

ANNEX 3 : REGIONAL COMPONENT:

Establishing an Institutional Framework for the Implementation of the Lake Tanganyika SAP and the Co-operative Management of Lake Tanganyika Basin

Countries:	Burundi, DRC - Congo, United Republic of Tanzania and Zambia
Duration:	48 months
Starting Date:	March 2005
Completion Date:	March 2009

SUMMARY

The Regional Component of this Lake Tanganyika Project has several parts:

Firstly, the regional component addresses the SAP priority of ratification and implementation of the Lake Tanganyika Convention and associated environmental protocols.

Secondly, the regional component supports the regional interaction and regional institutional activity behind the Convention – the Lake Tanganyika Management Committee and the creation of a permanent Secretariat for the Management of the Lake. Updating the SAP and adding new and emerging issues such as water hyacinth awareness and control are components here.

Thirdly, the regional component develops the Monitoring Programme for the Lake, linking national processes and institutions at regional level, and developing linkages to management decision making bodies for the Lake. The GEF-IW M and E Indicators Framework (Nov 2002) is the basis here

Fourthly, the Regional Component provides the forum and base for the Partnership Programme for the Lake – between Governments and Development Partners (including UNDP and GEF).

Lastly, the Regional Programme provides the framework for coordination and management of the national GEF interventions into a single and cohesive whole. Regional staff have the mandate to provide such coordination and unified reporting.

The Regional Secretariat is to be based at Bujumbura, on Lake Tanganyika itself. GEF funding supports regional activity over a four year period.

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List of Acronyms (Across all National and Regional Programmes)

ACDC	Area Conservation Development Committee (Zambia)
ADF	African Development Fund
ADMADE	Administrative Management Design (Zambia Wildlife)
AfDB/ADB	African Development Bank
ASEGE	Association for Environment Management (DRC)
ASSP	Agricultural Sector Support Programme (Zambia)
BRARUDI	Burundi Breweries (Co-Finance)
CADIC	Action for Integrated Sustainable Community Development DRC
CBD	Convention on Biological Diversity
CBNRM	Community Based Natural Resource Management
CBO	Community-Based Organisation
CCC	Catchments Conservation Committee (Zambia)
CEPAC	Community of Protestant Churches in Central Africa
CLUSA	Cooperative League of the United States of America
COMESA	Common Market for Eastern and Southern Africa
COTEBU	Burundi Textile Company (Co-Finance)
CRH	Centre for Hydro-biology Research (Uvira) DRC
CRSN	Centre for Natural Sciences Research (DRC)
DanIDA	Danish International Development Agency
DCC	District Coordination Committee (Tanzania)
DDCC	District Development Coordinating Committee
DED	Deputy Executive Director
DRC	Democratic Republic of Congo
DSA	Daily Subsistence Allowance
EA	Executing Agency
EAC	East African Community
ECZ	Environmental Council of Zambia
ED	Executive Director
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FFMP	(Lake Tanganyika) Fisheries Framework Management Plan
FinnIDA	Finnish International Development Agency
GEF	Global Environmental Facility
GTZ	German Technical Assistance
IA	Implementing Agency (of GEF)
ICCN	Congolese Institute for Conservation of Nature (DRC)
ICRAF	International Centre for Agro-Forestry
ICT	Information Communication Technologies
IDEAL	International Decade for East African Lakes
IFAD	International Fund for Agricultural Development
IGA	Income Generating Activities
ILTMA	Interim Lake Tanganyika Management Authority
INECN	National Institution for the Conservation of Natural Resources (Burundi)
INERA	Institute for National Agronomy Research (DRC)
IUCN	International Union for the Conservation of Nature
IW OP	International Waters Operational Program
JFM	Joint Forest Management
JGI	Jane Goodall Institute (An NGO in Tanzania)
KFW	A German Funding Organisation
KMC	Kigoma Municipal Council
KPI	Key Performance Indicator
KUWASA	Kigoma Urban Water and Sanitation Authority
LFA	Logical Framework Analysis
LGRP	Local Government Reform Programme

LTA	Lake Tanganyika Authority
LTBP	Lake Tanganyika Biodiversity Project
LT-FBDP	Lake Tanganyika Fisheries and Biodiversity Development Project
LTMC	Lake Tanganyika Management Committee
LTMP	Lake Tanganyika Management Planning Project
LTMS	Lake Tanganyika Management Secretariat
LTRIMP	Lake Tanganyika Regional Integrated Management Programme
LVEMP	Lake Victoria Environmental Management Project
MACO	Ministry of Agriculture and Cooperatives (Zambia)
M&E	Monitoring and Evaluation
MEWD	Ministry of Energy and Water Development (Zambia)
MIS	Management Information System
MP	Member of Parliament
MTENR	Ministry of Tourism Environment and Natural Resources (Za)
NBP	National Biodiversity Programme (DRC)
NBSAP	National Biodiversity Strategy and Action Plan
NDF	Nordic Development Fund
NGO	Non -Government Organization
NIA	National Implementing Agencies
NOPTA	New Orientation of Fishing in Lake T (DRC an NGO)
NSC	National Steering Committee
PC	Project Coordinator
PCU	Project Coordination Unit
PDF-B	Project Development Facility (Block B Grant)
PFM	Participatory Forest Management
PIR	Project Implementation Review
PIU	Project Implementation Unit
PMU	(National) Project Management Unit
PNAE	National Programme for Environmental Action (DRC)
PPER	Project Performance Evaluation Report
PRA	Participatory Rural Appraisal
PRSP	Poverty Reduction Strategy Paper
REGIDESO	Bujumbura Water and Electricity Organisation (Burundi)
SAP	Strategic Action Programme
SCM	Steering Committee Meeting
SETEMU	Municipal Technical Services in Bujumbura (Burundi)
SGP	Small Grants Project
SIYB	Start and Improve Your Business (Zambian Programme)
STAP	Scientific and Technical Advisory Panel (of the GEF)
TA	Technical Advisor
TACARE	Tanzania Catchment Restoration (NGO)
TAFIRI	Tanzania Fisheries Research Institute
TANAPA	Tanzania National Parks Authority
TATEDO	Tanzania Traditional Energy Development Organisation (NGO)
TBDA	Trans-Boundary Diagnostic Analysis
TDA	Lake Tanganyika Trans-boundary Diagnostic Analysis
TNDP	Transitional National Development Plan (Zambia)
TPR	Tri-Partite Review
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNOPS	United Nations Office for Project Services
URT	United Republic of Tanzania
VCDC	Village Conservation Development Committee (Zambia)
VPO	Vice-President's Office (Tanzania)
WRAP	Water Resources Action Programme (Zambia)
ZAWA	Zambia Wildlife Authority

DETAIL

1. PROJECT SUMMARY

The Executive Summary of this Project Brief described the components of the overall Lake Tanganyika Management Programme, delimiting the interventions from GEF and from co-finance. This description is copied here, as a start-point for the Regional Activity of the GEF intervention – the subject of this specific Annexure.

Long-Term Development Objective or Goal

The long-term objective of this Regional Integrated Management Programme is the improvement of the living conditions of the riparian populations through the implementation of the SAP, the FFMP and the Convention, together with the on-going and future efforts of riparian countries, so as to bring about an integrated sustainable management and protection of the Lake Tanganyika

Immediate Objectives

There are two Immediate Objectives of the Integrated Regional Management Programme. These form the two main components that are: the “Environmental Activities” of GEF finance, and the more “Developmental Activities” of the co-finance partners.

Immediate Objective 1. To implement the prioritised activities of the Strategic Action Programme so as to achieve sustainable management of the environment and resources of Lake Tanganyika. (GEF).

There are four parts of this IO each leading to a distinct OUTCOME (linked to SAP priorities).

1. Establishment of the Lake Tanganyika Management Authority (LTMA);
 - a. Establishment of the Lake Tanganyika Management Secretariat (ILTMS);
 - b. Establishment of Inter-Ministerial Management Committees;
 - c. Promotion of ratification of the Convention; and subsequent protocols.
2. Reduction of water pollution by creating wastewater plants in Bujumbura and Kigoma.
3. Reducing sedimentation flows into the Lake by the establishment of demonstration sites for sustainable catchment management interventions in Uvira in DRC, Kigoma Rural District in Tanzania, and Mpulungu District in Zambia;
4. Establishment of a Lake Monitoring and Management System (with IUCN).

Immediate Objective 2. This leads to outcomes funded through other Partners Components (ADB, NDF, FAO, EU/COMESA).

5. Establishment of mechanisms for pilot fisheries co-management, infrastructure and marketing to add value fish products, monitoring systems for a responsible fisheries and lake transport / navigation and peace processes (AfDB, FAO, NDF, EU/Comesa).
6. Improvement of community infrastructure through local development funds (AfDB).
7. Construction of wastewater treatment plant in Kigoma township (through NDF funding).
8. Capacity building of local and national stakeholders to provide them with skills to better manage the fisheries and the environment. (AfDB).

OBJECTIVES, OUTCOMES AND ACTIVITIES OF THE GEF COMPONENTS

Immediate Objective 1 To implement the prioritised activities of the Strategic Action Programme so as to achieve sustainable management of the environmental resources of Lake Tanganyika. (GEF)

Outcomes	Country / Site
Outcome 1: Regional and national institutions internalize the implementation of the SAP and FFMP and provide institutional support for the cooperative management of Lake Tanganyika under the ratified Convention.	Regional Activity
Outcome 2. The quality of the water of Lake Tanganyika improved at two identified pollution hotspots through wastewater treatment. See Outcome 2.7 NDF	Tanzania and Burundi
Outcome 3: Sediment discharge reduced from demonstration catchment management sites; with providing significant livelihood benefits to local people.	Tanzania, Burundi, Zambia
Outcome 4: Regional monitoring - management system for the Lake.	Regional Activity

Outcomes 1 & 4 are the specific scope of this Regional component. Outcomes 2 & 3 are implemented nationally. The Regional Component has responsibility for unified monitoring, evaluation and reporting.

PROJECT RATIONALE

The development of this project has been driven by the results of the TDA and the SAP that were developed during the first phase of the Project (LTBP). The over-riding institutional problem for the Lake Tanganyika has been identified in the TDA as lack of institutional coordination, lack of resources, poor enforcement of regulations and lack of appropriate regulations. The purpose of the regional management authority to be set up is in a first place to address the institutional coordination problem.

During the LTBP, a convention was developed between the four riparian countries to give a legal framework to their cooperation in the sustainable management of Lake Tanganyika. The Convention was finalized and signed during the PDF-B Phase (LTMP) on June 12, 2003. The Convention provides for the establishment of a Lake Tanganyika Authority that will launch and support the implementation of the SAP interventions in coordinating a large number of regional and national project sub-components dealing with identified hot spots and sources of trans-boundary problems, and supporting these activities through monitoring and information exchange.

The signed Convention still has to be ratified by the member States and entered into force before the Lake's Authority can be formalized and put in place. For this reason, the SAP has identified the need for an *Interim* Lake Management Authority (ILTMA) to coordinate the implementation of regional and national SAP actions, pending the creation of the permanent management authority under the Convention, but also to develop the institutional capacity for the Lake Authority.

RATIONALE OF GEF FINANCING

The long-term scenario envisaged in the SAP is for an integrated regional program, coordinating a large number of national and regional project sub-components dealing with identified hot spots and sources of trans-boundary problems, and supporting these activities through monitoring and information exchange.

The coordination and implementation of this program will be the responsibility of the ILTMA and later the Lake Tanganyika Authority. Successful implementation of such a program will depend upon well-coordinated actions, including the governments at all levels, the local communities, the private sector, the NGOs, commercial and artisanal fisheries and donor agencies etc. Such a level of regional and global cooperation will entail substantial transaction costs and will require specific support from the Programme Donor Partners. The costs of managing this level of coordination is clearly a transaction cost associated with adopting a regional approach to concerted action to address global biodiversity and international waters issues. This falls directly within the remit of the GEF and thus is fully consistent with both the GEF IW OP 9 and IW Strategic Priority #1. GEF support will serve as a catalytic role in

the regional lake institutions, and the continuing participation of existing donors will contribute to the regional multi-stakeholder effort.

PROGRAMME OUTCOMES AND OUTPUTS (GEF REGIONAL INTERVENTION)

OUTCOME 1: Regional and national institutions are implementing the SAP and providing coordinated institutional support for the management of Lake Tanganyika.

Output 1.1: The Lake Tanganyika Secretariat is established with staff, equipment, M&E processes are in place.

Output 1.2: Protocols to Convention are adopted; Environmental policies and development frameworks are in place; SAP is revised; Additional funding at national and regional levels for Lake management are leveraged. Information mechanisms for stakeholders are in place. The Convention is ratified and domesticated, and First Conference of Parties is organized.

OUTCOME 4 Regional monitoring and management system contribute to the sustainable management of Lake Tanganyika. (Co-financing from IUCN and AfDB/FAO)

Output 4.1: A regionally harmonized and integrated monitoring program for Lake Tanganyika's fisheries, water quality and catchment is established.

Output 4.2: National inter-sectoral management committees established in four countries are responding to monitoring data at both national and regional levels with supporting decision support tools.

Output 4.3: Regional technical committees for fisheries, water quality and catchment are established and various indicators and targets are agreed upon among the four countries and annexed as protocols to the Lake Tanganyika Convention.

PROGRAM KEY PERFORMANCE INDICATORS

Outcome 1:

- Regional and National Institutions established to implement SAP are operational by 2007;
- Protocols to Convention established to improve environmental policy and frameworks;
- Environmental regional master plans developed and approved by countries by 2008

Outcome 4:

- Regional Monitoring Systems established by 2008;
- Environmental and fisheries regional data-base established by 2008;
- Awareness Systems and web site in place and operational by 2007;
- Improvement in water quality monitoring data by 2010

2. COUNTRY OWNERSHIP

Country Eligibility

All four countries have ratified the Convention on Biological Diversity (CBD): Burundi on 15 April 1997; DRC on 3 December 1994; Tanzania on 8 March 1996 and Zambia on 28 May 1993. The four riparian countries are eligible for technical assistance from UNDP and GEF. All four countries are eligible under paragraph 9 (b) of the GEF Instrument.

Country Drivenness

The four countries have all presented to the Conference of the Parties of the CBD reports on measures undertaken for the implementation of the Convention consistent with article 26. The four countries have developed with GEF support a TDA, a SAP and a Convention on the Sustainable Management of Lake Tanganyika. The four countries have all signed the Convention and are in the process of its ratification. The Convention provides for the creation of the Lake Tanganyika Authority and other institutions deemed necessary for the optimum management of the Lake. The SAP and four countries recommended the creation of an interim Lake management body pending the ratification of the Convention.

3. PROGRAM DESIGNATION AND POLICY CONFORMITY

The project is fully consistent with, and has been designed to meet the objectives of, the GEF IW OP 9: (Integrated Land and Water Multiple Programme) and IW Strategic Priority #1: Catalyzing Financial Resources for Implementation of Agreed Actions. This GEF project is one component of a larger multi-donor Integrated Programme.

RISKS AND SUSTAINABILITY

Risks

The long-term success of the ILTMA depends essentially on the political willingness of the four riparian participating countries to cooperate, and in their continued and accrued commitment for the creation of the Lake Tanganyika Authority, its strengthening and continued political and financial support. In relation to political willingness, the level of risk is low, although the participating countries have limited financial resources, and so financial contributions remain a moderate risk. Countries are relatively highly indebted and most have suffered directly or indirectly from recent political crises and civil wars in the region that led to a massive displacement of population, resulting in general economic recession. The project will show that greater economic benefit is expected from participation in this regional endeavour.

Other disasters like droughts; highest rate of infection of HIV/AIDS pandemic, malaria etc, continue to impact on the meager financial resources that could finance development interventions. Regional Security remains a concern – see a more detailed discussion in the Executive Summary.

Sustainability - Commitment

Despite the level of risks described above, it is noteworthy that the TDA, the SAP and the Convention, and all the regional and national project components were achieved through a joint inter-country and inter-ministerial exercise characterized by strong cooperation and openness. The fact that these achievements have been realized despite continuous political crisis and civil wars in the Great Lakes Region, affecting all four countries directly or through mass refugee movements, despite the struggle to fulfill the elementary needs of the populations, demonstrates a strong commitment to sustain the joint management of the Lake Tanganyika, particularly through the Lake Tanganyika Authority. Recognizing this, the countries have during the Steering Committee meetings, strongly recommended the quick setup of the ILTMA and the subsequent creation of the Lake Tanganyika Authority. To this end, the environment Ministers from the four participating countries have gathered in Dar es Salaam on June 12, 2003 and have committed their Governments in signing the Convention and recommending its quick ratification. The Convention provides for the creation of the Lake Tanganyika Authority. By signing the Convention, the countries have showed their strong commitment to the creation of the ILTMA and their willingness to continue project programs and approaches beyond the life of the GEF intervention.

Financial Sustainability

Financial sustainability is enhanced by countries commitment to sustain the ILTMA and later the Lake Tanganyika Authority in continuation and building upon the already substantial level of co-finance and

the strong international donor support. The financial commitment of Governments is at this time largely in-kind. The commitment of substantial resources to a joint GEF-ADB effort by the ADB and other donors will result in the greater availability of resources, additional other donors, and thus create more time to develop incentives for the Governments to eventually commit to increased levels of self-financing, particularly as it relates to the mid and long term sustainability of the Convention. A financial plan that will make provision for future sustainable funding will be prepared, including a feasibility study to determine options to assure continued self-financing of such ongoing costs as those associated with the running of the LTS and the LTMC. The present level of donor support will be enhanced through continued leverage of donor and private sector financial support to increase the current level of co-finance and to secure funding for the implementation of new SAP and Convention interventions.

STAKEHOLDER INVOLVEMENT

The major stakeholders and successful key to the ILTMA include the Governments at all levels: Central Governments (Ministries¹ of Environment and Natural Resources, Fisheries, Water Affairs, Transport and Communication, Foreign Affairs, Finance, etc.), Local Governments; MPs, local communities, public agencies, donor communities, private sector, NGOs, universities and research institutions. Stakeholder participation was a key and successful ingredient for the achievement of the TDA, the SAP, the Convention and the development of project proposals during the execution of the PDF-B phase activities. The ILTMA will build on and add to the level of stakeholder involvement in the implementation of the SAP, the FFMP and the Convention as well as in further development of SAP, FFMP and Convention interventions. The more engagement of end users at the community level will ensure the success of the project in the long run.

MONITORING AND EVALUATION (Ref: GEF Executive Summary)

The project activities and outputs will be regularly reviewed and evaluated annually by the LTMC and will be subject to the various evaluation and review mechanisms of the UNDP, including the Project Performance and Evaluation Review (PPER), the Tri-Partite Review (TPR), and an external Evaluation and Final Report prior to termination of the Project. The LTMA will also participate in the annual Project Implementation Review (PIR) of the GEF.

As a result of the emphasis placed on results-based management, the ILTMA will develop a detailed Monitoring and Evaluation work plan at the inception of its activities. The M&E overall plan will begin with the development of the critical indicators. The project will update the M&E work plan, which will allow an assessment of the ILTMA performance by showing the schedule of the activities, their cost and the expected outputs and achievements according to the established benchmarks and milestones. The work plan will be the main tool for monitoring and evaluating the progress of the ILTMA.

ILTMB FINANCING (Ref: GEF Executive Summary - Annex 1a for Incremental Cost Analysis).

The overall cost of establishment including infrastructure, and running the ILTMA for a period of four years is over 8 million US \$. This is made up as follows:

- The fisheries components in HQ (staffing, oversight, policy etc) are over 2.5 million\$. (AfDB)
- The monitoring components are 1 million \$ (IUCN)
- The national components are 1,248,000\$
- The GEF component is estimated at 3.728 million \$, including regional project management.

National Contributions: Total for 48 months: US\$ 1,248,000 (in kind and personnel)

¹ Note that titles of Ministries and locations of Departments within Ministries varies from country to country.

Secretariat (ILTMS) Office and Project HQ (Bujumbura) – will be provided by the host country based on US\$ 5,000 per month, includes rent, water, electricity, parking plots and maintenance costs. Total host country office contribution for 48 months: US\$240,000.

Project Coordination Units Offices in country – Project Offices and their maintenance, water and electricity, will be provided by the beneficiary countries, based on equivalent US\$ 2,000 a month per country. Sub-total for 40 months (allows start-up time), 4 countries: US\$320,000.

Inter-Ministerial Committees / Monitoring Committees / National Staff – will be assigned by participating countries. These are equivalent costs of provision of facilities, staff time and other resources based on equivalent \$ 4,000 per country per month. Total for 40 months is: US\$704,000.

Financing Details: GEF Component at Regional Level (annual budget line detail in annex)

Item	Duration	Total
International Staff		-
Chief Technical Advisor	48mm	500,000
Technical Advisor (Environment)	24 mm	200,000
Regional Staff (support for 12 mm only)		-
Executive Director	12mm	70,000
Regional Administrative Officer	12mm	50,000
Support Staff (5 posts including translator)	48 mm	200,000
Consultants International	8 mm	112,000
Consultants Regional	10 mm	65,000
Contract ICRAF (Catchment Management & Training)	Full	650,000
Contract IUCN (Monitoring Committees)	Full	200,000
Evaluation Missions (MTR, TR)	Two	60,000
Study Tours, Training Missions	Several	40,000
Workshops, Committees, Coordination	Several	480,000
Equipment (Vehicles, Office, Security etc)		281,000
Duty Travel		140,000
Operating costs, Communications, Sundry		442,000
UNOPS AOS Costs (3% contract, 8% other)		235,000
OVERALL TOTALS (Rounded to 3,728,000)		3,725,000

5. IMPLEMENTATION ARRANGEMENTS

General Implementation Processes

The oversight of the Programme activities will be the responsibility of the LTMC. The LTMC is comprised of country representatives at Permanent Secretary level, from both environmental and resource sectors (eg fisheries). The LTMC will serve as a steering committee of the Programme and will convene annually to review the Programme objectives, outputs and new and emerging issues. The Implementing/Executing Agencies will participate in the meetings of the LTMC.

The overall coordination role of the Programme will be the responsibility of the Lake Tanganyika Management Secretariat. The LTMS will comprise an Executive Director, a Senior Environmental Officer, a Senior Fisheries Officer, a Senior Finance/Accountant Officer, a Senior M&E Officer and an ICT Officer. The requisite administrative and secretariat support will be provided. These staff are

provided by participating countries, although GEF provides funding to countries to meet these obligations for the first year of operation,² and AfDB can support similar allowance packages

Technical assistance will be provided through the donor interventions. GEF provides a CTA for four years (combining both technical expertise in the field of regional water-body institutional building, as well as coordination and reporting roles across all five GEF national and regional components) GEF provides an Environmental Advisor for two years, plus short-term consultant inputs (SAP, water-hyacinth control, policies, monitoring process).

The LTMS will also undertake the implementation of specific program activities: support the ratification of the Convention, establish the Lake Tanganyika Authority, support establishment of protocols to Convention and their enforcement, update the SAP etc.

At country level, projects will be coordinated by a PCU under the direct responsibility of the relevant ministry/institution/local government of the participating country. Project partners at national level (Governments and UNDP) will designate the implementing institution (Government agencies at central and decentralised levels, or NGOs) of the projects. The PCU will be comprised of a Project Coordinator, the requisite administrative support, plus technical expertise as needed.

Inter-Ministerial Committees will be established to support the implementation of the Program at national and regional level and to ensure continued and increased level of political support to the co-operative management of the Lake and to the necessary support to the LTA, once in place.

Implementation Modalities for the GEF Components

This GEF Brief sets out broad implementation process, focusing on delivery for cost-effective impact, and nationally driven processes which lead to local capacities and so sustainability. There will be a mixture of both *NATIONAL Execution* arrangements in countries with strong UNDP-Government capacities, and *UNOPS Execution* arrangements where capacities are weaker (countries emerging from long periods of conflict – DRC and Burundi). The Regional component will be executed by UNOPS with sub-contracts to institutional expertise in the region for specific tasks (eg: catchment management training and support, Monitoring). These inputs can be summarised in the following table:

Summary of Implementation Arrangements			
Component	Execution Modality	Value \$	AOS Agreements
Regional Activity			
Contract to ICRAF	Subcontract from UNOPS	650,000	Reduced AOS 3 %
Contract to IUCN	Subcontract from UNOPS	200,000	Reduced AOS 3 %
Regional Staff / Activity etc	UNOPS Execution	2,874,000	8% AOS

The principles of ensuring cost effective and sustainable implementation modalities, whilst adding incremental value to poorly performing baseline interventions to ensure that both global and national benefits are achieved, are of importance here. Detailed implementation modalities will be described in subsequent **Operational Project Documentation**, and will be dependent on practical realities in the field, as presented in the detailed **Inception Report**, due within 4 months of start-up.

6. INSTITUTIONAL COORDINATION AND SUPPORT

The ILTMA will be coordinated and supported by the following management bodies adapted to the convention's structure:

² By which time posts will have been approved through national processes.

- a) The Lake Tanganyika Management Committee - LTMC
- b) The Lake Tanganyika Management Secretariat – LTMS;
- c) The Inter-Ministerial Committees (Socio-economic Committees, Natural Resources and Biological Diversity Committees and Water Quality and Pollution Control Committees).

THE LAKE TANGANYIKA MANAGEMENT COMMITTEE

The LTMC is the supreme organ of the ILTMA (and LTA in future) and shall consist of the Permanent Secretaries of the relevant Ministries or a senior representative of those Ministries.

The LTMC shall hold its first meeting not later than four months after the signature of the Project Document, and staff being in place, and will discuss and approve the Project Inception Report. The host country shall convene the first meeting and the other participating countries shall convene the subsequent meetings in the following alphabetic order. The LTMC shall select a Chairperson at its first meeting, who shall serve for a one-year term. The Chairmanship of the LTMC shall rotate every year among the members of the LTMC in accordance with the alphabetical order of the participating countries.

The LTMC shall meet once annually at such time as it shall determine. The Executive Director shall inform the participating countries of the date and place of each session and shall act as the Secretary for the LTMC. The LTMC shall adopt its own rules of procedures. No session of the LTMC shall take place unless the representatives of all the four participating countries are present. The decisions of the LTMC shall be taken by consensus. The functions of the LTMC shall be as set out in the accompanying annexes to this regional component. In brief they are to provide overall strategic policy and management direction to the LTMA; and direct the activities of the LT Secretariat. In addition the LTMC will seek additional partnership funding

THE LAKE TANGANYIKA MANAGEMENT SECRETARIAT

The LTMS shall be a full time body, headed by an Executive Director, approved by the LTMC.

The LTMS will coordinate Lake management interventions implemented by National Agencies within the framework of the SAP; and coordinate interventions on the Lake through joint management, particularly with the (ADB) Lake Tanganyika Fisheries and Biodiversity Development Project (LT-FBDP). The LTMS will invite the participating countries to ratify the Convention and prepare the proceedings for the establishment of the Lake Tanganyika Authority and carry out any additional activities necessary to facilitate the implementation of the Convention. Details are in annexes below.

The Office

The LTMS headquarters will be established in Bujumbura, Burundi. The LTMS shall have a permanent office provided by the Host Country. The Host Country shall cover the rent and maintenance of the Office. The Host Country shall exempt the LTMS and its international and regional staff from customs duties and any other taxes, immigration restrictions and alien registration and national service obligations and shall facilitate by all suitable means the mission of the LTMS and its staff.

Regional Staff

At regional level, the LTS will have a full time senior staff comprising of an Executive Director, a Senior Environmental Officer, a Senior Fisheries Officer (AfDB), a Senior M&E Officer (IUCN), and a Senior Administrative/ Finance Officer. This staff will have a significant role in supporting the implementation of the SAP and FFMP interventions and the SAP further development, the ratification of

the Convention and the establishment of the Lake Tanganyika Authority, the preparation of protocols to Convention to harmonize policies and regulations, to establish regional development plans, to include other Basin State; plus the initiation of the negotiation of co-financing from the countries and with donors and the public and private sectors in both the Francophone and Anglophone countries.

GEF will provide technical assistance in the form of a CTA for four years and a TA (Environment) for two years, plus requisite support staff. Shorter term technical consultancy inputs are funded (10 mm International input and 12 mm Regional input) in the fields of policy process, SAP update, water hyacinth control, convention protocols etc).

The LTMS will require additional secretarial and administrative support, as well as a full-time translator. There will be two separate accounting and reporting units (one for the UNDP reporting requirements and the other for the ADB reporting requirements). The Executive Director will be responsible for recruiting additional secretarial, technical and administrative support staff and for defining their terms of reference, including the level at which they will have to be able to operate in both French and English. However, their appointment shall be subject to the approval of the LTMC.

Staff from the LTMS will make fields visits in the participating countries in support of field projects and work with staff responsible for implementing the projects at national level, and of monitoring task forces units. The LTS and the IAs will be responsible for ensuring that projects are implemented in different countries within the framework of the SAP and the FFMP.

National Project Coordination Units

The implementation of the projects at national level will be carried out by National Project Coordination Units (PCU) under the coordination of Project Coordinators (4 for the GEF supported interventions and 4 for the ADB fisheries supported interventions) appointed jointly by the LTS, the UNDP or the ADB and the participating country. The Project Coordinators (PCs) will work under the direct responsibility of the participating countries' relevant Ministry. The participating countries will provide office and the required technical and administrative supporting staff to the PCs. Direct costs, including office provision, water and electricity and office maintenance will be covered by the participating countries as national contribution. The PCUs report to LTMS, to the beneficiary Governments and to UNDP-GEF.

The GEF interventions will have PCU inputs at Bujumbura (Burundi), Uvira³ (DRC), Kigoma (Tanzania) and at Mpulungu (Zambia).

INTER-MINISTERIAL TECHNICAL COMMITTEES / MONITORING COMMITTEES

(Reference the Lake Monitoring Programme Component – Outcome 4).

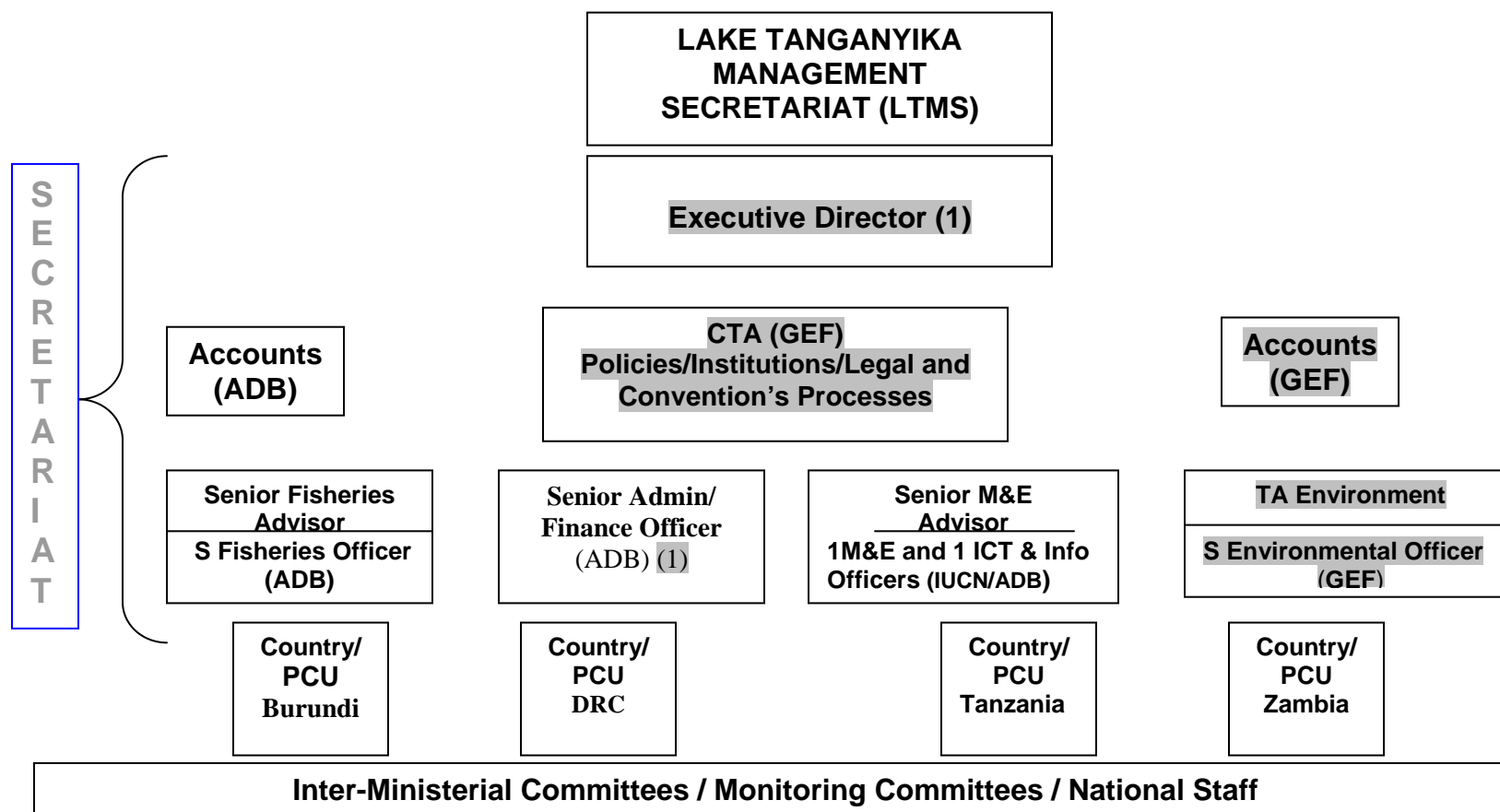
The composition and the duties of these committees shall be adapted to the Technical Committees provided in the Convention. Essentially, it is expected that these committees will be formed to support at national level the activities of the ILTMA and to advise the Management Committee on managerial and technical aspects of the various sectors related to the SAP/FFMP priorities: Fisheries, Socio-Economy, Biodiversity/ Conservation, Water Quality and Pollution Control. These Committees should be composed of Inter-Ministerial representatives and other relevant Technical Institutions or State Organs concerned by the Lake and its Basin's issues. Private sector and NGOs involved in the Lake Tanganyika as well as local communities shall be represented in these committees. The selection criteria of these members should be based on expertise, experience in the related sector and implications for the Lake. The exact design will be agreed during the Inception Report Process.

³ We note the possibility of the AFDB fisheries component being based at Kalemie, south down the lake in DRC. It does not make for efficient management for the Uvira component to be managed from anywhere except Uvira.

ANNEX A: PROGRAM LOGICAL FRAMEWORK REGIONAL COMPONENT

Intervention Logic	Objectively Verifiable Indicators	Sources of Verification	Assumptions and Risks
OUTCOME 1 Regional and national institutions established and implementing the SAP and provide the institutional support for the cooperative management of Lake Tanganyika	<p>ILTMA established;</p> <p>Inter-ministerial Committees established by 2006 Convention ratified by 2006;</p> <p>Protocols to Convention established Policies harmonized and regional master plans established by 2008;</p> <p>Additional resources leveraged for continuing activities and sustainability by 2008;</p> <p>Information Resource developed and maintained by 2008</p> <p>Lake Tanganyika Strategic Action Program is updated by 2007</p>	<p>Minutes and reports of the First Conference of Parties & Meetings.</p> <p>Instruments of ratification are deposited with the LTMS;</p> <p>National environmental policy document; Master plans reports;</p> <p>Documented increased level of LTMS participation in activities;</p> <p>Published progress reports on extent of SAP implementation;</p> <p>Written reports of meetings Increased country commitment for regional input to SAP implementation; Revised SAP document;</p>	<p>Countries keep and concretize their commitment to ratify the Convention;</p> <p>The LTMS is able to lead the process of creation of the Lake Authority;</p> <p>Commitment to implementation of the SAP interventions;</p> <p>The countries will increase their participation in the ILTMA activities;</p>
OUTCOME 4 Regional monitoring decision-making support system to foster the Lake's management established	<p>Monitoring and communication unit is equipped by 2006;</p> <p>Internal and external network for communication within the Program is established by 2006;</p> <p>Standardization of methods, parameters and targets in environment monitoring by 2007;</p> <p>A web site developed by 2007;</p> <p>Two reports are prepared each year to support decision-making at regional level by 2007</p>	<p>APR – PIR Documentation of the decision-making management support system;</p> <p>Documented reports on interactivity between work-plan and ILTMA activities;</p> <p>Documented reports on increased country commitment and local benefits</p>	<p>The LTMS will assist countries in recruiting Monitoring Committees;</p> <p>The LTMS will assist countries in assessing national monitoring processes;</p> <p>The LTMS will have the required technical expertise to develop monitoring capacity and to establish a decision-making management support system</p>

ANNEX B: LAKE TANGANYIKA INTEGRATED MANAGEMENT PROGRAMME (ORGANIZATIONAL CHART)



(1) Funded by GEF for first twelve months. GEF Posts are shaded grey, plus some posts in Country PCUs.

Component Budget for Regional Activity							
Item	Duration	Year 1 8m	Year 2	Year 3	Year 4	Year 5 8m	Total
International Staff							-
Chief Technical Advisor	48mm	80,000	120,000	125,000	130,000	45,000	500,000
Technical Advisor (Environment)	24 mm	67,000	100,000	33,000	-	-	200,000
Regional Staff (support for 12 mm only)							-
Executive Director	12mm	47,000	23,000	-	-	-	70,000
Regional Administrative Officer	12mm	33,000	17,000	-	-	-	50,000
Support Staff (5 posts including translator))	48 mm	33,000	49,000	49,000	54,000	15,000	200,000
Consultants International	8 mm	60,000	32,000	12,000	10,000	-	112,000
Consultants Regional	10 mm	25,000	20,000	10,000	10,000	-	65,000
Contract ICRAF (Catchment Management)	Full	650,000					650,000
Contract IUCN (Monitoring – Mgmt Committees)	Full	200,000					200,000
Evaluation Missions (MTR, TR)	Two	-	-	30,000	-	30,000	60,000
Study Tours, Training Missions	Several						40,000
Workshops, Committees, Coordination	Several						480,000
Equipment (Vehicles, Office, Radio, Security etc)							281,000
Duty Travel							140,000
Operating costs, Communications, Sundry							444,000
UNOPS AOS Costs (3% contract, 8% elsewhere)							236,860
OVERALL TOTALS							3,727,860

ANNEX D. PROGRAM IMPLEMENTATION SCHEDULE (By Year and Quarter)

No.	DESCRIPTION	2005			2006				2007				2008				2009
		2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1
1.	Recruit ED	x															
	Recruit Support Staff	x	X														
	Recruit Technical Assistance	x	X														
	Purchase Install Equipment	x	X														
	Secretariat Infrastructure is in place and functioning.		X														
	INCEPTION REPORT		X														
	LTM COMMITTEE MEETS		X			x				x				X			
	Workplan for four years Approved		X														
2	Convention Ratification Process		X	X	X	X	X	X	X								
	Convention Protocols					X	X	X	X	X	X	x	x				
3	Training Visits / Study Tours			x	X	x	x	x	x	x	X						
4	Lake Monitoring Processes			x	X	x	x	x	x	x	x	x	x	X	x	x	
	Project Monitoring - Reviews									X							X

ANNEX TERMS OF REFERENCE – INSTITUTIONS⁴ AND KEY STAFF

1) THE LAKE TANGANYIKA MANAGEMENT COMMITTEE

Background:

The Interim (and full) LTMA will have a Steering Committee (LTMC) comprised of 3 Representatives from each of the participating countries, one member from each of the programme partner agencies (UNDP-GEF, UNOPS, AfDB, IUCN, FAO, NDF and others) and such other members as may be deemed necessary by the LTMC.

The ED will serve on the LTMC in an ex-officio capacity. The LTMC will assume oversight responsibility for the Full Program and shall meet once a year during Program implementation at the call of the Chair, who shall be selected by the LTMC. More specifically the LTMC shall:

Duties

- Provide overall strategic policy and management direction to the ILTMA.
- Encourage and follow up Convention ratification and implementation.
- Support to the LTMS for activities consistent with ILTMA objectives.
- Review the progress of the ILTMA and its components.
- Review and approve the work plan and budgets of the LTMS and oversee progress on its activities, and provide strategic direction on the work plan.
- Approve preparation by the ILTMA for the creation of the Lake Tanganyika Authority.
- Agree on rules of procedure for itself, the Secretariat and any subsidiary bodies;
- Approve the appointment of the Executive Director;
- Approve the recruitment and appointment of other senior staff considered to be necessary to the functioning of the Secretariat.
- Continue to seek additional funding to support the activities and outputs of the ILTMA.

2) THE LAKE TANGANYIKA MANAGEMENT SECRETARIAT

Location: Bujumbura

Background: The LTMS will provide a coordination and management structure for the implementation of the SAP, the FFMP and the Convention (and further development of the SAP) based on the overall policy direction provided by the LTMC, and with support of programme partners.

The LTS is comprised of the ED, Technical Advisors, Environmental Officer, Administrative/Finance Officer, the M&E staff, the ICT staff and the requisite secretariat and administrative support services/staff.

Duties:

- Coordinate the Lake management interventions implemented by national institutions within the framework of the SAP and the FFMP;
- Support the participating countries to ratify the Convention, and assist in implementation;
- Coordinate interventions on the Lake through joint management, with the Cooperating Programme Partners interventions;

⁴ Note that these institutions follow the format in the signed Convention. These institutions are designed to be permanent regional institutions and not GEF project artefacts.

- Prepare the establishment of the Lake Tanganyika Authority;
- Prepare draft procedures for the consideration of the First Conference of Parties and carry out any additional activities necessary to facilitate the implementation of the Convention;
- Establish protocols to Convention to harmonize regional regulations and policies, to adopt regional master plans and to open the Convention to other Basin State;
- Organization of ILTMA related consultative meetings for introducing and implementing program activities (including arrangements for such necessities as simultaneous translation and the production of documents in English and French);
- Act as the lead group to coordinate and leverage funding at national and regional levels in support of the SAP and the FFMP– negotiating finance for regional projects and assisting national agencies in negotiating finance for national projects;
- Prepare progress and annual reports for the LTMC on the implementation of the SAP and the FFMP and the progress on the Convention and any additional new activities within the basin that may affect the management of the Lake;
- Arrange and support meetings for the LTMC;
- Prepare annual budgets for the functioning of the ILTMA;
- Maintain an Information Resource: Collection and dissemination of information on policy, economic, scientific and technical issues related to the implementation of the SAP, the FFMP and the Convention;

3) THE EXECUTIVE DIRECTOR FOR ILTMA

General Responsibilities

The Executive Director is seen as a senior management appointment, with responsibilities to start a new regional program for the management and sustainable use of Lake Tanganyika and its resources. The Executive Director will be responsible through the Lake Tanganyika Management Secretariat (LTMS) to the Interim Lake Tanganyika Management Committee. A principal task of the Executive Director will be to ensure the evolution of the full Lake Tanganyika Management Committee from the initial interim committee.

The Executive Director will lead and build capacity of the LTMS, a new institution. The Executive Director will be the principal liaison Officer for the Program Collaborating Partners: the four riparian Governments (Burundi, DRC, Tanzania and Zambia), the African Development Bank, Food and Agriculture Organization, European Union, Global Environment Facility / United Nations Development Program, Nordic Development Fund and others. The Executive Director will coordinate and facilitate the work programs established by the partners, implemented through technical department heads.

Specific Duties and Responsibilities

The Executive Director will have the following tasks and functions:

1. Serve as the head of the LTMS, which provides overall support for the implementation of the Lake Tanganyika Strategic Action Program (SAP) and Fisheries Framework Management Plan (FFMP) and the establishment of the Lake Tanganyika Authority.
2. Manage the LTS, its staff, core (non-GEF) budget and assets and lead the LTMS in carrying out the tasks assigned to it by the LTMC.

3. Facilitate the ratification of the Convention; and ensure that the Convention is disseminated to all Contracting States and obtain and update information relevant to its implementation;
4. Ensure that protocols to Convention are established to harmonize policies and regulations, to establish regional frameworks, to allow other Basin State to become party to the Convention; facilitate the exchange of information under the Convention and its domestication.
5. Prepare the overall development and management Plan for the LTS, including inception plan and report, staffing plans, financial, procurement and personnel rules and regulations and overall work plans, that incorporate guidance from donor partners.
6. Financing: develop funding agreements; coordinate and leverage funding at national, regional and international levels in support of the SAP– FFMP negotiating finance for regional projects and assisting national agencies in negotiating finance for national projects.
7. Collaboration and Reporting. Arrange and support meetings of the Conference of the Parties and of the LTMC and serve as Secretary to the LTMC meetings and facilitate the effective operation of the Committee

QUALIFICATIONS, WORK EXPERIENCE AND OTHER SKILLS

The Executive Director should be a citizen from the Lake Tanganyika region (Burundi, DRC, Tanzania and Zambia) and should have the following qualifications:

- A higher university degree in subjects related to the work of the Program;
- Experience in the fields related to the assignment. At least ten years in managerial position in government or international positions;
- Demonstrated diplomatic and negotiation skills;
- Familiarity and knowledge of the region;
- Familiarity with the goals and procedures of international organizations.
- Previous work experience in regional or lake/river basin programs an advantage;
- Demonstrable skills in information technologies.
- English and French fluency.

4) CTA LEGAL/INSTITUTIONAL ISSUES AND COORDINATION

General Responsibilities

The CTA will be recruited by UNDP/GEF/UNOPS and has two distinct sets of duties:

- Firstly, To provide the coordination between the regional and national components of this GEF project and to ensure prompt and unified reporting processes.
- Secodly, he / she will be the ED advisor on matters related to Convention's processes, institutional setup, as well as regulations and policies harmonization, and cooperation between the ILTMS and Member States and similar regional organizations.

Specific Duties

The CTA Legal/Institutional will have the following specific duties:

- Provide coordination and lead facilitation between the country components and regional component of the GEF Program,
- Lead role in reporting on the regional progress to UNDP/GEF/UNOPS.
- Oversight and management of the GEF funds through UNOPS and NEX process.
- Advising the ED in leading the LTMS in the environmental programmes, including:
 - Follow up the progress of the ratification of the Convention and if required initiate necessary actions to assist countries in the ratification process;
 - Organization of ILTMA related consultative meetings for introducing and implementing the Convention, and protocols to the convention;
 - Coordinate the leverage of funding at national and regional levels in support of the implementation of the Convention;
 - Prepare progress and annual reports for the LTMC on the progress of implementation of the Convention

QUALIFICATIONS, WORK EXPERIENCE AND OTHER SKILLS

- A higher university degree in subjects related to the work of the Program;
- Senior management experience in the fields related to the assignment. At least ten years experience in a field related to the work program in government or international positions;
- Demonstrated diplomatic and negotiation skills;
- Familiarity and knowledge of the region;
- Familiarity with the goals and procedures of international organizations, particularly those of UNDP, UNOPS and GEF.
- Previous work experience in regional or lake/river basin programs an advantage;
- Demonstrable skills in information technologies.

Duration: Four years fixed-term.

Date required: 1 March 2005

Duty station: Bujumbura with travel in the ILTMA region (Burundi, Democratic Republic of Congo, United Republic of Tanzania and Zambia) and internationally as deemed necessary.

Language: Fluency in English and French.

5) Technical Advisor: ENVIRONMENT

General Responsibilities

The TA Environment will work through the LTMS in close liaison with the National Agencies and the Inter-ministerial Committees to ensure effective implementation of the GEF environmental components of the Program. The TA Environment will provide the senior technical expertise and leadership for the Program stakeholders in Land and Water protection components of the Lake Tanganyika Integrated Management Program. The TA will play a key role in ensuring effective Lake basin-wide communication and collaboration among national components of the Program, NGOs, consultants, and stakeholder groups to achieve the Program's objectives. The TA will report to the CTA, the Executive Director and to UNOPS/UNDP/GEF.

Specific Duties

- Assist the Executive Director in providing the leadership and technical guidance to achieve the targets, outputs, and performance indicators of the GEF component for environmental protection and conservation of the Lake Tanganyika biodiversity;
- Supervise the start-up and initial implementation of the GEF components of the Programme, including establishing monitoring and evaluation processes
- Advisory role in the formulation of the regional environmental policies and regulations as well as the formulation of Lake basin-wide frameworks for environmental protection and sustainable development;
- Provide technical guidance and mentoring of staff to ensure the effective implementation of GEF environmental component activities at the national level and that capacity building is well integrated into project activities;
- Prepare component related terms of reference and provide technical oversight for the work of international and regional / national consultants, ensuring the quality, timeliness and appropriateness of work;
- Prepare timely, accurate and quality progress, technical, financial and other required reports on GEF component activities.
- Maintain quality assurance and facilitate effective component monitoring and evaluation;

QUALIFICATIONS, WORK EXPERIENCE AND OTHER SKILLS

- Advanced University degree in natural resources management or water resources, biodiversity, ecology, biology, forestry; environmental economics or other professional area directly related to the work of the Program;
- At least seven years of experience in the fields related to the assignment;
- Familiarity and knowledge of the region would be an asset;
- Familiarity with the goals and procedures of international organizations;
- Ability to travel extensively in the region;
- Demonstrable skills in information technologies.

Duration: Two years fixed-term

Date required: 1 March 2005

Duty station: Bujumbura with travel in the ILTMB region (Burundi, Democratic Republic of Congo, United Republic of Tanzania and Zambia) and internationally as deemed necessary.

Language: Fluency in English and French.

7) PROJECT COORDINATION UNITS

Location: One National Project Implementation Office in each of the participating countries.

Background: In each participating country, SAP interventions will be carried out by National Implementing Agencies headed by a Project Coordinator under the responsibility of the participating country and the supervision of the ILTMS. Office costs of the National Agencies will be met from national contributions. GEF and other donor funds will cover national sub-projects components activities and the salaries of the Project Coordinator and the Staff. The participating country will designate a National Leading Institution to ensure the execution of the national sub-project components according to the work program and in accordance with GEF/AfDB requirements.

Responsibilities:

The National Implementing Agencies shall be responsible for the overall and day-to-day implementation at national level of the GEF and AfDB interventions. The NIAs will coordinate the work of the various project components in close consultation with the country designated lead official. NIAs will directly assist in project execution through the provision of services, advice and support in the areas of public consultation and assistance with regard to donor activities relevant to the project.

8) Inter-Ministerial Committees

Background

Through the formulation of the SAP and the signing of the Convention, countries have affirmed their responsibility to ensure a sustainable development to the Lake Tanganyika. Consequently, countries should ensure a considerable national level involvement in the ILTMB activities and a requisite level of national organization to provide the necessary country based support to the ILTMB activities and thereafter the Lake Authority.

The ILTMB will provide funds to support the work of the Inter-Ministerial Committees. The costs will cover the facilitation of meetings and proceedings. It is expected that these committees will meet at least once a month or more as justified.

Responsibilities

The Inter-Ministerial Committees should be responsible for the provision of all requisite support at national level to the activities of the ILTMB, the promotion of public and multi-sectoral involvement in the ILTMB activities, and the provision of technical advice to the ILTMC on managerial and technical aspects of the various sectors related to the SAP priorities (Fisheries, Socio-Economy, Biodiversity/Conservation, Water Quality and Pollution Control) and the Convention. The Inter-Ministerial Committees should be also responsible for providing support to the ratification of the Convention and for ensuring political support to the ILTMB and the process leading to the creation of the Lake Authority.

Composition

It is the responsibility of each participating country to recruit relevant and competent personnel to these committees to ensure a timely support to the Project implementation. The selection criteria of these members should be based on expertise, experience in the related sector and implications for the Lake. They should be composed of Inter-Ministerial representatives and other relevant Technical Institutions or State Organs. Private sector and NGOs involved in the Lake Tanganyika as well as local communities shall be represented in these committees.

ANNEX 4

The Lake Tanganyika Integrated Management Project: The Tanzania Component.

August 2004

SUMMARY

Using the TDA and SAP as a framework for management input, Tanzania prioritised two interventions for GEF funding: Reducing Sediment Inflow by Improved Catchment Management in Selected Watersheds; and Waste-water Management at Kigoma-Ujiji. Other components of the programme partnership address fisheries issues and the pervasive problem of poverty and livelihood dependence on fisheries resources among riparian populations.

Catchment Management will take place as demonstration interventions in the densely populated areas around several small rivers flowing directly into the lake north of Kigoma town. These streams coming from the steep mountainous terrain around the lake carry high sediment loads which are increasingly carpeting the rocky lake substrates with silt.

Waste-water management is in the rapidly growing urban centre of Kigoma-Ujiji, where domestic and industrial sewage flows largely into the lake. GEF funding provides capacity support for Kigoma administration to address compliance and monitoring of waste-water treatment, whilst leveraged co-financing – Nordic Development Funds to Tanzania - builds a modern treatment facility.

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Project Background / Context

Country Ownership

Country Eligibility

Tanzania ratified the Convention on Biological Diversity (CBD) in 1996 is eligible for technical assistance from UNDP/GEF. Tanzania ratified the Ramsar Convention on Wetlands in 2000.

Country Drivenness

Agreement, ratification and implementation of global interventions

The *National Biodiversity Strategy and Action Plan* (2004) and the *National Environmental Action Plan* (1994) both emphasise the importance of Lake Tanganyika in terms of biodiversity value and livelihood support. Pollution, sedimentation and localised over-fishing are highlighted in the Plans.

Project integration with national sector development policy

The major policies and strategies that are considered relevant to the environment and biodiversity of Lake Tanganyika are: the Forest Policy (1998) and Forest Act (2002); the Fisheries Sector Policy and Strategy Statement (1998); the Water Policy (2002); the Wildlife Policy (1998), the Land Policy, the Village Land Act (1999) and the Land Act (1999); the National Environment Management Policy (1997), and the National Environment Management Act under draft; the Poverty Reduction Strategy Paper (2000) and a revised version thereof under final preparation; the Local Government Reform Programme as being implemented under the amended Local Government Act of (1982); as well as the National Agriculture and Livestock Policy (1997), the Agricultural Sector Development Strategy (2001) and the Rural Development Strategy (2001).

Water Policy (2002) provides a new set of water policies for Tanzania, which will facilitate considerable improvements in water management in the country when implemented. The Policy recognises the importance of water for human needs, for the maintenance and integrity of ecosystems and biodiversity as well as its central role in the development of Tanzania's economy. The Policy's overall aim is to facilitate Tanzania's 2025 vision of attaining nationwide livelihood sufficiency (eradication of abject poverty), good governance and a strong and competitive economy. In detailing the role of water in individual natural resource sectors, the policy highlights the need for appropriate measures to achieve regional cooperation in trans-boundary water management through developing agreed frameworks with neighbouring states. Crucially, the Policy sets out a new approach that strives to achieve integrated, participatory, multi-sectoral, multi-disciplinary river basin management, through holism, subsidiarity and rational pricing. Water planning and management will be carried out within river basins at three levels: national, district and community level. In addition to rural water supply, the Policy sets out new policies for rehabilitation of urban water and sewage management based on quality service provision, user charges, environmental standards and independent regulation.

The **National Environment Management Policy (1997)** sets out a multi-sectoral framework for mainstreaming and coordinating environmental protection in national decision-making and policy implementation through the provision of guidelines. The main instruments for ensuring environmental protection are environmental impact assessments (EIA), promoting market valuation of the environment and its services to reflect their true economic worth, implementing a system of environmental standards and indicators as well as engaging with on-going international initiatives to address global environmental problems.

The **Forest Policy (1998) and Forest Act (2002)** focus on the decentralisation of natural forest management as a key strategy towards forest conservation. While control of particularly important core national forest reserves will be retained by the Forestry and Beekeeping Department (FBD), the majority of forest areas will be managed through Joint Forest Management between the FBD, districts and villages. The decentralisation of the forest sector complements the on-going Local Government Reform Programme, and provides the opportunity for villages to manage and protect their own forest resources through agreements with their district and the FBD. A challenge remains in building

sufficient capacity both at village level to successfully manage the forest resources and also at district level in developing appropriate technical support.

The ***Local Government Reform Programme*** was approved by the Government in 1998 with the aim of improving the quality of and access to public services provided to Tanzanians by local authorities. The programme has enabled much greater district administrative and financial autonomy in the provision of primary social services (health and education), natural resource management, land-use planning, environmental protection as well as road infrastructure development and maintenance. In addition to district-generated revenues, the districts receive conditional and unconditional block grants from central government with which to carry out their mandates.

Land Policy (1995), Village Land Act (1999) and Land Act (1999) and subsequent supporting legislation recognize village-based control of land tenure and land-use planning. Long term support will be required to enable village land committees and their land managers to proficiently implement, and for villages to equitably benefit from, the new legislation.

Fisheries Sector Policy and Strategy Statement (1998) in recognising the significant productivity potential of Tanzanian fisheries sets out strategies for encouraging the participation of fishing communities in fisheries management and promoting sustainable fishing practices and improving fish products and their marketing. The policy identifies a need for improved fisheries status data and for ensuring that appropriate data are made available to resource users and resource regulators. The policy also dwells on the need for improved institutional capacity that complements heightened fisheries protection measures and conservation efforts.

The ***Poverty Reduction Strategy Paper (2000)*** and its update (2004) stress the cross cutting nature of environmental issues and Tanzania's natural resource base in alleviating poverty. Sustainable fisheries and sustainable land management in the context of locally-based systems of tenure and management are emphasised.

The ***National Agriculture and Livestock Policy (1997)*** and supporting strategic documents of the ***Agricultural Sector Development Strategy (2001)*** and ***Rural Development Strategy (2001)*** stress the need for sustainable land management and the intensification of agricultural production. Tenure incentives for production and improved services are seen as key driving forces for improved agricultural land use.

Regional intergovernmental conventions

Tanzania, together with the three other riparian states of Lake Tanganyika has agreed on cooperative action for the sustainable management of the Lake. The ***Strategic Action Programme (SAP)*** for the sustainable management of Lake Tanganyika, together with the preparation and adoption of the ***Lake Tanganyika Fisheries Management Framework*** paved the way for the negotiation and signature by the four countries of the ***Convention for the Sustainable Management of Lake Tanganyika***, which is currently being ratified by the signatory nations. The Lake Tanganyika Project will assist Tanzania in operationalising the SAP and the Convention as part of this regional effort.

Environmental Context

The largest sub-catchment of Lake Tanganyika lies in Tanzania. Lake Tanganyika contains the greatest biodiversity of any lake on the globe, with some 2,000 species of fish, invertebrates and plants that have been recorded in the lake basin, of which at least 500 are endemic.

Socio-economic, Institutional and Policy Context

About one million people live around the Lake, with another ten million people living in the Lake's watershed areas of which about 3 million live in the Tanzanian watershed. The Lake is a source of fish for consumption and sale; it provides a key transport and communications link, supporting the socio-economic development of lakeshore communities; it is a permanent source of fresh water for agricultural, industrial development and for domestic purposes.

The main socio-economic constraint to ecosystem integrity and human well being in the Tanganyika basin is **poverty**. The main causes of poverty in the basin include:

- Limited choice of livelihood options and so over-dependence on agriculture and fishing
- Inadequate access to land and capital, and limited access to credit by the poor
- Inadequate access to markets to sell/buy goods and services
- Shortage of labour and skills for productive enterprise
- Destruction of natural resources, leading to degradation and reduced productivity of the resource.
- Lack of participation by the poor in the design of development programmes

Institutional and policy context

A legacy of under-achievement in the conservation and sustainable utilization of natural resources at local and village level in Tanzania can be largely attributed to past policies and accompanying institutional arrangements in the natural resource sector and related sectors. While new policies and initiatives now address the failures of previous policies, their legacy will continue to influence resource management regimes until the new policies are implemented at village level. The main weaknesses in past institutional arrangements were:

- Natural resource management was centralised, with government attempting to control (and not always succeeding) resource use practices within villages without sufficient consultation.
- National capacity to facilitate local planning and management of natural resources and the enforcement of necessary regulations has been weakened through other development processes. In the case of government institutions, public service reforms have resulted in a reduction in numbers and the morale of civil servants, including extension services in rural areas.
- Natural resource management has been carried out through a sectoral approach. For example, the fisheries department concentrates on fish conservation and utilization without involving other sectors which impact on the lake such as water, agriculture and forestry. It is now recognized that a cross-sectoral approach to natural resource conservation and catchment management in particular is needed. As a result of ongoing Local Government Reform

Programme, many implementation and coordination processes have been devolved in large part to the district level.

- Natural resource policy formulation has, in the past, tended to be government-driven to the exclusion of intended beneficiaries, particularly local communities. Past policy, while addressing national interests, often failed to take into account important local socio-economic parameters resulting in inequitable and under-achieving natural resource management institutions and practices.
- Legislation on natural resource management failed to include tangible incentives for people who depend and impact on natural resources. The tendency has been the enactment of legislation entailing punitive disincentives for local resource users. Furthermore, the larger share of revenue (in taxes and/or levies) accrued from the natural resource sector has been collected by the central treasury, leaving no tangible incentives or sustainable system of funding for communities to conserve and sustainably utilize their resources. New legislation that has been recently developed, notably the Forest Act (2002), has made substantial headway in redressing many of these deficiencies.

Baseline situation: Threats, Root Causes and Activity

Threats

The biodiversity of Lake Tanganyika faces major threats. With regard to the Tanzanian part of the Lake, high rates of sedimentation into the Lake and its inflowing rivers, growing pollution concerns, and over-fishing and environmentally damaging fishing methodologies were documented in detail in the Trans Boundary Diagnostic Analysis (TBDA). The latter is addressed by co-finance.

Sedimentation

The sediment deposited into the Lake destroys the habitats of fish and other aquatic species. Sediment impairs the dissolved oxygen balance in the water and obscures light needed for primary production, both of which are detrimental to aquatic life. In addition, heavier sediment loads can blanket fish spawning areas and cover the food supplies of many species. High sedimentation rates from intensive agriculture - for example, rice cultivation - can also be associated with high levels of nutrient inflow into the Lake that can result in eutrophication. Sedimentation is currently caused by inappropriate farming practices like cultivation on stream banks and hill slopes compounded by lack of manuring and mulch inputs; deforestation due to charcoal making, as well as logging for timber and pole cutting for house construction; overgrazing and; frequent fire outbreaks. The sediment loads from these activities are carried into Lake Tanganyika from the Tanzanian sub-catchment by certain rivers in particular - the Malagarasi, the Ruchugi, and the Luiche.

Sedimentation issues can be addressed through:

- Participatory village land use planning processes
- Participatory (joint) Forest management, including afforestation and restoration of degraded lands
- Adoption of appropriate agricultural and livestock husbandry practices

- Promotion and adoption of improved and/or alternative sources of livelihoods, including more efficient energy technologies to reduce the demand for and consumption of fuel wood
- Environmental education, and empowerment to allow incorporation of above issues.

Pollution

Pollution constitutes a localised yet substantial environmental threat to the Lake, from three sources:

- **Urban wastewater discharges causing localised eutrophication**
- **Nutrient-laden agricultural discharges impacting on localised Lake nutrient level**
- **Accidental marine transport discharges on the Lake – especially of petroleum products**

While all threats are of substantial concern, lakeside urban sewage discharges from Kigoma – Ujiji township currently constitute a localised but the most significant source of pollution into Lake Tanganyika in Tanzania. Domestic wastewater effluents generally cause elevated nutrient and turbidity levels leading to water eutrophication and a negative impact on the local biological communities of the Lake. In this regard, nutrient and water clarity data indicate that Kigoma Bay is becoming increasingly eutrophied and that untreated lake water from Kigoma Bay is often contaminated with cholera and typhoid micro-organisms. Data from the Tanzania Fisheries Research Institute (TAFIRI) shows that some fish species including *Labeo lineatus* (Mbiligi) *Boulengerochromis microlepis* (Kuhe) *Euchinoglanis occidentalis* (Kavungwe) *Cyathopharyx furcifer* (Malala) *Tetraodon mbu* (Kakamusi) in the Kigoma bay area have declined substantially due to growing eutrophication levels.

There is also some light industry in Kigoma that constitutes a potential risk of oil, heavy metal and organic pollutants also being discharged into the Lake.

Root causes

The threats – over fishing, environmentally damaging fishing methodologies, high rates of sedimentation into the Lake and its inflowing rivers, and growing pollution concerns – impacting on Lake Tanganyika are the product of a complex and inter-acting range of issues:

- **Weak local natural resource management and tenure institutions** – natural resource management has long been the prerogative of central and district government without appropriate, popular and effective participation of local communities and resource-users. With a legacy of chronic under-resourcing in the natural resource sector, the capacity of government institutions and the effectiveness of their programmes have remained weak, leading to *de facto* open resource use situations. *De facto* open resource use situations have also occurred as resource use and tenure rights have remained contested and local communities continue to

perceive resource management and law enforcement responsibilities as lying heavily with the state.

- **Poor governance and accountability** – reflective of a complex set of development and societal issues, poor governance and accountability have led to ineffective natural resource management, unsustainable resource use practices and have frequently compromised law enforcement.
- **Insufficient local and national institutional liaison** – catchment natural resource management is ideally a multi-sectoral undertaking involving water, agriculture, fisheries, forest, wildlife, land (tenure) and mining sectors. Each usually has its own district department and these departments may fall under entirely different ministries at national level. Creating and maintaining sufficient liaison and linkages between all these institutions is not easy and often receives inadequate attention. To date, insufficient coordination between all these sectors has led to disjointed and sometimes contradictory policies and programmes, resulting in poor catchment management. And underlying these institutional root-causes are the twin problems of:
 - **A growing human population** - in the Lake Tanganyika basin has led to increasing pressure on the resource base. While growing human populations may not necessarily lead to deleterious outcomes for the integrity of ecosystems and biodiversity, a range of complex factors, including those presented below, have resulted in insufficient incentives for, and the inability of, people to successfully manage their relationship with the environment in an ecologically sustainable way.
 - **Poverty** - is widespread in communities living around the lake, and heavily frames people's fishery and land (forest and soil) resource use rationales – which often maximise short-term benefits to the detriment of the natural resource-base. People farming the steep slopes of the lake's shores are amongst the poorest in local society and therefore are unable, for a variety of reasons, to invest sufficiently in sustainable farming and resource use practices. Underlying reasons include land tenure concerns and lack of knowledge about sustainable farming practices in a contemporary context.

On-going Activities Baseline Activities

Land-use, agriculture and livelihoods activity.

Aside from fishing, livelihoods are based on small-scale agriculture (maize, beans, cassava, sweet-potatoes and bananas), past cash-crops of oil-palm, cotton and tobacco have had limited success. There have been some promising introductions of ginger and other small scale higher-value crops. Cultivation is controlled by men but implemented by women (men fish!). Fields are on steep-slopes with limited soil-conservation input (ridge bunding, vetiver planting). Soil and soil nutrient loss leads to shifting cultivation practice with little management of fallow land. Such search for new cultivation sites has led to the clearing of many natural woodland areas, so reducing fuelwood house pole and minor forest produce opportunities.

The Rural District Councils have inadequate technical capacity and limited financial resources to properly address environmental issues in their respective districts. Past interventions aimed at afforestation were undertaken with little or no involvement of key stakeholders, thus undermining the sense of project ownership. These approaches have resulted in poor management of the catchment. The UNDP's Small Grants Project (SGP) and the Prime Ministers Office have extended support to some villages for improved livelihood activities, particularly for promotion of fuel-efficient stoves through Community Based Organizations (CBOs). The NGO TACARE– funded through the Jane Goodall Institute has demonstrated localised success with participatory land management processes in Kigoma. UNDP have a starting project to build capacity of local government to address environmental issues in Kigoma. Discussions within the PDF B process have led to agreements to work together in target communities.

The World Bank inputs to Participatory Forestry Management in Tanzania are planning to include Kigoma Rural District and will work with this project in supporting institutional process to create and manage village forest reserves. The NGO TACARE work with district and sub-district government to build capacities of villages in awareness of soil - agriculture processes, and now focus on population – HIV issues (USAID funding). TACARE have shown the benefit of strong participatory partnerships at community level. Project inputs will use and build on these TACARE approaches.

Urban pollution abatement.

Kigoma Town Council and Kigoma Urban Water Supply and Sanitation Authority are currently unable to manage proper disposal of both solid and liquid human wastes. There is haphazard discharge of wastewater, including raw sewage, from institutions and residential areas into Lake Tanganyika. The lack of proper wastewater treatment is due to run-down and inadequate sanitary facilities, poor enforcement of wastewater management byelaws, and insufficient human and financial capacity within the Kigoma Municipal Council (KMC) and Kigoma Urban Water Supply and Sanitation Authority (KUWASA). In response, the Ministry of Lands and Human Settlements Development developed a wastewater management plan in 1995 that has never been fully implemented by the Kigoma Town Council and Kigoma Urban Water Supply and Sanitation Authority due to insufficient resources. Unfortunately, this wastewater management plan is now outdated and needs to be revised in order to accommodate current population projections and current land use trends.

Box 1: The status of sewage management in the Kigoma – Ujiji Township area

In Kigoma – Ujiji, it is estimated that over 50% of Township households and most institutions and industries depend on traditional pit latrines, and stream discharge, particularly in the Ujiji area. Disposal of wastewater through septic tanks occurs in central parts of Kigoma town, government residential areas, and eg Mwanga and Lubengela areas adjacent to the lakeshore. Bangwe prison and the police compound, beach hotels and Kigoma Secondary School have on site disposal cesspit systems that have not been maintained since they were constructed. These disposal systems are now

full. As a result raw sewage from the prison, police and beach hotels is discharged directly into the Lake Tanganyika.

There are no oxidation ponds or lagoons for treatment of sewage material. There is only one old sewage sludge vehicle belonging to the town council with which to empty sewage from pit latrines, septic tanks and soak away systems in the Kigoma - Ujiji area. The cesspit emptier disposes the collected sewage on open land at Masanya Hill and on the Kagera Plains. This sewage, and that of small scale industrial effluent is subsequently washed into the lake during the rains through surface runoff, adding to the Lake's pollution.

Kigoma Bay lake waters are the main source of urban drinking water – and disease incidence is increasing. Fishing returns are decreasing as pollution and eutrophication increases.

Conservation activity

Two National Parks lie on the lake shore – the small Gombe National Park (~50km²) and the larger Mahale Mountains National Park (~2000km²) to the south. Katavi National Park lies to the south east of Mahale National Park, but within the context of conserving the biodiversity of Lake Tanganyika, is of minor significance. Most of the Malagarasi – Moyowosi floodplain swamp system is protected in the Moyowosi, Kigosi and Ugalla Game Reserves. There is furthermore a network of small forest reserves throughout the whole catchment, but their management remains weak and their encroachment and over-use are serious threats, although the on-going World Bank funded Participatory Forest Management initiative is helping to address these issues.

Conclusion

The biodiversity of Lake Tanganyika is threatened by three proximal threats of sedimentation and pollution, as well as localised over-fishing (addressed in other project components). Sedimentation and pollution continue to be caused by unsustainable land-use practices arising from the long term impacts of now superseded natural resource policies, weak but improving natural resource governance, insufficient yet incipient cross-sectoral natural resource management strategies and relatively high levels of poverty framing people's resource-use strategies. A range of conservation initiatives are already in place – for example a protected area network and participatory forest management, but much remains to be done, especially in regard to directly addressing the proximal threats to the Lake's biodiversity. While these threats are significant and substantial, they remain surmountable if an alternative course of action, as proposed herein, is adopted and promoted among all the Lake's stakeholders.

Alternative Course of Action

Introduction.

The Alternative Course of Action is to develop interventions to fill the gaps left from the baseline scenario, so as to seek sustainable global and national benefits from rational use and management of the Lake Tanganyika resources. The environmental threat analysis identified needs in improved fishing, pollution control, and catchment management. The GEF intervention in Tanzania is two fold:

- **Controlling sedimentation** through catchment management is considered the priority concern by stakeholders, as it causes deterioration in water quality of inflowing rivers into the Lake.
- **Controlling point sources of pollution** in the Kigoma Bay as a matter of urgency through urban institutional strengthening.

Co-finance deals with fisheries and pollution, as well as a suite of macroeconomic livelihood support options including infra-structural support, such as roads. Co-Finance Partners address fishing issues (AfDB, FINNIDA, NDF, FAO), wastewater infrastructure development for Kigoma – Ujiji (NDF), and rural development infrastructure (EU) and support (AfDB).

Controlling Sediment by Catchment Management

The catchment baseline consists of considerable past experience with agricultural projects designed to reduce erosion through soil conservation efforts, and fewer projects aimed at afforestation. The past largely top-down, sectoral, non-participatory processes did not lead to more than short-term isolated successes. This finding is true across much of sub-Saharan Africa, and is not a purely Tanzanian conclusion. The innovation of this proposal is to seek cross-sectoral interventions that are rooted in participatory process, building new technologies onto traditional practice. “Ownership” of the project processes, of the land, and on the usufruct resources from the land are key ingredients of the alternative, as has been demonstrated locally by TACARE. Success will only come from a mixed set of inputs including institutional support and real institutional capacities and coordinated linkages from upstream policy to downstream on-ground practices. In addition, the proposal seeks to raise environmental awareness, carry out demonstration of appropriate agricultural and energy technologies, facilitate secure tenure for villagers, and work with stakeholders to develop a set of improved land-husbandry practices that are tested on site with farmers, as well as to promote alternative income generating practices to reduce pressures on land resources.

To ensure the use of best practice in catchment management, the project in Tanzania (along with DRC and Zambian catchment components) will use the International Centre for Agro-Forestry (ICRAF) in Nairobi to provide training, demonstration and dissemination and learning experiences within the region.

Controlling Point Pollution by Wastewater Management

Kigoma Bay adjacent to Kigoma and Ujiji⁵ Townships is increasingly polluted by domestic and urban (including increasing light industry) wastewater effluents. Much of the raw sewage goes straight to the Lake, and Kigoma is thus a pollution hotspot – with increasingly negative impact on lake biology and productivity (eutrophication) as well as human health. Kigoma does not have a fully functional water-sewage system. The overall GEF Alternative provides for co-finance to build a modern treatment plant, and for GEF resources to build capacity within the Kigoma authorities to operate such a system – sustainably. This includes awareness, compliance, EIA processes and monitoring.

The expected impacts of GEF support

Tanzania is committed to fulfilling its international and regional commitments to biodiversity conservation and the sustainable management of the Tanzanian part of the Lake Tanganyika basin. GEF co-financing would enable Tanzania to fast-track current implementation of recent natural resource policy reforms and to achieve milestone improvements in the management of Lake Tanganyika basin. The key impact resulting from GEF support of the project will be:

Tangible, growing and sustained reductions in sedimentation rates at project demonstration sites that lead to improving habitats and biodiversity levels due to:

- Rising up-take by farmers in pilot villages of improved and sustainable agricultural practices and diversified livelihoods, which will be replicable throughout the Tanzania portion of the Lake Tanganyika basin.
- A decrease in deforestation and the rehabilitation of severely degraded areas in pilot villages due to more effective community-based natural resource management and partnerships with local government which serve as a demonstrative model for the Lake's catchment management.
- Within the national framework, and building on parallel experiences, the development of multi-sectoral institutions, linkages and relationships between community, district and national levels that successfully support participatory forms of natural resource management. The lessons learnt and precedents set will enable other similar initiatives in the Lake Tanganyika basin to be started with potential for replication on a wider national scale.

Point sources of urban pollution and their negative impact on the aquatic ecosystem controlled and reduced through:

- Strengthening the capacity of the urban water authority and local government to implement a wastewater management plan through improved institutional structures and linkages, practices and procedures including environmental monitoring and impact assessment.

⁵ Ujiji is the old “Arab” town adjacent the newer town of Kigoma. Ujiji is where Livingstone met Stanley - 150 years ago.

- Facilitating the development of a wastewater management plan for Kigoma-Ujiji that successfully addresses wastewater disposal requirements for people and biodiversity conservation at an affordable cost and using appropriate technologies

Objectives

The **GEF Component's Objectives** are embedded within the Strategic Action Programme (SAP):

'The protection and conservation of the biological diversity and the sustainable use of the natural resources of Lake Tanganyika'

The two **outcomes** from the project interventions are:

'The sediment flows into Lake Tanganyika from the pilot villages is reduced through integrated catchment management, thereby improving lake habitats'

'Wastewater management at Kigoma - Ujiji Township strengthened, thereby reducing point pollution levels of Lake Tanganyika waters and so improving biodiversity habitats'

These two outcomes will be achieved through two separate project components:

- Catchment management component
- Wastewater management component

Each project component proposed is presented in the following sections (3A and 3B) of this proposal. Detailed logical frameworks for each component are provided in the annexes.

A Catchment Management Component

Outputs – catchment management component

Working through community and local level institutions, the catchment management component aims to pilot innovative strategies to reduce sedimentation that are based on a multi-sectoral approach, and which are cognisant and integrated with current decentralisation processes within the natural resource and other related sectors. Interventions are through decentralised government and civil society with technical support from agriculture land-use research institutes and ICRAF.

To attain the immediate objective and hence contribute to the fulfilment of the development objective, the stakeholders of this project component have selected seven tangible, specific outputs:

Table 1: Project component Outcome and Outputs – Catchment Management Component

Outcome: The sediment flows into Lake Tanganyika from the pilot villages is reduced through integrated catchment management, thereby improving lake habitats'
Output 1: Awareness of key stakeholders raised and their catchment management capacity strengthened
Output 2: Sustainable land use practices and soil conservation measures adopted in pilot villages
Output 3: Heavily degraded areas rehabilitated
Output 4: Environmentally compatible livelihood strategies are introduced and adopted in pilot villages
Output 5: Deforestation in pilot areas reduced through adoption of bio-energy saving technologies
Output 6: Baseline and subsequent sediment flows into Lake Tanganyika from pilot areas monitored
Output 7: Project component efficiently and effectively managed, monitored and evaluated

The sub-outputs are presented below. Detailed project activities will be developed by each Project Implementation Unit (PIU) at the beginning of project implementation in a participatory process with national, district and village stakeholders. This will be approved at the initial Inception Workshop.

Output 1: Awareness of key stakeholders raised, and catchment management capacity is strengthened

Sub-outputs/Activities

- 1.1 - Demonstration sites selected by key stakeholders*
- 1.2 - Baseline situation analysis carried out and capacity/training needs identified*
- 1.3 - Conservation awareness campaigns on soil erosion issues and possible measures to improve catchment management undertaken together with local NGOs/CBOs*
- 1.4 - Village environmental institutions established and supported*
- 1.5 - Key stakeholders trained in catchment management, soil conservation, livelihood planning and land restoration*
- 1.6 - Exchange visits for relevant district council staff and village representatives to selected best practice sites facilitated*

Output 2: Sustainable land use practices and soil conservation measures adopted in pilot villages

Sub-outputs/Activities

- 2.1 - Participatory land use planning for forestry, agriculture and livestock in the villages carried out*
- 2.2 - Implementation of land use plans in forestry activities supported*
- 2.3 - Village forest reserves developed through planning, gazettement of bylaws, and Village Forest Reserve Management plans*

2.4 - Sustainable agricultural practices developed and supported, such as terracing, crop selection and husbandry, and introduction of agro-forestry practices

Output 3: Heavily degraded areas and key sites of soil loss rehabilitated

Sub-outputs

3.1 - Highly degraded areas in villages identified, management issues agreed by key stakeholders

3.2 - Highly degraded areas demarcated by key stakeholders for rehabilitation

3.3 'Highly degraded area' land use plans developed with stakeholders

3.4 - Rehabilitation of degraded areas begun supported and monitored

Output 4: Environmentally compatible livelihood strategies introduced/adopted in pilot villages

Sub-outputs/Activities

4.1 - Appropriate sustainable livelihood strategy options and adoption methods identified such as bee-keeping and small-scale cash crop initiatives such as ginger cultivation

4.2 - Selected livelihood strategy options piloted

4.3 - Livelihood activities evaluated

4.4 - Replication of successful strategy options initiated

Output 5: Deforestation in pilot areas reduced through adoption of bio-energy saving technologies

Sub-outputs/Activities

5.1 - Appropriate bio-energy technology options and adoption methods identified and reviewed

5.2 - Demonstrations of energy saving stoves carried out and their pilot manufacture supported

5.3 - Demonstrations of energy efficient energy kilns for charcoal production conducted and their pilot manufacturing supported

Output 6: Baseline / subsequent sediment flows from pilot areas to Lake Tanganyika monitored

Sub-outputs/Activities

6.1 Baseline and subsequent sediment flows in Lake Tanganyika monitored

6.2 Baseline land use and subsequent changes monitored

Output 7: Project efficiently and effectively managed, monitored and evaluated

The project will use an effective and efficient Management Information System (MIS)⁶ that will be a key administrative tool for the project's implementation. The MIS will

⁶*Definition of MIS: 'A MIS is an organized system, comprising of a sequence of processes that captures accurate and relevant information and processes it in a timely manner into the information that managers need to manage'.*

require the timely acquisition, analysis and dissemination of relevant information to the project's staff and stakeholders.

The MIS will comprise a *Planning* and a *Monitoring & Evaluation* component. The project's log frame with its in-built targets will provide benchmarks against which actual performance will be monitored and evaluated. The findings of the M&E process will in turn be fed back and used to review the logical framework for the project.

Sub-outputs/Activities

7.1 – *Recruitment of project staff*

7.2 – *Management Information System (MIS) developed and implemented*

7.3 – *Baseline survey conducted*

7.4 *Preparation and implementation of Annual Work plans and Budgets (AWPB) carried out.*

B Wastewater Management Component

Outputs – wastewater management component

The Kigoma wastewater project component aims to build the capacity of the Kigoma Urban Water Authority (KUWASA) and the Kigoma Municipal Council (KMC) in managing wastewater, thereby reducing pollution in the Kigoma Bay. The project will be implemented with the participation of Kigoma - Ujiji residents, appropriate NGOs and public institutions.

To attain the immediate objective and hence contribute to the fulfilment of the development objective, the stakeholders of this project component have selected five tangible, specific outputs:

Table 2: Project Component Outputs – Waste-Water Management Component.

stewater management at Kigoma-Ujiji Township strengthened, thereby reducing point pollution levels of Lake Tanganyika waters and so improving biodiversity habitat.
Output 1: Institutional capacity for wastewater management system strengthened
Output 2: Wastewater management strategy/plan for Kigoma – Ujiji township established
Output 3: Updated wastewater system design for Kigoma - Ujiji township developed that satisfies Lake biodiversity conservation requirements
Output 4: Wastewater flows and quality into Lake Tanganyika known
Output 5: Project component efficiently and effectively managed, monitored and evaluated

The sub-outputs are presented below. Detailed project activities will be developed at the beginning of project implementation in a participatory process.

Output 1: Awareness of key stakeholders is raised, and institutional capacity for wastewater management system strengthened

Sub-outputs/Activities

1.1 - Capacity of the Kigoma Urban Water Authority personnel, other relevant staff from the Kigoma – Ujiji town council and other public institutions on technical management of wastewater

1.2 - The financial management capacity of the Kigoma Urban Water Authority personnel and other relevant staff from the Kigoma Ujiji town council and other public institutions strengthened

1.3 - Capacity of the Kigoma Urban Water and Sanitation Authority personnel, relevant staff from the Kigoma – Ujiji town council and other public institutions on wastewater management developed

1.4 - Capacity of Kigoma Urban Water and Sanitation Authority, the Kigoma - Ujiji town council and other public institutions to conduct Environmental Impact Assessment (EIA) on wastewater systems improved

Output 2: Wastewater management strategy/plan for Kigoma - Ujiji Township established

Sub-outputs/Activities

2.1 - Strategy for wastewater management in Kigoma – Ujiji (planning, coverage, attract external finance, commercialisation) developed

2.2 - Development of policy on human resources, customer services etc. supported

2.3 - Technical guidelines/checklists on planning and design, operation and maintenance derived

2.4 - Financial guidelines/checklists on budgeting, bookkeeping, revenue collection etc. developed

Output 3: Updated wastewater system design for Kigoma - Ujiji Township developed that satisfies Lake biodiversity conservation requirements

Sub-outputs

3.1 - Existing wastewater plans reviewed for the Kigoma - Ujiji township

3.2 - Infrastructure and planning surveys for the updated wastewater system network conducted and sites for the treatment/stabilization ponds located

3.3 - An updated wastewater system, including network and treatment/stabilization ponds, is designed that satisfies Lake requirements for biodiversity conservation.

Output 4: Wastewater flows and quality into Lake Tanganyika are documented and known

Sub-outputs/Activities

4.1 - Monitor wastewater flows into Lake Tanganyika

4.2 - Monitor water quality of Lake Tanganyika

Output 5: Project efficiently and effectively managed, monitored and evaluated

The MIS will comprise a *Planning* and a *Monitoring & Evaluation* component. The project's log frame with its in-built targets will provide benchmarks against which actual performance will be monitored and evaluated. The findings of the M&E process will in turn be fed back and used to review and possibly modify the original log frame.

Sub-outputs/Activities

5.1 – Recruitment of project staff

5.2 – Management Information System (MIS) developed and implemented

5.3 - Baseline survey conducted

5.4 - Preparation and implementation of Annual Work plans and Budgets (AWPB) carried out

C Project Component Implementation and Institutional Framework

Project Sites

Catchment management project

The catchment management component will be implemented in several pilot villages in the Lake Tanganyika Catchment. Villages will be chosen to provide a representative cross-section of the diversity of ecological and socio-economic conditions that occur in the catchment, thereby maximising the learning potential of the project, and building strong lessons learned for later replication.

Wastewater management project

The wastewater management component will be implemented in the Kigoma Bay area. In coordination with the parallel and separate wastewater infrastructure development component funded by the Norwegian Development Fund (NDF), the focus of the project will be to achieve the sustained abatement of all significant point sources of pollution in the Bay.

Global Environmental Benefits

The conservation of Lake Tanganyika and its basin will lead to substantial global environmental benefits. With more than 2,000 species of plants and animals, Lake Tanganyika is among the richest freshwater ecosystems in the world. The dual approach adopted by the Project of catchment management and prioritised point source pollution abatement is necessary to preserve Lake Tanganyika's aquatic and littoral biodiversity. The catchment management component in particular will lead to further global environmental benefits as the basin's terrestrial biodiversity is conserved and becomes sustainably managed to reduce Lake sedimentation. The point source pollution abatement component will support the outputs achieved in the catchment management component, thereby also contributing to the global environmental benefits gained.

Sustainability

Institutional sustainability

This second phase of GEF intervention into Lake Tanganyika falls under the Lake Tanganyika Regional Integrated Management Program (LTRIMP). The Lake Tanganyika convention provides a legal framework and an institutional mechanism - in the form of a regional body, the Lake Tanganyika Authority (LTA) - for the management of the Lake. However the LTA will only begin operation once the Convention has been ratified and has begun to be implemented. While waiting for the ratification of the Convention, the four partner countries have agreed that an Interim Lake Tanganyika Management Authority (ILTMA) will coordinate the LTRIMP at regional level. Project implementation nationally will be under ILTMA through National and Regional Steering Committees.

The provisions of the national Local Government Reform Programme (LGRP), as well as national policies and strategies for execution of national development projects and programmes will guide the Project's implementation at national level. The LGRP accords responsibility for execution of projects and programmes to the local authorities and communities, while central government retains regulatory and policy functions. The objective of these 'new' participatory approaches is to promote and strengthen stakeholder participation and ownership, and thereby enhance sustainability.

As the National Executing Agency, the Vice President's Office (VPO) will have overall project responsibility at national level. The VPO will represent the Country at regional meetings and at other regional project engagements, in addition to coordinating national level activities.

District level – catchment management

The District Council of Kigoma Rural District will be responsible for taking the lead in the implementation of the catchment management component of the project but will work together as appropriate in partnership with local NGOs and CBOs. The Council and partners will provide assistance to the villages and resource user groups in the planning and implementation of project activities, provision of technical and other support, as well as in project monitoring. The District will report on project implementation progress to the VPO and the ILTMA through the National Project Coordinator who will be based in Kigoma. The District Council will constitute a Project Implementation Unit (PIU) comprising of appropriate resource specialists from within government and civil society. The PIUs will facilitate and lead the implementation of the project through best participatory practices.

The District will incorporate project activities in district development plans. In the course of project implementation, PIU will use service providers such as NGOs, (eg TACARE) academic and research institutions and the private sector to provide specific technical assistance roles.

Town council level – wastewater management

The wastewater management component will work directly with KUWASA and the KMC to improve their capacity in wastewater management. Staff from KUWASA and

KMC will benefit directly from training and planning capacity building, the wastewater plans developed will be owned by KUWASA and KMC and therefore the project's activities will be sustained once the Project has ended. The development of a business plan will further enhance the level of sustainability through securing long-term user-generated revenue for KUWASA and KMC that covers wastewater management costs.

Village/community level – catchment management

Facilitated by the PIU and NGO interaction the villages and communities will, through a democratic process, establish Village Environmental Committees where they do not already exist. Together with the PIU, these committees will be responsible for the planning and implementation of project activities at village or community level, in consultation with the main village councils. The sustainability of most of the project component's outputs is particularly contingent on successfully working with local communities and engendering their sense of ownership of, and commitment to, the project. However, mainstreaming project outputs with local and national government as well as regional institutions will be as important for the successful implementation of the project component and the sustainability of its outputs.

Financial sustainability

Catchment management component

The catchment management component will focus on the incremental costs of developing and piloting sustainable agricultural and land use practices. A major part of the catchment component's outputs will consist of transforming land-use practices and management capacity at village level. Pilot villages that develop PFM agreements, will have opportunities for generating levies, taxes and licensing fees that can be used in support of local PFM and wider village environmental governance operational costs. Other revenue streams, for example from local land use by-law enforcement, will also contribute to the financial sustainability of village natural resource management.

Wastewater management component

The GEF/UNDP wastewater component will cover the incremental costs of strengthening the Kigoma Urban Water Authority's capacity and be complemented by parallel investment in wastewater infrastructure by the NDF. A business plan will be developed to ensure the financial sustainability of wastewater management in Kigoma to maintain the investment made in institutional capacity, service provision and infrastructure development.

As stipulated in the National Water Policy (2002), the 'polluter pays' principle will underpin the business plan and all water users will be required to pay wastewater charges in direct relation to the amount of water that they use. As set out in the Water Policy, an institution other than KUWASA will regulate wastewater user charges, as well as the Authority itself. Private business participation will be promoted, as appropriate, in wastewater collection, operations and maintenance services.

Assumptions and risks potentially impacting on the sustainability of project outputs

Success of the interventions is based on several assumptions, the risks of which are identified as follows:

- Inadequate local government commitment to devolve a sufficient level of authority to NGO process and local level traditional/community based structures (CSOs).
- Inadequate resources to support co-management regimes for natural resource management.
- Inadequate community commitment and/or ability to maintain sustainable land use innovations that include conservation initiatives with delayed but medium/long-term benefits.
- Inadequate commitment by line ministries to support the project's efforts without expecting the project to cover their substantial overhead costs.
- Inadequate post-project revenues generated from licensing local natural resource use that result in the constrained and poor functioning of local community institutions leading to an erosion of the environmental gains achieved during the project.

Replicability

Replicability underpins the design of both project components. The processes developed and lessons learned in the water catchment component will be replicable in other catchment villages, as devolved and participatory natural resource management becomes institutionalised at district level. Although significant urban pollution in the Tanzanian part of the catchment is limited only to Kigoma Bay, the lessons learnt from building capacity with KUWASA will be applicable regionally within the Lake Tanganyika basin.

3.9 Stakeholder involvement in project proposal development

The development of the project has benefited from a broad-based consultative process supported by the GEF. Stakeholders from different disciplines and backgrounds have participated in project proposal development workshops. Participants were drawn from central government institutions, public institutions, the private sector and civil society organizations. A series of consultative meetings were convened with the village councils and assemblies of Kagunga, Zashe, and Mwamgongo villages in Kigoma Rural District. Nearby villages also participated.

3.10 Lessons from Similar Projects

Implementation of this project will benefit substantially from experiences and lessons learnt from other projects, including the first phase of the Lake Tanganyika Biodiversity Project (GEF/UNDP), the Lake Victoria Environmental Management Project (GEF/WB), the East African Cross-Border Biodiversity project (GEF/UNDP), the Sustainable and Integrated Management of the Coastal Environment supported by DANIDA and the Tanzania Coastal Management Partnership project. All these projects include aspects of regional cooperation, approaches fully involving local communities and appropriate NGOs, public awareness and capacity building activities, as well as working with local and central government. In addition, the experiences gained thus far from the national Participatory Forest Management (PFM) project (Ministry of Natural Resources and Tourism supported by the World Bank) will be indispensable in the development of community forest reserves. The teams implementing the GEF project components will be able to learn from other parallel project components such as the Lake Tanganyika Fisheries and Biodiversity Development Project (AfDB), the Lake Tanganyika Monitoring Program (IUCN), and local protected area conservation and outreach programmes in Mahale and Gombe National Parks (TANAPA). As part of the LTRIMP,

the Tanzanian component will also share its experience of best practices with the other three countries as part of the regional cooperation and integration.

The UNDP/GEF Small Grants Programme (SGP) has developed valuable experience in working with communities through its support to community-based activities. The programme has been operating in Kigoma and will remain active.

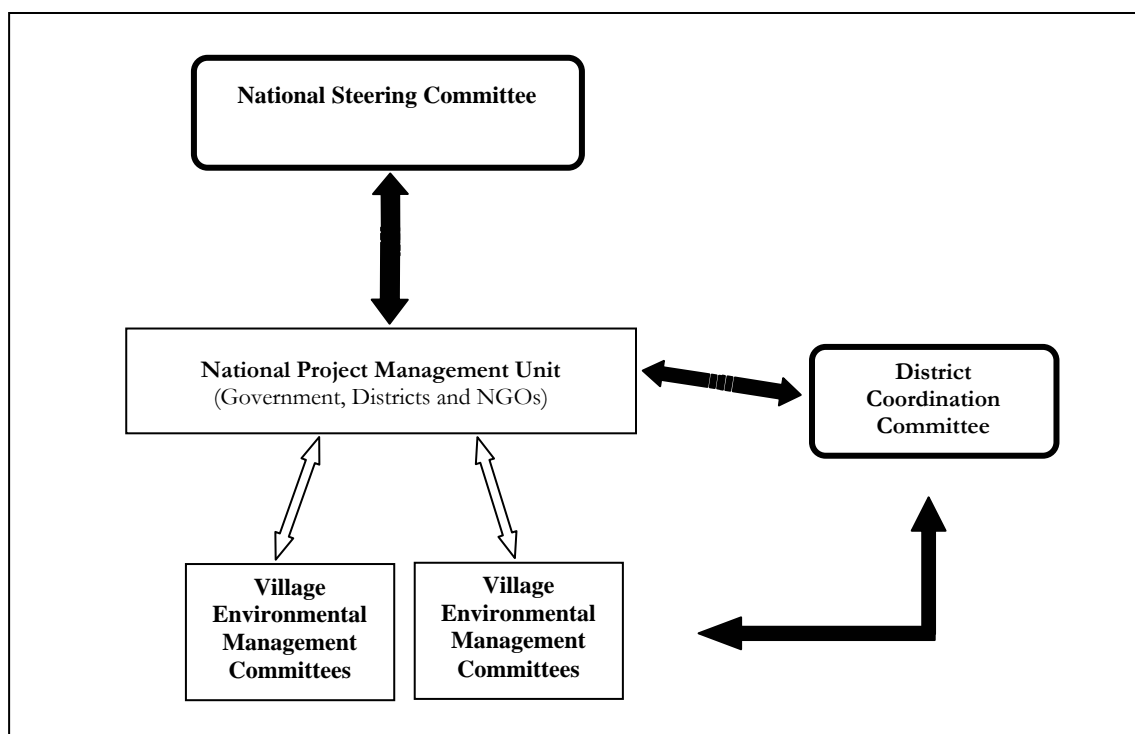
Monitoring and Evaluation

4.1 Monitoring and Evaluation System

The National Steering Committee (NSC) will oversee both project components. Using **Key Performance Indicators** (KPIs), the NSC role is to review annual progress in the achievement of the project's outputs and objectives and to provide the National Project Coordinator (NPC), as head of the National Project Management Unit (PMU), with feedback for project implementation improvement. The catchment management and wastewater management project components link to the Project Implementation Unit (PIU) and District Coordination Committee (DCC) and Wastewater Coordination Committee respectively – see Figures 1 and 2.

Overall project progress, outputs and emerging issues will be reviewed and evaluated at annual meetings of the National Steering Committee on the basis of the Annual Progress Report (Project Performance Evaluation Report - PPER), which will be prepared by the National Coordinator in close collaboration with the PIU. The annual project review (for both project components) will constitute a 'national Tripartite Review (TPR)' and the outcome of its deliberations will feed into the annual 'regional TPR'. The project will also participate in annual PIR (Project Implementation Review) exercises of the GEF. Towards the end of the project, the NSC will prepare a report synthesizing lessons learned and how these could be scaled up and replicated more widely. The National Project Coordinator and the PIU in Kigoma Rural as well as in Kigoma Municipality will carry out day-to-day monitoring of project activities and financial expenditures. The PIU is responsible for tracking implementation progress.

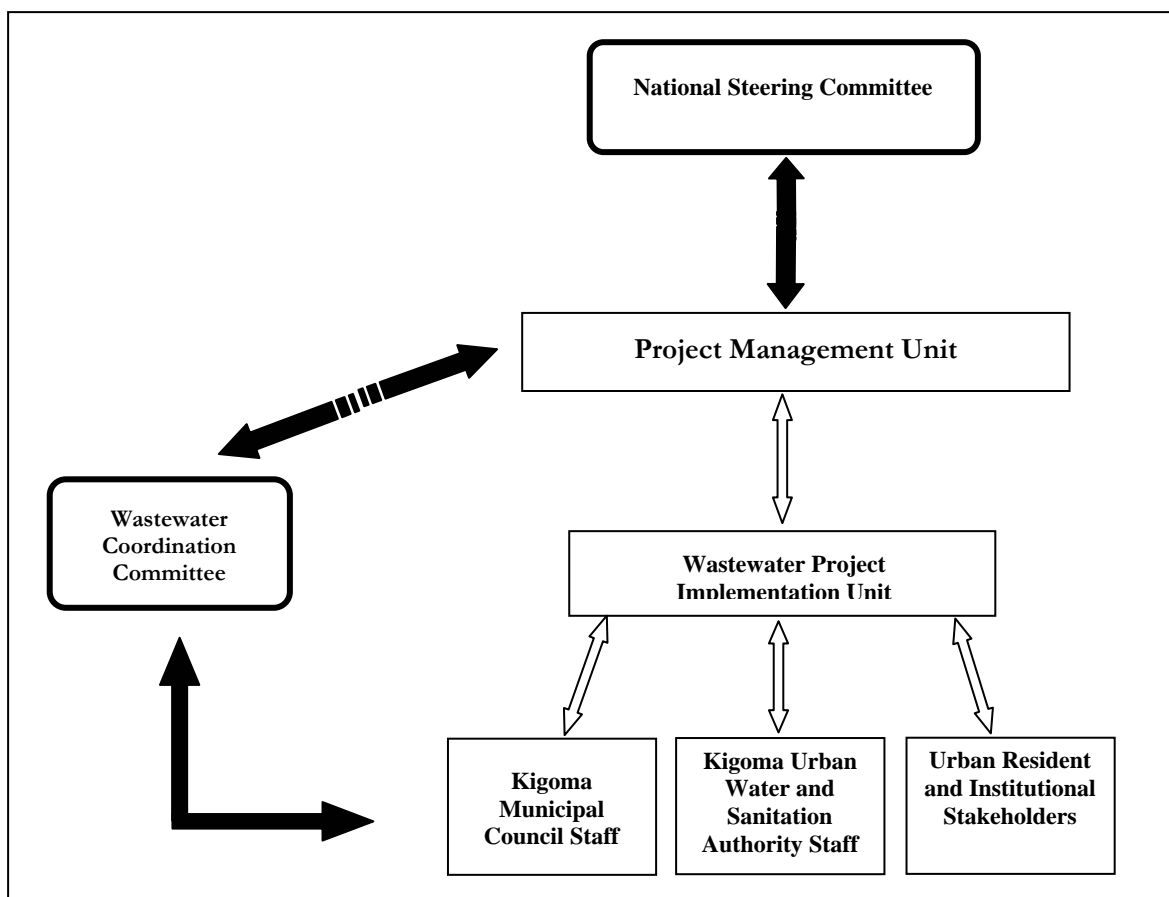
Figure 1: Project implementation structure for the catchment management component



The PIU will prepare Quarterly Progress Reports on the basis of project implementation for the National Steering Committee and its respective DCC. The PIU, communities and the National Project Coordinator will assess the implementation of both project components on a regular basis through an internal project review process. This internal review would focus on the implementation of project activities and expenditure flows.

The project will be subject to an external mid-term and terminal evaluation prior to the termination of the project. An additional report will be prepared by the PIU in coordination with the NPC three months prior to the mid-term review, which will assess overall progress in project component implementation and make recommendations for adaptive management. The VPO, in collaboration with the UNDP Country Office on behalf of UNDP/GEF will also pay occasional visits to the project sites to familiarise themselves with ongoing project activities and as part of their own procedures.

Figure 2: Project implementation structure for the wastewater management component



Financing

The development objective ‘Protection and conservation of the biodiversity and the sustainable use of the natural resources of Lake Tanganyika’ is realised through a number of related project components within the four areas as identified in the SAP -fisheries, sediment reduction, pollution control, and lake monitoring. Different partners contribute to the development objective. In Tanzania UNDP/GEF support will focus on catchment management and pollution control.

Under wastewater management, UNDP/GEF will contribute to the reduction of pollution into Lake Tanganyika through supporting institutional capacity building. The NDF will support an infrastructure rehabilitation and development component for wastewater treatment in Kigoma.

Baseline and Incremental Cost (This is detailed in the Executive Summary)

Baseline catchment management expenditure

The total baseline expenditure currently occurring in the catchment is estimated to be USD 1,500,000, see details in Annex 1a. The Tanzanian Government’s annual expenditure related to catchment management is approximately USD 80,000, which is mainly in the form of ongoing district support to the villages. In addition there are ongoing projects and programmes in the catchment that contribute to current baseline expenditure, such as the DanIDA supported SIMMORS project in Malagarasi, the

Nyanza project, JGI/TACARE programme and the UNDP small grant programme. These contribute an annual total of approximately USD 1,400,000.

Baseline wastewater management expenditure

Currently, the Tanzania Government (baseline) annual expenditure related to wastewater management is approximately USD 30,000, which is mainly in the form of ongoing town council and KUWASA activities (see Annex 1a). There are no additional ongoing projects contributing to the baseline.

Incremental Cost

This is estimated at 7.0 million US\$, with government financing of 1.15 million, on top of the baseline. Of this increment GEF contributes 2.5 million and Nordic Development Fund an estimated 4.5 million US\$ towards the wastewater component.

Catchment Management Component Cost

		Amount (US\$) Required by output and year				
Outputs		Year 1	Year 2	Year 3	Year 4	Total
Output 1 Sub-total		98,000	73,000	63,000	23,000	257,000
Output 2 Sub-total		75,000	190,000	195,000	90,000	550,000
Output 3 Sub-total		55,000	50,000	50,000	40,000	195,000
Output 4 Sub-total		55,000	45,000	85,000	40,000	225,000
Output 5 Sub-total		40,000	90,000	90,000	45,000	265,000
Output 6 Sub-total		27,000	27,000	27,000	27,000	108,000
Technical Outputs Total		350,000	475,000	510,000	265,000	1,600,000
Plus management costs (staff, vehicles, boat, running costs, communications, M&E, training)						
Management		198,900	142,500	123,100	135,500	600,000
GRAND TOTAL		548,900	617,500	633,100	400,500	2,200,000

Wastewater Management Component Cost

		Amount (US\$) Required by output and year			
Outputs		Year 1	Year 2	Year 3	Total
Output 1 Sub total		55,000	65,000	15,000	135,000
Output 2 Sub total		15,000	15,000	-	30,000

Outputs	Amount (US\$) Required by output and year			
	Year 1	Year 2	Year 3	Total
Output 3 Sub total	60,000	40,000	10,000	110,000
Output 4 Sub total	9,000	9,000	7,000	25,000
Grand TOTAL	139,000	129,000	32,000	300,000

Table 3 Co-finance - GEF alternative

Description		Total
UNDP GEF Co-Finance	Full project	2,500,000
	AfDB Fisheries	4,500,000
	NDF for Waste Water	4,500,000
Government ** Contributions in Kind		1,150,000
Total Co-finance		10,150,000
Total Project (Tanzanian component)		12,650,000

**** Government Co-Finance** (in kind contributions – staff time) is made up of contributions to regional and national institutional coordination (250,000\$), waste-water management through inputs of Kigoma water and sewage authorities (200,000\$); catchment management, through central, district, ward and village government and CBO inputs (600,000\$) and monitoring institutions - eg fisheries and water (100,000\$).

Institutional Coordination and Support

Project linkages with national/regional/global sector programs

Catchment management component

The Project component will coordinate with and add to environmental conservation projects that are being undertaken by NGOs such as TACARE - which coordinates a project promoting reforestation in lakeside villages. The Project will seek to learn from the experiences and approaches developed by these projects. In addition the Project will work in partnership with regionally based international institutions – such as ICRAF – so that extant knowledge bases are levered into, and adapted for, project implementation.

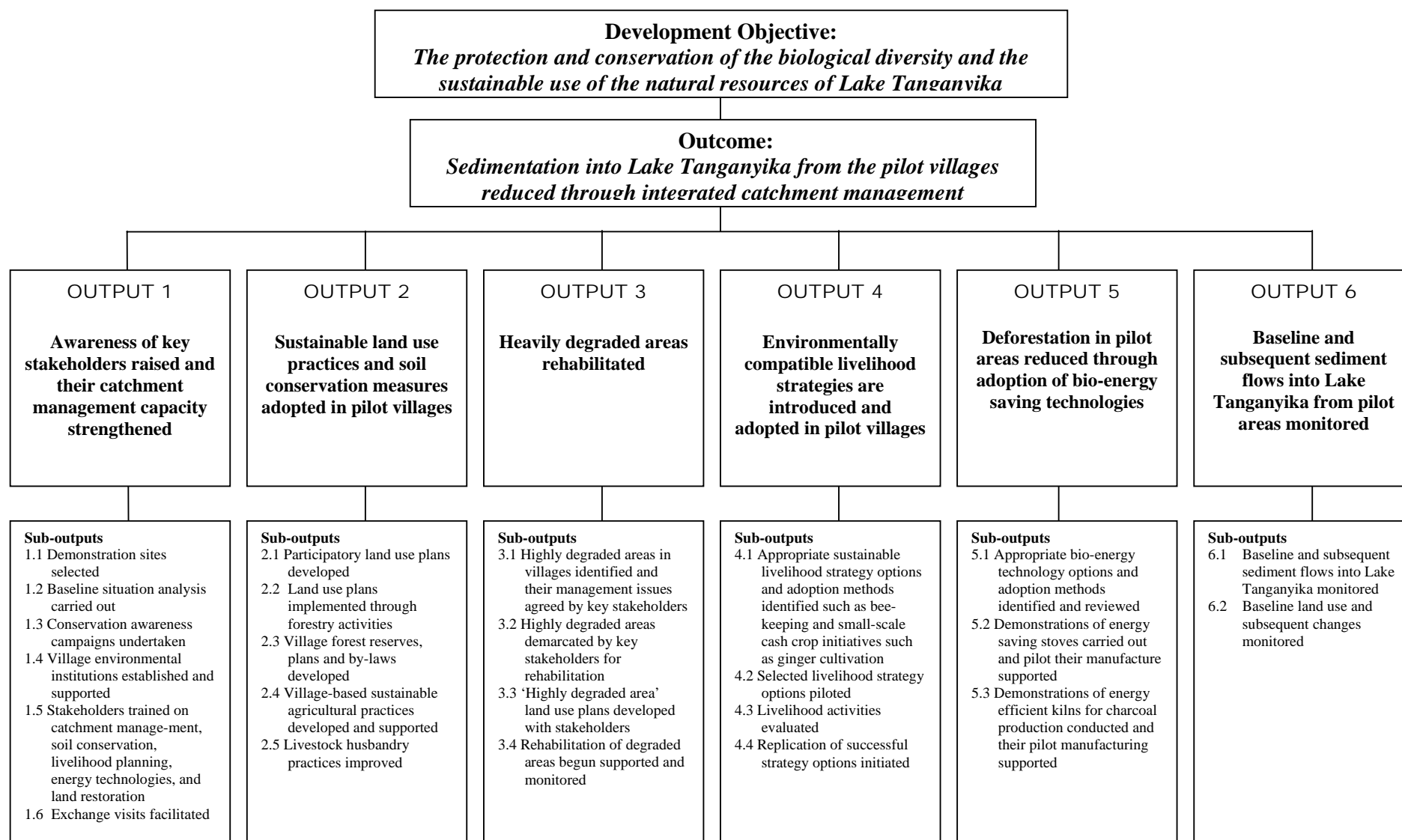
The Project will also facilitate, as appropriate, village access to the UNDP's Small Scale Grant Programme in support of improved sustainable and alternative livelihoods. A similar programme is currently under implementation through the Prime Minister's Office. The project will link up with NGOs and other institutions that have extensive

experience in the development, selection and dissemination of affordable bio-energy efficient technologies, such as TATEDO.

Consultation, coordination and collaboration between Implementing Agencies (IAs)

The National Project Coordinator will be responsible for the implementation of both of the project components via the District PIU for catchment management and wastewater. The PIU personnel will be recruited by the VPO in consultation with the District Authorities. The PIU will be based in Kigoma and will be responsible for the day-to-day running of the project, including the management of budgets, reporting on implementation progress, liaison with district, the VPO as well as with other project components.

Project Output and Activity Matrix – Catchment Management Component

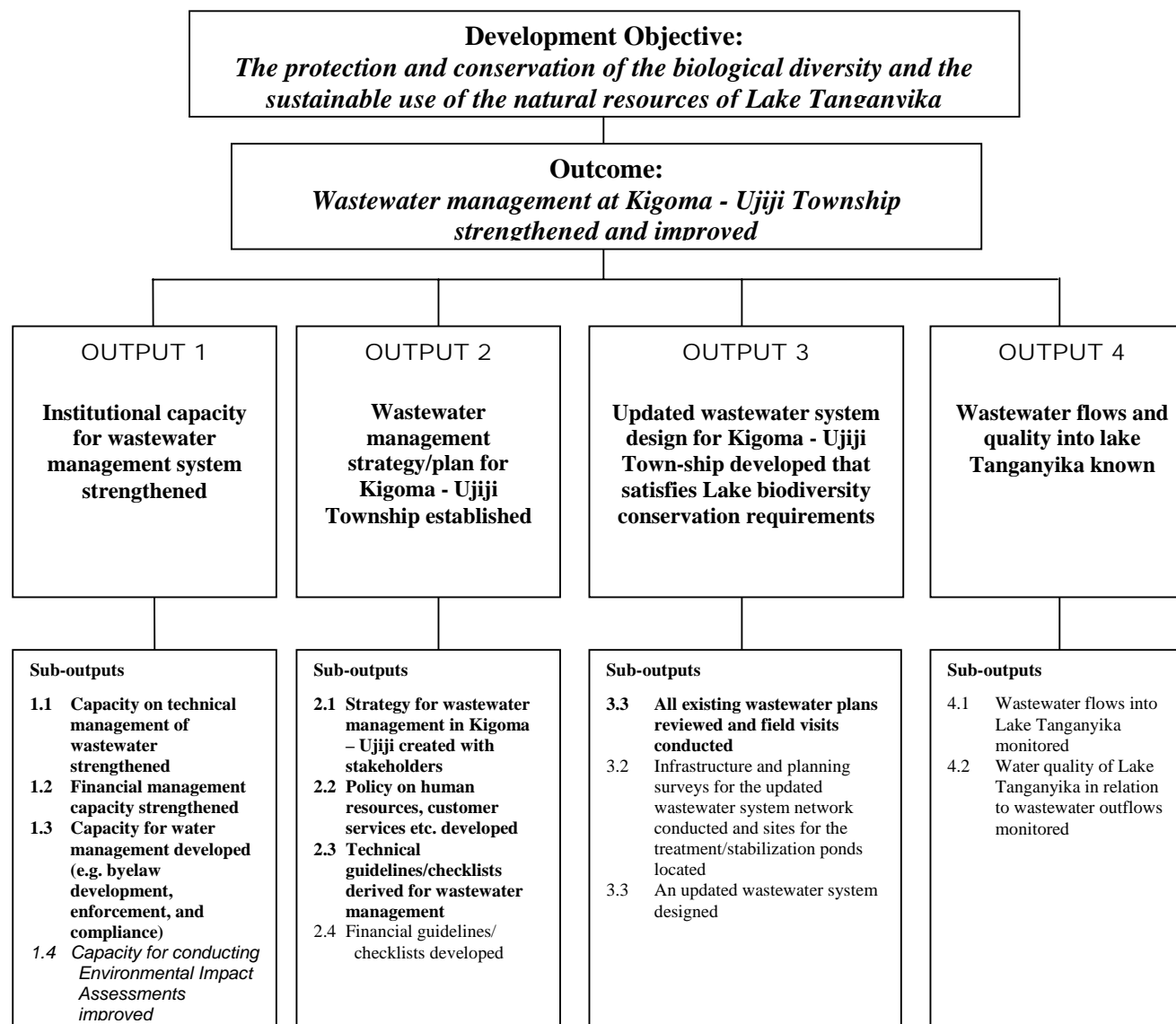


Project Logical Framework Matrix – Catchment Management Component

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
Development objective: The protection and conservation of the biological diversity and the sustainable use of the natural resources of Lake Tanganyika	✓ % increase in household income arising from non-fishing sources for households engaging in enterprises. ✓ % improvements in biodiversity (land and water) indices.	✓ Post project evaluation	✓ The policy environment supporting community involvement in NRM continues to be favourable ✓ Conflict in the Lake Tanganyika Basin does not interfere with the project's implementation
Outcome: Sedimentation into Lake Tanganyika from the pilot villages reduced through integrated catchment management	✓ Sedimentation into the Lake in the project area is reduced by 40% at the end of the project. ✓ The rate of new gulley formation is reduced ✓ Sustainable land-use practices adopted ✓ Livelihoods diversified	✓ Baseline and end of project inflow monitoring ✓ Transect Survey ✓ Land-use change time series data ✓ Livelihood evaluations	

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
Output 1: Awareness of key stakeholders (District Council, CBOs, NGOs, villagers / village government) raised and their catchment management capacity strengthened	✓ The District Council has prepared and initiated the implementation of a management plan in pilot areas. ✓ At least one CBO/NGO and all village governments at the pilot sites are capable of supporting implementation of the plans ✓ At least 40% of households are practising sustainable land use practices	✓ Baseline analysis report ✓ Project progress reports ✓ Village catchment management committee reports	
Output 2: Sustainable land use practices and soil conservation measures adopted in pilot villages	✓ Sustainable land use plans (SLUPs) under implementation ✓ 60% of households adhere to the land use plan	✓ Village land-use and forest reserve reports ✓ Project progress report	
Output 3: Heavily degraded areas rehabilitated	✓ At least one degraded area rehabilitated per site	✓ Highly degraded area reports ✓ Project progress reports	

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
<i>Output 4: Environmentally compatible livelihood strategies are introduced and adopted in pilot villages</i>	√ Environmentally compatible livelihood strategies are in use in villages	√ Livelihood reports √ Project progress report	√ The strategies are socially and economically sustainable
<i>Output 5: Deforestation in pilot areas reduced through adoption of bio-energy saving technologies</i>	√ A minimum of 40 % of households in villages have adopted the stove technologies √ The consumption of fuel wood has decreased by at least 40 % in HH adopting stove technology √ 30% of charcoal makers have adopted efficient kiln technology	√ Baseline and after project household survey √ Household survey √ Stakeholder consultation reports	√ Technology accepted
<i>Output 6: Baseline and subsequent sediment flows from pilot areas into Lake Tanganyika monitored</i>	√ Sediment flow reports monitored on a regular and sustained basis	√ Continuous data series held in database √ Lab management report	
<i>Output 7: Project component efficiently and effectively managed, monitored and evaluated</i>	√ MIS maintained	√ MIS records and reports √ Project reports	√ All partners meet their commitments to the project √ Timely disbursement of funds from the donor for project implementation activities

Annex 1: Project Output and Activity Matrix – Wastewater Management Component

Annex 2: Project Logical Framework Matrix – Wastewater Management Component

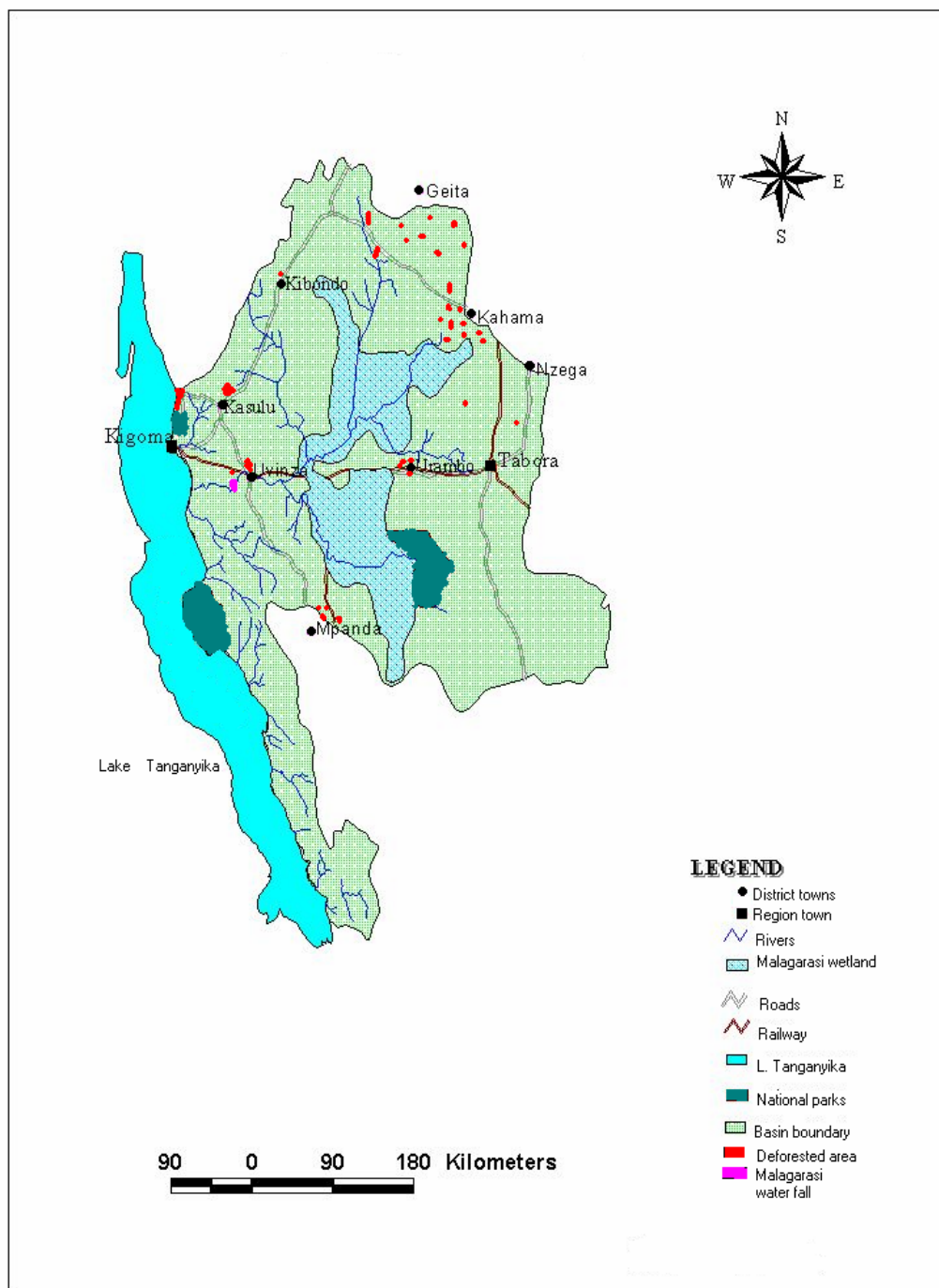
<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
Development objective: The protection and conservation of the biological diversity and the sustainable use of the natural resources of Lake Tanganyika	✓ % increase in household income arising from non-fishing sources for households engaging in enterprises. ✓ % improvements in biodiversity (land and water) indices.	✓ Post project evaluation reports ✓ Annual reports of line Ministries (Tourism, Environment and Natural Resources, Agriculture and Cooperatives, Energy and Water resources)	✓ The policy environment supporting community involvement in NRM continues to be favourable ✓ Conflict in the Lake Tanganyika Basin does not interfere with the project's implementation
Outcome: Wastewater management at Kigoma - Ujiji Township strengthened and improved	✓ Effective wastewater management system in place (e.g. human, financial, technical)	✓ Management system report	

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
Output 1: <i>Awareness of key stakeholders raised and their catchment management capacity strengthened</i>	√ Effective wastewater management system in place	√ Wastewater management reports	
Output 2: <i>Wastewater management strategy/plan for Kigoma - Ujiji Township established</i>	√ Wastewater management plan in place	√ Updated wastewater management plan	
Output 3: <i>Updated wastewater system design for Kigoma - Ujiji Township developed that satisfies Lake conservation requirements</i>	√ Updated wastewater system design in place	√ Wastewater system design	
Output 4: <i>Wastewater flows and quality into lake Tanganyika known</i>	√ Updated wastewater system design in place	√ Wastewater system design	
Output 5: <i>Project component efficiently and effectively managed, monitored and evaluated</i>	√ MIS maintained	√ MIS records and reports √ Project reports	

Annex 3: Map of the Tanzanian catchment of Lake Tanganyika

Table 3:

Table 4: Map of the Tanzanian catchment of Lake Tanganyika



ANNEX 5

The Lake Tanganyika Integrated Management Project

Zambia Component

August 2004

SUMMARY

The Zambian GEF Intervention comes from a prioritisation of the SAP, in which the control of sediment inflows from the steep mountainous terrain bordering Lake Tanganyika in both Mpulungu and Kaputa Districts was seen as the most important area for support. The issues of over-fishing are addressed through co-finance from AfDB/FAO and other partners of the Integrated Programme.

Sediment inflows will be reduced through an increase in area of land brought under sustainable land use (agriculture and forest land-uses). Emphasis will be on institutional strengthening with support to community participation in both agriculture, in forestry and soil erosion prevention.

Best practice and innovation, as well as regional coordination and dissemination of lessons will be assured by linking to ICRAF's training and demonstration programmes as a regional activity.

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Project Background / Context

Country Ownership

Eligibility

Zambia ratified the **Convention on Biological Diversity** (CBD) in 1993 and is eligible for technical assistance from UNDP/GEF. Zambia ratified the **Ramsar Convention** on Wetlands in 1991.

Country Driven-ness

Agreement, ratification and implementation of global conventions

Zambia developed a National Environmental Action Plan (NEAP) in 1994, which provides a strategy options for improving the quality of environment. Zambia developed a National Biodiversity Strategy and Action Plan (NBSAP) in 1999. The NBSAP outlined Zambia’s vision, mission and guiding principles for the implementation of the Convention. This project, which aims to reduce erosion and sediment input into the Zambian waters of Lake Tanganyika, will contribute directly to the conservation of this globally important biodiversity hotspot and the sustainable use of biological resources, in line with Zambia’s commitment to the CBD. Both the NBSAP and the NEAP stress the global and national value of Lake Tanganyika.

In 1991, Zambia ratified the Ramsar Convention an international treaty focusing on conservation of wetlands of international importance. As a follow-up to the ratification of the Convention, Zambia produced a National Wetland Status Report in 1994 that

highlights the values, threats development and conservation issues of the Zambia's wetlands. A National Wetland Strategy and Action Plan was developed in 1999 This was followed by the development of a National Policy on Wetlands in 2001. This project aims to empower riparian communities in Zambia to plan and manage land and water resources in the Lake Tanganyika catchments.

Project integration with national sector development policy

The major policies that are relevant to the environment and biodiversity of Lake Tanganyika are the National Agricultural Policy (1998), the National Forestry Policy (1998), the National Water Policy (1994), the Wildlife Policy (1993) and the Land Policy (1995) which is currently under review.

The draft **National Agricultural Policy (1998)** is based on the Agricultural Sector Investment Programme, which was launched in 1996. One of the Agricultural Policy's objectives is to ensure that the existing agricultural resource base is maintained and improved upon. Enhanced agricultural productivity has been given highest priority under the Poverty Reduction Strategy Paper (PRSP) of 2002. This project will address soil erosion problems through promoting improved land-use and agricultural practices, as part of conserving downstream biodiversity, thus contributing to the realization of both the Agricultural Policy and the PRSP objectives.

Although Zambia does not have a specific fisheries policy, fisheries are currently located in the agriculture sector. A **Framework Fisheries Management Plan** has been developed as a result of the regional Lake Tanganyika cooperation process. The Plan constitutes a comprehensive framework for developing the sustainable and equitable management of fisheries in Lake Tanganyika waters of Zambia, with linkages to other partner countries.

A central objective of the **National Forestry Policy (1998)** relates to the sustainable management of forest ecosystems, including water flows and biodiversity conservation, based on scientific and indigenous technical knowledge. This Policy objective is to be achieved through the promotion of land use systems that ensure the protection of catchments, including headwaters, rivers and watershed resources. The Policy has been followed up by the Forest Act of 1999, which provides for the community management of natural resources. This project will contribute to the realization of this objective, and the Forestry Policy in general, through piloting innovative approaches to afforestation and terrestrial resource management.

The **National Water Policy (1994)** covers water resources management, water use, and water quality. The policy promotes the development of sustainable water resources with a view to facilitating adequate, equitable and good quality water for all users at acceptable cost as well as ensuring security of supply. The project will promote and strengthen the linkages between sustainable catchment management and water provision development.

The **Wildlife Policy (1993)** sets out how the conservation of biological diversity and the sustainable management of wildlife is to be achieved. The Policy has a significant linkage with the development and management of the water sector in relation to the conservation of water catchments and associated wildlife habitats. The sustainable catchment

management outputs of the project will contribute towards the conservation of wildlife habitat outwith the national protected areas network.

The **Land Policy (1995)** is currently under review, as the relative merits and utility of individual land titling are examined within a historical context of a country with strong communal land traditions.

The **Decentralisation Policy (2000)** now empowers decentralised levels of government – particularly districts – to take greater responsibility for civil service functions and provides for greater decision-making by the elected District Councils.

The **Poverty Reduction Strategy Paper (2002-4)** has environment as a cross-cutting issue. The PRSP is currently under revision and is expected to give greater emphasis to Environment - Poverty Linkages. The PRSP feeds into the Transitional National Development Plan (which will be followed by a more definitive plan later on).

Regional intergovernmental conventions

During the first phase of the UNDP/GEF intervention on Lake Tanganyika (UNDP/GEF/RAF/92/G32), and the recent PDF B process for this second phase, legal experts and representatives from the four countries met to negotiate the text for the draft '**Convention on the Sustainable Management of Lake Tanganyika**'. The Convention was signed on 12th June 2003, and is now undergoing ratification. The objective of the Convention is to ensure the protection and conservation of the biological diversity and sustainable use of the natural resources of Lake Tanganyika and its environment by the contracting states.

Environmental Context

Lake Tanganyika contains amongst the greatest biodiversity of any lake in the world, with more than 2,000 species of fish, invertebrates and plants that have been recorded in the lake basin, of which over 500 are endemic. More detailed information about the richness of Lake Tanganyika in terms of biodiversity and other values is given to the Strategic Action Program document and in the Regional Component of this Project Brief.

The Zambian zone of the Lake is biodiverse and rich in endemic fish and mollusc species. For example, 37 percent of all fish species known to inhabit Lake Tanganyika were identified in the littoral lake zone of Nsumbu National Park that stretches for 80 km. The fourteen mollusc species identified in the Park represent 20% of the total number that have been recorded in Lake Tanganyika. All the 14 species are endemic to the Lake. The Zambian littoral zone and river mouths and associated wetlands provide important breeding grounds for economically important fish species. Nsumbu National Park provides considerable protection to lake biodiversity, but its aquatic habitats are under threat by increased levels of sedimentation. Outside the park fish resources are depleted by over-fishing and by deleterious fishing methods.

Whilst there are no urban settlements of the size of Bujumbura or Kigoma on the Zambian shores, Mpulungu is a rapidly growing township, with some secondary industries, and so waste-water treatment and point pollution are potential issues of concern⁷.

Socio-economic, Institutional and Policy Context

Socio-economic Context

Lake Tanganyika has substantial and on-going livelihoods value to lakeshore communities. The lake is a source of fish for consumption and sale, it provides key transport and communication links and is a source of water for industrial and agricultural development as well as for domestic use. Several million people live in the Lake Tanganyika basin and the population continues to grow despite a legacy of prolonged and tragic ethnic conflict in Burundi and the Democratic Republic of Congo (DRC). About 300,000 people live around the Zambian part of the Lake, the majority of whom rely on small-scale agriculture, agricultural processing and fisheries for their livelihoods.

The main socio-economic constraint to ecosystem integrity and human well being in the Tanganyika basin is **poverty**. The main causes of poverty in the basin include:

- Limited choice of livelihood options and over-dependence on agriculture and fishing
- Inadequate access to land and capital, and limited access to credit by the poor
- Inadequate access to markets to sell/buy goods and services
- Shortage of labour and skills for productive enterprise
- Destruction of natural resources, leading to degradation and reduced productivity of resource base
- Lack of participation by the poor in the design of development programmes

Institutional and Policy Context

Past under-achievement in the conservation and sustainable utilization of natural resources in Zambia can be largely attributed to policies and accompanying institutional arrangements in the natural resource and other sectors that indirectly impact on biodiversity. While new policies and initiatives have begun to address the failures of previous policies, their legacy continues to heavily impact on current resource management regimes. The most important weaknesses in these institutional arrangements areas follows:

- At the community level, local institutions (e.g. traditional authorities) and government departments operate in a divergent and un-coordinated manner in natural resource management in general. Government imposed systems of resource management are frequently at odds with traditional practices of resource access and control. This situation has largely arisen as a result of government policies and regulations that have excluded

⁷ Waste-water treatment for Mpulungu remains a priority under SAP, it is possible that other donor interventions may be leveraged by the Programme Partnership during this project lifetime.

community involvement and interests in the management of natural resources. This process has eroded traditional norms and rules that have modulated resource use.

- Natural resource management has generally tended to be carried out through a sectoral approach. For example, the fisheries department concentrates on fish conservation and utilization without involving other sectors which impact on the fish and its Lake habitat such as water, agriculture and forestry. It is now recognized that the application of a cross-sectoral approach to natural resource conservation and catchment management in particular is needed.
- Natural resource policy formulation has tended to be government-driven to the exclusion of intended beneficiaries, particularly local communities. Past policy, while addressing national interests, has often failed to take into account important local level economic and socio-cultural parameters resulting in the development of inequitable and under-achieving natural resource management institutions and practices.
- Legislation on natural resource management has failed to include tangible incentives for people who depend and impact on natural resources. The tendency has been the enactment of legislation entailing punitive disincentives for local resource users. Furthermore, the larger share of revenue (in taxes and/or levies) accrued from the natural resource sector has been collected by the central treasury, leaving no tangible incentives or sustainable system of funding for communities to conserve and sustainably utilize their resources.

Recent developments in the revision of Zambian natural resource management policies and accompanying institutional arrangements have made substantial headway in the sector's reform and its democratisation. Policy now recognizes the critical importance of community participation as well as the significance of developing viable benefit and cost sharing regimes among all stakeholders. A unique opportunity for developing and demonstrating transformed catchment management systems for the Lake is now possible, through the planned devolution of resource control to local lacustrine communities.

Baseline Situation: Threats, Root Causes and Activity

Threats

The biodiversity of Lake Tanganyika faces major threats. With regard to the Zambian part of the Lake, over-fishing and damaging fishing methodologies, high rates of sedimentation into the Lake and its inflowing rivers, and growing pollution concerns were documented in detail in the Trans Boundary Diagnostic Analysis (TBDA), and were identified as major threats to the Lake's biodiversity. The focus of this project phase is controlling sedimentation, which was considered as the priority concern, by stakeholders as it causes deterioration in water quality of inflowing rivers and the Lake itself. Co-Finance Partners will address fishing issues (AfDB).

Local resource managers view deforestation, which occurs in many of the catchments, and unsustainable agricultural practices as the main contributors to sedimentation. The main causes of deforestation are woodland clearing for agriculture and demands for

fuelwood for domestic use, fish smoking and tobacco curing, poles for house construction and transportation of fish. Poor agricultural practices include river-bank cultivation, steep-slope cultivation and lack of manuring and mulch inputs.

The sediment deposited into the Lake destroys the habitats of fish and other aquatic species. In aquatic environments, sediment impairs the dissolved oxygen balance in the water and obscures light needed for primary production, both of which are detrimental to aquatic life. In addition, heavier sediment particles blanket fish spawning areas and cover food supplies for many species.

Root causes

The threats impacting on Lake Tanganyika are the product of a complex and inter-acting range of issues that can be usefully categorised thus:

- **Weak local natural resource management and tenure institutions** – natural resource management has long been the prerogative of central and district government without appropriate, popular and effective participation of local communities and resource-users. With a legacy of chronic under-resourcing in the natural resource sector, the capacity of government institutions and the effectiveness of their programmes have remained weak, leading to *de facto* open resource use situations. *De facto* open resource use situations have also occurred as resource use and tenure rights have remained contested and local communities continue to perceive resource management and law enforcement responsibilities as lying heavily with the state.
- **Poor governance and accountability** – reflective of a complex set of development and societal issues, poor governance and accountability have led to ineffective natural resource management, unsustainable resource use practices and have frequently compromised law enforcement.
- **Lack of regional cooperation** – Lake Tanganyika is a transboundary resource and natural resource management issues – particularly fishing – have, until recently, not been managed in an integrated manner between the four nations. This has resulted in the imminent prospect of the important pelagic fishery collapsing, with substantial implications for fisherfolk's dependency on littoral fisheries already showing signs of depletion. Other issues such as lake pollution and sedimentation are usually more localised but require a regionally coordinated effort to effect abatement and prevention measures.
- **Insufficient local and national institutional liaison** – catchment natural resource management is ideally a multi-sectoral undertaking involving water, agriculture, fisheries, forest, wildlife, land (tenure) and mining sectors. Each usually has its own district department and these departments may fall under entirely different ministries at national level. Creating and maintaining sufficient liaison and linkages between all these institutions is not easy and often receives inadequate attention. To date, insufficient coordination between all these sectors has led to disjointed and sometimes contradictory policies and programmes, resulting in poor catchment management. And underlying these institutional root-causes are the twin problems of:

- √ **A growing human population** - in the Lake Tanganyika basin has led to increasing pressure on the resource base. While growing human populations may not necessarily lead to deleterious outcomes for the integrity of ecosystems and biodiversity, a range of complex factors, including those presented below, have resulted in insufficient incentives for and the inability of people to successfully manage their relationship with the environment in an ecologically sustainable way.
- √ **Poverty** - is widespread in communities living around the lake, and heavily frames people's fishery and land (forest and soil) resource use rationales – which often maximise short-term benefits to the detriment of the natural resource-base. People farming the steep slopes of the lake's shores are amongst the poorest in local society and therefore are unable, for a variety of reasons, to invest sufficiently in sustainable farming and resource use practices. Underlying reasons include seasonal farm labour shortages, insufficient access to affordable credit, insecure land tenure, and a lack of knowledge about sustainable farming practices in a contemporary context.

On-going Baseline Activities

Conservation Activity

Within the Zambian Lake Tanganyika catchment there are several natural resource protected areas, ranging from the relatively large Nsumbu National Park, to a number of smaller forest reserves and local reserves, and game management areas. Management of these areas is not very effective⁸, due to weak mandated agencies and little real participation from adjacent communities.

Natural resource management in Zambia is however starting a reform process following a set of new natural resource policies that were developed in the 1990s. As part of this process, a number of community and local level committees have been developed for managing particular resources – such as wildlife and fisheries. For example, there currently exist Chiefdom-based committees such as the Community Resource Boards under Zambia Wildlife Authority (ZAWA) and the Stratum Committees under the Fisheries Department. These committees need to be linked with Village Conservation Development Committees (VCDCs) where they do not already exist, and Area Conservation Development Committees (ACDCs) as appropriate – see section 3.5.1. However, other ongoing natural resource management developments have been less successful. Recent attempts by the government to re-enforce control in gazetted forests have consisted of developing laws and regulations including charges for extracting wood from the open forests. This approach has not been successful due to the poor law enforcement capacity of the Forestry Department and insufficient support and participation from local communities. The extension services are not strong.

Land-Use, Agriculture and Livelihoods Activity

⁸ A new GEF-UNDP Project to support the wildlife PA network in Zambia has just been approved.

Mpulungu and Kaputa Districts are a mixed farming area, where tsetse fly has traditionally prevented cattle keeping. The Districts rank at an intermediate level in national poverty indices. Population densities are medium and only rising slowly, in part due to HIV-AIDS. A key issue is that both districts have few livelihood options outside fishing and subsistence agriculture. Lack of livelihood options has led to over-fishing, and to illegal hunting in National Parks and Game Management Areas.

The topography is one of relatively steep hillsides dissected by several streams and rivers, rising from the lake at 900m asl. Slopes are covered with miombo (*Brachystegia*) woodland, with a fire prone tall grass ground layer. Main crops are beans (much exported to Lusaka and the copper-belt), sweet-potatoes and cassava. The area is not a major maize producer. Poor agricultural practices are increasingly common, in part due to insufficient land tenure security and few incentives for soil conservation practices, rather than high human densities and land shortage.

Districts have functional District Officers for agriculture, forestry and fisheries, as well as for community development. There is a regional Agricultural Research Centre at Misamba, Kasama. In addition, the Ministry of Agriculture Extension Officer maintains extension staff at 'camp level' (with a camp covering two or more villages).

Districts maintain District Development Coordination Committees (DDCCs). Traditional leadership is still strong (although waning) and constitutes a competing local power base to council/civil-service governance, leading to conflicts of interest. The districts are further administrated through ward, section and village levels. Villages do not have formal village governments, but instead traditional chiefs/headmen. Villagers have a series of Committees (e.g. the Village Forestry and Natural Resources Committee), but it is currently considered that there are too many committees at this level.

Communities manage forest resources on community and state-land with guidance from Forestry. Northern Province is not included in the Provincial Forest Action Plans, and the CBNRM programmes are not active in these two northern districts. Whilst the Forest Act provides for CBNRM, requisite capacity has yet to be developed, appropriate frameworks and guidance have yet to be put in place.

On-going Support Programmes – The Baseline

There is currently an aid disparity in Zambia, with distant poor-access districts receiving proportionally less support. Northern Province and the two focal districts do not have a strong NGO presence – either international or national NGOs. Refugee camps in adjacent districts are supported by CARE/World-Vision. Major donors in the two districts have been NORAD (for district development), the AfDB for water infrastructure, and Irish Aid for social services (HIV-AIDS and water).

The Economic Expansion of Outlying Areas project grew into the present Agriculture Support Programme (ASP), (SIDA funded). ASP consolidates several earlier SIDA soil, agriculture conservation programmes. ASP is active in 4 Provinces and 20 districts. Whilst Northern Province is included, neither Mpulungu nor Kaputa Districts are included. Lessons learned can be gained from other Northern districts and applied in the

project areas. This ASP is different from the WB funded national level Agriculture Sector Investment Programme (ASIP) that is coming to an end.

UNDP has just approved a micro-finance project on a pilot basis. This involves collaboration with the Graminee Bank Trust and United Nations Volunteers (UNV). The project is being piloted in Lusaka Province – and Mpulungu-Kaputa would be an appropriate area to which to expand. Also, the World Bank funded Zambia Small Investment Fund (ZAMBELE) has well developed micro-finance expertise. ZAMBELE has prepared District Profiles to help define best lending practice.

Conclusion

The biodiversity of Lake Tanganyika is threatened by rising levels of sedimentation into the lake caused by increasingly unsustainable land-use practices and a declining natural resource base. The root causes of these trends are weak natural resource governance, the lack of a multi-sectoral approach and coordination to wider ecosystem management, as well as insecure and weak community-based resource tenure and management systems. This situation is further compounded by the effects of poverty and relatively low levels of external programme support at District level. Without the project's intervention, Mpulungu and Kaputa Districts will be unable to address the baseline situation as part of Zambia's commitment to conserving the bio-diversity of Lake Tanganyika.

Alternative Course of Action

Introduction

The Alternative Course of Action is to develop interventions to fill the gaps left from the baseline scenario, so as to seek sustainable global and national benefits from rational use and management of the Lake Tanganyika resources. The environmental threat analysis identifies needs in improved fishing practice, in pollution control, and in catchment management. Co-finance deals with fisheries and pollution, as well as a suite of livelihood support options including infra-structural support, such as roads. The GEF intervention in Zambia addresses catchment management.

The catchment baseline consists of past experience with agricultural/soil projects designed to reduce erosion through soil conservation efforts, and projects aimed at afforestation. The past, largely top-down, sectoral, non-participatory processes did not lead to more than short-term isolated successes. This finding is true across much of sub-Saharan Africa, and is not a purely Zambian conclusion.

The innovation of this proposal is to seek cross-sectoral interventions that are rooted in participatory process, building new technologies onto traditional practice. "Ownership" of the project processes, of the land, and on the usufruct resources from the land, are key ingredients of the alternative. Success will come from a set of inputs including institutional support and capacities and coordinated linkages from upstream policy to downstream on-ground practices. In addition: awareness, demonstration, secure tenure, and a set of improved land-husbandry practices that are tested on-site with farmers, as well as alternative income generating practices to reduce pressures on land resources.

To ensure the use of best practice in catchment management, the project in Zambia (along with Tanzania and DRC catchment components) will use the International Centre for Agro-Forestry (ICRAF) in Nairobi to provide training, demonstration, learning experiences and their dissemination within the region.

The project will pilot these interventions in four sites within Mpulungu and Kaputa Districts, each within a different micro-catchment (Lunzua, Izi, Chisala and Lufuba Rivers). Further co-finance from AfDB will extend these pilot processes elsewhere in Mpulungu and Kaputa Districts.

The expected impacts of GEF support

Zambia is committed to fulfilling its international and regional commitments to biodiversity conservation and the sustainable management of the Zambian part of the Lake Tanganyika basin. GEF co-financing would enable Zambia to fast-track current implementation of recent natural resource policy reforms and to achieve milestone improvements in the management of Lake Tanganyika basin. The key impact resulting from GEF support of the project will be:

Tangible, growing and sustained reductions in sedimentation rates at project demonstration sites which lead to improved biodiversity habitats due to:

- Rising up-take by farmers of improved and sustainable agricultural practices that will be replicable throughout the Zambian portion of the Lake Tanganyika basin
- A decrease in deforestation resulting from more effective community-based natural resource management serving as a demonstrative model for the Lake catchment.
- The development and piloting of multi-sectoral institutions, linkages and relationships between community, local and national levels that successfully support participatory forms of natural resource management. The lessons and precedents set will enable similar initiatives in the Lake basin to be started, with potential for replication on a wider national scale.

Objective and Outcome

The **Immediate Objective** is as outlined in the Lake Tanganyika Strategic Action Plan (SAP) and is in line with the Transitional Development Plan (TDP) and the Poverty Reduction Strategy Paper (PRSP) of the Zambian Government and is defined as:

‘The protection and conservation of the biological diversity and the sustainable use of the natural resources of Lake Tanganyika’

The project’s single **Outcome** in Zambia is as follows:

‘Reduced levels of siltation into the lake resulting from improved management of the Lake’s catchments with sustainable use of agricultural and forest resources’.

Outputs

To attain the outcome and hence contribute to the fulfilment of the overall objective, the stakeholders of this project have developed five tangible, specific outputs:

Table 5: Project Outputs

Output 1: Sustainable natural resource use practices established
Output 2: Sustainable alternative income generating activities developed
Output 3: Awareness of stakeholders of the importance of sustainable natural resource management raised
Output 4: Capacity of local governance structures for sustainable natural resource management enhanced
Output 5: Project efficiently and effectively managed to achieve outputs and immediate objective, with monitoring and evaluation process to show impact.

Output 1: Sustainable natural resource use practices established

The Strategic Action Programme (SAP) for the Sustainable Management of Lake Tanganyika calls for an integrated approach to addressing the sector-based and underlying causes and threats to biodiversity. In response to this call, this project will enhance the capacity of resource users and managers at catchment level to increase their ability to sustainably manage and utilize resources so that biodiversity is conserved and livelihoods are improved. To this effect the following are the proposed sub-outputs:

Sub-outputs/Activities

1.1 - Demonstrations on mitigation measures for land degradation established:

The Department of Agriculture will set up participatory on-farm demonstrations within the four priority areas to show-case technologies for abating land degradation, controlling soil erosion (contour ploughing, planting strips with vetiver grass), developing alternatives to slash and burn practices and planting fast growing agroforestry species to rejuvenate abandoned farmlands. These activities tend to take relatively long periods to show appreciable results and must therefore begin in the first year of project implementation so that their effects can be observed within the project's life. The technologies to be promoted must show tangible and reasonably immediate benefits for farmers. For example, the species used in contour bunds or improved fallows must be fast growing with good coppicing abilities that can be used or marketed for purposes such as fuelwood and poles. Misanfu Agricultural Research Centre based in Kasama (the provincial capital of Northern Province) has a menu of appropriate species available that the project will utilise.

1.2 - Demonstrations on sustainable low input agriculture established

Soils in the region are inherently low in fertility and, due to high rainfall, nutrient leaching (especially of bases) is very high. The pH tends to be very low with high levels of aluminium. Fertility management of these soils often requires the application of high levels of external inputs such as lime and inorganic fertilizers. These inputs are costly

and not easily available in the area and it will be prudent for the project to promote low input systems. In this regard, organic / inorganic farming combinations will be promoted that reduce requirements for externally procured (inorganic) inputs. The Department of Agriculture will demonstrate green manure technologies, agroforestry techniques, minimum tillage and other adaptable conservation farming techniques. These demonstrations will be on farmer's fields and farmer managed.

1.3 - Sustainable forest management systems developed and adopted

The Forestry Department will work with communities to rehabilitate degraded forests establish woodlots and plantations, and encourage controlled early burning, formulating by-laws and promoting community-based law enforcement mechanisms. The approach for the establishment of these woodlots will need to take a business-orientated approach so as to offer profit incentives that encourage people to participate in this conservation effort. Three approaches are proposed:

1. Mobilization of villages to manage degraded village forests. In addition to allowing natural regeneration of degraded forests, selected areas would be additionally re-afforested with selected fast growing species – within the constraints and opportunities of local tree tenure practices.
2. Promotion and demonstration of individual farm woodlots.
3. Management of selected forest supply areas through a Joint Forest Management (JFM) framework between the Department of Forestry and user groups. The Forestry Department is currently piloting a JFM approach in line with the new Forestry Act and this project could complement these efforts in the context of the Lake catchment management. Part of the JFM development process will be the delivery of training for Community Resource Rangers. Communities will select Community Resource Rangers who will have the responsibility of resource monitoring (e.g. in a particular forest). Community Resource Rangers will require specialized training in basic resource management, resource-user relations, and law enforcement rights and obligations.

1.4 - Water quality monitoring and reporting system established and functional

The Department of Water Affairs will monitor water quality as an indicator of upstream activity. The measurements will include sediment levels, chemical pollution, ballast water monitoring and flow measurements. The resulting data analysis and reporting will provide important feedback for monitoring the impact of upstream human activity on the water quality and its likely impacts on aquatic life. (This feeds into the Regional M and E Process)

Output 2: Alternative Income Generating Activities (IGA) developed

The Lake Tanganyika catchment provides lacustrine communities with an array of goods and services upon which they depend for their livelihoods. In recognition of the legitimate need for people to sustainably exploit the catchment's natural resources to access economic benefits (goods and services), the project will develop and pilot alternative sustainable ways of utilising these resources. Project-mediated development of alternative income generating activities will reduce the pressure on, and demand for, fish as a source of income and livelihood.

Sub-outputs / Activities *(This includes a range of possible options of potential IGA's)*

2.1 - The IGA start-up revolving fund established

The success of IGAs will depend on the injection of initial start-up capital to finance interested and well-appraised entrepreneurs. It is therefore proposed that the project sets aside funds amounting to US\$ 200,000 to open a revolving fund to be managed by the Catchment Conservation Committee (CCC) under the supervision of the District Development Coordinating Committee (DDCC). The seed fund is relatively small but the scheme, if successful, is expected to grow from the interest paid by the borrowers and from bank interest. Entrepreneurs will then apply for funds through VCDCs to start IGAs. The sub-output will link with AfDB co-finance, which is developing micro-credit for fisheries.

The **Project Implementation Unit** (PIU - see section 3.11.2) will coordinate the setting up of this fund drawing from the experiences of the ZAWA (Zambia Wildlife Authority) revolving fund and other successful revolving funds around the country like the Core Programme Village Revolving funds for IGAs under the IFAD (International Fund for Agricultural Development) funded by the Southern Province Household Food Security Programme.

The project will promote alternative income generating activities and enterprise development that reduce pressure on the natural resource base, rather than those that provide an additional economic activity, without promoting biodiversity conservation. ***IGAs will be community demand driven, facilitated through community training and awareness building, and contingent on project-mediated market assessments and cost benefit analyses.***

2.2 - Value-adding processing supported

The project will promote activities that increase the value of agricultural products as a means for increasing livelihood benefits. Potential initiatives will include promotion of appropriate processing technology such as hammer mills, small-scale fruit processing equipment, cassava chippers, sugarcane juice extractors and oil expellers. Care will need to be taken to ensure that successful value-adding initiatives do not in turn create an incentive for people to expand their enterprises to the extent that they harm natural forest conservation areas.

2.3 Community-based commercial woodlots established

The sale of poles (< 14cm butt diameter) is a lucrative business in Mpulungu. These are used to increase the carrying capacity of the trucks used for transporting fish to towns and to Congo. The business is a major contributor to deforestation but with woodlots planted with fast growing tree species, this could be turned into a profitable yet sustainable income generating activity.

Appropriate land and tree tenure arrangements based on local norms and practices will be first examined to ensure the success of the initiative. Silvicultural management will involve first establishing tree nurseries by the Forestry Department that will later be handed over to community management when sufficient capacity has been built. Community members will purchase seedlings from the nurseries to raise their own woodlots. The Forest Department will then offer training in management of the woodlots. Upon the maturation of these woodlots, the Forest Department will then stop issuing licenses for trading in natural uncultivated forest poles. In addition to income generation the activities will relieve pressure on natural forests and help aid their regeneration.

2.4 - Bee-keeping promoted and product development supported

Beekeeping occurs at a very low scale in the lacustrine villages and most of the bee products are used locally. In other areas of Zambia commercial bee keeping is a vibrant business. The lakeshore, as an area where agrochemical usage has been low, would be particularly suited to the production of organic honey, which upon its certification, could be exported. The potential for export-orientated 'Fair Trade' bee products will be examined as part of project-mediated market investigations to maximise potential benefits for honey producers.

2.5 - NTFP processing and trading developed and expanded

The forests in the area are important sources of wild fruits, mushrooms and numerous types of valuable nuts. During the season most of these products are available in over-abundance and usually a high proportion goes to waste. Together with communities, the Departments of Agriculture and Forestry will explore preservation possibilities of these products for sale during the off-season when their availability is low and prices are higher.

2.6 - Small scale irrigation supported and improved

Currently communities are growing irrigated crops along the riverbanks, a practice which often leads to riverbank erosion and sedimentation. Through the Ministry of Agriculture and Cooperatives, the project will promote small-scale water lifting devices (e.g. treadle pumps) and community-based canal construction to move the gardens further away from the riverbanks where there will be more space and less impact on the riparian environment. Cultivation along riverbanks will be subsequently proscribed through by-laws. In addition, the potential for facilitating and promoting the cultivation of high value crops (paprika, green maize, green beans etc) under some organized contract farming or out growers scheme will be investigated.

2.7 - Capacity of communities in business management strengthened

Key to the success of the IGA initiative is the development of business skills and basic record keeping among participating local business people. A number of training manuals have been developed by previous or existing projects and could be adapted and used. The project will also consider the use of the ILO's 'Start and Improve Your Business' (SIYB) manuals and their subsequent adaptation to suit agro-based income generating activities (GTZ/ MACO- ASSP) as an appropriate starting point.

Output 3: Awareness of stakeholders of the importance of sustainable natural resource management raised

Wide scale buy-in to the principles of improved and participatory natural resource management and biodiversity conservation is critical to the sustainability of the project's outputs. All stakeholders must be aware of the important role each plays in this process. The communities and the private sector must know that they are key players in sustainable management and biodiversity conservation, and that the government not only accepts them as such, but also expects their active participation. Similarly, the line ministries must accept the communities and the private sector as equal partners in conservation and be willing to facilitate their effective participation in the process.

To promote this concept, the project will design and implement an awareness raising strategy aimed at informing, and therefore helping to empower, all stakeholders to actively and effectively participate in achieving improved resource management and biodiversity conservation. Awareness building will be achieved through meetings, seminars, study tours, panel discussions and locally available media.

To ensure effective and appropriate participation of all stakeholders in improved natural resource planning and management processes, both district staff and staff of respective line ministries will be trained in participatory resource planning rationale and techniques.

Sub-outputs / Activities

3.1 - Awareness programmes for co-management of natural resources enhanced

- Study tours for communities (exchange visits): VCDCs and resource-user groups as well as line ministry and district staff will be given opportunities to visit other communities developing participatory resource management in order to share ideas and experiences. Study tours are a well-known mechanism for building the confidence, commitment and capacity of local communities in participatory resource management development initiatives. They also provide an opportunity for communities to avoid the mistakes and problems encountered by other communities in developing participatory resource management.
- Joint training for stakeholders: An initial joint training for all stakeholders will be undertaken to ensure that all appreciate each others' roles and responsibilities.

3.2 - Leadership training for community leaders undertaken

- Elected local and traditional leaders will be invited to attend a workshop that introduces the project, its objectives and outputs as well as the underlying key processes of decentralisation of natural resource management and the creation of partnerships with civil society. Once they have begun to better understand the project's objectives and rationale, the councillors will be able to better represent their constituencies when they need to talk about or advocate community-based natural resource management issues.
- The leaders then will be invited to participate in leadership training so that they are better able to provide guidance and support for the VCDCs and ACDCs

3.3 – Community environmental management and awareness levels raised

The project will facilitate a youth environmental awareness programme on the premise that today's youth will be the future beneficiaries of the project's initiatives to conserve and sustainably utilise biodiversity. Training will target existing youth organizations such as 'Chongololo' clubs, young farmers clubs and youth skill training centres. In the event that these clubs do not exist in participating project communities, the project will facilitate the formation of conservation clubs by youth groups that will be linked to local VCDCs and/or local schools. The project will work with youth and other interest groups to:

- Develop environmental education materials in local languages
- Facilitate the production of radio & TV programmes
- Encourage the development of drama for environmental education
- Carry out video shows and discussion groups in communities

Output 4: Capacity of local governance structures for sustainable natural resource management enhanced

Currently local communities and their committees have little control over external operatives (traders, transporters and refugees) who come into the catchments to extract natural resources. Reversing this situation will be key to helping empower communities to successfully manage their natural heritage and reduce sedimentation. In this regard, the systematic improvement and rationalization of the laws, policies, and institutions governing the use of communities' natural resources will be necessary. The project will thus review, and where necessary, facilitate the consolidation of local level natural resource governance structures and processes through a participatory process. Where such structures and processes do not exist, the project will advocate their development. The project will also identify areas of conflict with local norms and rules, proposing appropriate solutions as feasible. This process will help harmonise local (and, if appropriate, national) policies so as to ensure that current and future potential for institutional and resource-use policy conflicts is minimised.

Sub-outputs / Activities

4.1 - Capacity of local NRM institutions strengthened

- An inventory of existing community-based natural resource management committees will be undertaken to identify institutional gaps.
- Currently there are separate committees for wildlife, fisheries, water, forestry and agriculture at village level. These will need to be rationalised in a participatory manner in order to create a single committee that will have overall mandate for all natural resources (VCDC).
- A training programme for VCDCs, drawn from the practices and experiences of successful community-based natural resource management initiatives in the wider region will be developed and carried out.
- District and line ministry personnel will be trained in participatory skills and technical aspects of CBNRM development. External trainers with regional experience in CBNRM will develop and conduct the training programme.
- Study tours will be carried out as detailed in Output 3.1.

4.2 - By-laws and enforcement mechanisms developed.

An initiative will be launched to develop stakeholders' understanding of the importance and strength of community-based natural resource use compliance systems, and in particular by-law operation. Working together with the local (district) authorities, community level leadership, VCDCs, resource-user groups and supporting line ministries, the following activities will be undertaken:

- An inventory of resources requiring protection and management through by-laws will be developed.
- The district councils currently have insufficient capacity to enforce by-laws due to over-stretched staff. It is currently proposed that the District council instead empowers or subcontracts the VCDCs, ACDCs and CCCs to enforce by-laws related to the conservation of biodiversity. In return the monetary proceeds arising from the licensing of natural resource use will be shared in agreed proportions between the council and communities. This will not only develop a growing sense of resource ownership by local communities but also promote the sustainability of by-law systems. Currently an assumption is that district by-laws are sufficiently accepted,

supported and appropriate for local-resource users. The project will need to verify this assumption, and to facilitate remedial measures as required to ensure that the by-laws have a wide constituency among resource-user groups.

- Working with resource-user groups, a range of positive incentive resource use compliance systems will be developed in addition to more traditional deterrent measures. Positive incentive agreements (such as long-term access rights contingent on compliant resource use) between districts, VDCs and resource-user groups will help promote long term and sustainable resource custodianship among resource-user groups.
- The project will monitor and technically support the enactment and implementation of by-laws, so as to measure their efficacy in biodiversity conservation and the facilitation sustainable livelihoods.

4.3 - Advocacy for political support of community-based natural resource management undertaken

Political interests in the pursuit of short-term gains can derail otherwise successful community initiatives. To avoid such unfortunate occurrences, the project will carry out a programme of advocacy to foster a sense of project ownership and support by local and national politicians through the CCC. Local members of parliament and constituency officials, will be brought on-board through a consultation and advocacy workshop during the initial stages of the project's implementation.

Output 5: Project efficiently and effectively managed, monitored and evaluated

The project will need to develop an effective and efficient Management Information System (MIS) that will be a key administrative tool for the project's implementation. The MIS will require the timely acquisition, analysis and dissemination of relevant information to the project's staff and stakeholders. An **MIS** is *an **organized** system, comprising of a **sequence of processes** that captures **accurate and relevant** information and **processes** it in a **timely** manner into the information that managers **need** to manage their project'*

The MIS will comprise a *Planning* and a *Monitoring & Evaluation* component. The project's log frame with its in-built targets will provide benchmarks against which actual performance will be monitored and evaluated. The findings of the M&E process will in turn be fed back and used to review and possibly modify the original log frame.

Sub-outputs / Activities

5.1 – Recruitment of project staff

5.2 – Management Information System (MIS) developed and implemented

The PIU will work together with the other stakeholders to identify information requirements for each level in the project's management structure and apportion responsibility for the capture of the information. The PIU will then develop reporting formats which capture the required data in a way that best facilitates the provision of information in an appropriate and timely manner. The provision of information will be linked with developing an appropriate system of meetings

5.3 – Site-Specific baseline survey conducted

A resource and site specific catchment based baseline survey will be conducted at the beginning of the project to provide benchmarks for monitoring and evaluation. The baseline survey will need to be carefully designed so that it captures an appropriate and representative range of data parameters that remain robust and useful throughout and after the project's implementation. Data parameters will include: knowledge, attitudes and practices at community, district level; the overall institutional environment; key environmental indicators and; verification of current income generating activities.

5.4 Preparation and implementation of Annual Work plans and Budgets (AWPB) carried out

The PIU will ensure that the follow activities are carried out:

- **Timely preparation of annual work plans and budgets**
- **Facilitation of regular committee meetings (VCDC, CCC, ACDC)**
- Preparation and processing of requests for disbursement of funds.
- Preparation and timely submission of quarterly and annual reports
- **Timely procurement of all goods and services at appropriate cost and quality.**
- **Monitoring the project implementation activities of stakeholders through the MIS**

5.5 Mid-term review and end of project evaluation planned and conducted

There will be a mid-term review of the project by independent consultants to assess project progress - whether or not the project's planned activities are leading to the desired outputs and hence contributing to the overall goal. This will result in key recommendations on the direction the project should take in its latter period. The End of Project Evaluation and Impact Assessment will be conducted to ascertain the impact of the Project's interventions on the livelihoods of the communities and on the status of biodiversity.

Project Sites

The project activities are planned to cover the whole catchment range of the Zambian side of the lake from Mpulungu to Kaputa district with the exception of the catchment area that lies within the Nsumbu National Park. Both districts are part of Northern Province, with a Provincial HQ at Kasama. Both districts are similar in ecological and social criteria, with populations distinguished through minor language and ethnicity. The process of covering the proposed catchment area will be phased over the length of the project based on the assumption that additional financial resources will be made available through the Af ADB fund. Based on the work undertaken in the first phase of this project, and as a result of a stakeholder project development meeting held in Mpulungu, the following areas will be priority sites in Mpulungu District (see Annex 3):

Mpulungu District

Lunzua River Catchment and the Chituta Bay Area

Chituta Bay was identified as the first priority area. The area lies at the mouth of the Lunzua River. It was first settled as a fishing camp, which later became a permanent settlement. Slash and burn cultivation and also intensive gardening occur along the river's banks. Natural forests are diminishing due to cultivation. There are three villages namely Chituta, Kapata and Ilata at this site which will be targeted. The area was selected on the basis that:

- The area is a breeding ground for a lot of fish species
- The lacustrine and riverine environment has high levels of sedimentation/ erosion
- High levels of human activity (agriculture, fishing, hunting) are ongoing
- The rate of deforestation is very high

Kasakalawe Bay Area

Kasakalawe, ranked second, is situated at the mouth of the Izi River and is accessed through the Mpulungu local forest number P45 covering 21,730 hectares. The farmers grow rice in the lake depression and vegetables along the banks of Izi River. The local Mpulungu forests have suffered from serious encroachment as settlers at Kasakalawe seek sources of fuelwood and new areas for cultivation. This area has been identified as a very important area for woodlot and plantation establishment. The area was chosen on the basis that:

- It is an important sardine breeding area
- It is the source for a substantial amount of (illicit) wood fuel and poles for Mpulungu.
- It is characterised by very poor land use practices
- The area suffers from high sedimentation levels (1.248 tonnes/day)
- Deforestation and forest encroachment continue to occur rapidly.

Munjela/ Nsumbu Game Management Area (GMA)

Munjela/Nsumbu GMA is situated on the Chisala River in Kaputa District and borders the Nsumbu National Park on one side and the open area and game management zone on the other contiguous with the lakeshore. This area is characterised by substantial population growth but because of its location, there is limited potential for expansion of the settled and farmed areas. The area was selected on the basis that it:

- Is an important Sardine breeding area
- Is an area of high agricultural activity with poor land use practices
- Possesses degraded forest areas
- Is a centre for high levels of illicit hunting

Kaputa District

Chisala River Catchment and Munjela-Nsumbu GMAs

Kabyolwe Bay lies in the open area of the Nsumbu National Park and marks an important entry point for illegal hunters. The settlement lies at the mouth of Lufubu River. The forested riverbanks are under serious pressure for land for cultivation as well as for fuelwood for home use and fish curing. The area was chosen on the basis that:

- There is a large amount of agricultural activity and poor land use practices
- The area is subject to high sedimentation levels (1,540 tonnes/ day)

- **Deforestation is occurring at a high rate together with high levels of illicit hunting**

Global Environmental Benefits

Conserving Lake Tanganyika and its basin will lead to substantial global environmental benefits. With more than 2,000 species of plants and animals, Lake Tanganyika is among the richest freshwater ecosystems in the world. Together with the other African great lakes of Malawi and Victoria, Lake Tanganyika is famous for its endemic and highly diversified flocks of cichlid species. However, what distinguishes Lake Tanganyika from the other African great lakes is its comparatively far greater biodiversity that includes flocks of non-cichlid fish as well as invertebrate organisms such as gastropods, bivalves, ostracodes, decapods, copepods, leeches and sponges. The level of biodiversity that has thus far been recorded for Lake Tanganyika is of particular significance. Much of the Tanganyikan coast has not been adequately explored and consequently invertebrate species numbers are probably currently significantly underestimated.

The catchment approach adopted by the Project, necessary to preserve Lake Tanganyika's aquatic and littoral biodiversity, will lead to further global environmental benefits as the basin's terrestrial biodiversity is conserved and becomes sustainably managed to reduce Lake sedimentation levels.

Sustainability

In order to ensure its sustainability, the project will be implemented through a participatory approach, from village to national level. The sustainability of many of the project's outputs is particularly contingent on successfully working with local communities and engendering their sense of ownership of, and commitment to, the project. However, mainstreaming project outputs with local and national government institutions will be as important for the successful implementation of the Project and the sustainability of its outputs.

The project activities planned are central to the livelihoods of the communities, and will enhance the environmentally positive aspects of their livelihood strategies. In essence, this complementarity underpins the project's sustainability strategy.

Institutional sustainability

For the purpose of the continuity of the programme at the end of the Project period, the Project will be implemented through existing administrative structures or appropriate adaptations thereof as presented in Table 2. Zambia's biodiversity portfolio is largely the responsibility of the Ministry of Tourism, Environment and Natural Resources (MTENR). The MTENR works in close collaboration with the Environmental Council of Zambia (ECZ), the Ministry of Agriculture and Cooperatives (MACO), Ministry of Energy and Water Development (MEWD) and non-governmental organizations active in biodiversity issues. In allocating responsibilities to implement various components of this project, recognition will be given to the specific roles which these sector ministries and NGOs are best suited to undertake given their technical comparative advantage. The Ministry of Agriculture and Cooperatives District Office at Mpulungu will host the Project Implementing Unit and will provide office space and, together with the other three line ministries (Environment, Water and Energy and Local Government)

appropriate partner staff. These staff will constitute the core implementation team under the guidance of the PIU.

Overall the project will be implemented and guided as follows:

At **national level**, MTENR will chair the **National Project Advisory Committee** (Lake Tanganyika biodiversity sub-committee of the National Biodiversity Committee). The National Biodiversity Committee through the MTENR has been given a mandate by the government to co-ordinate national biodiversity programmes. The committee will provide a pathway for project result absorption into mainstream government programmes and policies. MTENR will serve as the principle focal point for official engagement with government.

The **local level** project management structure and approach will be deliberately designed to ensure sustainability of project activities and results. At district level the project will work through existing government and non-governmental institutions within the framework of the existing DDCC to ensure ownership and integration of project activities into the mainstream of district development plans.

At **community level**, the village and area development committees, as endorsed by traditional leadership and proposed under the decentralization programme of the government, provide for project activities to be incorporated as an integral part of the village and area level development efforts driven by the communities.

Financial sustainability

The financial sustainability of the project's outputs at village and district level will rely, in substantial part, on the levies, taxes and licensing fees to be generated from natural resource use in the project area - as will be possible within institutional and policy frameworks.

Assumptions and risks potentially impacting on the sustainability of project outputs

The success of the proposed interventions is based on several assumptions, the risks of which have been identified as follows:

- Inadequate government commitment to devolve a reasonable and sufficient level of authority to local level traditional/community based structures.
- Inadequate practical government commitment to support co-management regimes for natural resource management.
- Inadequate community commitment and ability to maintain conservation efforts that include conservation initiatives with delayed but long-term benefits.
- Inadequate commitment by line ministries to support the project's efforts without expecting the project to cover their substantial overhead costs.
- Inadequate commitment by traditional authorities to support and respect elected local government leaders and their decisions on natural resource management in areas under traditional jurisdiction.
- Inadequate post-project revenues generated from licensing local natural resource use that result in the constrained and poor functioning of VDCs and ACDCs leading to an erosion of the environmental gains achieved during the project.

Replicability

The project will be carried out in pilot villages at four demonstration sites. Through the Catchment's Steering Committee, to be established during the project, and the DDCC, it is expected that these experiences will be transferred to other lakeshore villages in the Lake basin.

Stakeholder Involvement

Stakeholder involvement in project proposal development

More than 100 Zambians participated in the process of planning for the Strategic Action Programme (SAP) for Lake Tanganyika Biodiversity Project (UNDP/GEF/RAF/G32/92). The planning process, over the course of three years, brought scientists, researchers, local communities, government departments, NGOs and the private sector together to discuss environmental management priorities. The national priorities for Zambia are listed in the SAP (available on the internet at - <http://www.ltbp.org>).

The SAP priorities include, sustainable fishing practices, sedimentation control, pollution control and habitat destruction. Sustainable fishing will be addressed under the African Development Bank sister-project to the GEF LTBP Phase II. In light of this, Zambian stakeholders from Lusaka and the Lake basin met in August 2002 and in April 2003 to discuss the remaining priorities. The second meeting agreed that sedimentation control through catchment management would be the subject of this GEF project proposal and that additional donor funds would be sought to address the remaining SAP priorities in Zambia. The Project proposal's development was carried out through consultations with key stakeholders and institutions, that took place in Lusaka, and later in Kasama (the Provincial Headquarters), as well as in the Lake Tanganyika project area towns of Mpulungu and Mbala.

Stakeholder involvement in further project development and implementation

The project design incorporates provision for the further participation of all major Zambian communities that have interests vested in the conservation and management of the biodiversity of Lake Tanganyika including government, local authorities, local communities the private sector, and international communities as is indicated in the description of the Project's implementation strategy.

Lessons from Similar Projects

An assessment of the lessons learned from other Community Based Natural Resource Management (CBNRM) projects in Zambia, reveals a number of common factors relevant to the Lake Tanganyika Biodiversity Project. The following are the CBNRM projects to which priority was given in assessing the critical lessons relevant for the success of the proposed Lake Tanganyika Biodiversity Project.

- Barotse Royal Establishment in Western Province
- Zambezi Basin Resource Conservation and Utilization Project (ECZ/IUCN)
- Liangati Joint Forestry Management project in Western Province- Senanga (Keepers Zambia Foundation and SNV)

- Administrative Management Design (ADMAGE) - community-based wildlife management projects operating across the country (Zambia Wildlife Authority)
- Cooperative League of the United States of America (CLUSA/USAID) community-based agricultural and forestry management project in Eastern Province.
- Fisheries co-management in the Bangweulu swamps (WWF, SNV)
- Fisheries co-management on Lake Kariba (Fisheries department)

Monitoring and Evaluation

Monitoring and evaluation system

The National Biodiversity Steering Committee will oversee the project. Its role will be to review annual progress in the achievement of the project's outputs and objective and to provide the Project Implementation unit (PIU) with feedback for project implementation improvement. In addition, the Committee may request, as it deems appropriate, an interim project evaluation. Towards the end of the project, the Committee will prepare a report synthesizing lessons learned and how these could be scaled up and replicated more widely. The Lake Tanganyika Catchment's Steering Committee, proposed by the stakeholders as a sub-committee of the DDCC, will be responsible for monitoring the expected outcomes against the achievements of the Project's outputs. This Committee will report to the National Biodiversity Steering Committee on the relationships and achievements of outputs using the **Key Performance Indicators** (KPIs) agreed to at the initial Project Inception Meeting.

The PIU will be responsible for tracking implementation progress and project milestones. The Unit will prepare Quarterly Progress Reports on the basis of project implementation. An overall progress report will be prepared under the guidance of the Lake Tanganyika Catchment Committee every year and an additional report will be prepared three months prior to the mid-term review, which will assess overall progress in project implementation and make recommendations for adaptive management.

The Area and Village development committees proposed in the national decentralization policy under the operations of District Councils will be responsible for the mobilization of community planning, implementation, monitoring and policy advocacy for community driven conservation and livelihood diversification in the project sites. These committees will report to and be represented in the Lake Tanganyika Catchment Committee. Stakeholder representatives through project implementation workshops will review the KPIs annually. The outputs of these workshops will serve as a basis for monitoring and evaluating project impact.

The Project will be subject to the evaluation and review mechanisms of the UNDP such as the Project Performance and Evaluation Review, Tri-Partite Review and External Evaluation and Final Report prior to termination of the Project.

Financing

Project Finances

The total GEF grant requested is US\$ 2,440,000. The direct baseline activities described above are estimated as \$1.5 US million over the 4 year life of the project (see Annex 1a for details).

The project cost estimates and timing of disbursements are given in Table 2 below. Zambia's estimated contribution of 650,000\$ to the project is given in Table 3. In deriving project cost estimates, the necessary requirements for each activity were considered and the project overheads factored in such as the cost of equipment, motor vehicles, insurance, reviews/evaluations, as well as expenditure for operational funds, and the proposed revolving fund. A 2% cross cutting issues allocation has been set aside to cater for such issues as gender mainstreaming, advocacy for HIV/AIDS and a facility for supporting a limited number of special initiatives which, when conducted, would add value to the attainment of the project's immediate objective.

Table 6: Project Cost Estimates by Output⁹

Output	Amount (US\$) Required by output and year					
	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Sustainable resource use practices	379,000	206,000	194,000	140,000	117,000	1,036,000
2. Sustainable alternative IGA developed	226,000*	83,000	52,000	42,000	24,000	427,000
* Includes a \$200,000 grant for an income generation activity revolving fund						
3. Awareness of stakeholders raised.	72,000	18,000	18,000	18,000	0	126,000
4. Capacity of local governance structures	99,000 [§]	53,000 [§]	66,000 [§]	66,000 [§]	67,000 [§]	351,000
[§] Includes an annual 2% 'cross cutting issues' allocation						
5. Project efficiently and effectively managed, M&E	110,000	90,000	100,000	80,000	120,000	500,000
TOTALS	886,000	450,000	430,000	346,000	328,000	2,440,000

⁹ These estimates are based on incremental contributions from GEF and a baseline contribution from the Government of Zambia. An assumption is that additional resources will be made available from the ADB to extend project activities.

Table 7: Co-financing – Government of Zambia's contribution *

<i>ITEM</i>	<i>DESCRIPTION</i>	<i>ESTIMATE US \$</i>
1. Services and staff support	Human resources: ministry, district and local government, at 150,000\$ per annum (central, local government). Less in year 1 due to start-up	570,000
2. Office / Miscellaneous	Office rentals/utility service 20,000\$ per annum	80,000
TOTAL		650,000

. * This is in kind support, broken down into two categories per year.

Institutional Coordination and Support

Core commitments and linkages. Project linkages with national/regional/global sector programs: UNDP Zambia is starting the implementation of a major GEF initiative looking at the sustainability of wildlife Protected Areas at system level. (This will include the National Parks near Lake Tanganyika). There will be much complementarity between projects, with considerable scope for lessons learned and sharing experiences.

Whilst the north-west districts have not attracted much donor intervention in the past years, there is considerable scope for this project to learn lessons from NRM projects elsewhere in the country. This includes projects looking at participatory forest management, and improved agricultural practice and land-use planning. The ICRADF connection will link into the agricultural research process in Zambia.

Consultation, coordination and collaboration between Implementing Agencies (IAs)

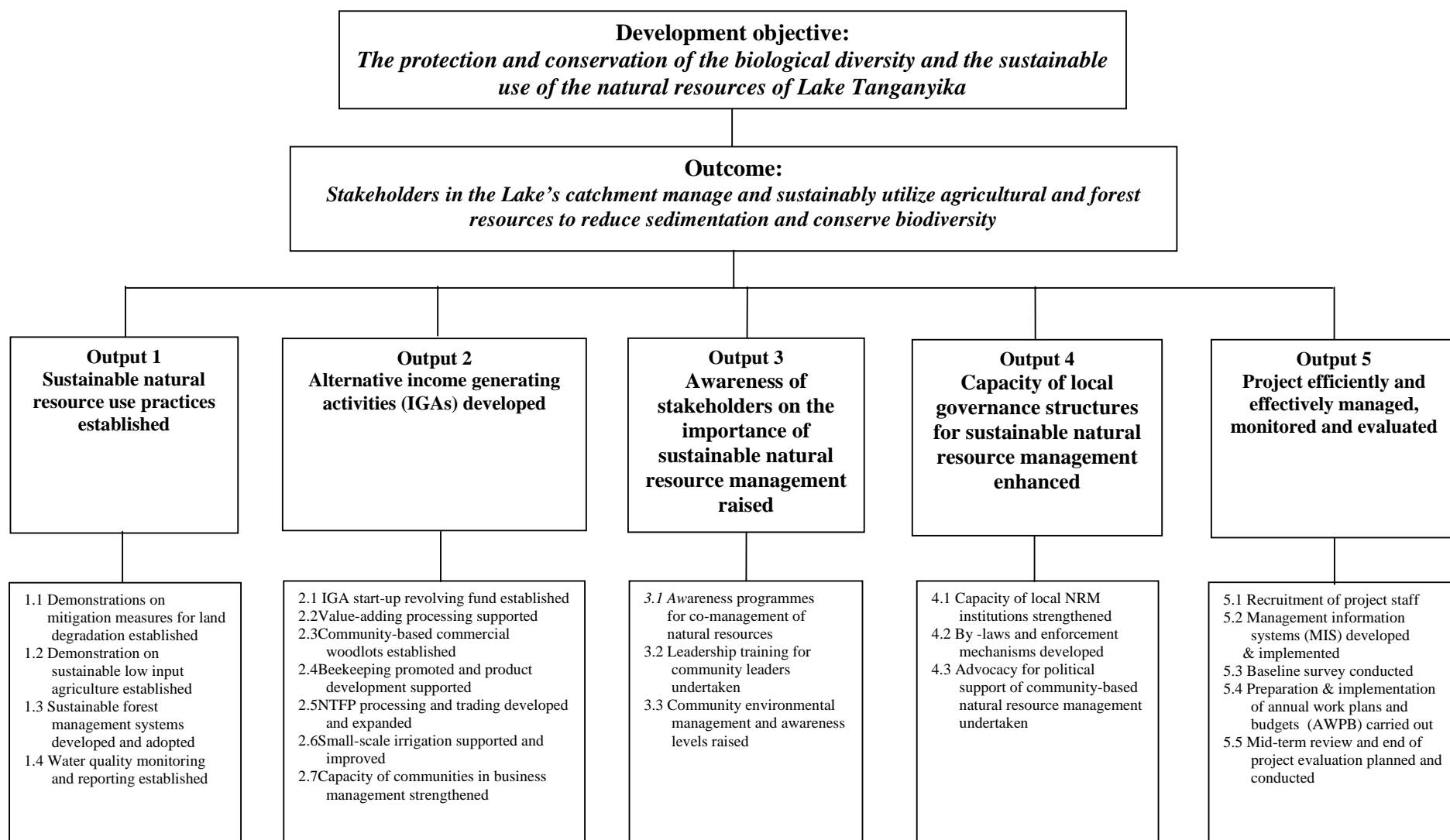
UNDP in Zambia has programmes (and expertise, knowledge and lessons learned) in the broad fields of decentralised governance, empowerment and poverty alleviation. UNDP promotes democratisation and local level civil society capacity building. All of these have relevance to the on-ground project interventions. UNDP through its role in the UNDAF will also build linkages to other programmes including through the World Bank. Of especial interest here are the agricultural support activities.

Coordination and Collaboration

The programme implementation process will be co-ordinated by the **Programme Implementation Unit (PIU)** that will be based at the Ministry of Agriculture in the

Department of Fisheries in Mpulungu. The PIU will comprise of: a Project Manager; three Technical Officers - one from each of the MTENR, MEWD and MACO; an accountant/procurement officer; secretary; office orderly and a driver. The Project Manager will be the head of the PIU and will be responsible for the day-to-day running of the PIU as well as co-ordinating participating sectors' inputs with the assistance of the technical officers. The PIU will be linked to the National Biodiversity Committee through the local level project coordination committee, the Lake Tanganyika Catchments Conservation Committee. A memorandum of understanding is proposed between the MTENR and MACO to guide the reporting and roles of each ministry in relation to the PIU. The MTENR will have overall responsibility for monitoring project progress.

Annex 1: Project Outcome, Output and Activity Matrix



Annex 2: Project Logical Framework Matrix

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
Immediate Objective: The protection and conservation of the biological diversity and the sustainable use of the natural resources of Lake Tanganyika	✓ Significant improvements in biodiversity (land and water) indices within and offshore selected catchments (as measured by project supported Lake Management processes – using TBDA / SAP baseline).	✓ Project & Post-project evaluation reports. ✓ Reports from continued M & E processes for the Lake ✓ Annual reports of line Ministries	✓ The policy environment supporting community involvement in NRM continues to be favourable. ✓ The M and E process (see Regional Proposal) is implemented. ✓ Security in the Region allows trans boundary cooperation
Outcome: Stakeholders in the Lake's catchment manage and sustainably utilize agricultural and forest resources to reduce sedimentation and conserve biodiversity	✓ % of target communities and line ministry staff using the CBNRM approach for conservation of biodiversity increases by 70% from year 1 baseline. ✓ 30 % increase in household income arising from non-fishing sources for households engaging in enterprises. ✓ 30 % improvement in sedimentation rates in target catchments	✓ Project evaluation reports ✓ DDCC reports ✓ Community minutes and records on implementation of CBNRM ✓ Impact assessment studies	

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
<i>Output 1: Sustainable natural resource use practices established</i>			
1.1 Demonstrations on mitigation measures for land degradation established 1.2 Demonstrations on sustainable low input agriculture established 1.3 Sustainable forest management systems developed and adopted 1.4 Water quality monitoring and reporting established	√ 50% of HH practicing improved land use practices demonstrated in the project target areas. √ 40% of households practicing low input sustainable agricultural techniques. √ PFM type of forest management regimes developed and utilized in target forests. √ 30 % improvement in water quality measures in targeted demonstration sites. √ The number of HH in non project sites emulating the practices in project sites starts to increase in final year.	√ Project and community reports. √ Annual reports of line Ministries (Tourism, Environment and Natural Resources, Agriculture and Cooperatives, Energy and Water resources). √ Impact Assessment reports.	√ That the current enthusiasm by communities for participation in CBNRM continues. √ The policy environment can allow meaningful CBNRM. √ That all partners continue to meet their commitments to the project.
<i>Output 2: Alternative income generating activities (IGAs) developed</i>			
2.1 IGA start-up revolving fund established 2.2 Value adding processing supported 2.3 Community-based commercial woodlots established 2.4 Bee-keeping promoted and product development supported 2.5 NTFP processing and trading developed and expanded	√ 30 percentage change in household income arising from alternative IGAs. √ Number of the HH in the target sites involved in alternative income generating activities. √ Number of households/or population benefiting from alternative income generating activities	√ Project and community reports and records √ Records of sales from entrepreneurs	√ That there is enough entrepreneurial social capital in existence √ That markets can be found that will sustain commercial exploitation of resources √ Availability of infrastructure to support marketing

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
2.6 Small scale irrigation supported and improved 2.7 Capacity of communities in business management strengthened			
<i>Output 3: Awareness of stakeholders on the importance of sustainable natural resource management raised</i>			
3.1 Awareness programmes for co-management of natural resources enhanced 3.2 Leadership training for community leaders undertaken 3.3 Community environmental management and awareness levels raised	✓ Number of local level programmes for natural resource co-management established and functional. ✓ Number of local leaders trained ✓ Number of environmental management awareness materials and dissemination mechanisms developed. ✓ Number of stakeholders reached by the environmental management campaigns	✓ Project records ✓ Annual reports of line Ministries (Tourism, Environment and Natural Resources, Agriculture and Cooperatives, Energy and Water resources) ✓ Council Resolutions	✓ The current supportive political climate for local level governance continues ✓ That enough social capital exists to build local level governance structures on ✓ That the current mainstream policy can accommodate local level governance structures ✓ Traditional leaders accept CBNRM
<i>Output 4: Capacity of local governance structures for sustainable natural resource management enhanced</i>			
4.1 Capacity of local NRM institutions strengthened 4.2 By-laws and their enforcement mechanisms developed 4.3 Advocacy for political support of community-based natural	✓ Number of functional Community Conservation Committees. ✓ Number of By-laws enacted on CBNRM as a result of community lobbying ✓ Number of political leaders supporting enactment of by-laws for catchments conservation.	✓ Project records ✓ DDCC reports ✓ Minutes of Committee meeting ✓ Council Minutes	✓ Availability of non project related means of communication ✓ Critical mass of literacy levels available

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
resource management undertaken			
<i>Output 5: Project efficiently and effectively managed, monitored and evaluated</i>			
5.1 Recruitment of Project staff 5.2 Management Information System (MIS) developed and implemented 5.3 Baseline survey conducted 5.4 Preparation and implementation of Annual Work plans and Budgets (AWPB) carried out 5.5 Mid-term review and end of project evaluation planned and conducted	<ul style="list-style-type: none"> ✓ Appropriate of Project staff in place by Project year ✓ Key information requirements and reporting formats developed for the project. ✓ Appropriate Project baseline and benchmark outputs developed for monitoring project's planned results ✓ Appropriate number of project plans and reports available in a timely manner at different management levels Number of useful lessons learnt, disseminated and corrective measures taken ✓ Number of milestones achieved at mid term of the project ✓ Number of milestones achieved by year 5 of the project 	<ul style="list-style-type: none"> ✓ Project records ✓ Copies of Reporting formats ✓ Baseline Survey Reports ✓ Mid- term Review Report ✓ Impact Assessment Report ✓ Copies of AWPB 	<ul style="list-style-type: none"> ✓ All partners meet their commitments to the project ✓ Timely disbursement of funds from the donor for project implementation activities

ANNEX 6

The Lake Tanganyika Integrated Management Project

Democratic Republic of Congo Component

August 2004

SUMMARY

The DRC Interventions follow the SAP process, with two priorities earmarked for immediate funding. These are the problem of Over-Fishing – supported by AfDB / FAO co-finance; and the problem of sediment load from poor catchment management. This latter problem is funded by GEF.

The intervention site, for testing innovative process and methodology is the Uvira Catchment, rising from behind the town of Uvira on steep badly deforested mountainous terrain. Sediment from the catchment impacts on lake bed rocky substrates and so reduces fish biodiversity and productivity. Catchment erosion impacts on the town and on people's livelihoods.

This project proposes a suite of interventions, including capacity building for communities and civil society as well as government agencies – both long impacted by civil war. Catchment management is to be treated broadly with cross-sectoral inputs through forestry, land, water and agriculture sectors with an emphasis on tenure and decentralised governance. Training and best practice demonstration will be provided by ICRAF, through a regional contract

The Hydro-biology Research Station at Uvira has some baseline data which will be used to start a monitoring programme. Given recent civil disturbance the full baseline assessment is yet to be completed, and detailed implementation arrangements are to be decided during the **Inception Process** when on-ground teams can ascertain capacity. Advantage will be taken of UNDP's new Bukavu Office and the presence of WWF catchment and forest conservation interventions in the adjacent Kahuzi-Mbega hills to develop a broad-based coalition of interventions using NGOs and civil society and Government.

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List of Acronyms (see Regional Component)

Project Background / Context

Country Ownership

Eligibility

The Democratic Republic of Congo (DRC) ratified the **Convention on Biological Diversity** (CBD) in 1994 and is eligible for technical assistance from UNDP/GEF. The DRC ratified the **Ramsar Convention** on Wetlands in 1991.

Country Drivenness

Agreement, ratification and implementation of global conventions

The DRC developed national environmental policies and strategies towards protecting biological diversity realised through the National Environmental Action Programme, the National Environmental Strategy, the National Biological Diversity Strategy, and the Environmental Code. These strategies form the basis of the DRC's programme to address the substantial challenges that exist in achieving the sustainable management of its very large natural resource base and in fulfilling its commitment to the CBD, the Ramsar Convention and other international environmental agreements.

Regional intergovernmental conventions

The main recommendations from regional meetings deal with the conservation of biodiversity in Lake Tanganyika and its environment through control of the sedimentation, habitat degradation, pollution and excessive fishing. These recommendations are highlighted in the process of development of the Strategic Action Programme (SAP) and Transboundary Diagnosis Analysis (TDA).

Endorsement

The project has been endorsed by the GEF Operational Focal Point. See Exec Summary and Annex 8.

Environmental Context

Lake Tanganyika contains the greatest biodiversity of any lake in the world, with more than 2,000 species of fish, invertebrates and plants recorded in the lake basin, of which over 500 are endemic. More detailed information about the richness of Lake Tanganyika in terms of biodiversity and other values is given to the Strategic Action Program document and in the Regional Component of this Project Brief.

Socio-economic, Institutional and Policy Context

Socio-economic Context

Lake Tanganyika has substantial and on-going livelihood value to lakeshore communities. The lake is a source of fish for consumption and sale, it provides key transport and communication links and is a source of water for industrial and agricultural development as well as for domestic use. Several million people live in the Lake Tanganyika basin. Socio-economic development has been much disrupted due to a legacy of prolonged and tragic ethnic conflict in the Democratic Republic of Congo (DRC). The main socio-economic constraint to ecosystem integrity and human well being in the Tanganyika basin, **continued conflict** not withstanding, is **poverty**. The main causes of poverty in the basin include:

- Limited choice of livelihood options and over-dependence on: agriculture and fishing

- Inadequate access to land and capital, and limited access to credit by the poor
- Shortage of skills for productive enterprise
- Diminished levels of security, law and order over the wider north-eastern DRC
- Destruction of natural resources, degradation and reduced productivity of the resource base
- Lack of participation by the poor in the design of development programmes

Institutional and Policy Context

The national working group has identified national problems threatening biodiversity in Lake Tanganyika and its environment. During workshops on National Diagnostic Analysis (NDA) and Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP), national and transboundary priorities were identified. The priorities were synthesised in the SAP in the form of interventions both at the national level and regional level.

Baseline Situation: Threats, Root Causes and Activity

Threats

The biodiversity of Lake Tanganyika faces major threats. With regard to the DRC area of the Lake, over-fishing and environmentally damaging fishing methodologies, high rates of sedimentation into the Lake and its inflowing rivers, and growing pollution concerns from Uvira and other lakeside settlements and industry have been documented in detail in the Transboundary Diagnostic Analysis (TBDA). Over-fishing and pollution threats to the lake are addressed in other components of the overall programme.

Uvira and its environs are a rural lakeside and urban zone with a growing human population. In 1996, Uvira's population was estimated at 469,789 inhabitants with an average density of 149 inhabitants per km². In the past year, this population has doubled. The hillsides around the Uvira are very steep, and with increasing human population densities, they have become heavily deforested with very high rates of soil erosion and gulley formation.

These gulleys have led to major flash-flood river channels which carve their way through Uvira township disrupting communications, housing and electricity and water infrastructure.

Photographic and other analyses indicate that the sedimentation rate has increased substantially in recent years. Preliminary results show that biodiversity levels are lower in the sedimentation-affected sites on rocky strata for all faunal groups. In addition, trophic analyses suggest that some fish types (non-selective algae browsers) are likely to have been eliminated due to water turbidity and silting, and both effects are accompanied with habitat/niche reduction.

With the disappearance of forests, rural women spend 4-7 hours a day collecting firewood, often far from their homes. In the DRC fuelwood is the most affordable and available energy source for rural communities, as other sources of energy, particularly electricity and natural gas, are unaffordable and frequently unavailable for the majority of the population. In urban centres, firewood and charcoal consumption is constantly increasing. High dependence on charcoal leads to higher rates of deforestation as the local technologies used to convert wood biomass to carbon are very inefficient.

Root causes

The threats – over fishing, environmentally damaging fishing methodologies, high rates of sedimentation into the Lake and its inflowing rivers, and growing pollution concerns – impacting on Lake Tanganyika are the product of a complex and inter-acting range of issues. In the DRC, these issues have been particularly over-ridden by protracted human conflict, insecurity and a break-down in normal government. The ongoing civil war has had major adverse impacts on people, their livelihoods and the ability to sustainably manage their natural resources. The protracted lack of physical security combined with widespread poverty in the communities living around the lake has heavily framed people's fishery and land (forest and soil) resource use rationales. Thus people have sought to maximise short-term benefits to the detriment of the natural resource-base as a survival strategy.

On-going Baseline Activities

Conservation, land-use, agriculture and livelihoods activity

There have been a number of on-going baseline interventions in Uvira and the wider area, including the Rusizi floodplain, relevant to this project proposal. An NGO - CADIC (Action for Integrated Sustainable Development in Communities) has piloted a fuel stove initiative in Uvira. CEPAC (Community of Protestant Churches in Central Africa) has worked with communities to vegetate the adjacent Rusizi floodplain. However, on-going baseline activities have been constrained by long-term insecurity in the north-eastern DRC, and thus there is a heightened need to provide support to national institutions and communities in developing successful demonstrative interventions to reduce deforestation and its impact on the Lake.

Conclusion

The Uvira region has, in many places, become heavily deforested, and compounded by its steep topography, subject to high rates of soil erosion and sedimentation into Lake Tanganyika. To date, although some interventions have been targeted at reducing soil erosion rates through afforestation activities and lowering the pressure from a growing urban and peri-urban human population through the provision of fuel stoves, these interventions have been insufficient. Therefore, unless an alternative course of action is embarked upon, deforestation will continue, and the steep slopes of the lake shores will continuously be subject to accelerated erosion, hence threatening the survival of the biodiversity in Lake Tanganyika, particularly along the littoral zone.

Alternative Course of Action

Introduction

The Alternative Course of Action is to develop interventions to fill the gaps from the baseline scenario, so as to seek sustainable global and national benefits from rational use and management of the Lake Tanganyika resources. The DRC national planning team, in relation to the environmental threat analysis, prioritised sedimentation control as the priority project objective in order to conserve the littoral biodiversity of Lake Tanganyika.

Working together with local communities and other local institutions, the intervention will aim to expedite measures to control deforestation of sensitive areas within the immediate lake catchment of Uvira, promote woodlots and agroforestry as part of an afforestation initiative, facilitate the availability and up-take of improved stoves, and work with stakeholders to

develop improved techniques to make charcoal. The main project demonstration components will be the promotion of community and private woodlots, and the introduction of improved bio-fuel technologies and alternative energy development.

The expected impacts of GEF support

The DRC is committed to fulfilling its international and regional commitments to biodiversity conservation and the sustainable management of the DRC part of the Lake Tanganyika basin. GEF co-financing would enable DRC to make significant and sustainable improvements to the current baseline of high rates of deforestation and sedimentation into the Lake. The key impact resulting from GEF support of the project will be:

Tangible, growing and sustained reductions in sedimentation rates at project demonstration sites that lead to improving habitats and biodiversity levels due to:

- Increased capacity of local communities through collective and private action to produce, establish and incorporate into their farming systems appropriate agro-forestry combinations as a key part of afforesting degraded riverine and other areas.
- Farmers within Uvira and its surrounding areas adopt sustainable and restorative forestry and woodlot practices, a process which is replicable throughout the DRC portion of the Lake Tanganyika basin.
- Heightened awareness of the general public and, in particular, key resource user groups, about the impacts and implications of high rates of deforestation and soil erosion on both the lacustrine and terrestrial environments.
- Increasing efficiency of bio-fuel (forest-based) energy production – both in terms of producing processed bio-fuels (charcoal production) and also in their use by people through increasing the availability, popularity and uptake of appropriate technologies (e.g. fuel efficient stoves)
- Within the national framework, and as appropriate, building on parallel experiences, the development of multi-sectoral institutions, linkages and relationships between community, regional and national levels that successfully support participatory forms of natural resource management. The lessons learnt and precedents set will enable other similar initiatives in the Lake Tanganyika basin to be started with potential for replication on a wider national scale.

Objective and Outcomes

The **Project's Immediate Objective** is embedded within the Strategic Action Plan (SAP):

'The protection and conservation of the biological diversity and the sustainable use of the natural resources of Lake Tanganyika'

The project's **Outcome** in DRC is as follows:

'Stakeholders in the Lake's catchment manage and sustainably utilize agricultural and forest resources to reduce sedimentation and conserve biodiversity'

Outputs

To attain the immediate objective and hence contribute to the fulfilment of the development objective, the stakeholders of this project have selected eight tangible, specific outputs:

Sub-Outcome 1: Government and community natural resource management institutions strengthened with capacity to improve catchment status and reduce sediment load.

Project outputs

Output 1: Government and community natural resource institutions reviewed and strengthened for achieving integrated catchment basin management
Output 2: The hydrology of priority high sediment load rivers investigated and river sediment reduction management plans developed and implemented with stakeholders

Sub-Outcome 2: The natural resource base in and around Uvira sustainably managed through improved land-use practices with reduced soil loss and sediment loads

Project outputs

Output 3: Appropriate agroforestry practices and soil management needs assessed with stakeholders in priority areas and popularly piloted in local farming systems
Output 4: The capacity of government and communities to establish and successfully manage tree nurseries sustainably producing appropriate forestry and agroforestry species strengthened
Output 5: Old managed forest areas rehabilitated and new community and private woodlots appropriately established and sustainably managed regenerating appropriate forest cover
Output 6: Appropriate energy-saving technologies assessed with stakeholders, advocated, piloted and widely adopted by targeted resource user groups
Output 7: Awareness of communities raised about soil erosion, deforestation and agroforestry management issues in relation to local livelihoods and the conservation of Lake Tanganyika.
Output 8: Project lessons and developments disseminated and replicated in priority outlying areas

Output 9: Project efficiently and effectively managed, monitored and evaluated

Output 1: Government and community natural resource institutions strengthened for achieving integrated catchment basin management.

In order to achieve long-term and sustainable project interventions, government and community natural resource management capacity needs to be strengthened. For government this may entail ensuring that environmental service and community extension agents are appropriately trained, enabled and resourced. For communities, especially within the context of recent and prolonged insecurity in the DRC, their organisation and resource management institutions are likely to need reviewing and substantial strengthening and support. Additionally, in order for government extension services to be fully effective and for communities to popularly participate in integrated catchment management, linkage institutions between government (e.g. The Department of the Environment), communities and NGOs need to be in place. In similar circumstances elsewhere, these linkage institutions have proven to be indispensable for achieving sufficient levels of communication, coordination and understanding between government, local communities and NGOs.

Sub-outputs/ Activities

- 1.1 – Government environmental services and natural resource community extension capabilities reviewed and project training needs assessed, planned and provided*
- 1.2 – Community natural resource management institutions reviewed with community members and appropriately strengthened through the provision of training, governance and technical support*
- 1.3 Government – community natural resource management – NGO liaison and co-ordination institutions developed and strengthened*

Output 2: The hydrology of priority high sediment-load rivers investigated and river sediment reduction management plans developed and implemented with stakeholders

The rationale for developing simple sediment reduction management plans for specific rivers is to ensure that the interventions made within each river system are well coordinated and as appropriate as possible, given the circumstances, for achieving a reduction in sediment load. It is very important that the hydrological regimes of key rivers are better understood – despite their highly complex nature. For example, it is known that attempts at river-bank stabilisation lower in a river-catchment may be entirely ineffective interventions on their own, when well formulated interventions elsewhere in the system may more effectively return a river to a previous equivalent hydrological regime.

Sub-outputs/Activities

- 2.1 – Priority high sediment-load rivers identified and their hydrological regimes investigated and monitored in an on-going programme*
- 2.2 – Simple river sediment reduction management plans for each river developed on the basis of the current knowledge available and from initial hydrological investigations*
- 2.3 – River sediment reduction management plans implemented with appropriate stakeholders*

Output 3: Appropriate agroforestry practices and soil management needs assessed
with stakeholders in priority areas and popularly piloted in local farming systems

Agroforestry and soil management systems can be developed as an effective intervention to combat deforestation, restore degraded areas, control soil erosion and improve the sustainability and quality of local livelihoods. Before promoting agroforestry practices and soil management systems, previous traditional agroforestry soil management systems will be investigated as appropriate so as to develop a basis for promoting new improved agroforestry systems with the support of institutions such as ICRAF. Demonstration agroforestry and soil management plots will be established in local farming systems at priority sites in partnership with farmers, as a precursor to their wider adoption by farmers.

Sub-outputs/Activities

- 3.1 – Traditional and potential agroforestry systems in the Uvira region – including indigenous and exotic agro-forestry tree and crop combinations – reviewed and documented with communities*
- 3.2 – Traditional and potential soil management systems in the Uvira region reviewed and documented with communities*
- 3.3 – Improved traditional and newly selected agroforestry and soil management combinations piloted in local demonstration farming systems with participant farmers*
- 3.4 – An agroforestry and soil management skill and support training programme developed and implemented with partner government institutions, farmers and NGOs.*
- 3.5 – Agroforestry seedling requirements coordinated with government, community and private tree nurseries*

Output 4: The capacity of government and communities to establish and successfully
manage tree nurseries sustainably producing appropriate forestry and agroforestry species strengthened

Tree nurseries will be established to provide indigenous and exotic forestry, woodlot and agroforestry tree seedlings. Initially the project will rely on central tree nurseries for seedling production, but as communities and NGOs are empowered, smaller localised nurseries will be begun on a wider scale. The project will ensure close coordination between forestry and agroforestry outputs and the ability of nurseries to supply appropriate seedlings. The sustainability of tree nurseries will be reviewed during the project so as ensure that they become appropriately independent and financially sustainable.

Sub-outputs / Activities

- 4.1 – Central tree nurseries established and successfully managed to supply in sufficient quantity and quality appropriate species of seedling for government and community afforestation and agroforestry initiatives*
- 4.2 – Government, community and NGO agents trained in tree nursery husbandry and management including strategies to achieve financial sustainability*
- 4.3 – Secondary tree nurseries in out-lying coastal villages initiated and sustainably managed through working with village institutions and individuals as appropriate*
- 4.4 - Extension programme developed to ensure sufficient supply, appropriate utilisation and optimal survival of transplanted seedlings*

Output 5: Old managed forest areas rehabilitated and new community and private woodlots established and sustainably managed regenerating appropriate forest cover

In coordination with the river sediment reduction management plans, priority old managed forest areas will be rehabilitated and their management improved. In addition, community and private woodlots will be promoted and established within appropriate tenure systems. The development of public, community and private woodlots will not only help stabilise degraded areas, but also begin to provide sustainable wood products for local communities. Key to the success of woodlot expansion will be providing appropriate support and technical expertise to communities and private woodlot owners so as to ensure that they are sustainably managed, harvested and replanted in the years to come.

Sub-outputs/ Activities

- 5.1 – In coordination with the river sediment reduction management plans, high-erosion sites identified, mapped and prioritised for intervention with communities*
- 5.2 – Tenure status of erosion sites investigated and appropriate community woodlot management plans developed*
- 5.3 – Community and private woodlots of appropriate species established and managed by communities and private individuals using seedlings supplied from government and community nurseries*
- 5.4 - Old existing woodlots rehabilitated through replanting, restoring degraded areas and improving their management*
- 5.5 – In coordination with the river sediment reduction management plans, priority public river margins in Uvira town reforested and protected*

Output 6: Appropriate energy-saving technologies assessed with stakeholders, advocated, piloted and widely adopted by targeted resource user groups

As part of an integrated strategy to reduce deforestation, rehabilitate degraded areas and control soil erosion, alternative fuel-efficient technologies will be demonstrated, piloted and then widely disseminated. The fuel-efficient technologies will focus on charcoal processing and domestic energy use for cooking, as these are the largest sinks for deforestation. As has been the experience in similar initiatives elsewhere to promote fuel-efficient technologies, selecting the right technology which is socio-economically and culturally appropriate, is key. In addition, facilitating the widespread up-take of fuel-efficient technologies is often more complex than might be expected. In this regard, demonstration of the fuel-efficient technologies to women groups or associations, as well as seeking their opinions, preferences and advice will be crucial since failure to engender their full and enthusiastic support will lead to the failure of this output.

Sub-outputs/ activities

- 6.1 – Current wood fuel attitudes, uses/practices and energy saving needs of targeted resource user groups established*
- 6.2 – Staff from government institutions and NGOs trained in the construction and demonstration of selected fuel-efficient technologies*
- 6.3 - A training extension centre and demonstration facility for alternative fuel-efficient technologies targeting women groups and associations established*
- 6.4 – A selection of alternative fuel-efficient technologies assessed and piloted by target resource user groups (e.g. domestic firewood users and charcoal makers) at local demonstration sites*

6.5 – Adoption of appropriate and popular fuel-efficient technologies scaled-up to supply households and resource-user groups through out the Uvira and Rusizi areas

6.6. A basket fund for initial funding of fuel-efficient technologies established

Output 7: Awareness of communities raised about soil erosion, deforestation and agroforestry management issues in relation to local livelihoods and the conservation of Lake Tanganyika

Local community awareness raising about the impacts of agricultural practices and unsustainable forest use on the environment can help to facilitate their acceptance of new or modified resource management practices and to more readily join together in collective action efforts. Community members will be given the opportunity to participate in seminars facilitated by ICRAF, as a means to achieve awareness raising, in turn usefully complementing and supporting the preceding outputs.

Sub-outputs/ Activities

7.1. Community workshops held with organised groups (women, youth, fishermen and farmers) including field visits and multi-media presentations on the socio-ecological impacts of deforestation and soil erosion on livelihoods and on the biodiversity of Lake Tanganyika *7.2. Radio debates held regularly on deforestation and its consequences on the Lake's environment involving the participation of communities and key resource users.*

Output 8: Project lessons and developments disseminated for replication in priority areas

The lessons learnt from developing and implementing the project – both in terms of government and community institutional strengthening as well as innovations in sustainable land-use – will be disseminated and replicated in priority areas outwith the immediate Uvira area. The benefits from doing so are likely to be significant, depending on the success of the project's progress, and substantial potential exists for successful replication, after the mid-term review has been carried out.

Sub-outputs/ Activities

8.1. Key project lessons distilled and new priority project areas identified with stakeholders
8.2 Project developments disseminated and replicated as appropriate in new project areas

Output 9: Project efficiently and effectively managed, monitored and evaluated

The project will need to develop an effective and efficient Management Information System (MIS) that will be a key administrative tool for the project's implementation. The MIS will require the timely acquisition, analysis and dissemination of relevant information to the project's staff and stakeholders. It will therefore be important that the Project Implementation Unit (PIU), in collaboration with key stakeholders, agrees and develops an effective and appropriate MIS. The MIS will comprise a *Planning* and a *Monitoring & Evaluation* component. The project's log frame with its in-built targets will provide benchmarks against which actual performance will be monitored and evaluated. The findings of the M&E process will in turn be fed back and used to review and possibly modify the original log frame.

Sub-outputs / Activities

9.1 – Project staff recruited
9.2 – Management Information System (MIS) developed and implemented
9.3 – Site specific baseline survey conducted

9.4 - Preparation and implementation of Annual Work plans and Budgets (AWPB) carried out

9.5- Mid-term review and end of project evaluation planned and conducted

Project sites

The project site is located in the Uvira Catchments to the west of Uvira City, South Kivu Province in Uvira Region. This is to the south of the Rusizi floodplain. Detailed selection of intervention demonstration sites will be chosen during the initial stages of the implementation of the project on the basis of identifying high priority soil erosion and deforestation sites, and approved within the Inception Report. The process of selecting project sites will also be contingent on community participation and their acceptance of the project's planned interventions.

Global Environmental Benefits

Conserving Lake Tanganyika and its basin will lead to substantial global environmental benefits. With more than 2,000 species of plants and animals, Lake Tanganyika is among the richest freshwater ecosystems in the world. Together with the other African great lakes of Malawi and Victoria, Lake Tanganyika is famous for its endemic and highly diversified flocks of cichlid species. However, what distinguishes Lake Tanganyika from the other African great lakes is its comparatively far greater biodiversity that includes flocks of non-cichlid fish as well as invertebrate organisms such as gastropods, bivalves, ostracodes, decapods, copepods, leeches and sponges. The level of biodiversity that has thus far been recorded for Lake Tanganyika is of particular significance. Much of the Tanganyikan coast has not been adequately explored and consequently invertebrate species numbers are probably currently significantly underestimated.

The catchment approach adopted by the Project, necessary to preserve Lake Tanganyika's aquatic and littoral biodiversity, will lead to further global environmental benefits as the basin's terrestrial biodiversity is conserved and becomes sustainably managed to reduce Lake sedimentation levels.

Sustainability

Institutional and Financial Sustainability

The proposed second phase of the Lake Tanganyika Biodiversity Project will fall under the Lake Tanganyika Regional Integrated Management Program (LTRIMP). The Lake Tanganyika convention provides a legal framework and an institutional mechanism - in the form of a regional body, the Lake Tanganyika Authority (LTA) - for the management of the Lake. However the LTA will only begin operation once the Convention has been ratified and has begun to be implemented. While waiting for the ratification of the Convention, the four partner countries have agreed that an Interim Lake Tanganyika Management Authority (ILTMA) will coordinate the LTRIMP at regional level until the LTA is created. Project implementation at national level will therefore ultimately fall under the ILTMA through National Steering Committees (NSCs) and a Regional Steering Committee.

In the DRC situation, the initial emphasis will be on institutional capacity building and developing effective partnerships between civil society (CSOs and NGOs) and government.

Assumptions and risks potentially impacting on the sustainability of project outputs

Whilst security in the DRC area of the Great Lakes remains of concern, the specific Uvira site has been relatively peaceful. The Hydro-Biology Research Centre in Uvira has continued working throughout the years of conflict, and has helped prepare this component. However, the largest risk to the satisfactory implementation of the project must still be the level of insecurity prevailing in the eastern DRC as a whole, especially along the southern Congolese coast of Lake Tanganyika.

Insecurity risks may adversely impact on the functioning of the project. Insecurity creates an environment in which communities are less able to participate in the implementation of the project, and in which the functioning of national (including government) institutions is greatly reduced.

The reduced level of capacity in both Government and Civil Society means that the project has to invest in awareness, education/sensitisation and general institutional support and confidence. The low functioning of political systems leads to reduced levels of political support. And finally, the lack of alternative income / energy options over the last decade, apart from overuse of the catchment, means that the project will have to invest in considerable demonstration to achieve buy-in. The prevailing socio-economic situation does limit both individual and community options

Against these problems is the fact that people have a great desire for change, there is no recent history of donor dependence, and the civil society process is growing. There is potential for sustainability.

Replicability

Key to the replicability of the project will be the experiences gained and lessons learnt in developing a model, within the DRC context, for institutional capacity strengthening at local community level and in pioneering new linkages between government institutions and communities. The model of community and linkage institutions, with appropriate modifications as may be required, will be replicable along the DRC Lake Tanganyika coast into Katanga Province. In addition, the experiences and lessons learnt in developing and implementing integrated catchment based management, pioneering farmer-based agroforestry and soil management systems, supporting community-based and private woodlot establishment as well as facilitating the uptake of new fuel-efficient technologies will enable the replication of the project's outputs elsewhere along the western Lake shore.

Stakeholder Involvement

Stakeholder involvement in project proposal development

During project development of the project proposal consultations were initiated at all levels with a range of partners and other institutions directly or indirectly linked with project activities. In the first instance, two national planning teams were trained and grouped within the overall National Planning Team. The National Planning Team is comprised of delegates and technicians from several relevant ministries (Ministry of Land Affairs, Environment, Conservation of the Nature and Tourism; Ministry of Planning and National Reconstruction; Ministry of Foreign Affairs and International Cooperation; and the Ministry of National

Education, including the University of Kinshasa; Ministry of Agriculture, Fishing and Livestock; Ministry of Information; President's Office) through the Official Gazetteer, as well as a NGO from Kinshasa.

A second team was formed in the eastern Democratic Republic of Congo. The team is comprised of technicians based in South Kivu Province from different public and private institutions, including the Higher Rural Development Institute (ISDR), Higher teacher-Training Institute of Bukavu (ISP), the Congolese Institute for Conservation of Nature (ICCN), the National Agronomy Research Institute (INERA), the Natural Sciences Research Centre (CRSN), and the Hydrobiology Research Centre (CRH). Institutions from the private sector include the following Uvira NGOs: NOPTA (New Orientation of Fishing in Lake Tanganyika), CADIC (Action for sustainable development integrated in communities), CEPAC (Community of Protestant Churches in Central Africa), ASEGE (Association for Environmental management studies) and BECA (Supervisory Office conservation of the nature and Improvement of Nutrition in Kivu). In addition, during project development, the riparian communities of Lake Tanganyika as well as the traditional, local and administrative authorities were consulted several times, and their opinions were taken into account in developing the project proposal.

In both cases, the radio and press were used as tools for sensitisation, extension and dissemination of new alternative techniques towards all project stakeholders.

Stakeholder involvement in further project development and implementation

The approach adopted in implementing future projects will be similar to the approach adopted in the present project, with some differences due to lessons from the first phase of the Lake Tanganyika Biodiversity Conservation Project. Communities will play central role in the attainment of the project's outputs. During the execution of Phase I of the project, sensitisation and extension played a crucial role in project activity implementation. This approach was adopted because it calls for change of habits of communities so that they easily adopt new technologies in replacement of old technologies. Communities living in the zones and regions included in the project operating range were contacted and consulted, especially in connection with the potential benefits presented by each intervention. The consultations resulted into the designing of a participatory management plan, and its finalisation will lead into the development of the activities planned in this project.

Lessons from Similar Projects

Lessons drawn from similar projects are numerous. These include the following:

- The Lake Tanganyika Research Project (LTR), funded and executed by FAO-FINNIDA (1992-1997) produced a range of technical reports, as well as the "Lake Tanganyika Framework Regional Fisheries Management Plan". One of the major lessons from the project has been the need for a continuous exchange and utilisation of information and experiences between the four riparian countries.
- A project facilitated by the Action Centre for Integrated and Community Development (CADIC) developed nurseries in Uvira town and had previously piloted fuel efficient stoves. However insufficient community participation and sensitisation led to the under-realisation of the project which eventually halted due to the outbreak of war in the area.

- The Community of Protestant Churches in Central Africa (CEPAC) has worked in the Rusizi floodplain for the last 20 years. Although they have developed a reforestation initiative, the programme has been constrained by war and by insufficient buy-in by communities. This has led to fires being allowed to destroy reforested sites and to major set-backs in the initiative.
- In Kabare-Bukavu, GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit) has been successfully carried out and the project will liaise with GTZ as the approach and methodology that was adopted.

Monitoring and Evaluation

Monitoring and evaluation system

The prevailing system in DRC – Kivu – Uvira will be assessed at project start-up, and M and E systems integrated into the implementation arrangements. The UNDP Projects Office and WWF Projects Office in Bukavu will have important roles in such M and E.

Most of the project activity indicators are expressed in terms of percentage or quantity, i.e. the percentage of old public woodlots rehabilitated, percentage of hills reforested and established in community plantations, as well as the percentage of river banks reforested. The activity on agroforestry techniques and anti-erosion techniques will be measured from the percentage of farmers adopting the techniques. Similarly, the percentage of people participating in popular workshops held in order to raise awareness of the prejudicial effects of erosion and the value of lake protection will be a measurable indicator of project activity.

Financing

Project cost

The development objective ‘Protection and conservation of the biodiversity and the sustainable use of the natural resources of Lake Tanganyika’ will be realised through a number of related project components within the four areas as identified in the SAP -fisheries, sediment reduction, pollution control, forest/woodland conservation and lake monitoring. Different partners will contribute to the overall development objective as described in the Executive Summary to this Brief. In the DRC, UNDP/GEF support will focus on catchment management.

The Baseline and GEF Alternative. The Incremental Cost Analysis is in Annex 1a to the Executive Summary.

Baseline catchment management expenditure

The total baseline expenditure currently occurring in the Uvira catchment is estimated to be US\$ 100,000 per annum. This is based on an estimate of DRC and Uvira Government’s annual expenditure related to catchment management being some 50,000\$, which is mainly in the form of ongoing support to institutions. A similar sum is assessed for the CSO / NGO for catchment and natural resource management expenditure. Details are in Annex 1a.

The incremental funding proposed for catchment management will result in substantial milestone steps towards the conservation of Lake Tanganyika’s biodiversity. The increment will be met by the UNDP/GEF which will make an incremental investment of USD 2,400,000.

DEMOCRATIC REPUBLIC OF CONGO : Output Financing		
Outcome 1: <i>'Government and community natural resource management institutions strengthened'</i>		350,000
	Output 1: Government and community natural resource institutions reviewed and strengthened for achieving integrated catchment basin management	250,000
	Output 2: The hydrology of priority high sediment load rivers investigated and river sediment reduction management plans developed and implemented	100,000
Outcome 2: <i>'The natural resource base in and around Uvira are sustainably managed through improved land-use practices'</i>		2,050,000
	Output 3: Appropriate agroforestry practices and soil management needs assessed with stakeholders in priority areas and piloted	500,000
	Output 4: The capacity of government and communities to establish and successfully manage catchment projects with appropriate forestry and agroforestry species is strengthened	300,000
	Output 5: Old managed forest areas rehabilitated and new community and private woodlots appropriately established and sustainably managed regenerating appropriate forest cover	250,000
	Output 6: Appropriate energy-saving technologies assessed with stakeholders, advocated, piloted and widely adopted by targeted resource user groups	150,000
	Output 7: Awareness of communities about soil erosion, deforestation and agroforestry management issues raised	350,000
	Output 8: Project lessons and developments disseminated and replicated in priority outlying areas	100,000
	Output 9: Project efficiently and effectively managed, monitored and evaluated	400,000
Sub-Total		2,400,000

Co-financing – Government of DRC's contribution

<i>ITEM</i>	<i>DESCRIPTION</i>	<i>ESTIMATE (US \$)</i>
1. Services	Human resources: ministry, provincial and local government	450,000
2. Office / Miscellaneous	Office rentals and utility services	200,000
TOTAL		650,000

Institutional Coordination and Support

Project linkages with national/regional/global sector programs

At the level of the DR Congo, the project is well integrated with the Environmental Action National Programme (PNAE) the priorities of which include: erosion control, protection of

degraded lakes and zones, as well as promotion of public woodlots through the National Forestry Service.

Secondly, the National Biodiversity Programme (NBP) sets out a strategy for conserving the biodiversity of the DRC, in the country generally as well as in national parks and natural reserves. In addition also provides for the protection and conservation of aquatic biological diversity and aquatic environments such as Lake Tanganyika.

Projects that help reduce poverty through developing sustainable community natural resource management and sustainable environment-based livelihoods also constitute a high priority for the DRC.

Consultation, coordination and collaboration between Implementing Agencies (IAs)

In the DRC, there are a number of projects with which strong links will be developed during the proposed project.

The Albertine Rift Conservation Project is funded by the MacArthur Foundation and implemented by the Chicago Natural Museum (USA) in collaboration with the Uvira Hydro-biological Research centre (CRH-Uvira), the Natural Science Research Centre (CRSN-Lwiro/Bukavu) and the Congolese Institute for Conservation of the Nature (ICCN-Bukavu). The project is mainly focussing on the conservation of aquatic ecosystems (including East-African Great Lakes, e.g. Tanganyika ecosystem) and terrestrial catchment areas of the Lake in Uganda, Rwanda, Burundi, Tanzania, Zambia, DRC.

In the same sector, WWF-East Africa is developing a regional conservation programme in the Albertine Rift (including Lake Tanganyika). The programme has nine objectives, including the conservation of forests, lakes and rivers, sustainable utilisation of natural resources, environmental education, and capacity building and legislation development.

At the national level, some additional interventions in connection with the project have been on-going in the Lake Tanganyika catchment. These include reforestation programmes initiated and executed by the National Reforestation Service but whose activities stopped because of the war in DR Congo. Another on-going programme is the reforestation of the Rusizi floodplain by local NGOs: NOPTA (New Orientation of Fishing in Lake Tanganyika), CADIC (Action Centre for Integrated and Community Development) and CEPAC (Community of Protestant Churches in Central Africa). This is working in the Rusizi floodplain.

3.13 Implementation Arrangements.

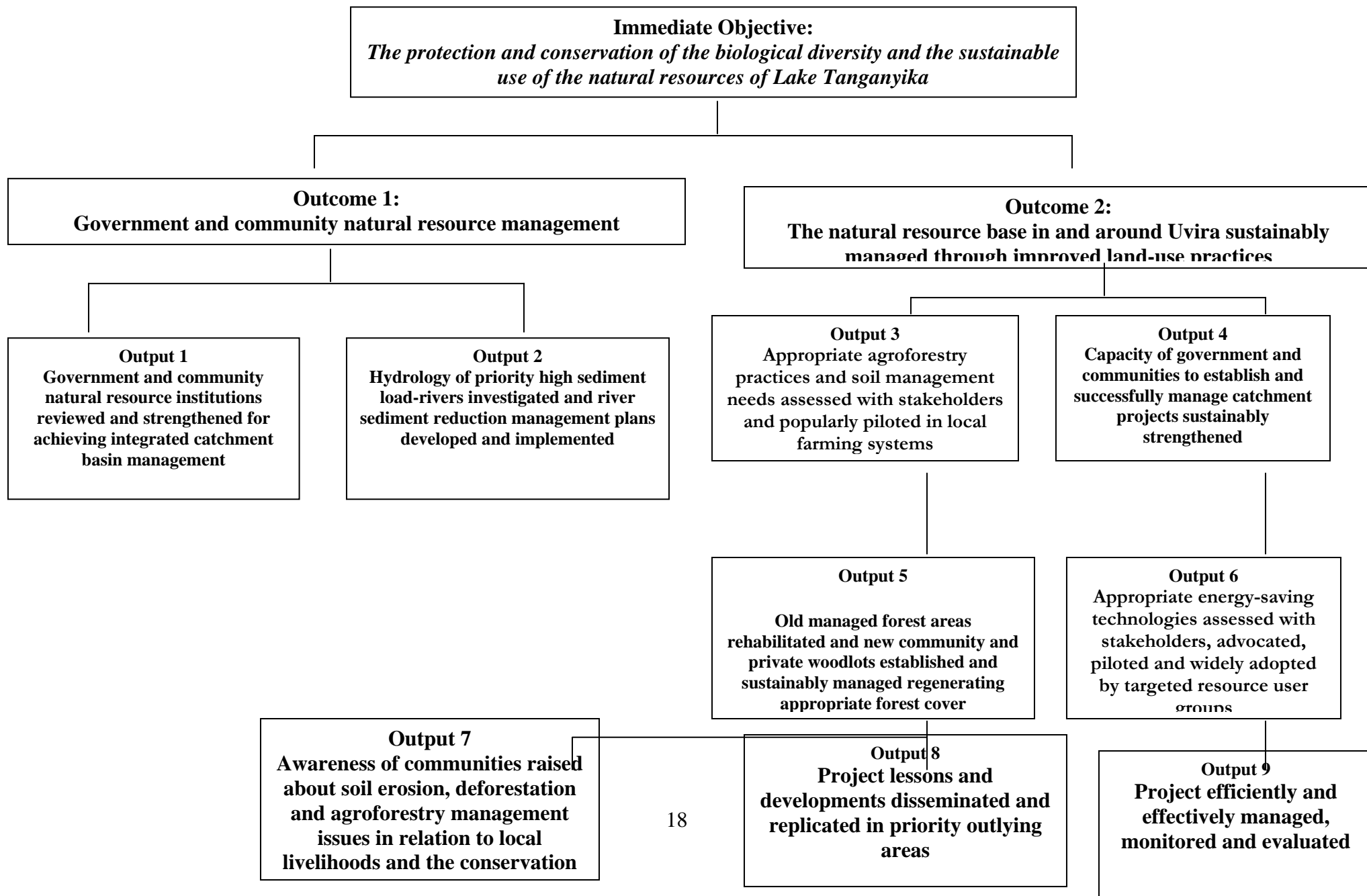
The project is to be implemented through UNOPS, with UNOPS subcontracting WWF to work in collaboration with DRC government and the Uvira Region / Uvira Municipality Agencies, to seek partnership processes in implementation.

UNDP / UNOPS will, with WWF and Government of DRC, draw up a specific National Steering Committee to provide oversight and guidance to the project process. This Steering Committee will be integrated with the overall Programme oversight mechanisms described in Annex 3 to this Brief.

Full details of the implementation process will be finalised during the **Inception Report Process** in the first four months of project start-up after key staff are on board. However the basic principles are:

- Full stakeholder participation in project design and implementation, this goes across civil society and private sector and government at local and regional levels.
- An emphasis on partnerships across the many sectors will be encouraged
- Capacity building for sustainable project processes will be integrated,
- Cost-effective and efficient implementation mechanisms will be used,
- Seeking a sustainable exit strategy for GEF intervention involvement,
- Project activities will be geared towards impact generation with a view to learning lessons and replication of project successes elsewhere in DRC and the Region.

Project output and activity matrix



Project Logical Framework Matrix

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
<p>Development objective:</p> <p>The protection and conservation of the biological diversity and the sustainable use of the natural resources of Lake Tanganyika</p>	<ul style="list-style-type: none"> √ 30 % improvement in sedimentation rates in target catchments √ Significant improvement s in biodiversity (land and water) indices within and offshore selected catchments (as measured by project supported Lake Management processes – using TBDA / SAP baseline. 	<ul style="list-style-type: none"> √ Project & Post project evaluation reports √ Annual reports of line Ministries (Tourism, Environment and Natural Resources, Agriculture and Cooperatives, Energy and Water resources) 	<ul style="list-style-type: none"> √ The policy environment supporting community involvement in NRM continues to be favourable. √ The M and E process (see regional Proposal) is implemented.
<p>Overall outcome</p> <p>Stakeholders in the Lake’s catchment manage and sustainably utilize agricultural and forest resources to reduce sedimentation and conserve biodiversity</p>	<ul style="list-style-type: none"> √ At least 60% of old woodlots rehabilitated. √ 60% of hills rehabilitated. √ At least 50 % of farmers use at least 2 agroforestry techniques. √ At least 30 % of farmers use 1 anti-erosion technique. √ At least 20 % of households use charcoal ovens √ At least 20 % of households use improved stoves. 	<ul style="list-style-type: none"> √ Project annual and evaluation reports √ Community minutes and records on implementation of CBNRM √ Impact assessment studies 	<ul style="list-style-type: none"> √ Internal security problems might affect good running of the project √ The weather conditions remain favourable √ Inflation rates remain manageable

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
Outcome 1: Government and community natural resource management institutions strengthened			
<i>Output 1: Government and community natural resource institutions reviewed and strengthened for achieving integrated catchment basin management</i>	✓ ✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
<i>Output 2: Hydrology of priority high sediment load rivers investigated and river sediment reduction management plans developed and implemented</i>	✓ ✓ ✓	✓ ✓	✓ ✓ ✓
Outcome 2: The natural resource base in and around Uvira sustainably managed through improved land-use practices			
<i>Output 3: Appropriate agroforestry practices and soil management needs assessed with stakeholders and popularly piloted in local farming systems</i>	✓ 50 % of farmers have adopted agroforestry technique ✓ 30 % of fields have shrubby and grassy hedges ✓ 30 % of farmers have adopted at least 1 anti-erosion technique ✓ 1,000,000 of agroforestry plants distributed	✓ Farmers' survey ✓ Project annual and evaluation reports	✓ Farmers have enough land to devote a portion to agroforestry ✓ Agroforestry benefits are tangible enough so that farmers accept and use the technology ✓

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
<i>Output 4: Capacity of government and communities to manage successful catchment project activities sustainably; with appropriate agro-forestry species is strengthened</i>	<ul style="list-style-type: none"> ✓ Funding increases for catchment activity ✓ Increased staff allocation for catchment management 	Institutional Records	<ul style="list-style-type: none"> ✓ Once trained, technicians will make use their training on the project and not seek employment elsewhere ✓ Agro-forestry will not be too heavy an investment in time and financial resources
<i>Output 5: Old managed forest areas rehabilitated and new community and private woodlots established and sustainably managed regenerating appropriate forest cover</i>	<ul style="list-style-type: none"> ✓ 100 ha of old woodlots rehabilitated, or 80% of old woodlots are rehabilitated ✓ 400 ha of plantations are established ✓ At least 60 % of plantations have established a functional community management system ✓ At least 50% of sensitive sites on Uvira rivers are reforested on 20 m wide and sediment dams are constructed in at least 50% of the sites – pending the development of river sediment reduction management plans 	<ul style="list-style-type: none"> ✓ Site surveys at the beginning and at the end of project to estimate deforested forested surfaces establish comparison ✓ Field survey to measure planted areas at the end of project ✓ Survey of community woodlots to assess whether management system was put in place, and the type of management, whether it operates according evaluation criteria 	<ul style="list-style-type: none"> ✓ (A) viable local organisation(s) is/are put in place to supervise and protect the forested and woodlot areas ✓ The local reforestation is sufficient to respond to firewood demand ✓ The local community is willing to take part
<i>Output 6: Appropriate energy-saving technologies assessed with stakeholders, advocated, piloted and widely adopted by targeted resource user groups</i>	<ul style="list-style-type: none"> ✓ At least 20% of households use improved stoves in Uvira City; ✓ At least 50% of households use improved stoves in Uvira rural zones; ✓ At least 10% household groups use charcoal ovens in Uvira City ; ✓ At least 50% of household groups use charcoal ovens in Uvira rural zones. 	<ul style="list-style-type: none"> ✓ Household surveys 	<ul style="list-style-type: none"> ✓ The cost of ovens might be prohibitive even if households group together and share the (charcoal) ovens. ✓ The positive effect from utilisation of ovens and stoves on wood consumption might be counter-acted by locally increasing demographic pressure.
<i>Output 7: Awareness of communities raised about soil erosion,</i>	<ul style="list-style-type: none"> ✓ At least 30% of local community participated in popular workshops ✓ At least 30 % of primary and secondary 	<ul style="list-style-type: none"> ✓ Workshop reports 	

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
<i>deforestation and agroforestry management issues in relation to local livelihoods and the conservation of Lake Tanganyika</i>	school students participated in workshops ✓ At least 75 % of ILDs and NGOs and local administration workers participate in popular workshops		
<i>Output 8: Project lessons and developments disseminated and replicated in priority outlying areas</i>	✓	✓	
<i>Output 9: Project efficiently and effectively managed, monitored and evaluated</i>	✓ Appropriate Project staff in place by Project year ✓ Key information requirements and reporting formats developed for the project ✓ Appropriate number of project plans and reports available in a timely manner at different management levels ✓ Appropriate Project baseline and benchmark outputs developed for monitoring project results. ✓ Audit reports ✓ Number of useful lessons learnt, disseminated and corrective measures taken ✓ Number of milestones achieved at mid term ✓ Number of milestones achieved by year 5 of the project	✓ Project progress reports ✓ Project MIS records ✓ Copies of Reporting formats ✓ Copies of AWPB ✓ Baseline Survey Reports ✓ Project MIS records ✓ Project progress reports ✓ Project MIS records ✓ Mid- term Review Report ✓ Impact Assessment Report	

ANNEX 7

Lake Tanganyika Integrated Management Project

Burundi Component

August 2003

SUMMARY

The Government of Burundi prioritised the SAP into two immediate priorities: addressing the problem of over-fishing (AfDB co-finance) and the problem of severe lake pollution near Bujumbura as a result of untreated waste-water flows (GEF financing).

Bujumbura as befits a capital city has a wastewater – sewage system, which was being updated and increased by both local and donor investment in the early 1900s. However insecurity led to the pull-out of donor financing before project completion – although most civil works were completed.

GEF financing joins forces here with Government and Private Sector financing to both complete and extend this system and to provide increased capacity for the Bujumbura civil authorities to implement and monitor a modern system.

The past GEF SAP / TDA processes showed the severity of pollution inflows from Bujumbura which impact the whole of the northern lake. Pollution is more than a health hazard but is instrumental in reducing fisheries productivity and biodiversity, through changing water parameters and so habitats.

Pollution control has two dimensions. These are: the impact on global environmental values – including biodiversity; which forms the rationale for GEF financing; and impact on health, which has been the driving factor in leveraging funding from both government and the Private Sector industries which are sources of pollution..

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Project Background / Context

Country Ownership

Country Eligibility

Burundi ratified the Convention on Biological Diversity on the 24th December 1996, and is therefore eligible for UNDP and GEF technical assistance in fulfilling its national obligations to this international agreement. Burundi ratified the Ramsar Convention on Wetlands in 2002.

Country Drivenness

Project integration with national sector development policy

The recently developed *National Environmental Strategy and Action Plan*, the *National Water Policy*, the *National Biological Diversity Strategy*, and the *Environmental Code*, all address the issues of wastewater pollution control and protecting the biodiversity of Lake Tanganyika.

Regional intergovernmental conventions

Burundi, together with the three other riparian states of Lake Tanganyika has agreed on cooperative action for the sustainable management of the Lake. The *Strategic Action Programme* (SAP) for the sustainable management of Lake Tanganyika, together with the preparation and adoption of the *Lake Tanganyika Fisheries Management Framework* paved the way for the negotiation and signature by the four countries of the *Convention for the Sustainable Management of Lake Tanganyika*, which is currently being ratified by the signatory nations. The Lake Tanganyika Project will assist Burundi in operationalising the SAP (Strategic Action Plan) and the Convention as part of this regional effort.

Environmental Context

Lake Tanganyika contains the greatest biodiversity of any lake on the globe, with some 2,000 species of fish, invertebrates and plants that have been recorded in the lake basin, of which 500 are endemic. For more information about the richness of Lake Tanganyika in terms of biodiversity and other values, refer to the Strategic Action Plan document.

Socio-economic, Institutional and Policy Context

Burundi has always maintained a strong interest in the Environmental Status of Lake Tanganyika, which is not surprising as the Capital City – Bujumbura – is dependent on the Lake for water supplies - for domestic, industrial use (and for transport, Burundi is a land-locked country) and for much input to the livelihoods of its population – fish are a major food source. The Lake provides a security route. Despite the civil unrest of the past decade which saw the planned secretariat for Lake Tanganyika moving from Burundi to Tanzania, Burundi has constantly played its part in past GEF project and recent PDF B project processes. Burundi was able to host the past FINNIDA – FAO fisheries project, and has constantly lobbied for the new GEF project to be based in Burundi.

Whilst the Ministry for Land Management, Environment and Tourism has the lead role in this GEF project, but the implementation processes are strongly cross-sectoral with other

Ministries involved. The Ministry of Energy and Minerals (Water interests), Ministry of Transport, Ministry of Health, Ministry of Agriculture (fisheries issues) and Ministry of Industries and Trade all have strong interests. The parastatal institutions (SETEMU, IENCN) dealing with water and sewage in Bujumbura are immediate stakeholders, as is the private sector – who provide co-finance.

Civil unrest has reduced capacities of organisations (both government and civil society/private sector), but organisations do continue to function and industries continue to produce. New investment has been curtailed as donor funding ended and government reduced funding sources had other immediate priorities outside the environmental sector.

Baseline situation: Threats, Root Causes and Activity

Threats

The biodiversity of Lake Tanganyika faces major threats. With regard to the Burundi part of the Lake, over-fishing and environmentally damaging fishing methodologies, high rates of sedimentation into the Lake and its inflowing rivers, and growing pollution concerns were documented in detail in the Trans Boundary Diagnostic Analysis (TBDA).

Pollution

Burundi has the smallest catchment of Lake Tanganyika, but it has a potentially significant pollution impact on the Lake's ecosystem since Bujumbura, the country's capital city, is situated on the lake shore and is a substantial source of domestic and industrial pollutant discharge into the lake. The city is the largest town on Lake Tanganyika, with approximately 600,000 inhabitants. Bujumbura city is growing rapidly with a current population growth rate of 7.8%. Present urban sanitary services are unable to handle and process the growing urban population's sewage in a proficient and ecologically appropriate manner.

Present wastewater discharge processing capacity in Bujumbura varies according to the level of infrastructure in the city's different precincts. The city's most developed and more affluent areas (approximately 25% of the urban population) use septic tanks and cesspools to dispose of their sewage. The lower income areas (approximately 35% of the urban population) are not currently supplied with running water, and therefore depend on latrines and open sewers and gutters for domestic effluent. The remaining areas, representing about 40% of the population, as well as almost all local industrial premises, either are connected or are easily connectable to the sewage network. However, much of the industrial waste water system is not yet connected to the city's main treatment plant since effluent pre-treatment conditions have not yet been fully met by most factories, which in turn form the largest point-sources pollution threat. Most industrial premises are beginning to install pre-treatment systems for their effluent discharge and it is expected that by the end of 2004, most will have commissioned their pre-treatment works.

Samples of lake water have been taken from different points in Lake Tanganyika around Bujumbura and are shown in Table 2. In addition the textile outflow was high in lead and chrome.

Table 2: Analyses from Lake Tanganyika Waters (2 samples) and textile industry outflow

Parameter	Units	Lake Site1	Lake Site 2	Textile
pH	-	8.6	8.9	12
Dissolved oxygen	mg/l	7.05	6.65	2.12
Chemical oxygen demand (COD)	mg/l	55	84	30.6
Chlorinate	mg/l	19	22	3560
Total dissolved solids	mg/l	516	426	-

While the analyses in general, and in Table 2) are not of immediate critical concern, some parameters do exceed safety standards and it is considered necessary appropriate to ensure that appropriate pollution prevention measures have been taken instead of waiting until the Lake is heavily polluted. Were the Lake to become heavily polluted, then in addition to pollution abatement infrastructure development, the de-pollution of the lake would be expensive and the expected damage to the Lake's globally important habitats and biodiversity might well be irreversible.

Root causes

The threats – over fishing, environmentally damaging fishing methodologies, high rates of sedimentation into the Lake and its inflowing rivers, and particularly growing pollution concerns – impacting on Lake Tanganyika are the product of a complex and inter-acting range of issues. Whilst the four are generic to the region; the third bullet, on insecurity, is more specific to Burundi:

- **Weak local natural resource management and tenure institutions** – natural resource management has long been the prerogative of central and district government without appropriate, popular and effective participation of local communities and resource-users. With a legacy of chronic under-resourcing in the natural resource sector, the capacity of government institutions and the effectiveness of their programmes have remained weak, leading to *de facto* open resource use situations. *De facto* open resource use situations have also occurred as resource use and tenure rights have remained contested and local communities continue to perceive resource management and law enforcement responsibilities as lying heavily with the state.
- **Poor governance and accountability** – reflective of a complex set of development and societal issues, poor governance and accountability have led to ineffective natural resource management, unsustainable resource use practices and have frequently compromised law enforcement.
- **Insecurity** – this has been a particular issue in Burundi where government funding priorities and implementation priorities have moved away from the environment in order to deal with governance issues and restoring order. International peace processes have greatly restored the security situation and it is hoped that this fundamental root-cause is now over!
- **Insufficient local and national institutional liaison** – catchment natural resource management is ideally a multi-sectoral undertaking involving water, agriculture,

fisheries, forest, wildlife, land (tenure) and mining sectors. Each usually has its own district department and these departments may fall under entirely different ministries at national level. Creating and maintaining sufficient liaison and linkages between all these institutions is not easy and often receives inadequate attention. To date, insufficient coordination between all these sectors has led to disjointed and sometimes contradictory policies and programmes, resulting in poor catchment management. And underlying these institutional root-causes are the twin problems of:

- **A growing human population** - in the Lake Tanganyika basin has led to increasing pressure on the resource base. While growing human populations may not necessarily lead to deleterious outcomes for the integrity of ecosystems and biodiversity, a range of complex factors, including those presented below, have resulted in insufficient incentives for, and the inability of, people to successfully manage their relationship with the environment in an ecologically sustainable way.
- **Poverty** - is widespread in communities living around the lake, and heavily frames people's fishery and land (forest and soil) resource use rationales – which often maximise short-term benefits to the detriment of the natural resource-base. People farming the steep slopes of the lake's shores are amongst the poorest in local society and therefore are unable, for a variety of reasons, to invest sufficiently in sustainable farming and resource use practices. Underlying reasons include seasonal farm labour shortages, insufficient access to affordable credit, insecure land tenure, and a lack of knowledge about sustainable farming practices in a contemporary context.

On-going Activities Baseline Activities

Urban pollution abatement

Major infrastructural pollution control and management work was carried out in 1994 funded by KFW, AfDB and the Government of Burundi on the basis of earlier design work carried out by German GKW Consult in 1990. While virtually the entire primary and secondary collection networks were constructed, the tertiary network was not undertaken due an embargo on Burundi, escalating insecurity and project costs and the halt of bilateral cooperation with many European countries. Thus, in 1996, infrastructure construction was halted although the work was only 90% complete.

Subsequent to the embargo, the Government of Burundi decided to fund the construction of the outstanding works required for the commissioning of the primary and secondary wastewater discharging system. The works included connecting old networks to the new system, mounting electro-mechanical equipment, and the provisioning of maintenance equipment for the system and treatment stations. Although the primary and secondary systems were commissioned in July 2000, the quantity of wastewater that reaches the treatment station is insignificant, as the overall sewage system remains incomplete. This is due to the fact that the tertiary networks for the Buyenzi area and partly for the Bwiza and Nyakabiga areas could not be completed due to a lack of funds.

Thus the construction of the tertiary system needs finalising for the city's main sewage system to function properly. Since the cessation of the previous donor-supported project,

local institutions and the Government in Bujumbura has been unable to complete the tertiary network as both the Municipal Technical Services (SETEMU) and the National Institute for Environment and Conservation of the Nature (INECN), lack the requisite financial, infrastructural and human resources. Thus untreated water – particularly industrial effluent – continues to be discharged into Lake Tanganyika.

When the facilities are eventually fully commissioned, 38% of domestic wastewater and the totality of industrial effluent will be treated, hence allowing for a reduction of pollutants of 21,000 Kg BOD a day. This would allow for a 95% treatment ratio according to the project implementation study carried out in 1990. In this regard, some industrial facilities have already commissioned their pre-treatment plants – such as the Burundi Textile Complex (COTEBU) unit while others have begun construction – for example, the Burundi Brewery Company (BRARUDI).

Water quality monitoring has been undertaken by INECN, through the pollution special group, and chemical and physical-chemical analyses have been conducted. The group is active in promoting greater awareness about water pollution issues among industrial stakeholders and urban communities.

The present sanitation system comprises of the following works and equipment:

Previous works for wastewater discharge in the city of Bujumbura consisted of an old network measuring about 30,000 metres covering the town areas of Ngagara and Mutanga-Sud. The new works made in 1999-2000 fully cover the town areas of Bwiza, Nyakabiga, the city centre, the Asian district, the industrial area and part of the Buyenzi area.

- A 36 km primary network of concrete pipes with 600-1200 mm diameter;
- A 34 km secondary network with 250-500 mm diameter;
- A 75 km and household network of PVC pipes with 110-200 mm diameter.

The first two networks are already installed and are functional, while the tertiary network lacks 20 km to be finalised. 15 separators with the role of separating wastewater from rain-water, are installed. 4 pumping stations although installed cannot operate on a continuous basis due to a lack of sufficient energy since they presently each operate on 225 KVA generators. A lagoon treatment station consisting of 6 basins, including 2 anaerobes, 2 optional anaerobes and maturing anaerobes covers a 40 hectare area. – see map at end of Annex

The treatment station has a daily capacity of 40,000 cubic metres, but only receives 5,000 cubic metres a day. The primary network has a capacity of 60,000 cubic metres a day.

Conclusion

The biodiversity of Lake Tanganyika is threatened by three proximal threats of pollution, sedimentation and localised over-fishing. Pollution from Bujumbura constitutes a growing threat to both the biodiversity values of Lake Tanganyika and to urban public

health. A substantial investment in pollution control has already been made through the construction of primary and secondary sewage control infrastructure in Bujumbura, but which due to extenuating circumstances, and despite the efforts of the Burundian Government, remains incomplete. While the incomplete and only partially functioning sewage system has resulted in the continued emission of untreated effluents into Lake Tanganyika, the threat of pollution remains surmountable if an alternative course of action, as proposed herein, is adopted and implemented.

Alternative Course of Action

Introduction

The Alternative Course of Action is to develop interventions to fill the gaps left from the baseline scenario, so as to seek sustainable global and national benefits from rational use and management of the Lake Tanganyika resources. The environmental threat analysis identifies needs in improved pollution control. Thus the GEF intervention in Burundi addresses pollution control through infrastructure completion and institutional capacity building.

The present project is jointly designed by the Municipal Technical Services (SETEMU) for the exploitation of the lagoon and the National Institute for Environment and Conservation of the Nature (INECN) for awareness-raising and discharge control.

The expected impacts of GEF support

Burundi is committed to fulfilling its international and regional commitments to biodiversity conservation and the sustainable management of the Burundian part of the Lake Tanganyika basin. GEF co-financing would enable Burundi and Bujumbura City to complete the construction of its pollution control infrastructure and to further develop the institutional capacity required to maintain and further develop pollution control in the future. The key impact from GEF support will be:

Point sources of urban pollution and their negative impact on the aquatic ecosystem controlled and reduced through:

- Completing the construction of the tertiary sewage management infrastructure, commissioning the works as well as setting and maintaining pollution control standards;
- Increasing the awareness of urban communities and industrial stakeholders about water pollution control and management
- Capacity building for SETEMU and INECN;
- Carrying out a feasibility study of the areas that are not yet served by the sewage network

Objectives

The **Project's objectives** are embedded within the Strategic Action Programme (SAP) as:

‘The protection and conservation of the biological diversity and the sustainable use of the natural resources of Lake Tanganyika’

The **outcome** from the project is: ***‘The wastewater management system in Bujumbura finalised, thereby reducing point source pollution levels of Lake Tanganyika waters and so improving biodiversity habitats’***

Outputs – wastewater management component

To attain the outcome and hence contribute to the fulfilment of the development objective, the stakeholders of this project have selected five tangible, specific outputs:

Table 8: Project outputs

Output 1:	Tertiary wastewater collection network constructed and completed
Output 2:	The water treatment lagoon station commissioned and pre-treatment facilities operational
Output 3:	Discharge standards established, approved and issued
Output 4:	Awareness of urban communities about the biodiversity and public health impacts of pollution raised and monitoring inputs developed
Output 5:	Project implementation study updated and project effectively managed, monitored and evaluated

Output 1: Tertiary wastewater collection network constructed and commissioned

The tertiary sewage system will be finally completed enabling the entire Bujumbura sewage system to function properly. Works to achieve the secondary and tertiary network for the town area of Buyenzi (the most populated in Bujumbura) are a priority. Wastewater collection in this low-lying area of Bujumbura with shallow ground water is crucial in order to prevent pollution of Lake waters.

Sub-outputs

1.1 – The tendering procedure for selecting the construction contractor established

1.2 – The construction contractor selected

1.3 – Sewage infrastructure constructed

Output 2: The water treatment lagoon station commissioned and pre-treatment facilities operational

Industrial pollution will begin to be treated as a result of the construction of pre-treatment facilities at all major industrial facilities under the ‘polluter pays’ principle. The water treatment lagoon station will also be commission once the pre-treatment facilities have come on-line.

Sub-outputs

2.1 – All pumping stations, public toilets, and water and electricity separators connected

2.2 – Pre-treatment facilities at all major industrial facilities completed.

2.3 – The water treatment lagoon commissioned

Output 3: Discharge standards established, approved and issued

In order to ensure that the investment made in pollution control and management infrastructure is functioning appropriately, a system of discharge standards for the sewage system will be developed and implemented. This will enable any extraordinary discharge levels to be identified and appropriate remedial steps to be developed.

Sub-outputs

3.1 – Discharge monitoring laboratory established, equipped and commissioned

3.2 – Laboratory staff and management trained

3.3 – Discharge standards developed with stakeholders, validated and implemented

Output 4: Awareness of urban communities about the biodiversity and public health impacts of pollution raised and monitoring inputs developed

INECN has already created a special pollution group to promote greater awareness among urban communities and industrial stakeholders about pollution issues. The team requires training in the field of communication, management of a chemical and bacteriological analysis, sampling and result interpretation methods.

Sub-outputs

4.1 – Strategy for raising urban community awareness developed

4.2 – Strategy implemented

4.3 – Water quality control programme developed

4.4 – Water quality control programme implemented

Output 5: Project implementation study updated and project effectively managed, monitored and evaluated

The project implementation initially developed in 1990 for the expansion of the sewage system in Bujumbura needs to be up-dated in line with the current situation and future sanitation needs of the city. The project will also need to develop an effective and efficient Management Information System (MIS) that will be a key administrative tool for the project's implementation. The MIS will require the timely acquisition, analysis and dissemination of relevant information to the project's staff and stakeholders. It will therefore be important that the Project Implementation Unit (PIU), in collaboration with key stakeholders, agrees and develops an effective and appropriate MIS.

Sub-outputs

5.1 – Project implementation study updated

5.2 – Project staff recruited

5.3 – Management Information System (MIS) developed and implemented

5.4 – Preparation and implementation of Annual Work plans and Budgets (AWPB) carried out

5.5 – Mid-term review and end of project evaluation planned and conducted

Project Site

Some areas in the city of Bujumbura, especially those in the south of the city, do not have wastewater collection networks. Therefore, it will be necessary to carry out feasibility studies for these areas and develop further proposals for leveraging funding in the future for achieving appropriate pollution control measures and infrastructure development.

Global Environmental Benefits

The conservation of Lake Tanganyika and its basin will lead to substantial global environmental benefits. With more than 2,000 species of plants and animals, Lake Tanganyika is among the richest freshwater ecosystems in the world. Together with the other African great lakes of Malawi and Victoria, Lake Tanganyika is famous for its endemic and highly diversified flocks of cichlid species. However, what distinguishes Lake Tanganyika from the other great lakes is its comparatively far greater biodiversity that includes flocks of non-cichlid fish as well as invertebrate organisms such as gastropods, bivalves, ostracodes, decapods, copepods, leeches and sponges. The level of biodiversity that has thus far been recorded for Lake Tanganyika is of particular significance. Much of the Tanganyikan coast has not been adequately explored and consequently invertebrate species numbers are probably currently significantly underestimated.

Pollution abatement in Bujumbura is necessary to preserve Lake Tanganyika's local and wider aquatic and littoral biodiversity, complementing the outcomes of the DRC, Tanzanian and Zambian components, and thereby supporting the wider global environmental benefits of the multi-component regional and transboundary project.

Sustainability

Institutional sustainability

Regional level. *The proposed second phase of the Lake Tanganyika Biodiversity Project will fall under the Lake Tanganyika Regional Integrated Management Program (LTRIMP). The Lake Tanganyika convention provides a legal framework and an institutional mechanism - in the form of a regional body, the Lake Tanganyika Authority (LTA) - for the management of the Lake. However the LTA will only begin operation once the Convention has been ratified and has begun to be implemented. While waiting for the ratification of the Convention, the four partner countries have agreed that an Interim Lake Tanganyika Management Authority (ILTMA) will coordinate the LTRIMP at regional level until the LTA is created. Project implementation at national level will therefore ultimately fall under the ILTMA through National Steering Committees (NSCs) and a Regional Steering Committee.*

National level *The INECN is a parastatal organisation with the mandate to conserve and protect nature and natural resources – including water and other environmental values. It is linked to the Ministry of Land Management, Environment and Tourism (the DG of INECN is the GEF Focal Point).*

City Council level *The Government of Burundi has established a parastatal to control urban cleansing including sewage, under the City Council of Bujumbura – this is SETEMU (Municipal Technical Services). SETUMU has a Director General and is staffed with engineering professionals. SETUMU collects fees from urban clients but is also subsidised by government. SETUMU worked with past baseline finance (AfDB and KFW, Government) in building/operating the treatment plant.*

Financial sustainability

The Government has introduced a sanitation tax that will cover the cost of operating the sewage collection and management system. In this regard an agreement has been developed between the official water and electricity-company (REGIDESO) and SETEMU. Thus water users will pay for their sewage on the basis of the amount of clean water they use. The levy will come into operation as individual households and industrial facilities are connected to the new network. While the implementation of the sanitation tax is being finalised, the government is providing an annual grant of USD 100,000 for the exploitation of sanitation facilities.

In addition, individual households will have to pay the costs of connection to the feeder tertiary networks. Since many poorer households may be unable to afford paying the entire cost of connection at once, a facility for paying in instalments will be created. The installation costs of industrial effluent pre-treatment units are to be financially borne by the concerned industrial enterprises and the estimated costs are detailed within this proposal.

Existing legislation will be enforced with environmental by-laws specifying how the polluter-pays principle is to be implemented. A high pollution tax will be instituted,

which will provide an appropriate disincentive as required for stakeholders not properly managing their sewage discharges.

Assumptions and risks potentially impacting on the sustainability of project outputs

Risks follow from the discussion in the Executive Summary – in which resurgence of insecurity remains the biggest risk. However the strength of the donor and regional peace support process offers strong mitigation to this potential threat.

Proper revenue management and re-investment in pollution management infrastructure, by SETUMU is a potential risk, but the capacity before the breakdown in security and the importance of lake waters to the city augurs well for the future. This project is catalysing linkages from the private sector and public / civil society in partnership with SETUMU, which provides considerable mitigation to any perceived weakness of SETUMU. The GEF project has a role to build financial sustainability.

Compliance and completion of industrial pre-treatment works by the private sector is again a potential risk. Mitigation comes from the enormous incentive of the importance of clean water a public health issue and an impact on fisheries and so livelihoods. The law and the social commitment provide strong incentive for compliance.

Replicability

In order to ensure knowledge replicability in the project, a clear and consistent mechanism will be put in place to exchange information between the two urban wastewater management programmes within the overall project under implementation within the 4 partner countries. Exchange workshops will be held, and modern communication systems such as the internet will be used. The awareness-raising initiatives will be particularly replicable. Thus lessons learned about the process of engendering greater participation and responsibility among community and industrial stakeholders about pollution management and its significance for the biodiversity of Lake Tanganyika and for public health will be shared with other initiatives in the region.

Stakeholder Involvement

Stakeholder involvement in project proposal development

In developing the project, the two key institutions - SETEMU and INECN - have endeavoured to engender the participation of appropriate stakeholders, including the Bujumbura city official services, the local administration, NGOs, women groups in Bujumbura town, industrialists, economic operators, the health sector, and the University of Burundi in order to jointly identify the activities that will be carried out during the project. In addition, the national consultation process involved the National Cross-Sectoral Working Groups (including pollution control group and a biodiversity group) created by the Minister of Land, Environment and Tourism.

Lessons from Similar Projects

Implementation of this project will benefit substantially from experiences and lessons learnt from other projects, including the first phase of the Lake Tanganyika Biodiversity Project (GEF/UNDP), the Lake Victoria Environmental Management Project (GEF/WB), the East African Cross-Border Biodiversity project (GEF/UNDP), the Sustainable and Integrated Management of the Coastal Environment supported by DANIDA and the

Tanzania Coastal Management Partnership project. All these projects include aspects of regional cooperation, approaches fully involving local communities and appropriate NGOs, public awareness and capacity building activities, as well as working with local and central government.

Monitoring and Evaluation

The National Steering Committee (NSC) will oversee both project components. Using **Key Performance Indicators** (KPIs) (to be completed within the Inception Report) its role will be to review annual progress in the achievement of the project's outputs and objectives and to provide the National Project Coordinator (NPC), as head of the National Project Management Unit (PMU), with feedback for project implementation improvement.

SETEMU and INECN with the PMU will submit quarterly reports on the progress of activities to the Government and Lake Management Authority and UNDP-GEF. The reports that must be transmitted to the Global Environmental Fund and the Government of Burundi will have to integrate both expert reports and field activity reports. A mid-review evaluation is planned to review the project framework logical analysis and implementation process and adapt it according to needs.

Financing

Baseline wastewater management expenditure

The Government of Burundi had obtained significant donor finance for the Water Pollution Control Infrastructure, from AfDB (13.25 million \$) and from KFW (17 million \$). Most of this funding was spent but not all as the civil unrest halted construction prematurely and the project ended, with some infrastructure unconnected. Of this total of over 30 million \$, some 3.2 million representing the last year of input is considered recent enough to call baseline input (see Annex 1a).

Project cost estimates

The GEF Alternative is to build on this recent baseline, and complete the infrastructure, linking particularly to the industrial effluent sources by working with the Private Sector as co-financing partners. The GEF Alternative also builds capacity to oversee and monitor the waste-water treatment process within the mandated institutions – Government and Bujumbura Municipality. The GEF alternative has an incremental cost over this baseline of US\$, of which US\$ is to be met by GEF resources, with 1,193,000US\$ from the private sector (see letters in Annex 8b)

There are five parts to this intervention. These are:

Component/Output	Source	Cost \$
1 Tertiary Waste-Water Network Completed	GEF	700,000
2 Waste-Water Treatment Lagoon Operational	Private Sector	1,193,400
3 Discharge Standards	GEF	788,000
4 Awareness	GEF	631,000
5 Project Management	GEF	316,000

Plus : Government input in kind (across outputs 1-5)	GoB / Council	885,000
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Table 9: Project Cost Estimates

Outputs	Amount (US\$)
Output 1: Tertiary wastewater collection network constructed and commissioned (GEF funding)	
1.1 Purchase of 3,400 PVC pipes	300,000
1.2 Implementation costs	200,000
1.3 Construction of related infrastructure works	200,000
Sub-total	700,000

Output 2: The water treatment lagoon station commissioned and pre-treatment facilities operational (co-financing by local private sector enterprises)	
2.4 Brewery (BRARUDI) ((84,000 Euros)	1,060,000
2.7 Textiles (Cotebu)	133,000
(Smaller industries will be involved as the project develops)	1,193,000
Sub-total:	

Output 3: Discharge standards established, approved and issued (GEF funding)	
3.1 Utilities (Water / Electricity) Upgrading Connections	75,000
3.3 Purchase of water control laboratory facilities	300,000
3.4 Purchase of 2 computers and accessories for laboratory	8,000
3.5 Training for 5 laboratory staff (coordinator and technicians)	95,000
3.9 On-the-job training for 6 field maintenance teams	20,000
3.10 Vehicles (two light trucks and one cleaning-out vehicle)	180,000
3.11 12 months training expertise for the lab (regional consultant)	80,000
3.12 Two validation workshops	10,000
3.13 Issuing and extension of standards	20,000
Sub-total	788,000

Output 4: Awareness of urban communities about the biodiversity and public health impacts of pollution raised and monitoring inputs developed (GEF funding)	
4.1 Awareness Strategy development	15,000
4.2 Awareness workshops within communities and private sector	60,000
4.3 Local and outside training courses for facilitators	75,000
4.4 Purchase of AV equipment and sensitisation material	50,000
4.5 Purchase of transport (1 pick-up vehicles, 1 saloon)	54,000
4.6 Staff support (training, compliance)	40,000
4.7 Running of training centres for pollution	20,000
4.8 Special pollution group – operating costs	85,000
4.9 Project Technical Committee Costs	24,000
4.10 Consultancy 24 mm (Compliance, EIA, Regulatory, Standards	120,000
4.11 INECN and Bujumbura Council Capacity for oversight/M and E	77,000
4.12 Production and dissemination of reports	11,000

Outputs	Amount (US\$)
Sub-total	631,000

Output 5: Project implementation study updated and project effectively managed, monitored and evaluated (GEF funding)	
5.1 Updating the overall implementation study	50,000
5.2 Project Coordinator/Manager 36mm	196,000
5.2 Project efficiently managed – M and E, reporting	70,000
Sub-total	316,000

Grand Total Outputs 1, 3,4,5 (excluding Output 2 co-finance)	2,435,000
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The Government of Burundi (Dept Envir) will contribute USD 385,000 through supporting the cost of national project staff, providing training facilities and under-writing miscellaneous project expenses. The Council of Bujumbura and the Water / Sewage Authority will contribute staff time (costed as 10,000\$ pm over 48 months) at senior and field staff levels, totalling 500,000\$. See details in Table 3.

Table 10: Co-financing - Government of Burundi and Bujumbura Council Contribution

Item	Government	Council / SETEMU	Total cost
Personnel	225,000	480,000	705,000
Training	22,000		22,000
Equipment	100,000		100,000
Miscellaneous	38,000	20,000	58,000
Grand Total	385,000	500,000	885,000

Institutional Coordination and Support

Project linkages with national/regional/global sector programs

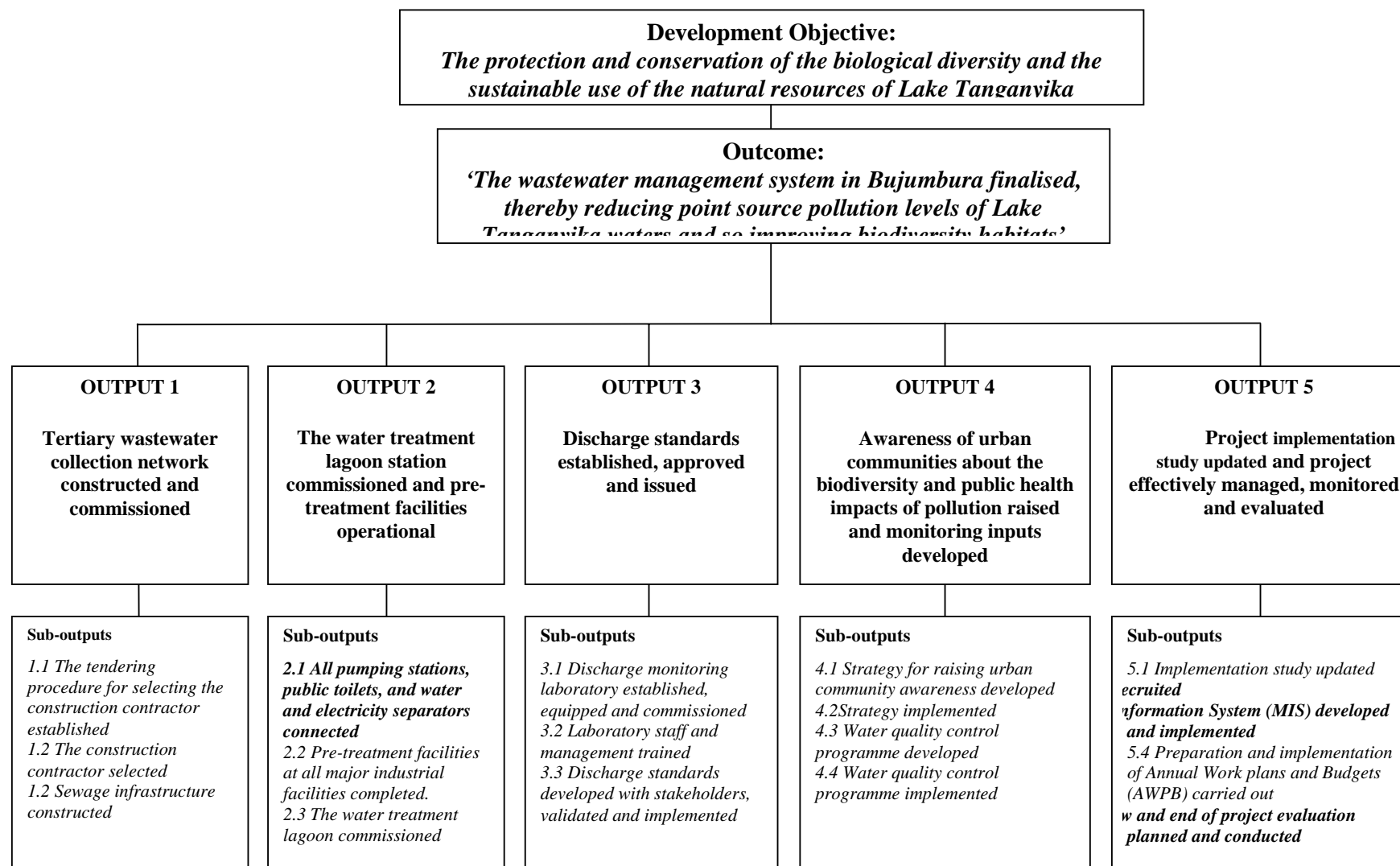
A number of projects were recently developed on Lake Tanganyika. These include the regional management and fisheries project of FAO/FINNIDA dealing with the biological basis of marine production; the role of ecotones in Lake Tanganyika by DANIDA/UNESCO in Burundi installations of waste water treatment facilities in Bujumbura by KFW (Germany)/SETEMU in Burundi; Creation and management of a research centre in ichthyology and hydrobiology, AECD (Belgium), CEPGL-IRAZ, in Burundi, Rwanda and the DRC.

In regard to national institutional linkages, it is worth noting that in Burundi, the ministry specifically responsible for the environment, through the National Institute for Environment and Conservation of Nature ((INECN), has created a special pollution group. The project also will have linkages with the University of Burundi which has carried out research into lake pollution.

Coordination and Collaboration

A National Project Management Unit (PMU) will be based in SETUMU, and will comprise the National Project Coordinator, and support staff. The PMU will work closely with INECN and private – public stakeholders and other ministries which are directly involved in the waters of the lake. The PMU will include the GEF supported expert and consultant inputs. The PMU will execute the project under contractual processes from UNOPS, and with the oversight of a cross-sectoral Steering Committee.

Project Output and Activity Matrix



Project Logical Framework Matrix

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
Development objective: The protection and conservation of the biological diversity and the sustainable use of the natural resources of Lake Tanganyika	✓ % increase in household income arising from non-fishing sources for households engaging in enterprises. ✓ % improvements in biodiversity (land and water) indices.	✓ Post project evaluation reports ✓ Annual reports of line Ministries (Environment and Natural Resources, Water, Agriculture, Energy)	✓ The policy environment supporting community involvement in NRM continues to be favourable ✓ Conflict in the Lake Tanganyika Basin does not interfere with the project's implementation
Outcome: The wastewater management system in Bujumbura finalised, thereby reducing point source pollution levels of Lake Tanganyika waters and so improving biodiversity habitats	✓ 38% of domestic wastewater and the full industrial discharges in Bujumbura are treated before being discharged in the lake. ✓ The frequency of diarrhoea diseases has reduced up to more than 50%. ✓ The pollutant charge is reduced up to 21,000 kg of BOD per day or the treatment output is 95%.	✓ Management system report ✓ Statistics from hospitals and health centres. ✓ SETEMU analysis reports.	✓ The government of Burundi fully supports the project and the on-going peace process goes forward. ✓ Demographic growth has been taken into account

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
Output 1: Tertiary wastewater collection network constructed and commissioned	✓ 20 km of tertiary network are constructed ✓ 40% of the urban population are connected to the collecting network	✓ SETEMU internal monitoring quarterly reports ✓ SETEMU survey	✓ The 1994 feasibility study took into account the demographic growth.
<i>Sub-outputs / Activities</i> 1.1 The tendering procedure for selecting the construction contractor established	✓ Terms of reference are published in newspapers	✓ Applications available	✓
1.2 The construction contractor selected	✓ Selecting committee is created	✓ Committee report is available	✓
1.3 The sewage infrastructure constructed	✓ After 2 years, 3,400 pipes and 1,000 manholes are installed.	✓ Activity progress reports	✓

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
Output 2: The water treatment lagoon station commissioned and pre-treatment facilities operational	✓ The operating station receives 40,000 m ³ of waste water a day ✓ 100% of the most pollutant industries in Bujumbura pre-treat their wastewater before rejecting them in the treatment station	Activity progress reports	✓ Electricity is permanently supplied in the town ✓ All industries use their pre-treatment systems and do not try to reduce their operating costs
2.1 All pumping stations, public toilets, and water and electricity separators connected	✓ At the end of the 1 st year, 4 pumping stations, 6 public toilets and 15 separators are connected.	✓ Activity progress reports	✓
<i>Sub-outputs / Activities</i> 2.2 Pre-treatment facilities at all major industrial facilities completed.	✓ After 3 years, 92 industrial enterprise units or similar establishments are equipped with waste water pre-treatment systems, including garages, photo labs, oil mill, soap factories, slaughterhouse, brewery, textile enterprise, hospital and battery.	✓ INECN and SETEMU surveys and reports	✓ Some enterprises take too long to put in place their pre-treatment facilities
2.3 The water treatment lagoon commissioned	✓ Monitoring plan developed and implemented after one year	✓ Monitoring reports and analysis of discharge samples per industry	✓
Output 3: Discharge standards established, approved and issued	✓ The decree on discharge standards is published	✓ Available at INECN and stakeholders aware of standards	✓ The government encourages the creation of by-laws on the national environmental code
<i>Sub-outputs / Activities</i> 3.1 Discharge monitoring laboratory established, equipped and commissioned	✓ The 2 labs (SETEMU and INECN) are equipped and SETEMU&INECN have adequate vehicles, computers and AV materials	✓ Reports on equipment and laboratory acquisition	✓
3.2 Laboratory staff and management trained	✓ After the 1 st year, 11 SETEMU staff and 4 INECN staff are trained	✓ Training reports	✓ The external training may be late

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
3.3 Discharge standards developed with stakeholders, validated and implemented	<ul style="list-style-type: none"> ✓ Validated standards available ✓ National standards of discharge in the lagoon and natural environment available ✓ At least one visit to each industry and at least one workshop for each category of industry 	<ul style="list-style-type: none"> ✓ Expertise reports ✓ Validation reports from different partners ✓ Official decree to issue the standards ✓ Visit and workshop reports 	✓ The system of standards is dynamic and will be regularly updated
Output 4: Awareness of urban communities about the biodiversity and public health impacts of pollution raised and monitoring inputs developed	<ul style="list-style-type: none"> ✓ INECN produces 18 bi-monthly reports on water quality monitoring ✓ 50% of the communities are sensitised ✓ 100% of industrialists are sensitised. 	<ul style="list-style-type: none"> ✓ Reports available at INECN ✓ Workshop reports and surveys 	✓ Good collaboration exists between SETEMU and INECN.
<i>Sub-output / Activities</i>			
4.1 Strategy for raising urban community awareness developed	<ul style="list-style-type: none"> ✓ A plan is prepared by the end of the 1st year 	<ul style="list-style-type: none"> ✓ Plan available at INECN 	✓
4.2 Strategy implemented	<ul style="list-style-type: none"> ✓ Sensitisation and education materials produced ✓ Radio and TV programmes ✓ 18 workshops will be held after the 1st year, i.e. one workshop for each of the 6 identified groups 	<ul style="list-style-type: none"> ✓ Sensitisation materials available to INECN 	✓
4.3 Water quality control programme developed	<ul style="list-style-type: none"> ✓ Programme available at the end of the 1st year 	<ul style="list-style-type: none"> ✓ Programme document available to INECN 	✓
4.4 Water quality control programme implemented	<ul style="list-style-type: none"> ✓ Sampling and analysis are carried out every 2 months 	<ul style="list-style-type: none"> ✓ Control reports 	✓
Output 5: Project implementation study updated and project effectively managed, monitored and evaluated	<ul style="list-style-type: none"> ✓ MIS maintained ✓ Project implementation study updated 	<ul style="list-style-type: none"> ✓ MIS records and reports ✓ Project reports 	<ul style="list-style-type: none"> ✓ All partners meet their commitments to the project ✓ Timely disbursement of funds from the donor for project implementation activities

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
Sub-outputs / Activities: 5.1 Project implementation study updated	<ul style="list-style-type: none"> √ Terms of conditions published in papers √ Feasibility study available by the end of the 1st year 	<ul style="list-style-type: none"> √ Applications available √ Study available to SETEMU 	
5.2 Recruitment of Project staff	<ul style="list-style-type: none"> √ Appropriate Project staff in place by Project year 	<ul style="list-style-type: none"> √ Project progress reports 	
5.3 Management Information System (MIS) developed and implemented	<ul style="list-style-type: none"> √ Key information requirements and reporting formats developed for the project √ Appropriate number of project plans and reports available in a timely manner at different management levels 	<ul style="list-style-type: none"> √ Project MIS records √ Copies of Reporting formats √ Copies of AWPB 	
5.4 Preparation and implementation of Annual Work plans and Budgets (AWPB) carried out	<ul style="list-style-type: none"> √ AWPB available on-time √ Committee meetings held on schedule √ Annual and quarterly reports prepared in time √ Equipment procured and ready in store for use √ Consulting and other services secured and completed as scheduled √ Audit reports 	<ul style="list-style-type: none"> √ Project progress reports √ Project MIS records 	
5.5 Mid-term review and end of project evaluation planned and conducted	<ul style="list-style-type: none"> √ Number of useful lessons learnt, disseminated and corrective measures taken √ Number of milestones achieved at mid term project √ Number of milestones achieved by year 5 of project 	<ul style="list-style-type: none"> √ Mid- term Review Report √ Impact Assessment Report 	

Map of Bujumbura Sewage System

(Note thick straight lines in RED are the main sewage system, the pump station and lagoons are the rectangles in top left, the Brewery is 5cm inland from the narrow peninsula into the lake).

