on Lake Victoria, Tanzania. 32pp.
More diversified representation of BMU committee: 30% boat owners; 30% other crew; 30% other stakeholder groups; 10% fish traders; (>30% of total must be women).
Consultants recommendations:
- step by step implementation required; - need to establish well-working models before wholescale implementation; - need to be introduced first in areas where existing BMUs are not working (eg Muleba Dist).- need to be aware that for working BMUs (eg Kayenze) the new arrangements will cause problems.

United Republic of Tanzania: Ministry of Natural Resources and Tourism. Fisheries Division. July, 2006. Implementation of a Fisheries Management Plan Project.. Beach Management Units Institutions for Fisheries Co-Management in Lake Victoria. Paper presented during Training of Change Agents for Communities Mobilisation during BMU Reformation in Tanzania. 8pp.
Differences with respect to arrangements with former BMUs:
BMUs to have >30boats; women to be represented (>30% women in BMU); possible association with other BMUs; all members openly elected; BMUs to be legally responsible for collection of fisheries information; many more functions with respect to planning, links to village, district and national govmt's development planning activities; systematic monitoring.

United Republic of Tanzania: Ministry of Agriculture. October, 1994. The National Irrigation Development Plan. Main report. Agriculture and Livestock Division, Irrigation Department, Dar Es Salaam.
1. Background – Rationale for Irrigation; Performance of Irrigation Sector; Policy and Institutional Issues (i. Integration; ii.

United Republic of Tanzania: Ministry of Agriculture. October, 1994. The National Irrigation Development Plan. Main report. Agriculture and Livestock Division, Irrigation Department, Dar Es Salaam.
1. Background – Rationale for Irrigation; Performance of Irrigation Sector; Policy and Institutional Issues (i. Integration; ii. Affordability; iii. the Environment; iv. role of NGOs; v. Gender Issues; vi. New varieties and farming systems; vii. Water Users' Associations; viii. Agro-mechanisation; ix. rural credit and land tenure; x. major vs. minor infrastructure; xi. Introduction of higher technology levels);
2. National Plan for Irrigation Development – Introduction; the five Components of the Plan; Application at Zonal Level (Plan for Mwanza Zone- i. studies on irrigation potential of Lake Victoria and subcatchments; ii. studies of rivers flowing to internal basins; iii. sedimentation studies, esp. with regard to small dam construction; iv. on-going scheme implementation, esp. on water-harvesting technology);
3. A Program for Irrigation Development to the Year 2015 – the Program; Beneficiaries; Implementation Arrangements; Monitoring of the National Irrigation Development Plan;
4. Financial and Economic Considerations – Investment Plan & Financial requirements; Analyses; Assumptions; Funded Activities in the Financing Gap; Sources of Funds to Fill the Gap; Benefit and Justification;
5. Conclusions and Recommendations.

United Republic of Tanzania: Ministry of Lands, Housing and Urban Development; Surveys and Mapping Division. 1976. Atlas of Tanzania, Second Edition. 1:3million scale.
Individual coloured map sheets give national coverage of a large number of very useful themes:
Geology;
Soils (usefully covering both soil texture & drainage);
Capability of soils for agriculture (7 classes: subclasses defined on type & degree of limitation);
Hydrology;
Mean annual rainfall (most of Lake Victoria Basin shown within 800-1000mm isohyets, extreme ESE of Basin is just <600mm, small area around Bukoba is >2000mm);
90% exceedence of annual rainfall (c.700mm for 50% of area);
Other Climate Parameters;
Vegetation; Forest reserves (closed forest, woodland and grassland);
Game conservation & tourism; Fisheries; Administration;
Population distribution (each dot representing 1000 persons); Population characteristics; Antiquities and Monuments;
Educational facilities; Medical facilities; tse-tse fly and sleeping sickness; Disease; Improved Water Supply;
Main export crops (within Basin: cotton in the E, coffee in W, some tea around Bukoba); Foodcrops (smaller maps showing distribution of rice, maize, sorghum, bulrush & finger millet, groundnuts & bananas);

Cattle Distribution and Marketing (each dot representing 5000 head);
Urban Centres; Internal Communications; Communications Statistics; Mineral Resources; Industry; Socialisation of Trade.

United Republic of Tanzania: Ministry of Water Development Energy and Minerals, July, 1978. Water Master Plan for the Mara, Mwanza and West Lake Regions. Final Report. Brokonsult AB, Sweden / SIDA.
Vol 1: Water Master Plan – West Lake Region
Vol 2: Water Master Plan – Mara Region
Vol 3: Water Master Plan – Mwanza Region
Vol.4: Studies in Hydrology
p.1-7: Intro & precipitation, p7 weather station map; p50-59 potential evaporation (map showing <1400->2000mm/yr);
p67-82a Potential ground water recharge; esp.p72-75 p73 map of 6 climatic zones
Potential evapotranspiration-Penman (monthly means, mm/day)

Zone		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
I	Bukoba-lake	4.1	4.2	4.5	4.1	3.9	4.2	4.4	4.4	4.4	4.3	3.9	3.8
II	West	3.9	3.9	4.1	3.7	3.8	3.8	3.9	4.6	4.6	4.5	3.8	3.7
III	SW Mwanza	4.4	4.4	4.7	4.3	4.4	4.4	4.4	4.6	4.6	4.7	4.2	4.1
IV	SE Mwanza	5.6	5.5	5.8	5.4	5.4	5.3	5.6	6.0	6.6	7.0	6.0	5.5
V	East	5.0	5.0	5.4	4.9	4.6	4.6	4.6	4.8	5.3	5.4	4.9	4.7
VI	NE	4.6	4.6	4.7	4.4	4.5	4.4	4.3	4.5	4.6	5.0	4.5	4.6

P150-162: Discharge stations and data

Vol 6: Hydrogeological Studies/6A:Borehole Catalogue/ 7:Geophysical Investigations

Vol.8: Population, Natural Resources and Agriculture – West Lake Region
P1-23: Introduction and development strategy; Physiography (map); monthly rainfalls for Bukoba and Kagera Sugar Estate(NW Lowlands) – rainfall is up to 2000mm at Bukoba but falls rapidly towards the Central lowlands, eg 800mm at Kayaka, only 45km to W. In the extreme W areas rainfall increases again to over 1000mm.
Landforms were mapped from air photos, with 13 classes differentiated; 2km grid superimposed, and % of each landform in each grid was noted. Some 7 landform units/soil types predominated, giving 7 maps of occurrence of each of the 7 units.
API undertaken, with 502 villages identified.; area is 2.8m ha;
P61-66: Agro-economic zones: good description, and map p66.
Ch6 Agriculture; Ch 7 Livestock

Vol.9: Population, Natural Resources and Agriculture – Mara Region.
P1-19. (Sections in same format). Rainfall in Tarime highlands bordering Kenya is some 1250-1500mm and distribution good; above 1500m rainfall is 950-1250mm. S plains show large areas with badly distributed rain at 750-900mm. Pronounced bimodal pattern is observed, with a break in Jan & Feb.
Area is 2.2m ha; 1.44m ha populated, 0.7m ha of Serengeti National Park.
Development constrained by 5 problems: transportation; livestock herd management; shistosomiasis control; Tarime's agriculture (high potential but transport the main limiting factor); irrigation (mainly by lake water);
Physiographic Units include: Tarime Highlands, Eastern Plateau, Central
P53-59 Agro-economic zones

Vol.10: Population, Natural resources & Agriculture – Mwanza Region
P1-18
P52-60 Agro-economic zones.

Vol 11AB: Water Scheme Description, reservoir and Shallow Well Description
Vols 11-13: Water Scheme Condition and Rehabilitation
Vols 14-16A: Water Condition in Villages
Vol 17: Water Quality Investigations
Vol 18: Engineering Investigations

United Republic of Tanzania: Joint Government of Tanzania / World Bank. November, 1992. Agricultural Sector Review. Preliminary Findings.
Includes summary of mission conclusions and 12 annexes, covering:

1. Returns to cropping, comparative advantage and export competitiveness;
2. Processing and marketing of export crops;
3. Coffee production and marketing;
4. The rural financial system in Tanzania;
5. Food security and the management of the strategic grain reserve;
6. Agricultural inputs;
7. Cooperatives restructuring;
8. Land tenure;
9. Livestock;
10. Agricultural data and supply response;
11. The seeds industry;
12. Non-traditional agricultural exports.

Wilson, D.C. 2002. *Lake Victoria Fishers' Attitudes Towards Management and Co-Management.* In: *Africa's Inland Fisheries: The Management Challenge.* Ed. Geheb, K and M-T Sarch. Pub. Kampala: Fountain. pp174-194.

ANNEX F: VISION AND STRATEGY FRAMEWORK FOR THE MANAGEMENT OF THE LAKE VICTORIA BASIN

Table 1: Prioritised Strategies for Policy Area 1: Ecosystems Natural Resources & Environment

Sector Strategies	*Indicators*
1 Fish resources management	
Promote sustainable fisheries policies baseline surveys, extension services, monitoring, surveillance and control measures	Maintained fisheries yield at an estimated long-term level Reduced numbers of licenses and quotas
2 Land use and natural resources management	
Improve land use and natural resources planning with particular focus on urban expansion	Decrease in encroachment into vulnerable areas Improved land cover
Promote proper land use management practises	Number of improved land use plans in place
Promote co-management of wildlife	Number of wildlife co-management areas established
Promote the establishment of community forests and woodlots / afforestation / tree planting schemes / agroforestry	Increase in wildlife inventories Forest cover / number of trees
3 Water resources management	
Promote integrated water resource / water catchment management	Reduced sediment loading into the lake
Promote water quality and quantity monitoring	Improved water quality
Intensify water weed monitoring and control	Reduced density of weeds
4 Pollution control and waste management	
Integrated waste management of solid wastes and discharges into the lake	Reduced area of lake experiencing anoxia at any depth
Reduce point sources pollution by strengthening industrial and municipal waste management in urban and industrial centres	Increased tonnage of human and animal waste properly disposed and treated
Promote regulations to reduce and control pollution from mines	
Promote farming methods that reduce use of pesticides, herbicides and fertiliser	

Table 2: Prioritised Strategies: Policy Area 2: Production & Income Generation

Cross-cutting Strategies	*Indicators*
1 Improve Infrastructure	
Enhance & maintain road, water, transport, communication & energy network	Increase in annual investment in infrastructure development (by type)
Mobilise diversified funding & management of infrastructure, i.e. encourage government private sector & community partnerships	
Encourage energy efficiency and use of alternative sources of energy	
Improve safety of navigation	
2 Improve institutional, regulatory framework and capacity	
Encourage efficient and cost effective utilisation of natural resources in the region	Increase in number of paid work positions exceeding poverty rate
Improve marketing systems and inculcate business culture	

Cross-cutting Strategies	*Indicators*
3 HIV / AIDS	
Implement strategy to fight HIV / AIDS impact on production & productivity, as the majority of those affected are productively active members of the society	HIV prevalence in the productive age group AIDS sick/dead in the productive age group
Sector Strategies	*Indicators*
1 Promote exploitation of resources potential	
Promote exploration & exploitation of mineral and other resource potential	Increase in number of new industrial and mining establishments / investments
Use environmentally sound technologies	
Ensure that proceeds trickle back to the region for development	
Encourage ecotourism among locals and foreigners	
2 Improve research and development facilities	
Reduce dependence on seasonal rains	Increase in number of specialists assisting local people & communities (extension services)
Increase soil fertility	
Reduce post-harvest losses	
Introduce more appropriate technologies in farming and fisheries	
3 Improve access to natural resources	
Ensure equal opportunities for all in accessing natural resources	
Support women participation in fishing and mining	Number of women in fishing and mining
Check unfair competition and excesses of middlemen	
Encourage value addition by processing at source	

Table 3: Prioritised Strategies: Policy Area 3: Living Conditions & Quality of Life

Cross-cutting Strategies	*Indicators*
Vulnerability and poverty reduction	
Develop and implement programs to alleviate poverty and increase employment opportunities, inter alia by - integrating environmental issues into poverty reduction interventions - establishing economic policies favouring the informal sector - creating, promoting & strengthening credit provision - designing and implementing low-cost housing programs improving productivity of small-scale farmers / fishermen, and reducing post-harvest losses Minimise vulnerability to rainfall variability by increasing investment in smallholder irrigation, commercialisation of agriculture and livestock and mitigating floods	Increase in number of people with earnings above poverty level Decrease in number of communities without adequate food sources and storage capacity
1 Water supply and sanitation	
Support community participation in planning, construction and management of their water supplies	Increase in number of communities with safe and clean water
Improve safe water supply coverage in rural and urban areas	
Support campaigns to protect water sources from contamination	Increase in number of communities with proper sanitation
Enforce construction and use of sanitation services/facilities	

Cross-cutting Strategies	*Indicators*
2 Health Services	
Strengthen health programs targeting HIV/AIDS - institutionalise testing & counselling - provision of support for affected / infected - strengthen awareness campaigns, sensitisation and capacity building on HIV/AIDS to communities	Increased number of communities with acceptable participation in HIV/AIDS programs Increased number of communities with access to acceptable health care Decrease in infant mortality rate
Strengthen health programs targeting malaria and communicable diseases - education programs on preventative health care - sensitisation & health education campaigns on disease prevention, immunisation - increase access to safe water	Improved nutritional status of households
Develop policies to improve nutritional standards	
Provide affordable & accessible quality health care, facilities and trained staff, especially in rural areas	
3 Education and training	
Rehabilitation and construction of new schools	Increase in number of communities with full education capacity for all young people
Promoting private investments in education	
Promoting vocational training institutions and skills development with particular emphasis on young people	
Promoting adult literacy programs	
Promoting and supporting girl-child education	
4 Infrastructure	
Engage community participation in rural feeder road construction & maintenance	Increase in feeder road network
Promoting private sector investment in provision of telecommunication and internet services	
Promoting alternative sources of energy	

Table 4: Prioritised Strategies for Policy Area 4: Population & Demography

Sector Strategies	*Indicators*
1 Population growth and migration	
Carry out information, education and communication campaigns to sensitise communities and policy makers on the interrelationships between population, environment and sustainable development	Number of communities sensitised Number of programmes carried out
Support family planning and reproductive health schemes	Increase in number of communities with access to family planning services
Integrate population issues in development planning	Number of development plans integrating population issues
Improve economic and employment opportunities and develop entrepreneurial/ vocational skills for rural and fisher folk	Reduced urban in-migration
Address conflicts in Great lakes region	Reduced cases of conflicts Increased no. of refugees going home
Strengthen health programs focussing on communicable diseases including malaria	Reduced prevalence of communicable diseases

Sector Strategies	*Indicators*
2 Change cultural and social behaviours and practises	
Carry out campaigns and initiate programs to sensitise communities on causes & implications of HIV/AIDS & STIs	Number of communities sensitised Number of programs carried out
Initiate & strengthen HIV/AIDS intervention programs targeting transient communities – fishermen & long-distance truck drivers	Number of legislations enacted
Legislate against retrogressive cultural practises & behaviours which promote spread of HIV/AIDS (e.g. wife inheritance, circumcision)	Reduced incidences of retrogressive practises

Table 5: Prioritised Strategies for Policy Area 5: Governance, Institutions & Policies

Sector Strategies	*Indicators*
1 Good governance and human rights	
Establish and strengthen appropriate ant-corruption measures and strengthen procedures and regulations that ensure transparency / openness	Decrease in instances of corruption
Create awareness and promote access to the public on constitutional and human rights and institutionalise respect for human rights	Decrease in cases of human rights violations Increase number of communities with access to legal and civil rights specialists
Strengthen laws on the rights of the child with particular emphasis on orphaned and vulnerable children	
Implement provisions of good governance included in the EAC Treaty	
2 Harmonisation of laws and policies	
Formulate laws that address sustainable development & poverty eradication	
Revise, amend and harmonise existing policies and existing obsolete laws across states, including local authority by-laws	Number of laws harmonised and amended
Promote inter-governmental co-ordination	
3 Institutional framework and devolution	
Develop community programs to promote participation in decision making	
Streamline guidelines for resource mobilisation	Increased number of community development plans meeting (regional) standards
Study and update existing laws in respect of financial decentralisation and resource allocation	
Strengthen local government institutions to actively involve people and promote the participation of youths in development planning	
Strengthen consultation processes with communities in planning	
Awareness campaigns on community resource management and control	
Promote positive social and cultural values towards education and training for the youth for gainful employment	
Promote participation in civil society organisations in decision making related to local development	

Sector Strategies	*Indicators*
Strengthen capacity of existing institutions such as local government, judicial instruments, cultural institutions and communities	
Analyse the situation and develop capacity building programs	
4 Law enforcement and security	
Strengthen the capacity of the Judiciary to administer law and to empower communities to promote justice with fairness and efficiency to protect human rights at local and central level	Increase number of communities with an acceptable level of law enforcement
Formulate and implement security measures on the lakes	
Address cross-border crime, agree and implement anti cattle rustling measures	
5 Conflict resolution and peace building	
Set up institutional framework and mechanisms for conflict resolution and peace building (e.g. co-ordinated patrols, link with Safety of Navigation recommendations)	Increased number of mechanisms established
6 Gender Issues	
Gender equality should be reflected in all development and sector plans	Raised positive awareness of gender roels in the family and community
Re-address lost value systems in relation to gender	
Promote positive gender relations through shared gender roles for sustainable family and community development	Increased gender balance in leadership and decision making
Capacity building through civic education with emphasis on participation in leadership	Increasing number of women in leading positions

Source: taken from:

East African Community Secretariat, 2005. The Vision and Strategy Framework for Management and Development of Lake Victoria Basin, EAC, Arusha, 149pp

ANNEX G: RAINFALL RELIABILITY: COMPARATIVE ANALYSIS OF STATIONS ACROSS THE LAKE VICTORIA BASIN

The main limiting factor to the rural economies of the Lake Basin is the intensity and reliability of the rainy season. Although mean annual rainfall (MAR) would appear to be appreciable over the basin – some 70% of the area would appear to have a MAR in excess of 800mm and some 35% in excess of 1000mm - the erratic nature of the rainy season means that for rainfed farming actual crop yields are far below the figures that would be expected from such reasonable MAR figures.

Soils are also a major limiting factor which commonly makes the problems of the erratic rainfall much worse than they otherwise would be. Soils derived in situ from crystalline basement materials tend to be shallow and rocky and have a low available water holding capacity (AWHC). Colluvial soils are normally much deeper but often have hard-pans which limit penetration of both roots and water. Infiltration rates of the latter soils may be low due to poor structural stability. High-intensity rainfall is thus likely to run-off, rather than to percolate into the soil.

Given basic information on the key soil parameters (soil horizon depths, AWHC values, and infiltration/permeability rates) and also reliable figures on daily rainfall (available for many rainfall stations in the basin) it is possible to apply a soil water balance model to predict percolation, runoff, and soil moisture status on a daily basis over many consecutive years. This builds up a pattern of the duration and reliability of the rainy seasons, and also the amounts of water that could be captured if small earth dams and water harvesting interventions were to be designed to collect the run-off water.

The consultants undertook this exercise for several of the key rainfall stations in the Lake Basin. This work might seem somewhat incidental to a report on Institutions and Management. However, the pattern of rainfall, season by season, is fundamental to what crops can be grown, what levels of inputs and management would be appropriate, and what levels of gross and net profit can be expected. It thus forms an essential basis on which management systems for agriculture, forestry, livestock and related subjects should be designed.

The appended diagrams show Effective Rainfall for Sengerema (SW Mwanza, MAR 1000mm) for the 16-year period 1972-87, and for Tarime (N Mara, MAR 1350mm) for the 14-year period 1981-94. Spirograms show ratios of Actual (ETa) to Potential Evapo-transpiration (ETc) for forest vegetation on a pentade (5-day) basis, 73 pentades making up the entire year.

Analysis has been undertaken by daily rainfall / runoff model (DLYSLWB9.xls) using daily rainfall figures of the two respective stations (Sengerema and Tarime). Evapotranspiration data for SW Mwanza and for Tarime have been taken from the *Water Master Plan for the Mara, Mwanza and West Lake Regions, Final Report*, 1978. Soil physical data (soil horizon depths and available water holding capacities (AWHCs), and permeability / infiltration rates) have been taken from similar soil profiles elsewhere (Swaziland: L and R-set soils – modal moderately deep, well-drained soils derived from weathered crystalline basement materials), pending actual data from LVB soil profiles.

Eleven colours in the spirogram denote amounts of available water remaining in the soil profile with a spectrum running from dark blue (wet) (ETa/ETo=1.0) to bright red (very dry) (ETa/ETo=0). Blue colours in the spirogram denote periods of high availability of water and thus rapid plant growth; green to yellow colours denote a moderate to severe shortage of soil water and hence increasingly retarded growth; orange to red colours denote periods of very severe soil water deficits during which very little or no plant growth would be expected.

For Sengerema, the spirogram shows a severe dry season running from late June to mid-October. In all years the soil profile dries out to less than 10% of available water remaining (and in nearly all years this goes down to below 5% of available water). A short but very erratic secondary dry season also occurs in many years during the period mid-January to March, but the soil very rarely dries out to much beyond 20% of available water holding capacity during this period: in most years the topsoil dries out but significant amounts of water remain in the subsoil.

The main rainy season is from mid-March to early-June but late starts can be expected, with delays occurring until mid-April, and false-starts are also common: delays / false-starts occur in half the years. However, the soil reaches field capacity (i.e. maximum available water content) in nearly all years sometime during this season, and this state is maintained for at least 40-days in more than half of the seasons.

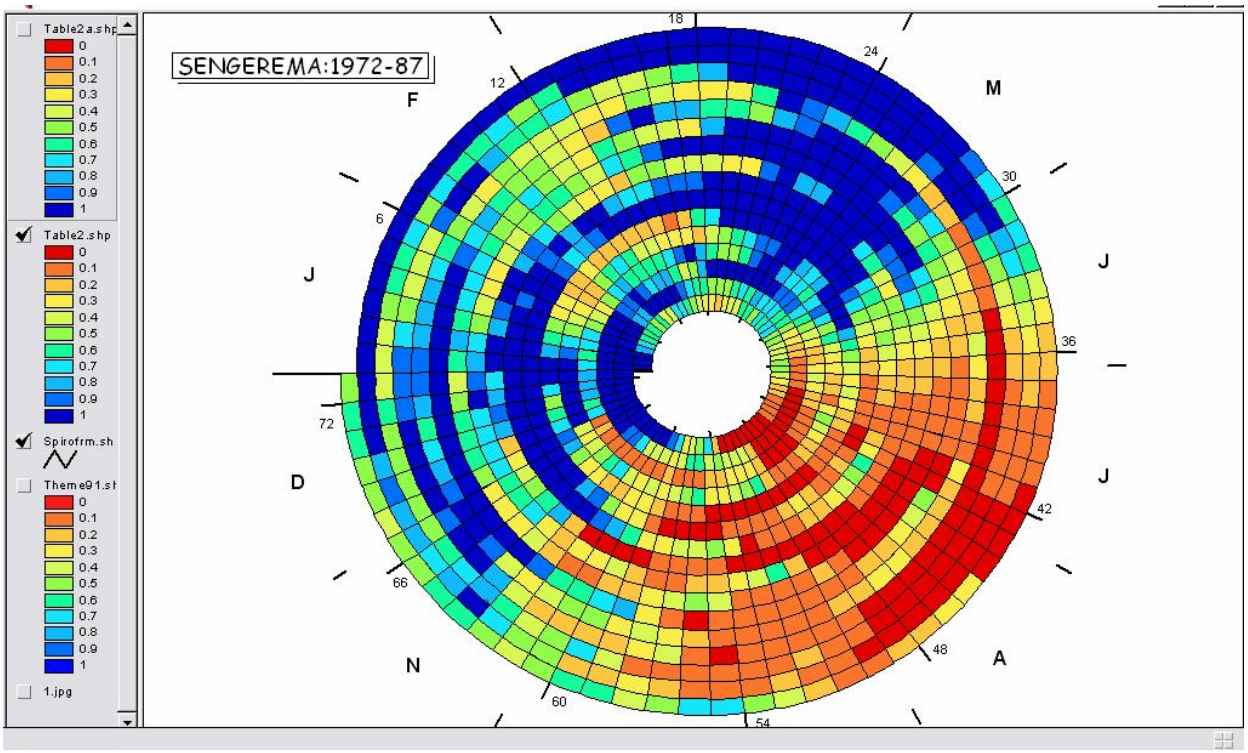
A secondary rainy season (mid-October to end-January) can be expected in most years, although the timing is more erratic and the amount of rainfall much less reliable than for the main rainy season, with the soil not reaching field capacity during this season in more than 1/3 of the years. In a further 1/3 of seasons, however, the short rainy season continues through February and early March, linking up with the main rainy season in April / May.

The practical implications for agricultural and forestry practises in Sengerema are the following:
i. the erratic nature of the short rainy season and the short dry season mean that seasonal rainfed cropping for this period is very unreliable;
ii. however, the main rainy season is fairly reliable (80% of years) at least for a short-season rainfed crop;
iii. any supplementary irrigation would enable the main rainy season to be extended in many years during the critical period of ear-emergence and filling for grain crops: a relatively small amount of irrigation water would probably have a very large affect during this period;
iv. relatively little rain occurs in the main dry season: this long dry season is favourable for boll formation and harvesting of cotton although it is problematic for most perennial crops;
v. for ecologically-adapted forest and other tree species the relatively long growing season in most years (7-8months with ETa / ETc ratios of 0.5 or more for >80% of the time) means that tree growth would be appreciable;
vi. the climate is also quite suitable for rainfed sugarcane, the 5-month main dry season guaranteeing an economic milling season; again a relatively small amount of supplementary irrigation (if available) would give disproportionately large returns.

For Tarime the main dry season is shorter and much less severe than at Sengerema, the soil drying out to below 20% of AWHC in only about 1/5 of seasons. Significant rainy spells within the main dry season occur during 50-60% of seasons. The dry season normally lasts from early July until end-September. The short dry season (sometime within the period late-January to early March) occurs in half the seasons, but the soil profile rarely dries out to below 30% of AWHC.

The main rainy season is much longer and more reliable than at Sengerema, lasting from late-March / early-April to late June. The secondary rainy season again is longer and more intense than at Sengerma, although again onset of these rains is very irregular and (relatively) dry periods within these rains are quite common.

By contrast to Sengerema, Tarime represents an excellent agroclimate for a wide range of perennial (e.g. tea and Arabica coffee) and seasonal crops, with an effective growing season of 9-10months in most years. But again dry periods do occur, and response to supplementary irrigation is likely to be very large in about 50% of the short rainy seasons (mid-October to mid-January).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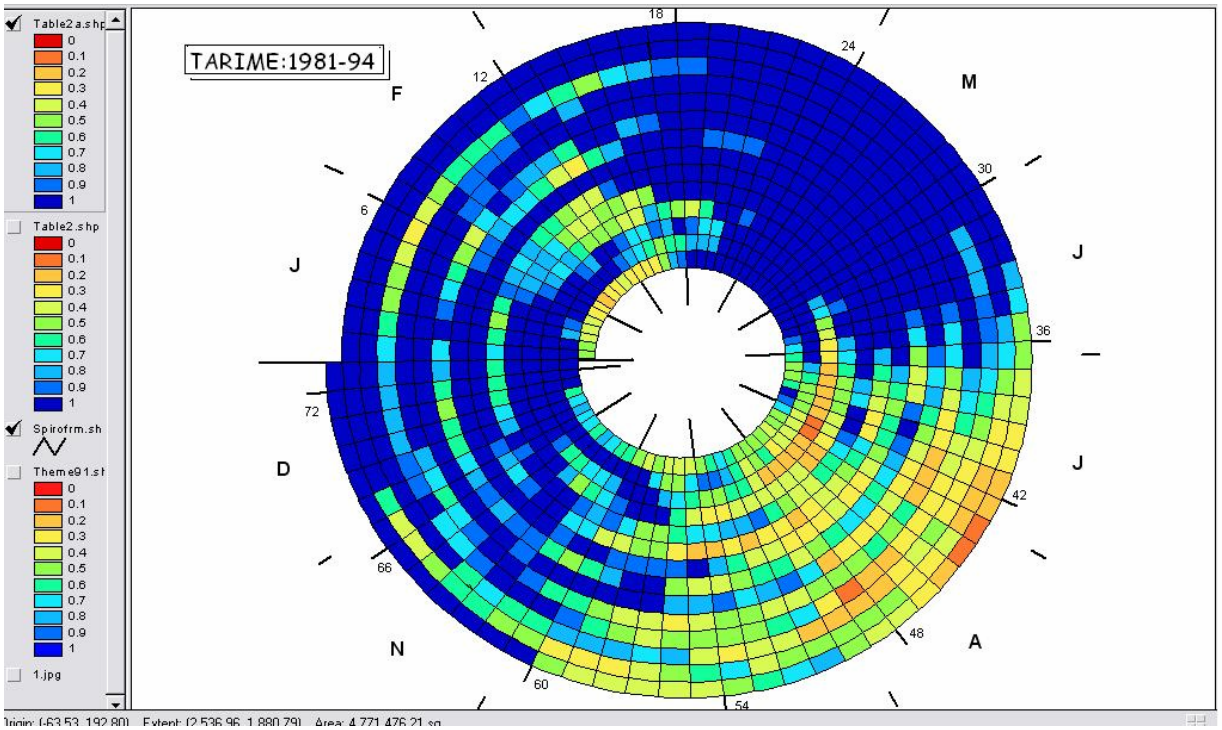
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ANNEX H: COMPARATIVE ANALYSIS OF PROPOSED RURAL LAND USE INTERVENTIONS

LUT 1: Irrigated Wetland Rice (Main Season), and Mung Beans (grown on Residual Soil Water)

This model is based closely on the experiences of the Chirorwe and Cheleche Village Irrigation Schemes in Musoma District in the Mara Region, this being one of the driest areas in the Lake Basin. The experiences of both schemes are very promising: yield levels have increased from expected yields of around 5 70-kg bags of paddy per acre (i.e. 5*70*2.47, i.e. 800kg/ha) to yields on both schemes of around 30 bags per acre (4800kg/ha), with some farmers in some years getting well in excess of the latter yield. Under rainfed conditions even the 5bags/acre are not realised in some years: complete crop failure is not unusual.

In both schemes sizeable earth bunds have been constructed together with reinforced concrete sluices and lined main distributory canals. The cost of work so far completed has been around US$2150/ha. Further work needs to be undertaken on concrete spillways and on bringing a larger area under irrigation command: expected final costs per ha are likely to be in the order of $2500.

Key to the success of this type of scheme is early and thorough consultation among all the villagers and a written and signed agreement involving all stakeholders that they formally agree to a land re-distribution. Some original holdings would be under the bund or the flooded area of the reservoir; others would be just beyond the planned area for irrigation command. The owners of these plots would have to be accommodated in newly-demarcated plots within the command area. However, as agricultural productivity is scheduled to increase by a factor of 6 due to this intervention, even to receive a plot in the command area of half one's original holding would be a very generous exchange.

The two schemes visited are of different type: Cheleche is larger and longer-established and with much greater water availability. However, yields have been somewhat erratic, varying from 15 to 35 bags/are (2400 to 5600kg/ha). Low yields, obtained last year, were due to pests and diseases. This year, an excellent harvest is expected at the same time that rainfed-rice farmers elsewhere are experiencing a disastrous time due to very low and very erratic rainfall.

Chirorwe, by contrast, is really designed only for supplementary irrigation: provision of water at the vital ear-initiation stage for the rice plant. At this sensitive stage, each additional ha.mm of water would produce a much increased yield.

Under the LUT1 model we are assuming that the bund and canal construction is completed between Year 1 (traditional rainfed harvest) and Year 2 (the first irrigated crop). We also assume that yields steadily increase from Year 2 up to Year 6 as farmers gain experience in more intensive agriculture and acquire more confidence in the much higher inputs and levels of management that are required to make the new enterprise fully successful. Use of fertiliser – at least urea – is essential if high yields are to be maintained year after year. Attention will also later have to be given to P and K status of the soil: in this model we have costed for applications of compound fertiliser in Year 4 and beyond.

At Year 5 we have allowed for farmers to begin a second (very short term) crop, mung beans, which are essentially grown on residual soil water. This would also receive a modest application of cow-manure so that fertility levels would not be run-down.

In the model we have assumed that the Year 1 capital costs ($2150/ha) are covered by a loan at commercial interest rates (real rate of 10% after inflation) which translates into annual interest payments of $192/year over the 25years. In spite of this high financial outlay the net return before labour is $1083/ha/yr giving a return per labour-day of $5.18

and an Internal Rate of Return (IRR) of 19.6%. In practise the farmers would not be charged for most of the capital costs (the project or the government would be covering most of these); also the project would be seeking means of reducing the real interest rate on any borrowing to well below 10%, particularly as any IDA credit to Government is effectively interest-free.

The Chirorwe and Cheleche experiences have mostly been very positive but there are a number of issues which need to be addressed in the future in addition to the original land re-allocation issue:

- dealing with the extreme dry year: call for further (temporary) land reallocation. In some years the reservoir may fill to only a small fraction of the maximum storage capacity so that there may be sufficient water only to irrigate half or one-third of the total command area. In some other countries in such a position a further temporary land reallocation is made by the village headman, so that every family in the village receives a very small but equally-sized plot for that season only, irrespective of who the (permanent) land holder might be.

- dealing with fertility problems: with irrigation, it is essential that soil fertility is not allowed to run-down as very large yields (made possible by the irrigation water) mean very large removals of all plant nutrients. With irrigation, there is always a very large interaction between irrigation water and fertiliser nutrient. Provision of short-term credit at a reasonable interest rate for purchase of inputs by the farmer is essential.

-dealing with pests and diseases: the Cheleche experience has already demonstrated that yields can be reduced by half by untreated pest and disease problems. Good agricultural support from the District (or the Project, or privatise extension services) is essential here.

-the question of payment and reimbursement for the capital spent on irrigation. The very favourable IRR (19.6%) means that the smallholder farmer should generate enough cash to pay back the original loan, even if the interest rate were to be as high as 10% (in real terms). At the moment the farmer pays only a very minor proportion of the total costs which means that he is being unduly favoured by both the Tanzanian tax-payer and the international donor community. The apparent involvement of outsiders in acquisition of land in these schemes also brings up questions of fairness and transparency and legal status of the various stakeholders in the scheme. Experience in other countries with similar smallholder schemes brings up the following norms and conditions:

- the scheme should only go ahead if a watershed management plan for the entire subcatchment area is drawn up and agreed to by all parties (this will seek to promote afforestation and cut down on seasonal cultivation in the upper catchment area, minimise siltation and prolong the useful life of the reservoir);

- likewise the scheme should only go ahead if all parties sign a written agreement on equitable land reallocation in the catchment area, and most notably in the planned irrigation areas;

- holding size: one acre (0.4 ha) per family would be the area allocated on concessionary terms; individuals holding larger parcels would be able to do so, but would pay the full commercial cost for irrigation provision for this additional area.

- concessionary terms would include membership of the extended water user group (WUG), full contribution to the schemes O&M costs, and payment of one-third of the cost of construction in cash or kind (labour, provision of materials)

- the extent of Project/Government cost would thus be two-thirds of 0.4ha times $2150/ha – i.e.$574 per smallholder family.

LUT2: 1- Ha Robusta Coffee (Bokoba) Model

This model is based closely on the 9-ha farm being run by Mr Dedan Sombe just outside Bokoba town. This area benefits from the best agro-climate in the Lake Region, having bi-modal rainfall distribution totalling almost 2000mm/year and only 2 months per year when mean monthly rainfall is under 50mm/month. Soils are moderately deep sandy loams but with somewhat heavier-textured B-horizons and with hard pans commonly found between 50cm and 120cm depth. The farm also benefits from a plentiful supply of cow-manure (residue material from the biogas plant) and also mulching material (dried grass and weeds). Although available free of charge at the farm they have been costed at market prices in this model.

The coffee is in pure stand (planted at a 3*3m spacing giving some 1000 bushes/ha) but under a higher shade canopy of Grevillea robusta (Australian 'silky oak') planted at a 11*11m spacing (100trees/ha). Planting holes are 2*2*2feet (65cm cube) and at planting are backfilled with a mixture of topsoil and cow-manure (at c.30kg/hole). The coffee receives generous applications of cow-manure twice-yearly throughout its life, and this is vital to maintain yields and minimise yield decline which would occur after Year8. Also applied are generous applications of mulching material which minimise evaporation losses from the soil surface, increase infiltration rates, decrease surface soil temperature, and generally make for a more favourable root environment in the top 10cm of the soil profile.

The coffee begins to bear towards the end of Year2, but maximum yields are obtained only between Years 4 and 8. Annual pruning is necessary to maintain leaf form and canopy. With generous manuring and mulching, plus other aspects of good management, yields of between 5 and 6 kg dried beans / bush have been obtained during the peak years on the model farm. Average peak yields of 4.5kg / bush however, have been used in this spreadsheet as they are considered to be more realistic given constraints of climate, soil and management in the area. After Year 8 there is a decline in yield, the decline being as much as 1kg / bush / year under normal farm conditions. However, with the model farm yield declines have been kept to only a small fraction of this given all aspects of good field management. In this spreadsheet yields are expected to decline from 4 to 2kg / bush / year between Year 9 and Year 15 (i.e. average of 3kg / bush over this 7-year period) after which time the bushes are uprooted and the Grevillea timber and firewood is harvested.

Some applications of artificial fertilisers are included in the spreadsheet analysis, in spite of very high fertilise prices charged in this area (due to high transport costs and limited demand). The model farm is using modest additional urea-N: the spreadsheet includes both N and K fertilisers, K being essential to maintain yields in coffee as in other treecrops.

Variations on this model include greater densities of Grevillea (producing less coffee, more timber and firewood, and requiring less labour), and intercropping with bananas or plantains, particularly in the first 4 years during which time the Grevillea produces little shade for the coffee.

LUT3: 1- Ha *Eucalyptus saligna* Model

This model would apply to average to good soil conditions where rootable soil depth would be in the range 80-120cm. The topographical site would be the upper part of the concave colluvial footslope (the lower parts of the slope, blow these sites, being reserved for agricultural uses). The site would just qualify for Class I forestry land. Mean annual rainfall would be around 900mm (bimodal distribution) and elevation around 1200m: this land being fairly typical for large areas of the Lake Basin.

With a deep aggressive root system and pronounced phreatophytic tendencies *E.saligna* is not recommended for planting near wetlands and water bodies as it would rapidly lower water tables. Tree growth in such locations would be very good, however, and it is arguable that economic returns would be higher with Eucalyptus than with competing annual crops grown under very uncertain rainfed conditions.

Eucalyptus seedlings would be planted on a 2.5*2.5m spacing at approximately 1600 seedlings per hectare. Expected survival rate would be 75% after 18months (i.e. 1200 seedlings surviving by the end of the second rainy season. Planting would be undertaken within annual crops which would then be harvested at the end of the first rainy season, (minimising problems of weed control). In the second and third years spot-weeding operations would be carried out twice per year. This would serve both to suppress the weeds and also to provide a mulching material for the young trees. In cases where the land is very degraded and soil fertility a major limitation application of 100g urea per seedling (or alternatively 3kg dried and well-rotted cow manure) would be justified at the time of planting followed by a second application at the start of the next rainy season.

Thinning would be undertaken after 7 years, some 650 poles of mean dbh=10cm and mean H=7m, value US$0.70 each being removed. After Year 15 a further thinning would be undertaken, removing 210 poles of mean dbh=17cm and mean H=12m, value $5 each, together with a further 5cu m of firewood, value $6.4/cu m. After Year 25 the plantation would be clear-felled, the final 400 trees having a mean dbh=37cm, mean H=23m and value=$50. In addition some 70cu m of firewood would also be produced.

Economic and financial yields and rates of return of this model are very good. Even if the initial costs have to be covered by borrowed money and the real interest rates on such borrowing were to be as high as 10%, returns would still be good and very much better than for rainfed crops grown under the same conditions. Returns per labour day are excellent. The only problem is that land is tied up for 25years before giving any appreciable return, the returns after 15 years being modest and after 7years being very modest.

ANNEX I: PROPOSED LOGFRAME: LVEMP-2 PROJECT

		Intervention Logic	Objectively Verifiable Indicators (OVI)	Source of Verification	Assumption
Overall Objective		Quality of life for all communities within the Lake Victoria Basin improved, reducing the environmental & economic pressures on the Lake and the near-Lake ecosystems	1.- At least two environmental approaches or policy aspects of the project are repeated by villagers, other donor funded projects, or GoT; positive publicity is achieved worldwide	Project quarterly reports, other projects' documents and GoT plans. International scientific / environmental press.	
Purpose		Poverty reduced by one third in the target villages and urban communities through 4 key development strategies whilst conserving the lake and surrounding ecosystems	2.- Number of targeted people considered to be below the poverty line reduced by one-third by the end of the 5-year project period.	Project survey (impact study)	Project approach and activities are supported and encouraged, and project results are promoted at national & regional levels by GoT, donors & their local coordination offices. Further large inward migration into LVB from other areas in Tanzania & outside is curtailed. Major climatic or economic shocks are avoided
Results	1	Primary food security obtained	3.- 80% of the target communities experience >20% increase in basic food supply; 4.- The number of families in target communities benefiting from irrigation and water harvesting interventions, increases by one third.	Project surveys (impact study). Socio-economic statistic data and summary report from district planning offices.	Village groups accept changes in some of their traditional practises in order to adopt development processes more in tune with economic development and environmental conservation. (Health problems are largely tackled through other projects or programs.) (Primary education system is largely supported by other projects or institutions.)
	2	Net incomes from farm and non-farm activities increased	5.- Mean earnings per person per month in targeted communities increased by >20% in real terms over project period.	Project surveys (impact study). Socio-economic statistic data and summary reports from district planning offices.	

	3	Catchment Forests conserved: natural forest areas protected, woodlots and other forest plantations extended	6.- Area of natural forest protected by village development plans and agreements doubled by end of project. 7.- At least half of target population benefits from own – plots and / or village woodlots established by the project 8.- PLUPLA (Participatory Land Use Planning & Land Allocation) undertaken in all target villages and >80% of plans followed in >80% of them.	Project annual reports and project study cases. Satellite Imagery verficiation. Reports from conservation unit. PLUPLA reports (including GPS mapping) and impact assessment reports.	
	4	Lake environment and near-lake areas (incl. wetlands) conserved, and linked economic incentives provided to adjacent communities	9. 90% of lake beaches and 90% of 30m-wide vegetated reserve areas maintained in pristine state. 10. 95% of wetland areas (as of 2006) conserved by end of project 11. Village water supply in lake-fringe villages improved for 90% of villages and sufficient supplies made available for small irrigated vegetable plots suitably sited.		
	5	Urban lake environment improved, and linked economic incentives provided to adjacent communities	12. Clean-up plans formulated & approved for 80% of major urban polluters; 13. Clean-up and beautification of 80% of urban lake shore fringe 14. Structure plans formulated for urban & peri-urban areas catering for planned expansion.		

	6	Improved capability of village (& neighbourhood urban) institutions, CBOs, and NGOs to promote and support village (& neighbourhood urban) development, and to other activities enhancing the environmental status of the Lake and the near-Lake areas.	15.- At least 65 % of the planned activities of the VDP (village development plans) completed by end of Project Ph1 (5years) in all target villages. 16.- >65% of village development committees able to plan, execute and supervise appropriate micro-projects within their village communities. 17 - >50% of village development committees able to plan, execute and supervise catchment-level microprojects together with adjacent villages within catchment 18- >50% of executed microprojects and other activities deemed to be an economic and / or environmental success by end of project	Monthly reports from district collaborators teams Villagers' interviews	
	7	Improved capability and infrastructure of the LVB, the National, Regional and the District Administrations to support village (and neighbourhood urban) development, integrated watershed & environmental management interventions, and to other activities enhancing the environmental status of the Lake and the near-Lake areas	19.- >65 % of project supported activities are implemented by Districts and Regions through MOU or service contracts by last year of project. 20. >65% of Districts able to give comprehensive services in community sensitisation and consultation, rural land use planning, irrigation & water harvesting, rural roads & water supply, improved agronomic and livestock techniques, forestry, & support to BMUs 21.- LVB able to assume full duties of monitoring, evaluation, reporting, advisory, educational, publicity and international liaison roles by end of project .	List of MOU/service contracts Completion reports done by Regional or District offices. Annual and 6-monthly status reports of the LVB	

	Intervention Logic		Costs (in US$) – 2007-12 (5years)	Assumption
Activities	1.1	Improved water-harvesting & other soil & water conservation techniques;	International contribution: (may be met by IDA credit, & grant funding from GEF, UNDP, FAO, & EU & other bilateral donors) *Direct cost* — 000' US$ ▪ Studies: 950 ▪ Training: 1,450 ▪ Works: 29,000 ▪ Credit: 3,000 ▪ Local TA: 950 *Indirect cost* ▪ Training / staff develmt ▪ Equipment: ▪ Consumables: ▪ Works (project devmt.) ▪ Information: ▪ Local personnel: ▪ PEU: GoT contribution: (may be 10% of total) Personnel cost: (in kind – Salaries) (in cash – Perdiems) Works: (in kind) Other costs: (in kind – office, housing, etc) LocalStakeholder contribtn: (may be 10% of total, or 15% of local works budget) Personnel cost: (in kind – voluntary time) (in cash – membership fees) Works:(in kind) Other costs: (in kind – offices, local housing, land)	Reallocation of land parcels is made in an equitable way in the beneficiary villages; Further reallocation is made in very dry seasons where water supply has to be restricted to ½ or 1/3 of originally-served irrigation areas; Credit is made available at reasonable interest rates to finance villagers' share of capital & O&M costs and of the necessary fertiliser & other inputs Fertiliser supplies are secured at reasonable cost, transport bottlenecks overcome, and efficient distribution is effected Sufficient sensitisation and consultation with villagers takes place v.early in project; Model farms and demonstration plots are visited
	1.2	Small-scale irrigation development (small earth dams, weirs and water diversions, supplementary irrigation & associated techniques)		
	1.3	Promotion of improved crop varieties (sweet potatoes, cassava, grain legumes, coarse grains etc)		
	1.4	Promotion of improved soil fertility (agroforestry techniques, manure, compost, modest fertiliser-N use etc.)		
	1.5	Promotion & use of compost & mulch from nutrient-stripping lake-fringe tree-belt		
	1.6	Establishment of grain banks in the poorest villages		
	1.7	Promotion of irrigation of small vegetable plots in lake-side villages (extension of village water supply schemes)		
	2.1	Promote new farming methods (general support over entire LVB)		The national and regional commercial regulations continue to encourage stable and acceptable prices for farming and agro-forestry products. Transport links with the outside world continue to improve.
	2.2	Promote new livestock raising practices, notably improved feeding/fattening regimes for cattle, goats, chickens etc		
	2.3	Promote an efficient village veterinarian workers network: improved veterinary care.		
	2.4	Promote agro-forestry cultivation (new varieties and farming methods)		
	2.5	Promote agro-processing, quality control & marketing		
	2.6	Promote bee-keeping (forest and non-forest areas)		

	3.1	Promote sustainable forest management in remaining natural forest areas: JFM with nearby villages	Technical Assistance: (costs met entirely from international grant funding & positions tendered internationally) Senior LT-TAs: p/m (5yrs) ▪ CTA/TL: 50 ▪ Community participatn 48 ▪ Irrigation engineer 48 ▪ Land Use Planning / Environment / Water-shed Management 48 ▪ Developmt agronomist 48 ▪ Fisheries & freshwater ecology 48 ▪ Forestry 48 Senior ST- TAs: ▪ (various disciplines) 50	Undue pressures are not put on villagers by outside interests (eg pressure by timber interests, charcoal merchants, land developers); Pests, diseases and fire hazards do not become appreciably more problematic. Dry seasons do not become appreciably longer and more intense.
	3.2	Promote village nursery development for timber, fuelwood, fodder, fruit & ornamental species		
	3.3	Promote timber & fuelwood plantations with villagers		
	3.4	Facilitate Participatory Land Use Planning & Land Allocation in each village within defined catchment areas (PLUPLA)		
	3.5	Promote environmental education & studies at local school, village community, regional and international levels.		
	3.6	Promote ecotourism activities.		
	4.1	Promote sensitisation and environmental educational programmes for lakeside villages: action programmes for beaches.		Relations between villagers and Project do not become strained due to other reasons (eg too ridgid enforcement of fishing regulations on poverty-stricken fishing communities). Any further falls in lake level do not further dry out wetland areas. Organisational ability of villagers is sufficient to cover O&M costs (eg for diesel pumping)
	4.2	Promote 30-m wide nutrient-stripping lake-fringe tree-belt.		
	4.3	Promote wetland-conservation programmes.		
	4.4	Facilitate village water supply schemes, with further provision for v. small scale irrigated vegetable plots & nurseries.		
	4.5	Continue water hyacinth control trials and routine activities		
	5.1	Target industrial and other urban polluters		Matters are treated sensitively and over a sensible time-frame so that wholescale closure of marginally-profitable businesses do not occur.
	5.2	Promote beautification & clean-up of lake shore in urban & periurban areas		
	5.3	Promote rational structure planning for future urban / periurban expansion: mechanisms for fair compensation and revenue-earning for municipal government.		

	6.1	Train, organise and support village institutions in participatory appraisal, planning and development activities.		District and regional offices support the Project community development approach making the required technical and admin staff available. A sufficient proportion of the villagers are motivated for self-help development processes, and a strong community spirit can be fostered. Changes in project policy (eg at the mid-term review stage) do not curtail potentially successful programmes (as they did in some cases in LVEMP-1) Powerful outside interests do not exploit the villagers (eg when successful and profitable irrigation schemes and forest plantations are realised). Political interests do not exploit any good / bad experiences of the project for their own ends.
	6.2	Train, organise and support clusters of adjacent villages in drawing up watershed management plans and water user associations for rational water and land use management of small catchment areas (5-100sq km)		
	6.3	Promote and support village banks facilitating access to short-medium term loans at reasonable real interest rates		
	6.4	Extend the village bank concept to full savings & loan facilities		
	6.5	Assist the villagers in building safe water supply systems		
	6.6	Assist the villagers in building agricultural feeder roads from current road networks to the village.		
	6.7	Further promote micro-project planning and management at village level.		
	7.1	Strengthen capacity of District (& Regional) technical staff to support village development activities.		All district offices are motivated to take over the responsibility of the Project implementation and make the required staff available Staff of such offices are willing to think holistically and cross discipline boundaries. Staff become output-oriented (and not procedure oriented) Donor Agencies and contacts in National Ministries show some flexibility in approaches and in cutting red-tape (eg to streamline reporting and tendering requirements, minimise tendering delays, and to replenish funds in a timely manner). Reasonable incentives are made available to local government staff in reward for due services rendered.
	7.2	Strengthen the capacity of district and regional planning offices to identify, plan and co-ordinate development activities.		
	7.3	Strengthen environmental and land use planning and integrated watershed management capabilities at district, regional, national, and EAC-LVB levels		
	7.4	Strengthen data collection, processing, monitoring and information dissemination role of the Secretariat / LVB Water Office; and also the EAC-LVB.		

ANNEX J: CONSULTANCY TERMS OF REFERENCE

TERMS OF REFERENCE (TOR) FOR THE CONSULTANCY ON PREPARATION OF NATIONAL / REGIONAL MANAGEMENTFRAMEWORK: INSTITUTIONAL COMPONENT

1.0 BACKGROUND

Lake Victoria is Africa's largest and the world's second largest freshwater lake. It is one of the most important shared natural resources of Eastern Africa. It straddles across the common boarders of the three East African Community Partner States of Kenya, Tanzania and Uganda, and features the world's largest freshwater fishery with significant local consumption and exports, in particular to the European Union, and it is a global centre of aquatic biodiversity. The Lake and its catchment form a Basin that is valued for its socio-economic potential in addition to its immense ecological values. The economic potential of the catchment is based on the rich agricultural soils, abundant rainfall, and significant minerals deposits, among others. The Lake, on the other hand, is one of the unifying factors for the three Partner States in addition to having a critical importance to the region's society and economy as a source of food, potable water, transportation, agricultural water, power production and tourism.

The lakeshore populations are the most rapidly growing geographic sectors in countries that have among the highest population growth rates in the world. The lake, the lakeshore and the lake basin are obvious engines of economic growth in countries where poverty alleviation of high priority.

The lake has experienced a decline in water quality since the 1960's. Phosphorus concentrations and algal biomasses have increased significantly, and filamentous and colonial blue-green algae now dominate the algal community. Water hyacinth invaded the lake, and in the mid- to late 1990s reduced the efficiency of operation of the Owen Falls hydroelectric plant and blocked access to ports, fish landings and watering points. The water quality changes favoured the success of the Nile perch and contributed to the reduction of endemic fish species.

Joint management of the Lake Victoria and its Basin as a shared ecosystem gained momentum following conclusion of the Rio Earth Summit in 1992. The Lake Victoria Environmental Management Project (LVEMP) was prepared and implemented from 1994 as part of this initiative. In 2001 the Lake Victoria Development Programme (LVDP) at the EAC Secretariat and more recently the development of a Protocol for sustainable management of Lake Victoria Basin which provides both for the detailed legal framework and a Lake Victoria Commission as a body for the regional management of the entire basin.

LVEMP-1 and other bilateral efforts, have developed significant knowledge and technical capacity in the national agencies to enable assessment of the environmental stresses confronting the lake and its catchment. Additional research on key issues is needed, on the basis of which one can prioritize actions and set objectives for management of the lake and its resources. This should be done in a participatory manner in which local community interests and concerns are appropriately reflected. In many cases final objective setting will require agreement of the other riparian states and the endorsement by EAC via its Secretariat. The successful setting of objectives for water quality management requires a broad vision of what the riparian peoples desire for Lake Victoria in the future. This will require blending individual sector knowledge and visions for their resource with the more general and integrative interests of the communities that enjoy and require beneficial uses of the lake and its tributary waters.

Implementation of the LVEMP-1 has resulted in improved ability in the riparian States to embark on a long-term programme of resource management and environmental improvement (such as capacity building). Some of the achievements of LVEMP include: establishing and supporting fisheries "co-management units" with local fishing beach communities in over 800 sites around Lake Victoria; Obtaining an estimated 80-90 percent reduction in surface coverage of water hyacinth in the Lake through central and village-level biological agent rearing and mechanical/manual means, thus reducing water hyacinth to non-nuisance levels except in some hotspots including inflow from the Kagera river; Undertaking a "whole Lake" fishing pressure survey; Undertaking a harmonized "whole Lake" water quality/limnology survey; Undertaking three multi-sectoral management pilots (one in each country) of important micro-catchments in the Lake Victoria Basin. These involved the soil conservation, catchment afforestation, wetlands management, micro-projects, and water quality components of the project working together to improve river/Lake water quality; and assisting the three governments to meet European Union requirements to improve beach sanitation and export certification of fish shipped to European Markets.

As a result of the establishment of East African Community and subsequent materialization of an East African Development Strategy (2001-2005) designated LVB as a regional economic growth zone. The identification of Lake Victoria Environmental Management Project phase two (LVEMP-2) was done through a process involving review of performance of Lake Victoria Environmental Management Project phase one and development of a Vision and Strategy Framework for management and development of Lake Victoria Basin. The above processes culminated into a Regional Stakeholders Concept Workshop, which identified the priority areas of focus for LVEMP-2 as. Socio-economic Development, Management and Research. The next step is to develop intervention that uses the information and capacity developed to promote environmentally and socially sustainable economic development.

The management programme will strengthen the capacity for management of the shared Lake Victoria Basin resources with a view to enhancing sustainable utilization of natural resources by building capacity at the Lake Victoria Basin Commission (LVBC), and at national and local authorities. The management agenda will promote an environmentally friendly market driven growth strategy approach by engaging the private and public sector. The management agenda will include the development of an effective data gathering and monitoring framework including a communication strategy.

2 OBJECTIVE OF THE CONSULTANCY

The objective is to assist the EAC to design the LVEMP-2 based on empirical findings and results learned from LVEMP-I and other intervention so as to improve and achieve sustainable management and shared utilization of natural resources in the LVB.

2.1 Specific Objectives

The consultancy aims at achieving the following specific objectives:

i) Develop Policy, legal and institutional framework for sustainable natural resources management;

ii) Design a strategy for strengthening capacity of local communities, NGOs, CBOs and other institutions on management and utilization of the shared Lake Victoria Basin resources;

iii) Develop a strategy for promoting environmentally friendly economic growth by engaging the private and public sector.

3 SPECIFIC TASKS / ACTIVITIES

i) Review existing policies regulation, laws and regulations on natural resources management and propose appropriate harmonisation.

ii) Assess the status, management structures and funding of the local community organizations in the Lake Basin and propose ways of involvement of these organizations in the wider management of the basin.

iii) Review the current systems of funding management mechanisms in the Lake Basin such as the Fish Levy Trust Fund Study, water undertakers, etc and propose methods of improvement.

iv) Review the existing National and Regional Management structures and identify strengths, weaknesses and gaps including an analysis of the institutional structure defined in the Lake Victoria Basin Protocol and propose an efficient National Management Structure for sustainable management of Lake Victoria Basin resources.

v) Propose and develop institutional mechanisms for conflict resolution and peace building e.g. coordinated patrols, link with Safety of Navigation recommendations in development and utilization of basin resources.

vi) Propose a plan to implement the strategies for involvement of local communities in natural resources management as provided in the Vision and Strategy Framework for Management and Development of Lake Victoria Basin.

vii) The Consultant will collaborate closely with the National Secretariat and liaise with consultants from other partner states to consolidate the National Reports into a Regional Report lead by Kenya as lead Consultant. The lead Consultant from Kenya would present the draft Report to the Regional Stakeholders' workshop coordinated by EAC Secretariat.

viii) Collate the information from other national consultancies and present the Report to National Workshops. The Consultant should participate in the Regional stakeholders' workshop coordinated by EAC Secretariat to create consensus on the Report at the regional level.

ix) Propose possible support areas within the Lake Victoria Basin Commission that would require strengthening during the project implementation phase.

x) Propose management plan to address key National and Regional issues with emphasis on:

a. Sustainable fisheries

b. Integrated water resources management

c. Land use and natural resources management

d. Integrated waste management (municipal and industrial waste)

e. Clean water and safe water and sanitation

f. Organize National and Regional stakeholders' workshops to create consensus.

xi) Prepare a final Report document for this component and which should include a clear logical framework and detailed budget.

4.0 METHODOLOGY

The tasks will be carried out in close collaboration with the client. The consultancy will be done in two stages: an inception phase and the main stage.

During the inception stage, the consultant will:

i) Carry out a preliminary assessment of available data by doing desk reviews on existing empirical and situational literature and case studies.

ii) Carry out preliminary field visits to key stakeholders, projects and programmes relevant to the assignment;

iii) Produce an inception report.

The purpose of the inception report will be threefold:

i) To test the understanding of the terms of reference by the consultant;

ii) To state clearly how the consultancy will be carried out, in terms of both the methodology and timelines, as well as the anticipated limitations/constraints;

iii) To state the progress which will have been made and problems/challenges if any.

During the main stage (following clearance of the inception report through a workshop/meeting) the consultant will:

i) Use appropriate approaches for the study, including baseline surveys, focus group discussions, stakeholders' workshops, data collection, coding, analysis and interpretation of the key findings. This will include reviews to analyse all available data in LVEMP, stakeholders and other sources

ii) Establish the cause-effect relationships underlying identified problems;

iii) Identify long-term measures to address the problems;

iv) Produce the Draft Final Report.

The consultant will collaborate closely with the National Secretariat and liaise with consultants from the other partner states to consolidate the National Reports into a Regional Report lead by Kenya.

5.0 WORK PLAN

The consultant shall prepare appropriate timelines/framework outlining detailed schedule of activities.

6.0 OUTPUTS AND DELIVERABLES

The outputs shall be:

i) Inception report
ii) Draft final report
iii) Final report

The draft final and final reports shall be done using the logical framework approach with components well defined in terms of objectives, outputs, impacts (outcomes), activities, indicators and costs as an input to the final project design and recommendations on the way forward as an input to the final project design.

The final report will be submitted in both hard and soft copies.

7.0 DURATION OF ASSIGNMENT

The whole exercise shall be executed with in a period of six months.

8.0 QUALIFICATIONS AND EXPERIENCE REQUIRED FOR THE CONSULTANCY

The experts in the team should have a minimum of a Masters Degree with experience of five (5) years in any of the following areas:

i) Environment
ii) Natural Resource Management
iii) Law
iv) Business Administration / Management
v) Policy Analysis

At least three (3) experts from different areas above will be required for the assignment. The lead consultant should have demonstrable experience of not less than ten (10) years preferably in institutional/organizational development.

A reasonable mix of expertise above will be desirable while experience in strategic planning will be an added advantage.

The report to be submitted in both electronic and hard copy MUST be written in the English language

ANNEX K: COMMENTS ON DRAFT MID-TERM REPORT

Comments from reviewer: (note page numbering is 2 pages less than for hard-copy version of report):

COMMENTS ON MID-TERM REPORT FOR THE PREPARATION OF NATIONAL/REGIONAL MANAGEMENT FRAMEWORK: INSTITUTIONAL COMPONENT FOR THE LAKE VICTORIA BASIN

GENERAL COMMENTS

The TOR have not adequately been addressed.
Conclusions and findings are very general/ vague not supported by analysis found in the report.
Several regional agreements and protocols have not been addresses.
Some important national legal instruments have not been identified e.g. the Treaty for the Establishment of the East Africa African Community Act No. 4 of 2001 which is the legal basis for the LVEMP II.
None of the national laws have been analyzed save for EMA.
No options have been given for the institutional framework/ structures with their strengths and weakness to enable decision making.
Recommendation for institutional options should make reference to the ministries responsible for water, agriculture etc rather than the Ministry of Water, Agriculture or Environment to allow for re-arrangement of government departments without compromising the relevancy of the report. Ministries change names but responsibilities/mandates do not.
The body of law in Tanzania includes customary and case law. The report should expressly define what body of law is addressed by the report.
Recommendations on legal/regulatory reforms are not supported by sufficient analysis on the gaps found in the existing body of law.
Since no regional framework is going to be looked into, the title of the report should be changed accordingly to confine itself to national framework.

SPECIFIC COMMENTS

p28: How much land is available to ensure food security considering the issues such as population growth
p. 28: There is no mention of land use policy/plans for the LVB.
p. 30 para 3: Uniformity of purpose: The whole purpose of enacting the Environmental Management Act of 2004 was inter alia to ensure uniformity of purpose across all sectors impacting on the environment/natural resources following the adoption of NEP. The prevailing policy environment has therefore to be looked into from the legal instrument that implements NEP. Perhaps the report could distinguish theory (written policy documents) from the practice (what is actually happening on the ground) to make the argument solid.
p30: para 5: The whole issue of conserving forests has to be analyzed in the context of the current energy crisis that is facing the country. So long as electricity continues to be unaffordable, most people (including decision-makers, regulators, law-enforcers and conservationists) will resort to charcoal and thus the continues depletion of the forest cover unless other sources of energy are found and are cheaper.
p.30 para 5: How should policies be coordinated?
p 30 para 1: Policies need not make express reference to the LVB or any other areas as such. Their relevancy should be deduced from the articulation of the identified problems that needs intervention/ strategies/ action plan.
p. 32 Item 4.2.4 (i): How do we define strategic wetlands from non-strategic ones?
p. 32 Item 4.2.4 (iv): What are these “other priority livelihoods activities”?
p. 32 Item 4.2.4 (vii): What are the areas of conflict between the policies identified?
p. 33 Item 4.4: Analysis of institutional cannot be deduced from policies only since these are not legally binding instruments. Institutional are creatures of legal instruments and should be examined by looking into the legal instruments that creates them. This section is misplaced here. There is another analysis of institutions from p. 37. What is the connection between these two? The Logical flow of issue is compromised.

The report is silent on issues of enforcement and compliance.
p. 34 para 2: What sort of coordination capacity is lacking in the Ministry of Water? How would this problem be resolved? What would be the implication for the project? Are there other institutions with better coordination capacity for LVEMP II?
p. 34 para 2: The NEMC is no longer a primarily advisory body. Its core mandate is to ensure compliance and enforcement. The EMA establishes an advisory body.
p. 35 para 4: There are international, national, regional and local NGOs/CBO. How should LVEMP II work with them?
p.36. Item on Institutional: What sort of effort will be needed? How would this be achieved?
p. 37 Item 5.2: Not a single regulation has been identified nor analyzed and so the heading is misleading.

Comments from Dr Raymond Mngodo:

Institutional Framework

- ToR (ii) does not come out clearly. The consultant should prioritise the areas to strengthen local communities
- There is a need to mention the rural lake side communities living in the islands
- Figures on % of lake is not correct, Tanzania is 51%, Uganda 43% and Kenya 6%
- ToR (iii) not adequately covered.
- Achievement in LVEMP I should show what is the impact on communities.
- Institutional analysis seems to be misplaced as it should be in chapter 5
- The gaps and strength of institutions has not been clearly shown
- Coordination mechanism for policies is not shown
- Recommendations do not specifically relate to lake Victoria as a basin.

Resolution:
It was observed that most of ToRs have not been adequately addressed. The consultant should carry out the consultancy basing on the ToRs and reviewers comments and re-submit it to the stakeholders workshop.

ANNEX L: AGRICULTURAL SECTOR PLANNING & INTERVENTIONS

a) Improved Agricultural & Forestry Smallholder Sector

Compared to similar physical environments elsewhere in the sub-humid to semi-arid tropics the LVB is producing very much less than its potential. Agricultural, forestry and livestock productivity in terms of:

- gross returns per hectare per year, or in terms of
- returns per labour day, or in terms of
- gross returns per cubic metre of water consumed

are all extremely low. Declining and degrading subsistence agriculture in which fertility is being mined is the norm, and more productive systems appear to make up only a tiny percentage of the total area.

The consultants looked at four alternative crops/land use systems which were an order of magnitude more productive and were currently being pursued in the basin, albeit in most cases on a fairly small scale. All of these are very site-specific, and all have a high requirement for agronomic management and for both initial capital investment and annual working capital. However, all models demonstrate what can be achieved if these requirements are met. Table L.1 summarises the main parameters from three of the four models, and all three of these operated on a smallholder basis.

Table L.1. Smallholder Land Use / Crop Models: High Productivity Management

LandUse / Crop	Site Specificity	Initial Capital	Annual Input Costs	Net Return/ labour-day	Net Return	IRR	Achievement of 80% of Mean Net Return by year:
		($/ha)	($/ha/yr)	($/day)	($/ha/yr)	(%)	
LUT1:IrrigatdPaddy / Mung beans	Possibilities for small earth dam irrigation	2150	295	5.20	1083	19.6	5
LUT2:Robusta Rainfed Coffee	Small agro-ecol zone nr Bukoba &in Tarime	1750	431	4.35	1072	32.1	4
LUT3: *E.saligna* Timber/Firewood	Deeper soils; any hard pans at >60cm depth	1000	37	16.00	384	15.4	15

Details of these models are given in Annex H together with the interactive spreadsheets on which the models were based. All of these models are based on real examples viewed in the respective field areas. In all three areas there is further evidence that the economic performance can be exceeded given application of further technical expertise. In addition, the model is run on the conservative assumption that the initial capital requirement will have to be borrowed at a real interest rate of 10% p.a. (a considerably higher rate than that which would apply in an IDA agricultural credit project, for example).

The problem with all three of the above models are that they are not conducive to being implemented easily on typical village smallholding conditions. Smallholders are not used to investing $300-430/ha at the beginning of the season to achieve a net return of some $1070/ha (after a lot of work) at the end of the season. An initial capital investment of around $2000/ha would be way beyond the aspirations of nearly all smallholder farmers, even though the investment may make good business sense in all the key parameters (see Table 8.1). The challenge is to provide the business climate where a greater proportion of the farming communities will begin to farm according to high-input / very high output systems (as in the above models). This would be more likely if the following conditions were to be met:

- agricultural credit is available at a reasonable real interest rate;
- fertilisers or organic manures/composts/ameliorants are available at reasonable cost
- marketing channels remain fairly open and efficient.

- agricultural extension / advisory services are more available, either from the public sector or supplied as a private service or provided informally by the farming communities;

i) Agricultural credit should be provided at a real interest rate of only 3-6%, and this is the rate applicable for many well-run smallholder agricultural development projects elsewhere, particularly those financed by development banks (IDA, AsDB, AfDB, IADB, CDB etc). In those projects Governments would be borrowing from the banks at commonly zero real interest rates and on-lend to National Agricultural Banks at a very small mark-up (say 0.5% interest). The Banks in turn would lend to solidarity groups of smallholders or to individual smallholders under a nucleus estate smallholder scheme or under their own private collateral (eg land title). Banks would charge a mark-up fee to cover expenses, normal operating costs, and a reasonable proportion to cover unforseen bad debts. (Bad debts can be minimised by good credit management and the provision of sufficient collateral). Real interest rates of 3-6% are at a level where investment is promoted, particularly for longer-term perennial crops (coffee, tea, forest plantations) and for irrigation schemes, where loans would need to run over periods of some 10-25years.

An alternative model operating at a very small scale is available through SACCOS and LVEMP-2 should promote this vigorously at village level.

iii) Fertilisers are currently very expensive in the LVB, this being due to two main factors: very high transport costs (due to very long road distances from the coast to the basin area) and high unit costs because of small volumes being sold (fertiliser being imported in 50kg bags rather than in bulk). Main demand would be for nitrogen fertiliser, and both urea and ammonium nitrate are advantageous in being of high-nutrient content (>46%N) and widely available.

The use of fertiliser may be somewhat controversial in an environmental project where reduction of nutrient in the lake is a key overall objective. However, from the agricultural sector by far the greatest influx of nutrient entering the lake would be from eroded topsoil entering streams and rivers and thence nutrients becoming available in these water bodies. Direct surface run-off of nutrient would be very small (particularly for N and particularly in situations where cultivation is not extended up to the water body and where vegetation cover and surface mulching is maintained). By application of fertiliser vegetation cover is quickly established, soil infiltration rates increase (and increase further if mulching material is applied) and surface wash erosion is minimised.

A further major area for work would be in promoting use of organic manure and compost, and the organised collection and composting of urban (mainly household) waste. This could have a major positive impact in reducing the levels of nutrients in the drainage water coming off towns and villages and individual house areas.

Baseline studies need to be conducted at the start of LVEMP-2 in order to monitor key soil properties over the course of the project for the pilot and also for practical implementation areas. These would include:

- soil fertility parameters (12 routine fertility determinations);
- surface infiltration rates (sprinkler method);

Fertility determinations also need to be carried out in situations where significant capital investment is being made in the land – eg in an irrigation scheme, or with a higher value crop (perennial and horticultural crops, vanilla, etc) In these situations, the fertility status may be run down very rapidly, and it would be important that this be boosted so that yields are maintained at a high level.

Many further smallholder cropping models can also be considered.

In conclusion there is a huge scope for the entrepreneurial smallholder to get into profitable agricultural and forestry businesses and pursue these as part of the smallholder village environment. As part of the village consultation, sensitisation and PLUPLA exercises, and also the consultations being undertaken as part of the TASAF programme, the interests of the small businessman should be vigorously promoted as this is the subsector most likely to improve farming practises, create wealth and employment, and thus help to contribute to reducing the negative environmental pressures on the Lake.

b) Estate Sector: Sugarcane.

The agricultural estate sector is dominated by sugarcane but both tea and coffee are important, but on a much smaller scale.

Land and climate are quite well suited to rainfed sugarcane, particularly in the floodplain and low terraces of the Kagera River in NW Bukoba District. Land is flat, soils are deep and mostly fairly well drained, and climate gives a rather long dry season making for a 6-7 month milling season which is favourable for the economics of the factory in which much capital is invested. The major limiting factor would be the rather low rainfall (MAR of around 800mm, with considerably less than this in some years) making for rather low rainfed cane yields.

Box L.1: Kagera Sugar

Kagera Sugar Limited, under Tanzanian Sugar Industries is currently rapidly re-establishing operations over a large area in NW Bukoba District, Kagera Region. The previous (bankrupt) enterprise was privatised and re-launched in December, 2001: field and construction operations really re-started in early 2002. The current season (June-Dec2006) represents the 2nd milling season, with a production target (which won't be met, because of the current drought) of 50,000tonnes of sugar. Last year (June-Dec05) 16,000tonnes were produced.

Currently 7,000ha are under cane and a further 15,000ha are earmarked for future expansion, bringing the proposed total to 22,000ha. Irrigation is currently being installed on 3,000ha, including centre-pivot irrigators (up to 10 towers each, a very efficient number). Irrigators are of South African origin and powered by electricity, which is generated by the factory. Source of irrigation water is the Kagera River. Sediment and debris in the river, observed when crossing the main bridge 10km downstream, is not currently a problem. Fertilisers are being used, even on the rainfed cane, and these include urea and triple super phosphates (TSP) – presumably much higher applications will later be made on the irrigated cane.

The company is keen to support outgrowers, and has recently begun consultation and training exercises. Currently 72 outgrowers are registered. They will grow sugarcane in production units of 20-50ha.

The factory is gearing up to eventually have a capacity of 100tonnes cane/hour (i.e. 2,000 tonnes cane/day, which is an economical size).

The company will employ 3,500 people during the cane season. Currently 700 are employed, including 120 (mostly full-timers) at the factory unit.

Cane is burnt shortly before cutting (to drive out snakes and cut the volume of trash, making harvesting safer and easier). No green cutting is undertaken, and no feeding of tops to cattle yet takes place. A cattle unit has been established (and animals are being fed grass, not cane). There is also a small dairy unit.

The Sugar Board of Tanzania monitors sugar trade and fixes prices. Current retail price is Tsh1,000/kg. (The company's selling price is much less.) The entire production from Kagera is – and will be – for domestic consumption.

The company is very aware of issues of pollution. Waste water from the factory goes into settlement ponds prior to re-use for irrigation for the cane. Any effluent water is tested.

Being adjacent to the Kagera River, the company will be using irrigation, which will boost sugarcane yields enormously for those areas that are irrigated. With centre-pivots and other sprinklers irrigation should be very efficient, and there is scope for using these for supplementary (not full) irrigation which would be even more efficient in terms of kg of sugar produced per cubic metre of water consumed. With this supplementary irrigation cane can be planted in the dry-season (under irrigation) and then harvested in the following dry season, some 13-15 months later.

As with most similar operations worldwide, further estate expansion is more equitably realised by boosting the smallholder sector, with sugarcane outgrowers being organised into production units of some 20-50ha. The estate

provides inputs and production schedules and quotas and enters into either annual or medium-term contracts with the smallholders. Government may get involved, for example in determining a fair price for the cane given a particular selling price for the final sugar. Government may also stipulate the proportion of land which must be devoted to smallholders once the nucleus estate, of a certain minimus size, is established. Estate owners also quickly realise that a workable triangular relationship between Government, smallholders and estate is essential so that a reasonable compromise position is reached so that fair shares go to all parties.

Current marketing of sugar is through the Tanzanian sugar board with all current production being consumed locally. Extra production from Kagera would thus save on foreign exchange, and with high World market prices, this extra production would be valuable in both financial and economic terms. Sugar prices are currently being underpinned by the high World oil price (currently around $70/barrel), which means that sugarcane to alcohol plants are highly profitable. A World market price of oil of around $35/barrel is needed for efficient producers to make a reasonable profit on this enterprise, and thus at $70/barel diversion of large quantities of sugar into vehicle fuel is a likely medium to long-term scenario.

Sugarcane, particularly under nucleus estate/smallholder systems, has a number of positive socio-economic characteristics, but also a number of potential problems. The positive features (in addition to the current world market prices) are the following:
- employment: even with an efficient operation, one additional worker will be required for 6ha of additional cane, and further workers in other sectors will be required to support the sugarcane community. In general, 3-4ha of cane supports one job in the local (Bukoba) economy.
- promotion of more varied and more skilled jobs: this will strengthen and diversify the local economy, providing higher-paying employment over a much wider range of skills. Mechanics, fitters, process engineers and laboratory workers, irrigation engineers and mechanics, electricians, agronomists and drainage engineers, tractor drivers and cane handlers will all be required.
- dry-season electricity production: the spent cane residue (bagasse) is used as a fuel at the factory to produce steam which is used both for factory operations and to generate electricity. Much surplus electricity can be produced, which can be used locally for irrigation pumping, or sold to the local community or provided to the local electricity grid. This dry-season electricity can be very valuable as hydro-powered plants are commonly running at low capacity at that time of year.
- by-product production, processing and marketing: in addition to electricity, sugarcane has a number of valuable by-products including:
    - molasses: can be used for animal feed, human food supplements, or fermented for rum and other alcohol products;
    - green cane tops: tops can be harvested for cattle-feed, and when mixed with high-protein leguminous tree loppings and with molasses the mixture is a very economical and useful ration for fattening regimes;
    - fibre-board, cardboard and paper from the baggase fibre
    - ash from bagasse burning has a fertiliser/soil ameliorant value and may be particularly valuable for wetland rice areas (high silica content).

Given the extensive land area available, and the current high world market prices for sugar, there would appear further scope for expansion of operations in this area, but these would have to be subject to a full Environmental Impact Assessment (EIA). As this area is very near the Ugandan border, the transboundary implications of such developments would be considerable, with Uganda also likely to benefit considerably from these developments.

The huge advantage for both the Lake environment and for the local economy is that this enterprise would be independent of the Lake's fish-dominated economy, and would represent a most welcome diversified and sustainable source of income for the Lake Basin. The other huge opportunity is that the nucleus estate-smallholder development model could be made to work very well and thus act as an impetus for agricultural development, providing the necessary symbiosis between the technical inputs / agricultural services / marketing provided by the estate and the individual's care and attention to management detail on his/her individual smallholding.