



## UNITED NATIONS DEVELOPMENT PROGRAMME

### GLOBAL ENVIRONMENT FACILITY (GEF)

#### PROJECT DOCUMENT: PART ONE UNOPS COMPONENTS

### Partnership Interventions for the Implementation of the Strategic Action

### Programme for Lake Tanganyika.

### Governments of Burundi, DRC, Tanzania and Zambia

#### **Project Summary**

This is a regional project with four participating countries: Burundi, Democratic Republic of the Congo (DRC), Tanzania and Zambia. The GEF UNDP intervention is one part of a multi-partner programme, with significant co-finance from African Development Bank, Nordic Development Fund, IUCN and Governments.

This project follows an earlier GEF project which designed the participatory Strategic Action Programme (SAP) for Lake Tanganyika and facilitated the development of the Lake Tanganyika Convention, which provides for regional oversight and management of the Lake and its resources. This project pilots the implementation of the SAP in the four countries and supports the development of the Lake Tanganyika Authority and Secretariat, which is to be based in Bujumbura, Burundi.

SAP Priorities for GEF funding in DRC, Zambia and Tanzania included catchment management to reduce siltation which is adversely affecting lake processes, productivity and biodiversity. Priorities in Burundi, and in one site in Tanzania, included reducing waste water effluents which cause significant pollution in the lake. Co-Finance supports reduced sustainable fisheries, inputs to wastewater treatment and lake monitoring.

The project is being implemented through two major approaches: NEX execution in Tanzania and Zambia, with a long history of project execution, including areas around the Lake; and Agency Execution via UNOPS for Burundi, DRC and Regional Components. UNOPS provides regional contractual support to ICRAF for catchment management and IUCN for enhanced monitoring programmes. This Project Document describes the Overall Project Process, then the Regional, DRC and Burundi support via UNOPS, then the NEX process in Tanzania and Zambia.

This Prodoc has a final Annex addressing the issues raised by GEF Council Members.

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***List of Acronyms (Across all National and Regional Programmes)***

ACDC	Area Conservation Development Committee (Zambia)
ADF	African Development Fund
ADMAD	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
NIAs	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

## **SECTION 1 ELABORATION OF THE NARRATIVE:**

### **Part 1: Project Context and Situation Analysis**

The Objectives, Outcomes, Outputs and Activities of this Integrated Multi-Donor Programme have been driven by the conclusions of the Lake Tanganyika Trans-boundary Diagnostic Analysis (TDA) and the Lake Tanganyika Strategic Action Program (SAP), both from July 2000; and the developing Lake Tanganyika Convention (signed in 2003). These inputs are developed by the four riparian countries through stakeholders consultations during the first GEF sponsored project<sup>1</sup>. This new Programme includes interventions to address the SAP (GEF) as well as the Lake Tanganyika Framework Fisheries Management Plan (FFMP) developed by FAO/FINNIDA/AGFUND via the Lake Tanganyika Research Project (LTR).

The TDA identified the major trans-boundary threats confronting the four countries in their efforts to manage the Lake and its Basin as: unsustainable fisheries, increasing pollution, excessive sedimentation and habitat destruction. The implications of these threats were the global loss of biodiversity, the loss of shared fisheries resources and the decline of water quality. The crosscutting barriers to addressing these threats are the lack of resources (including skills, infrastructure, institutions and funds), the lack of institutional coordination, poor enforcement of existing regulations, and few appropriate regulations for the management of the Lake.

The SAP and the FFMP outlined interventions to mitigate and/or eliminate these problems with an emphasis on the following areas: institutional coordination for the sustainable management of the Lake, reduction of the impact of fishing, control of pollution, control of sedimentation and the conservation of key habitats. With GEF financial support from an extended PDF B process, countries prioritized and developed detailed interventions to address these major trans-boundary issues confronting their attempt to manage the resources of Lake Tanganyika and its basin. The three GEF interventions comprise:

- Pollution control into the Lake through wastewater management in the cities of Bujumbura (Burundi) and Kigoma (Tanzania).
- Sedimentation control into the Lake through catchment management interventions in the areas of Uvira (DRC), Kigoma (Tanzania) and Mpulungu (Zambia).
- Institutional support to policy process, convention implementation and monitoring programmes.

Countries worked with a donor partnership programme to develop further funding for SAP activity, via non-GEF financing; including African Development Bank/FAO/EU/NDF inputs to fisheries infrastructure and Nordic Development Fund for waste water, and IUCN for M and E process. These interventions help the countries to manage their wastewaters and catchment, hence reducing pollution and sedimentation into the Lake and protecting the habitats, which will result in improved water quality and global environment benefit; as well as assuring institutional sustainability.

GEF support enabled the countries to plan for regional interventions to address crosscutting institutional problems to allow multi-country coordination of lake management. This resulted in the negotiation of the Convention for the sustainable management of Lake Tanganyika and the signing of the Convention on June 12, 2003. GEF support also allowed the design and development of an Interim Lake Tanganyika Management Authority; which will coordinate and monitor management of the Lake while waiting for the Convention to be ratified and for the permanent body, the Lake Tanganyika Authority, to be established.

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<sup>1</sup> This was the Regional UNDP-GEF Lake Tanganyika Biodiversity Project from 1995 - 2000

GEF support has allowed the development of an integrated ecosystem approach to the sustainable management of the Lake through an Integrated Management Program for the sustainable development of Lake Tanganyika and its basin. This has been agreed upon and will be implemented by a partnership between UNDP/GEF, the African Development Bank, FAO, IUCN, and the Nordic Development Fund. It is anticipated that FINNIDA, and the EU via COMESA may join this partnership. The partnership works with the riparian countries to assist them in providing additional resources for the development and implementation of the Program. The programme goals are to address major trans-boundary and socio-economic problems.

**Part 2: Project Strategy**

Within this partnership, UNDP/GEF will co-finance capacity building for regional management of the Lake and for the prioritized pollution (from urban waste-water hotspots) and sediment control interventions from key watersheds. ADB/FAO/NDF/ FINNIDA will co-finance the fisheries interventions. The NDF co-finances part of wastewater pollution control activities; IUCN co-finances Lake monitoring.

Lake Tanganyika is of great global, regional and local importance as was well documented before and during the first GEF Project (LTBP). In brief, Lake Tanganyika:

- Contains 17% of the world’s free freshwater resources;
- Is Africa’s second largest inland fishery (after Lake Victoria);
- Has extreme biodiversity value with over 2000 species of aquatic plants and animals.

The implementation of this program will not be achievable without the active cooperation of all the riparian countries, their international donor supporters and all affected interests. Successful implementation of such a program will depend on well-coordinated interventions involving the full range of affected stakeholders, including the participating countries at regional, national, central and local levels, their development partners, the NGOs, the private sector and local communities. Such a level of international and regional cooperation will entail substantial efforts and transaction costs, but these efforts and the costs are essential to the success of the Program. The central element of this regional coordination is the Lake Tanganyika Management Authority (ILTMA).

- The implementation of such a large Program is clearly a high transaction cost indispensable to the adoption of a regional approach to address environmental issues around international waters. This falls directly within the remit of the GEF and thus is fully consistent with the GEF programme guidance in IW OP9. GEF financing is therefore critical to Program success. GEF finance has played a catalytic role in helping the countries to secure and enhance the strong partnership that has brought together the four countries, UNDP/GEF-UNOPS, AfDB-FAO, IUCN, Nordic Development Fund, in a coalition for the protection and sustainable development of Lake Tanganyika and its natural resources. This partnership can be summarized within the following matrix – linking the programme to the Priorities of the Strategic Action Programme (SAP).

**Table 1: Components of the Lake Tanganyika Integrated Management Programme**



**Demonstration Sites for Sustainable Catchment Management (DRC, Tz and Zambia)**

**Establishment of Lake Monitoring- Management System (with IUCN).**

**Construction of Wastewater Treatment Plant in Kigoma (NDF)**

**Capacity Building of Local and National Stakeholders (ADB, FAO and NDF)**

## **International Waters: OP9 and Strategic Priority IW1**

Interventions here are the standard OP9 issues arising from the TDA and the SAP for Lake Tanganyika. Countries prioritised the pollution issues – both the issues arising from inadequate waste-water treatment, and issues arising from sediment inflows. Both issues impact on overall lake productivity and on the lake biodiversity values. The rationale for GEF intervention over and above the national baseline inputs is due to the scale of the great global biodiversity and quantum of freshwater significance of the lake.

Note that the past TDA and SAP did not discuss issues of adaptation to climate change. These CC concerns are relatively recent, still somewhat controversial, and are less discrete to be able to document and to develop mitigation measures. As this is a relatively new subject, at continental level, let alone for this sensitive Great Lakes Region of Central Africa, it is discussed in some detail within Annex 10 to the GEF Proposal, and this is attached to this Pro-Doc.

### **The Lake Tanganyika Region**

The four riparian countries, whilst all sharing the resources for Lake Tanganyika and all expressing commitment to the sustainable management of these resources, do show considerable differences. Two countries are Anglophone and two are Francophone, with differences in law, policy, cultural process etc. However the positive experiences of cooperation from the first SAP project as well as recent PDF B process augur well for similar linkages and cooperation in this project.

Two countries are emerging from decade long conflict (Burundi and DRC). The levels of insecurity have now decreased to the point where interventions are not only possible – but also desirable<sup>2</sup>. But there has been little recent baseline to build on, and co-finance in the field of environment is limited (many donors are prioritizing reconstruction and development).

### **Programme Objectives**

#### **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**

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<sup>2</sup> For example, the WB has commenced a major rural land management development project in Burundi, other GEF projects are underway in both Burundi and in DRC.

There are two Immediate Objectives within 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 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). This is not detailed here.**

<b>OBJECTIVES, OUTCOMES AND ACTIVITIES OF THE GEF COMPONENTS</b>	
<b>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)</b>	
<b>Outcomes</b>	<b>Country / Site</b>
<b>Outcome 1:</b> Regional and national institutions have internalized the implementation of the SAP and FFMP and provide institutional support for the cooperative management of Lake Tanganyika under the ratified Convention.	Regional Activity
<b>Outcome 2.</b> The quality of the water of Lake Tanganyika is improved at two identified pollution hotspots through wastewater treatment.	Tanzania and Burundi
<b>Outcome 3:</b> Sediment discharge reduced from demonstration catchment management sites; providing significant livelihood benefits to local people, and seeking long-term adaptation measures to changing climatic regimes.	Tanzania, Burundi, Zambia, DRC
<b>Outcome 4:</b> Regional monitoring and management systems contribute to the long-term sustainable management of Lake Tanganyika.	Regional Activity

**OUTCOME 1: Regional and national institutions have internalized the implementation of the SAP (and FFMP) and provide institutional support for the cooperative management of Lake Tanganyika under the ratified Convention.**

**Output 1:** The Lake Tanganyika Secretariat is established: staff, equipment, monitoring and management capacity are in place and functioning under oversight of Lake Tanganyika Authority.

**Output 2:** Protocols to Lake Tanganyika Convention are adopted; with environmental policies, regulations and development frameworks in place; providing interventions to a revised SAP. Revised SAP contains understanding of climate change phenomena in the Lake basin; and activities to mitigate impact and adapt to impacts. Funding at national and regional levels are leveraged, Information resource and mechanisms of its dissemination to stakeholders are in place. The Convention is ratified and domesticated.

**Output 3:** The GEF Project components are implemented in a cost-efficient and effective manner.

**Rationale**

The TDA identified one of the major trans-boundary constraints to cooperative management of the Lake as being the lack of institutional coordination. The SAP described the roles and responsibilities of such an institutional coordination. To provide an adequate response to this crosscutting issue, countries defined the Interim Lake Tanganyika Management Authority (ILTMA) and described its roles and responsibilities consistent with the SAP. Countries outlined their need to have the interim management authority in place as soon as possible. The establishment of the ILTMA would be instrumental in securing the requisite amount of transactional and cross-institutional collaboration necessary to the success of the Program implementation and the establishment of the permanent authority. The ILTMA has been designed as a transitional management body that will be replaced by the Lake Tanganyika Authority (LTA) when the Convention is fully ratified.

The Secretariat is the HQ of the Authority, and this will host the Regional Component of the GEF Intervention. The Regional Component has the responsibility for coordinating and reporting in the progress of the national interventions, and integrating these interventions into a single reporting structure. Output 3 under this outcome provides the management support to the project.

Climate change issues are of long-term concern within the Lake Basin (see Annex 9 to this Brief), The SAP needs updating to address these issues, which need internalising in the workings of the Lake Secretariat and Convention Protocols.

**OUTCOME 2: The quality of the water of Lake Tanganyika is improved at two identified pollution hotspots, through wastewater treatment.**

**Output 2.1:** The Wastewater Treatment Plant Network in Bujumbura City is connected to major effluent sources (industrial and domestic) to reduce raw discharge to the lake. The Plant operates efficiently and sustainably in the reduction of pollution.

**Output 2.2:** Management capacity for Kigoma Wastewater Treatment Plant is built within Kigoma Authorities (compliance, by-laws, monitoring).

*Output 2.3: The Nordic Development Fund (NDF) will construct a Wastewater treatment plant in Kigoma Township through NDF funding*

**Rationale**

Increasing pollution has been identified in the TDA as a major cause for loss of biodiversity and decline in water quality. Industrial and domestic waste water pollution in major cities on the lake's shore like Bujumbura which has the biggest population on the Lake's shores and the concentration of chemical industries has been identified as main sources of pollution into the Lake. The township of Kigoma has been identified as another high source of domestic waste pollution due to its increasing population.

**OUTCOME 3: Sediment discharge reduced from demonstration catchment management sites; with the provision of significant livelihood benefits to local people.**

**Output 3.1:** Demonstration sites for sustainable catchment management through best land use/agricultural practices, reforestation, fuel efficient technologies and alternative income generation activities are established in Uvira region (DRC); catchment management with an awareness of climate adaptation processes. Capacity building, training programs are developed and conducted; Awareness raising

programs on alien invasive species are conducted and control mechanisms for water hyacinth in the Rusizi Delta are established; Awareness-raising and environmental education campaigns on catchment – lake interaction are conducted

**Output 3.2:** Demonstration sites for sustainable catchment management through best land use/agricultural practices, reforestation, fuel efficient technologies and alternative income generation activities are established in Kigoma region (Tanzania); ); catchment management linked to climate adaptation processes. Capacity building, training programs are developed and conducted; Awareness raising programs on alien invasive species are conducted. Awareness-raising and environmental education campaigns are conducted

**Output 3.3:** Demonstration sites for sustainable catchment management through best land use/agricultural practices, reforestation, fuel efficient technologies and alternative income generation activities are established in Mpulungu District (Zambia); ); catchment management linked to climate adaptation processes. Capacity building, training programs are developed and conducted; Awareness raising programs on alien invasive species are conducted. Awareness-raising and environmental education campaigns are conducted.

*Output 3.4: (AfDB Co-Finance) This provides further funding for catchment management in all four countries, with a focus on woodlot planting in degraded areas.*

### **Rationale**

In DRC, Tanzania and Zambia, sedimentation has been identified as the major threat to the Lake's biodiversity due to deforestation and inappropriate land use practices. The projects prepared are going to address catchment management in Bujumbura and Kigoma and Uvira, through pilot projects in sites selected as being the most severely deteriorated and capable of making an impact. Interventions incorporate lessons from global best practice; using cross-sectoral interventions at localized levels, with civil society support to ensure participatory process with sufficient incentive for changing land-use practices. Interventions are within forest, agriculture and land sectors. Interventions are also designed to increase the level of woody vegetation cover so as to increase the level of carbon sequestered, to reduce albedo changes and reduce the levels of dust entering the atmosphere, as part of the demonstration to reduce the impacts of CC processes.

The use of ICRAF as a regional support contract provides training and best practice demonstration through local agriculture research and training centres.<sup>3</sup> ICRAF provides expertise to link catchment management to sediment loads, using both high resolution imagery and participatory monitoring methodologies. Studies through ICRAF will relate catchment health to sediment loads and to climate change phenomena.

### **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 the four countries and 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/targets (based on GEF 2000 process, stress reduction and environmental status framework) are agreed in the four countries and annexed as protocols to the Lake Tanganyika Convention.

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<sup>3</sup> ICRAF provide technical support to similar initiatives in the Lake Victoria Basin. This project draws on those experiences.

M & E processes will address CC phenomena within the basin area. Information is disseminated within the Great Lakes Region (ILEC) and globally through IW-Learn.

### **Rationale**

Poor enforcement of existing regulations and lack of appropriate regulations and lack of harmonization have been identified in the TDA as one of the main problems for a sustainable management of the Lake. The Lake Monitoring and Management component has been designed to be consistent with the SAP and the FFMP to: provide tools and training in monitoring to national institutions; provide managers with relevant data and decision-support tools, and harmonize indicators and targets among the riparian nations. The aim here is to leave behind a fully functional lake monitoring system, based within mandated national institutions, working towards regionally agreed standards

### **b) PERFORMANCE INDICATORS, ASSUMPTIONS and RISKS**

The following indicators are proposed to be used to track the progress towards the measurable environmental global benefits that the proposed Program aims to achieve. Key **process indicators** for measuring progress towards implementation of the SAP for the conservation and sustainable use of the natural resources of Lake Tanganyika and its basin are:

- Regional Institution is established to implement the SAP and FFMP, and fully operational by 2008;
- Protocols to Convention established to improve environmental (fisheries) policy and regulatory frameworks. Environmental regional plans developed and approved by countries by 2010;
- Awareness and environmental education on the lake environment completed by 2010;
- Regional monitoring systems with functional environmental database established by 2010;
- Information Systems and web site in place and operational by 2008; and
- Improvement in water quality monitoring data by 2011.
- The Lake Management System functioning under the LTMA is supported by quality scientific data from monitoring and evaluation processes.

Key **Stress Reduction Indicators** are:

- The quantity of sediment discharged from demonstration catchment sites is reduced by 50% from baseline levels established in TDA and the first rainy season data before intervention, covering at least 25,000ha of critical catchment by year 4;
- Catchment management treatment practices are adopted in at least three other sites by 2010;
- Wastewater plant efficiently and sustainably operationalized in Bujumbura by 2010; allowing additional quantities of wastewater collected and treated before discharge into the Lake by 2011;
- Waste water plant constructed in Kigoma by 2010 (co-finance); allowing waste-water collection and treatment in Kigoma-Ujiji by 2010, with sustainable management systems in place;
- Demonstration pilot sites for sustainable catchment management established in Uvira, Kigoma and Mpulungu districts by 2010, covering at least 25,000 ha of critical catchment;

**Environmental Status Indicators** will be developed within the project, and with all country institutional partners. These will form the core content of the Lake Monitoring / Standards Protocols. One example of Environmental Status Indicator can be “the water quality of the Lake adjacent to Kigoma and Bujumbura shows significant and continuing improvement in pollution parameters from the TDA baseline data, targeting 50% reduction by year x.” For this parameter, priority pollutants in water and sediments that will be used as parameters should be agreed by partners at the early stage of the project implementation.

## RISKS

The risks to Programme implementation and successful completion are largely based on the repetition of insecurity in the region during the programme's implementation period. Another critical risk is the inability for countries to contribute to the functioning of the Lake Tanganyika Authority. Mitigation to these risks lies in the firm and growing commitment to lasting peace processes going on in the region, by all stakeholder countries; and their support from a consortium of donors, the United Nations and the African Union. Countries had to commit to sustainable financing for the authority during their declarations and include studies to explore ways of self-financing (levies on fisheries for example, etc.)

<b>Risk</b>	<b>Rating</b>	<b>Abatement Measure</b>
<b>RISKS IN INSTITUTIONAL PROCESS (Overall Process Risk is L-M - low - moderate)</b>		
1 Resurgence of insecurity in the region.	M	Successful peace processes ongoing in the region, involving all countries and a donor consortium, the United Nations and the Africa Union suggest that the risk is declining, and insecurity will at worst be localized and temporary. The project, through the Convention involves the political process, and is in itself seen as a further instrument for cooperation and peace in the Region.
2 Reduced political willingness to continue and strengthen cooperation in the Region.	L	There is strong political commitment to cooperation by the four Governments at present (ref: their declarations). The strength of donor support suggests that there will be considerable pressure to maintain cooperation in all fields – both political and technical.
3 No commitment to ratify the Convention by countries of the Region.	L	Strong political commitment by the four Governments (reference their declarations over the Convention). The convention links to broader peace and cooperation processes.
4 Reduced commitments to create and contribute financially to the Authority.	M	Governments have committed to the basic costs of the Authority – i.e. staff salaries in the second year after parliamentary approval etc. Further commitment is expected. However demonstration of financial benefits from improved lake resource utilization (levies on fisheries, licensing, study for self-financing schemes, development funds, etc) will assist in leveraging further contributions.
<b>RISKS IN MOVING FROM OUTPUT TO OUTCOME (Risk rated as L = low)</b>		
5 Wastewater schemes are not utilized adequately to reduce pollution Outcome 3.	L	The project has built in considerable investment to compliance, EIA process, by-laws and awareness to ensure proper utilization. The water / sewage authorities are assisted to collect fees to ensure sustainability.
6 Sedimentation catchment management processes not adopted by villagers, and not replicated. (Outcome 4).	L	The project has built in considerable training and participatory expertise (based on successful examples pioneered by ICRAF elsewhere in eastern Africa, as well as locally eg TACARE in Tanzania). Funds are allocated for dissemination and lessons learned.
7. Regional Institutional Support is not internalized and so project activities are not enhanced.	L	This links back to Risks 1-4 above, with concerns about regional cooperation being compromised with security problems and with countries reduced willingness to contribute to regional institutions.

### Part 3: Management arrangements

**NOTE:** These management arrangements appear, at first sight, to be complex. They are however designed to implement project activities across four - five years and within four very different countries with different capacities for implementation. This set of GEF interventions further links with co-finance, which is distinct and separate technically (e.g. fisheries via AfDB and FAO) or intimately integrated – such as the Waste Water support in Tanzania from Nordic Development Foundation.

**This is an IW project which is implementing the components of an earlier SAP. Implementation, especially for catchment management, is a national matter, involving for example forest and agriculture departments at local and national levels in each country. Yes, this can be done to regional specifications and with regional shared training etc, but implementation remains a national process. Two countries, Tanzania and Zambia, with many years of decentralized project management experience specifically requested NOT to use UNOPS execution but to use NEX execution processes. This was specifically approved in UNDP GEF and is an integral part of these implementation arrangements.**

**However, this remains ONE GEF project with both country components and a regional integration component. Tanzania and Zambia, whilst they have separate NEX implementation mechanisms, do report to and through a Regional Coordinating body in the Lake Tanganyika HQ.**

### *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,<sup>4</sup> and AfDB can support similar allowance packages.

Technical assistance will be provided through the donor interventions. GEF provides a PROJECT COORDINATOR 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 new protocols to 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.

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<sup>4</sup> By which time posts will have been approved through national processes.

### *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. The GEF components will be implemented by UNDP. 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). This arrangement necessitates the formation of three UNDP Project Documents for one GEF project: one for UNOPS executed components, another for nationally executed component by the Government of Tanzania, and the other for nationally executed component by the Government of Zambia.

For the components executed by UNOPS (Regional, Burundi and DRC components), Principle Project Representative of UNDP will be UNDP/GEF Executive Coordinator. Both technical oversight and administrative support from UNDP to the project will be provided by the UNDP/GEF Regional Coordination Unit for the Eastern and Southern African Region, based in Pretoria, South Africa. Project Coordination Unit will be established in Bujumbura, Burundi. PCU will be hosted by the Government of Burundi at the same premises as the Secretariat of the Lake Tanganyika Authority to support its institutional capacity building in the most effective and efficient manner. Project Coordination Unit, headed by the Chief Technical Advisor is responsible to coordinate activities under the Regional component as well as to coordinate the four national Project Management Units, one in each riparian country, to ensure the overall coordination for the one GEF project, comprising of the three UNDP projects. It is, for example, the PROJECT COORDINATOR's responsibility to compile necessary information and data on the implementation progress from the four national PMUs and the (Regional) PCU in order to deliver one Project Implementation Report to monitor the implementation progress of the three UNDP projects to UNDP/GEF Regional Coordination Unit for further inputs by UNOPS and UNDP for the annual submission of PIR.

### **STAKEHOLDER INVOLVEMENT AND “LPAC”<sup>5</sup> PROCESSES**

The major stakeholders to the joint regional program include the Governments at all levels:

- Central Governments (Environment/Natural Resources, Fisheries, Finance, Land, Water etc.),
- Local Governments; MPs, and local communities,
- Public agencies, NGOs and CBOs
- Program Partners from the donor community and private sector.
- Universities and research institutions.

Stakeholder participation was a key and successful ingredient for the achievement of the TDA, the SAP, the FFMP, the Convention and the development of the present project proposals during the execution of the PDF-B phase activities. The joint integrated regional program will build on and add to the level of stakeholder involvement in the implementation of the SAP, the Convention and the Fisheries Framework Management Plan as well as in further development of SAP/FFMP and Convention interventions. At national level, communities were consulted through discussions at sub-district level for both catchment management and fisheries (co-finance) components.

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<sup>5</sup> LPAC is the UNDP process of Local (i.e. Country level ) Project Appraisal Committee, which confirms to UNDP at Country Level that NEX execution / Implementation arrangements are agreed to by partners

At Regional Level Countries and Partners came together at Regional Steering Committees, these committees approved progress and made decisions on project content etc. The last Steering Committee, in Lusaka, Zambia approved the overall content of the project components, and the pattern of execution (i.e. NEX in Tanzania and Zambia, and UNOPS Agency Execution for DRC and Burundi and the Regional Component).

In terms of NEX process, UNDP Country Offices in Tanzania and Zambia hosted LPAC discussions to agree detailed implementation processes in those countries. Recommendations / Conclusions of these LPAC meetings are contained in Country Pro-Docs that follow.

## **MONITORING AND EVALUATION**

### **a) Monitoring Processes for the Lake and Lake Resources.**

Outcome 4 of the GEF and IUCN Co-Finance Intervention is to ensure that a detailed and management responsive monitoring programme is put in place for Lake Tanganyika. This will be nationally implemented by national institutions, but to an agreed regional framework. The sharing of information and developing a regional database for the Lake and its resources is essential to such a process. There are four parts to this process (see Annex 11):

1. Data collection on agreed priority criteria within three sectors (fisheries, water quality, land cover) by mandated and strengthened institutions around the lake.
2. Monitoring institution specialists meet with sector specialists from national level in a national Lake Management Technical Committee, to agree the importance of trends from monitoring data sets, and what management responses should be.
3. National committee representatives meet regionally to agree coordinated regional responses.
4. These data sets help create lake water quality standards to be attached as protocols to the Lake Tanganyika Convention. Standards will link to the GEF IW M&E indicator best practice of 2002.

### **b) M and E Processes for the Project.**

Project monitoring is a continuous process of collecting and analyzing information to measure the progress of a project toward expected results. Monitoring provides managers and participants with feedback that can determine whether a project is progressing as planned. Evaluation is a periodic assessment of project performance and impact. Evaluation documents what lessons are being learned from experience.

The Programme (ILTMA) activities and outputs will be regularly reviewed and evaluated annually by the ILTMC. The Programme performance 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 Programme will also be subject of the annual Project Implementation Review (PIR) of the GEF. In addition, the Programme will be subject of the ADB and other IAs evaluation and review mechanisms.

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 M&E work plan will allow an assessment of 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. See Annex 2b on Results Matrix

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. Annex 11 gives more details.

### **c) Audit Clause**

UNOPS will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of GEF funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by a commercial auditor engaged by UNOPS.

## **CONSULTATION, COORDINATION AND COLLABORATION BETWEEN IAs & EAs**

Donor Partners have established a working Programme Partnership Committee (GEF- UNDP, FAO, AfDB, IUCN, NDF, EU-COMESA) which meets regularly to improve coordination and linkage. The Programme will link with the WB Lake Victoria Environmental Management Project<sup>6</sup> and the Lake Victoria Fisheries Organization, and to the developing Nile Basin Initiative, to share experiences.

In Burundi, the Program will link to the World Bank/GEF PRASAB “*Programme de Rehabilitation et d’Appui au Secteur Agricole au Burundi*” Project (USD 40 million WB & GEF funding). The PRASAB objective is the reduction of rural poverty by improving food security and increasing rural income of small-scale agricultural products producers. The project has environmental components in its implementation and covers part of the Lake’s catchment.

In DRC, the Program will link to the World Bank funded Emergency Economic and Social Reunification Support Project (USD 214 million WB funded). The project aims to assist the Government in the process of economic and social reunification. It helps mitigating the ongoing social and humanitarian crisis, hence contributing to the country stabilization. Project’s specific objectives are to restore or introduce sound economic governance system, complement actions to address urgent needs of suffering population, activate implementing mechanisms to overcome capacity constraints and deliver results with efficiency and transparency in reunified provinces.

In Tanzania, the programme links closely with co-financed activity through UNDP “Assistance to the Implementation of the Regulatory Framework for Environmental Conservation”, is starting in Kigoma Region. Four components are relevant: Inventory of by-laws, Capacity assessment/support for enforcement institutions, Awareness raising of environmental legislation, awareness of sustainable development programmes. The Program will link to the ongoing WB Forestry Conservation Management Programme (USD 31 million), the Agriculture Sector Development Programme, the DANIDA supported SIMMORS projects on the upper Malagarasi in the Lake Catchment and the UNDP Small Grant Program.

UNDP is the GEF IA and UNOPS supports regional interventions of the GEF components. FAO will serve as the Executing Agency for ADB EA for fisheries co-management interventions, but also implements directly certain fisheries related activities.

## **Part 4. FINANCIAL MODALITIES AND COST EFFECTIVENESS**

The financing of the long-term programme involves a large number of institutions at country, bilateral and multilateral levels. The participating countries will contribute in kind to finance the on ground activities,

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<sup>6</sup> One immediate example is in the use of ICRAF to provide integrated watershed management training and support.

totaling some 2.09 million USD, over the project lifespan. GEF financing is expected in the amount of 13.5 million USD essentially for coordination of lake management and convention processes activities at regional level; and pollution and sedimentation control activities within the catchment at national level.

The ADB, the Nordic Development Fund (NDF) and FAO will support Programme activities through ADB /NDF national projects fisheries related interventions for a total amount of \$ 44.76 million US. IUCN co-finance will support the Lake's monitoring programme for an estimated amount of 1 million USD, and FINNIDA are expected to co-finance the fisheries statistics along with the ADB/FAO/NDF intervention for 2 million USD (FINNIDA co-finance not confirmed). UNDP Tanzania invests in environmental capacity building in Kigoma Tanzania. The European Union is interested in supporting the rehabilitation of social infrastructure, resettlement of returning refugees and conflict resolutions with potential additional co-financing of 15 million USD. ADB co-financing is conditional to the creation of the ILTMA and the early establishment of the LTA. The table below gives the details of co-financing sources.

#### OVERALL PROGRAMME FINANCIAL PLAN (Million US\$)

Project Components	GEF	ADB	NDF	IU CN	Gov	Total
Components 1-4 are GEF Related						
1 Establish LTA, Program Coordinate	2.614	4.41			0.59	7.614
2 Wastewater Bujumbura & Kigoma	2.567	6.44	4.42		0.30	13.727
3 Sustainable Catchment Management	8.036	1.0			0.90	9.936
4 LT Monitoring Management System	0.283	0.5		1.0	0.30	2.083
5 Awareness, Environment Education.		1.0				1.00
6 Fish Co-Management Infrastructure		11.0	3.44			14.44
7 Improving Community Infrastructure		7.0				7.00
8 Stakeholder Capacity Building		5.59				5.59
<b>OVERALL TOTAL</b>	<b>13.5</b>	<b>36.94</b>	<b>7.86</b>	<b>1.0</b>	<b>2.09</b>	<b>61.39</b>

#### GEF OUTCOME FINANCING PLAN (1,000 USD)

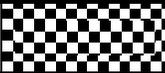
Outcome	Regional	Bur	DRC	Tanzania	Zambia	TOTAL
1 Regional Institutions	2,614					2,614
2 Waste-Water Interventions	298	1,969		300		2,567
3 Catchment Management	996		2,400	2,200	2,440	8,036
4 Lake Monitoring Processes	283					283
<b>TOTAL</b>	<b>4,191</b>	<b>1,969</b>	<b>2,400</b>	<b>2,500</b>	<b>2,440</b>	<b>13,500</b>

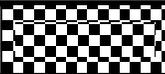
#### Co-Financing Sources/Types US \$

Co-finance	Classification	Type	Amount \$	Status
ADB **	Multilateral	Concessional Loan / Grant.	<b>36,940,000</b>	Confirmed
NDF	Bilateral	Concessional loan	<b>7,860,000</b>	6 million € – Confirmed
IUCN	INGO	Grant	<b>1,000,000</b>	Confirmed
Government	Government	In-kind inputs	<b>2,089,500</b>	Agreed
<b>Total Co-finance</b>			<b>47,889,500</b>	

\*\* This input will increase with an additional grant to Burundi.

<b>SUMMARY OF GOVERNMENT COFINANCING PLAN US\$ (in kind)</b>					
<b>Main Outcomes</b>	<b>Burundi</b>	<b>DRC</b>	<b>Tanzania</b>	<b>Zambia</b>	<b>TOTAL</b>
1 Regional/National Institutions Project Mgmt	200,000	0	137,500	250,000	<b>587,500</b>
2 Waste-Water Interventions	200,000	0	100,000	0	<b>300,000</b>
3 Catchment Management	0	0	600,000	300,000	<b>900,000</b>
4 Lake Monitoring Processes	100,000	0	100,000	102,000	<b>302,000</b>
<b>TOTAL</b>	<b>500,000</b>	<b>0</b>	<b>937,500</b>	<b>652,000</b>	<b>2,089,500</b>
Inputs are Oversight Staff Time in M & E , Provision of Staff Expertise to Project Management – both regionally and nationally, Office support. Details in Country Annexes					

<b>National Project Outcomes and Outputs, Regional Outcome</b>		<b>GEF Funding</b>
<b>TANZANIA</b>		US \$
<b>Outcome 1 : ‘Sedimentation into Lake Tanganyika from pilot villages is reduced through integrated catchment management, thereby improving lake habitats’</b>		<b>2,200,000</b>
1:	Awareness of key stakeholders raised and their catchment management capacity strengthened	300,000
2:	Sustainable land use practices and soil conservation measures adopted in pilot villages	555,000
3:	Heavily degraded areas rehabilitated	280,000
4:	Environmentally compatible livelihood strategies are introduced and adopted in pilot villages	350,000
5:	Deforestation in pilot areas reduced through adoption of bio-energy saving technologies	315,500
6:	Baseline and subsequent sediment flows into Lake Tanganyika from pilot areas monitored	150,000
7:	Project component efficiently and effectively managed, monitored and evaluated	249,500
<b>Outcome 2: ‘Wastewater management at Kigoma – Ujiji Township strengthened, reducing point pollution levels of Lake Tanganyika waters and so improving biodiversity habitats’</b>		<b>300,000</b>
1:	Institutional capacity for wastewater management system strengthened	135,000
2:	Wastewater management strategy/plan for Kigoma – Ujiji township established	30,000
3:	Updated wastewater system design for Kigoma - Ujiji township developed that satisfies Lake biodiversity conservation requirements	110,000
4:	Wastewater flows and quality into Lake Tanganyika known	25,000
5:	Project component efficiently and effectively managed, monitored, evaluated	See 1.7
<b>Sub-Total</b>		<b>2,500,000</b>
<b>ZAMBIA</b>		
<b>Outcome: ‘Stakeholders in the Lake catchment manage and sustainably use agricultural and forest resources to reduce sedimentation and conserve biodiversity’</b>		
1:	Sustainable natural resource use practices established	1,232,000
2:	Sustainable alternative income generating activities developed	534,000
3:	Awareness of stakeholders of importance of sustainable natural resource management raised	213,000
4:	Capacity of local governance structures for sustainable natural resource management enhanced	257,000
5:	Project efficiently and effectively managed to achieve outputs and immediate objective, with monitoring and evaluation process to show impact.	204,000
<b>Sub-Total</b>		<b>2,440,000</b>
<b>DEMOCRATIC REPUBLIC OF CONGO</b>		
<b>Outcome 1: ‘Government and community natural resource management institutions strengthened’</b>		<b>350,000</b>

<b>1:</b> Government and community natural resource institutions reviewed and strengthened for achieving integrated catchment basin management	250,000
<b>2:</b> The hydrology of priority high sediment load rivers investigated and river sediment reduction management plans developed and implemented	100,000
<b>Outcome 2:</b> <i>'The natural resource base in and around Uvira sustainably managed through improved land-use practices'</i>	<b>2,050,000</b>
<b>3:</b> Appropriate agro-forestry practices and soil management needs assessed with stakeholders in priority areas and piloted	500,000
<b>4:</b> The capacity of government and communities to establish and manage catchment management processes with appropriate forestry and agro-forestry species is strengthened	350,000
<b>5:</b> Old managed forest areas rehabilitated and new community and private woodlots appropriately established and sustainably managed regenerating appropriate forest cover	300,000
<b>6:</b> Appropriate energy-saving technologies assessed with stakeholders, advocated, piloted and widely adopted by targeted resource user groups	250,000
<b>7:</b> Awareness of communities on soil erosion, deforestation, agro-forestry management issues raised	450,000
<b>8:</b> Project lessons and developments disseminated and replicated in priority outlying areas	200,000
<b>Sub-Total</b>	<b>2,400,000</b>
<b>BURUNDI</b>	
<b>Outcome:</b> <i>'Wastewater management in Bujumbura strengthened through infrastructure completion, standards implementation, and community awareness raising'</i>	
<b>1:</b> Tertiary wastewater collection network constructed and completed	827,000
<b>2:</b> The water treatment lagoon station commissioned and pre-treatment facilities operational (1,193,000 \$ Co-Finance)	Co-finance
<b>3:</b> Discharge standards established, approved and issued	600,000
<b>4:</b> Awareness of urban communities about the biodiversity and public health impacts of pollution raised and monitoring inputs developed	360,000
<b>5:</b> Implementation study is updated and the project component is efficiently managed.	182,000
<b>Sub-Total</b>	<b>1,969,000</b>
<b>REGIONAL COMPONENT</b>	
<b>Outcome 1:</b> <i>'Regional and national institutions internalize the implementation of the SAP'</i>	<b>2,614,000</b>
<b>1:</b> Lake Tanganyika Secretariat established, functioning	773,000
<b>2:</b> Environment Protocols to the Convention adopted	1,130,000
<b>3:</b> Project components implemented in a cost efficient/effective manner, with M and E.	711,000
<b>Outcome 2:</b> The quality of the water of Lake Tanganyika is improved at two identified pollution hotspots through wastewater treatment	<b>298,000</b>
<b>Outcome 3:</b> Sediment discharge reduced from demonstration catchment management sites; providing significant livelihood benefits to local people, and seeking long-term adaptation measures to changing climatic regimes	<b>996,000</b>
<b>Outcome 4:</b> Regional monitoring and management systems contribute to the long-term sustainable management of Lake Tanganyika	<b>283,000</b>
<b>Sub-Total</b>	<b>4,191,000</b>
<b>TOTAL</b>	<b>13,500,000</b>

## REGIONAL COMPONENT

### TOTAL ANNUAL WORK PLAN AND BUDGET

Award ID: 00049718

Award Title: PIMS 1941 - IW – FSP- Lake Tanganyika Regional component (UNOPS Execution)

Project ID: 00060857

Project Title: Partnership Interventions for the Implementation of the Strategic Action Programme (SAP) for Lake Tanganyika

Implementing Partner/Executing Agency: UNOPS

Activities / Outcomes	Responsible Party	Fund Code	Donor	Budget Code	Budget Description	Year 1	Year 2	Year 3	Year 4	Total	Budget Notes
				71100	Internationally recruited PMU staff (PC&TA)	209,000	209,000	145,000	140,000	703,000	1
Outcome 1 Regional and national institutions internalize the implementation of the SAP	UNOPS	62000	GEF	71200	Internationally recruited Secretariat Staff (ED&Dir.Envnt)	180,000	0	0	0	180,000	2
				71400	Locally recruited PMU staff	35,000	35,000	35,000	35,000	140,000	3
				71200	Internationally recruited consultants	30,000	36,000	36,000	30,000	132,000	4
				71200	Regionally recruited consultants	24,000	24,000	21,000	21,000	90,000	5
				71300	Locally recruited consultants	18,000	18,000	0	0	36,000	6
				71600	Travel	12,000	12,000	13,000	13,000	50,000	7
				72100	Learning/Awareness raising/consultation workshops	100,000	100,000	100,000	88,000	388,000	8
				72400	Comm & Audio Visual Equip	5,000	0	0	0	5,000	9
				72800	IT Equipment	5,000	0	0	0	5,000	10
				71600	Support to LTS - organizing a Conf of Ministers	40,000	0	0	0	40,000	
				72100	Support to LTS - Translators	30,000	30,000	30,000	30,000	120,000	
				73400	Support to LTS - Translation equip rental	15,000	15,000	15,000	15,000	60,000	
				73100	Support to LTS - Utilities	10,000	10,000	10,000	10,000	40,000	11
				72200	Equipment and Furniture	27,000	0	0	0	27,000	12
73400	Rental & Maint - Other Equip	17,000	17,000	17,000	17,000	68,000	13				

				74200	AV & Printing Production Costs	10,000	10,000	15,000	15,000	50,000	14
				74500	Miscellaneous Expenses	1,000	1,000	1,000	1,000	4,000	
					<b>SUB-TOTAL OUTCOME 1</b>					<b>2,138,000</b>	
Outcome 2: REG Water Quality	UNOPS	62000	GEF	71100	Internationally recruited PMU staff (PC, TA)	49,000	49,000	17,000	17,000	132,000	15
				71200	Internationally recruited Secretariat Staff (Dir.Envnt)	10,000	0	0	0	10,000	16
				71400	Locally recruited PMU staff	35,000	35,000	35,000	35,000	140,000	17
				71600	Travel	4,000	4,000	4,000	4,000	16,000	18
					<b>SUB-TOTAL OUTCOME 2</b>					<b>298,000</b>	
Outcome 3: REG Sediment Discharge	UNOPS	62000	GEF	71100	Internationally recruited PMU staff (PC, TA)	73,000	73,000	17,000	17,000	180,000	19
				71200	Internationally recruited Secretariat Staff (Dir.Envnt)	10,000	0	0	0	10,000	20
				71400	Locally recruited PMU staff	35,000	35,000	35,000	35,000	140,000	21
				72100	ICRAF Contract	100,000	200,000	200,000	150,000	650,000	22
				71600	Travel	4,000	4,000	4,000	4,000	16,000	23
	<b>SUB-TOTAL OUTCOME 3</b>					<b>996,000</b>					
Outcome 4: REG Monitoring Systems	UNOPS	62000	GEF	71100	Internationally recruited PMU staff (PC, TA)	16,500	16,500	8,500	8,500	50,000	24
				71200	Internationally recruited Secretariat Staff (Dir.Envnt)	5,000	0	0	0	5,000	25
				71400	Locally recruited PMU staff	7,000	7,000	7,000	7,000	28,000	26
				72100	IUCN Contract	50,000	50,000	50,000	50,000	200,000	27
					<b>SUB-TOTAL OUTCOME 4</b>					<b>283,000</b>	
Outcome 5: REG Project management	UNOPS	62000	GEF	71100	Internationally recruited PMU staff (PC, TA)	34,000	34,000	34,000	34,000	136,000	28
				71400	Locally recruited PMU staff	28,000	28,000	28,000	28,000	112,000	29
				72200	Equipment and Furniture	18,000	0	0	0	18,000	30
				73400	Rental & Maint - Other Equip	10,000	10,000	10,000	10,000	40,000	31
				73200	Premises Alteration	8,000	0	0	0	8,000	32
				73100	Rental & Maint - Premises	15,000	15,000	15,000	15,000	60,000	33
				72800	IT Equipment	10,000	0	0	0	10,000	34

				71200	Internationally recruited consultants	0	30,000	0	30,000	60,000	35
				74100	Professional Services	7,000	7,000	7,000	7,000	28,000	36
				74500	Miscellaneous Expenses	1,000	1,000	1,000	1,000	4,000	
					<b>SUB-TOTAL Project Management</b>					<b>476,000</b>	
Outcome 1. BUR: BUR Wastewater	UNOPS	62000	GEF	71400	Locally recruited PMU staff	80,000	80,000	80,000	80,000	320,000	1
				71200	Internationally recruited consultants	12,000	24,000	24,000	0	60,000	2
				71300	Locally recruited consultants	18,000	30,000	30,000	18,000	96,000	3
				72100	Consulting companies	170,000	180,000	50,000	0	400,000	4
				71600	Travel	5,000	5,000	5,000	5,000	20,000	5
				72100	Learning/Awareness raising/consultation workshops	40,000	50,000	50,000	44,000	184,000	6
				72300	Material and Goods	80,000	220,000	0	0	300,000	7
				72200	Equipment and Furniture	27,000	90,000	150,000	0	267,000	8
				73400	Rental & Maint - Other Equip	0	0	20,000	20,000	40,000	9
				73400	Rental & Maint - Other Equip	17,000	17,000	17,000	17,000	68,000	10
				72400	Comm & Audio Visual Equip	5,000	0	0	0	5,000	11
				72800	IT Equipment	3,000	0	0	0	3,000	12
				74200	AV & Printing Production Costs	5,000	5,000	5,000	5,000	20,000	13
				74500	Miscellaneous Expenses	1,000	1,000	1,000	1,000	4,000	
					<b>SUB-TOTAL OUTCOME 1</b>					<b>1,787,000</b>	
Project Management BUR	UNOPS	62000	GEF	71400	Locally recruited PMU staff	20,000	20,000	20,000	20,000	80,000	14
				72200	Equipment and Furniture	6,000	0	0	0	6,000	15
				73200	Premises Alteration	7,000	0	0	0	7,000	16
				73100	Rental & Maint - Premises	20,000	20,000	20,000	20,000	80,000	17
				72800	IT Equipment	5,000	0	0	0	5,000	18
				74500	Miscellaneous Expenses	1,000	1,000	1,000	1,000	4,000	
					<b>SUB-TOTAL Project Management</b>					<b>182,000</b>	
Outcome 1. DRC: DRC	UNOPS	62000	GEF	72100	Contractual Services - Companies	500,000	510,000	510,000	500,000	2,020,000	1
				71200	Internationally recruited consultants	0	12,000	12,000	12,000	36,000	2

Sediment	72200	Equipment and Furniture	26,000	0	0	0	26,000	3
	72300	Material and Goods	50,000	75,000	75,000	50,000	250,000	4
	73400	Rental & Maint - Other Equip	17,000	17,000	17,000	17,000	68,000	5
	<b>SUB-TOTAL OUTCOME 1</b>						<b>2,400,000</b>	
			8,560,000	2,412,500	2,472,500	1,997,500	1,677,500	8,560,000

### Budget Notes: regional component

- 1 PC:85,000/yr - 63%; TA: 64,000/yr - 40% for the first 2 years
- 2 ED:110,000/yr - 100% for the 1st year; Director(Env): 70,000 - 70% for the 1<sup>st</sup> year
- 3 Regional Project Coordination Unit (PCU) inputs: 35,000/yr (20%)
- 4 11 month inputs of international consultants: (1 month input = 12,000USD, inclusive of DSA and travel costs, See details of required inputs in Activity Note)
- 5 7.5 month inputs of regional consultants (1 month input = 12,000USD, including travel costs, See details of required inputs in Activity Note)
- 6 6 month inputs of national consultants (1 month input = 6,000USD, See details of required inputs in Activity Note)
- 7 PCU staff travel to achieve Outcome 1 (See Activity Note for PCU travel)
- 8 18 workshops, including 3 training visits (See description of each workshop in Activity Note)
- 9 TV, VCR/DVD, ppt projector for awareness raising for Regional component
- 10 Laptop and other accessories for PC
- 11 Utilities for LTA Secretariat. Rental is covered by the Govt
- 12 Project car for Regional PCU
- 13 20,000/yr for Car maintenance (Petrol, insurance, radio subscription, check-up, etc.) & 20,000/yr for simultaneous translation equipment rental
- 14 production of documents for dissemination, including LTA newsletter
- 15 PC:17,000/yr (7.4%), TA:32,000 (20%) for yr 1&2
- 16 Dir (Env): 10,000/1st year (10%)
- 17 PCU inputs: 35,000/yr (25%)
- 18 PCU staff travel to achieve Outcome 2 (See Activity Notes for PCU travel)
- 19 PC:17,000/yr (7.4%); TA:56,000/yr (35%) for yr 1&2
- 20 Dir (Env):10,000 (10%) for the 1st year
- 21 Regional PCU inputs: 35,000/yr (25%)
- 22 Contract with ICRAF (See details in the Annex 1 of the Activity Notes)
- 23 PCU staff travel to support Outcome 3 (See Activity Notes for PCU travel)
- 24 PC: 8,500/yr (3.7%); TA:8,000/yr(5%) for the first 2 years
- 25 Dir (Env):5,000/yr (5%) for the 1st year
- 26 Regional PCU inputs: 7,000/yr (5%)
- 27 Contract with IUCN (See details in Annex 2 of Activity Note)

- 28 PC:34,000/yr (14.8%)
- 29 Regional PCU inputs (20%)
- 30 For office furnishing (6,000) and a messenger car (14,000) for RPMU
- 31 Car maintenance (Petrol, insurance, radio subscription, check-up, etc.) for a messenger car
- 32 Necessary renovation of the office space
- 33 For security, etc. (Rent will be covered by Govt)
- 34 2 desktop & 1laptop & printer for Regional PCU
- 35 MTE and TE for UNOPS-executed component (Regional, DRC and Burundi)
- 36 Annual audits for UNOPS-executed component (Regional, DRC and Burundi)

**Budget Note:Burundi component**

- 1 PMU inputs (80%) to achieve Outcome 1  
5 month inputs of internationally/regionally recruited consultants (1 month input = 12,000USD, inclusive of DSA and travel costs) (See activity
- 2 notes)
- 3 16 month inputs of nationally recruited consultants (1 month input = 6,000USD). Whenever possible and appropriate, local consultants are hired to assist carrying out tasks assigned to international/regional consultants to build and retain capacities in the country. (See Activity Notes)
- 4 for the construction of the tertiary wastewater treatment systems
- 5 PMU staff travel to achieve Outcome 2
- 6 16 workshops (see activity notes)
- 7 materials for wastewater facility construction
- 8 Project Car for Burundi component (27,000), 2 machineries (45,000 each) for sewerage pipeline maintenance, laboratory equipments (100,000) and equipments for Pollution Training Center (50,000)
- 9 Maintenance of the pumping stations
- 10 Car maintenance (Petrol, insurance, radio subscription, check-up, etc.)
- 11 Acquisition of TV, VCR/DVD, ppt projector for awareness raising and sensitization campaigns
- 12 Laptop for Project Manager for Burundi component
- 13 production of documents for dissemination
- 14 PMU inputs (20%) to develop Management Information System and to ensure the effective project management
- 15 For office furnishing
- 16 For the necessary renovation of the office to meet UN Security standards
- 17 For security, etc. (Rental is covered by the Govt)
- 18 2 desktops for PMU staff

**Budget Notes: DRC Component**

- 1** For a lump sum contract(s) to be internationally tendered through competitive process to carry out activities planned for the catchment management of the Uriva basin in DRC (Activity Note attached)
- 2** 1 month inputs/yr of international consultant to provide tech backstopping to the contracted consortium/a for yr 2,3, and 4
- 3** Project Car for DRC component
- 4** Tree seeds/seedlings
- 5** Car maintenance (Petrol, insurance, radio subscription, check-up, etc.)

## SECTION 2: THE OVERALL STRATEGIC RESULTS FRAMEWORK

### ANNEX 1.1: Programme and GEF Project Logical Framework (Details at country output level are in Country Component Annexes)

Intervention Logic	Objectively Verifiable Indicators	Sources of Verification	Assumptions and Risks
<b>Development Objective at PROGRAMME level</b>			
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 Strategic Action Programme, the Fisheries Framework, the Convention and the relevant sections of national PRSP processes.	<p>An overall improvement in Poverty Indicators including those related to the Millennium Development Goals (1 and 7).</p> <p>The revised SAP and FFMP are in use to guide development.</p> <p>The Convention is ratified and under implementation by partner countries.</p>	<p>National PRSP process – disaggregated to riparian regions and districts.</p> <p>Project led new resource and livelihood indicators, integrated into riparian institutions.</p>	<p>Continued country commitment to a regional approach.</p> <p>Management measures are taken and monitored.</p> <p>Security is maintained in the region</p>
<b>Immediate Objective 1. GEF</b>  To implement the prioritised activities of the strategic action programme so as to achieve sustainable management of the environment and resources of Lake Tanganyika.	<p>The Interim LTMA and national institutions are established and operational by 2006; The LTA is established and operational by 2008.</p> <p>Policy and regulatory frameworks for sustainable fisheries and environment for Lake Tanganyika are improved at national level by 2007 and harmonized at regional level by 2008</p> <p>The Lake Tanganyika Strategic Action Program reviewed and updated by 2007</p> <p>Pollution at hotspots reduced Sediment rates at demonstration sites reduce significantly. Sediment control</p>	<p>Meeting reports;</p> <p>Instruments of ratification of Convention, with environmental protocols;</p> <p>National policies/plans documents;</p> <p>Revised SAP document;</p> <p>Reports and data from the Programme M and E processes</p>	<p>Country support for the establishment of the LTA, Country commitment to ratify the Convention and establish the LTA and commit resources for sustainability;</p> <p>Countries strong support and involvement in the work of the Program; Countries exchange information Resurgence of insecurity on the Lake may impact on implementation. Mitigating this concern is the countries' commitment to find a lasting solution through peace processes in the region. Countries to commit joint patrolling units on the Lake; Countries willing to commit necessary</p>

	interventions begin to be replicated.		resources for LTA sustainability.
<b>GEF COMPONENTS</b>			
<b>Outcome 1</b> Regional and national institutions established and implementing the SAP and provide the institutional support for the cooperative management of Lake Tanganyika	ILTMA established; Inter-ministerial Committees established by 2006 Convention ratified by 2006; Protocols to Convention established Policies harmonized and regional master plans established by 2008; Additional resources leveraged for activities and sustainability by 2008; Information Resource developed and maintained by 2008 Lake Tanganyika Strategic Action Program is updated by 2007	Minutes of First Conference of Parties; Meeting reports; Instruments of ratification in LTMS; National environmental policy document; Master plans reports; Documented increased level of LTMS participation in Lake activity; Published progress reports on extent of SAP implementation; Increased commitment for regional level participation in the SAP. Revised SAP document;	Countries keep and concretize their commitment to ratify the Convention;  The LTMS is able to lead the process of creation of the Lake Authority;  Commitment to implementation of the SAP interventions;  The countries will increase their participation in the ILTMA activities;
<b>Outcome 2</b> The quality of the water of Lake Tanganyika is improved at identified pollution hotspots	Wastewater treatment plants are operationalised in Bujumbura and constructed in Kigoma by 2008; Improvement in water quality at identified hotspots by 2010	Project Steering Committee Reports	Capacity of central and local governments to ensure a timely and satisfactory implementation/execution of the projects
<b>Outcome 3</b> Demonstration sites around the Lake show how sediment discharge can be reduced whilst providing significant livelihood benefits to local people	Demonstration pilot sites for sustainable catchment management established in Uvira, Kigoma and Mpulungu districts by 2008; Awareness and environmental education conducted by 2008; Improvement in water quality at identified hotspots by 2010	Work plans APR-PIR processes Published progress reports on projects implementation; Reports and records of meetings; Increased capacity to create national benefits through enhanced national projects management	Capacity of central and local governments to ensure a timely and satisfactory implementation/execution of the projects
<b>Outcome 4</b> Regional monitoring decision-making support system to foster the Lake's management established	Monitoring unit is equipped by 2006; Internal and external network for communication within the Program is established by 2006; Standardization of parameters and targets for monitoring by 2007; A web site developed by 2007; Two reports are prepared each year to support decision-making at regional level by 2007	APR – PIR processes Documentation of the decision-making management support system;  Documented reports on interactivity between work-plan and ILTMA activities; Documented reports on increased country commitment and local benefits	The LTMS will assist countries in recruiting Monitoring Committees; The LTMS will assist countries in assessing national monitoring processes; The LTMS will have the required technical expertise to develop monitoring capacity and to establish a decision-making management support system

## Annex 1.2: Results Measurement Template: Lake Tanganyika Project

Objectives	Key Performance Indicators	Target (Year 4)	Sampling Frequency	Notes
<b>Project Objective (Purpose)</b> To implement the prioritised activities of the Strategic Action Programme so as to achieve sustainable management of the environment and resources of Lake Tanganyika.	The Lake Tanganyika Strategic Action Program reviewed and updated by 2007	Extra environmental activities are undertaken by countries in Region – from new SAP – eg Hyacinth control	Final Evaluation year 4	SAP is now 4 years old and requires revision with approval.
	Pollution at hotspots reduced. See Outcome 2	Waste water treatment plants are fully operational. Authorities are self-financing, and enforcing compliance	Final evaluation year 4	Pollution is built into sustained lake Monitoring Programme
	Sediment rates at demonstration sites reduce significantly. See Outcome 3.	Detail under Outcome 3. 30% decrease in silt load expected in project lifetime. Increase to 50% by year 10.	BL and year 4, plus post-facto M/E	Sediment is built into sustained lake monitoring programme
	Sediment control interventions begin to be replicated within the Region.	The catchment management regimes pioneered within three countries at demonstration sites are replicated within additional sites in each country and emulated in Burundi by project closure.	Final Evaluation year 4	
<b>Outcome 1:</b> Regional and national institutions established and implementing the SAP and provide the institutional support for the cooperative management of Lake Tanganyika	Convention is ratified, with environmental protocols setting standards for water quality and other environmental parameters	Ratification within year 2 of project. Protocols by end year 3, with standards accepted by year 4	Annual PIR and Final Evaluation	
	Revised SAP in place with additional environmental issues (eg hyacinth control, and links to adaptation for climate change).	Fully revised SAP in year 3, with uptake of new issues from SAP by project end.	Final Evaluation year 4	Hyacinth was not an issue in 2000, however known hyacinth populations are seen within 25 m of lake
	National and Regional Technical Task Forces/ Committees in place and functional	All committees meet with strong technical output linked to Lake environmental matters and which are implemented.	Annual reports and evaluation.	
<b>Outcome 2:</b> The quality of the water of Lake Tanganyika is improved at identified pollution hotspots	Waste-water treatment plants are fully operational in the two target sites	Infrastructure is complete. Authorities are in place enforcing compliance. Stakeholders are connected to facility	PIR and evaluations	
	Effluent from wastewater treatment is at least 50% better quality across key parameters than non-treated waste	50% improvement in selected parameters of health and environmental concern	Baseline and year 4	Assumption of course that treatment plants are in place.

Objectives	Key Performance Indicators	Target (Year 4)	Sampling Frequency	Notes
	Water quality in lake at sampling sites off-shore show increased quality in terms of environmental and health parameters	This is built into the Lake Monitoring Programme and links to associated biodiversity indices. Increased quality by 30% for key criteria		Regular monitoring programme for the lake is institutionalized
<b>Outcome 3:</b> Demonstration sites around the Lake show how sediment discharge can be reduced whilst providing significant livelihood benefits to local people	Demonstration pilot sites for sustainable catchment management established in Uvira, Kigoma, & Mpulungu by 2007; A total of 25,000 ha of critical risk catchment is placed under improved management.	All target sites with functional catchment programmes, with village assessments showing improved land-use, with increased woody cover and increased livelihood options	Baseline and final year (plus post facto)	ICRAF provides monitoring methodologies using both low-tech participatory approaches and high-tech satellite monitoring.
	Improvement in water quality at identified hotspots by 2009. Turbidity, sediment load parameters improve by 30%.	Water quality measurement off shore from target catchment sites shows significant change by year 4.	Baseline and in year 4.	Plus training within monitoring programmes
	Target rivers have reduced silt load in year 4 compared to baseline in year 1 and TDA	Measurements of sediment plume (satellite) and water sampling in river show 30% improvement by year 4	Baseline and in year 4	
	Participatory Monitoring Programmes (ICRAF) show significant improvement by year 4 on several indicators, including Threat Reduction Analysis.	Soil loss estimates, woody cover data, % of improved energy stoves all show improvement by 30% by project end.	Baseline and in year 4 and post-facto	See note on ICRAF methods above
<b>Outcome 4:</b> Regional monitoring decision-making support system to foster the Lake's management established	Monitoring unit is equipped by 2006;	All stakeholder monitoring units are networked and functional, collecting information to agreed regional specifications by year 4	PIR and evaluations	
	Standardization of parameters and targets for monitoring by 2007;	Links to Convention Protocols on standards, but here the management – monitoring teams are in place and functional.	PIR and evaluations	
	Two reports prepared each year to support decision-making at regional level by 2007.	Reports in year 3 and 4, reports continue post project – showing sustainability	PIR and Post Facto	

## SECTION 3: OTHER MATTERS / ANNEXES

### Annex 2: Responses to Comments by Council Members for Lake Tanganyika

No	Comment	Response
<b>Council Member from Germany</b>		
G1	The program should link with the German regional bilateral projects such as “the reform of the water sector in Zambia” and with the local representatives of the German Dev Co.	Contact is made with the Zambia water project in the finalisation of implementation plans. In Tanzania there is increasing linkage to the KfW Water Project in Kigoma
G2	The SAP is 4 years old and requires revision in case of approval	The review of the SAP is a specific activity in the regional workplan of the project. The SAP will be updated during project implementation. There are emerging issues in and around the lake (eg IAS, Climate Change Adaptation etc) which should be included.
G3	Clarification of Co-financing is needed. (FINNIDA, EU-COMESA, UNDP- Tz ?)	The Partnership Programme continues to include all parties, although FINNIDA and EU are yet to make a firm commitment. This may await the actual creation of the Lake Tanganyika Authority. Our core co-finance (Af Dev Bank) continues to be on course and we anticipate JOINT start-up before November this year, which will allow the LTA to start formally in early 2007 Detailed linkages to UNDP Tz finance in Kigoma will be discussed in the implementation phase (and captured as leveraged co-finance in forthcoming PIRs).
G4	Elaborate on plans for active community participation (wider public, private sector, extension service, etc.)	This will be built up in the inception phase of project implementation – especially in DRC and Burundi where there was less consultation during preparation.
G5	Long term sustainability of the programme, ability of the countries to implement the programme outputs on a sustainable basis, development of local capacity are matters of concern.	We believe all parties are concerned – including Governments. The recent Great Lakes Peace Process specified the importance of regional programmes and activities which will further bind countries into greater sharing and dialogue of regional resources.
G6	Elaborate on risk management associated with political instabilities in the region	As above. The project emphasises the link to ongoing peace processes and stability. Burundi has come through the political processes with renewed stability and increased donor support. DRC is en route to the same end-point.
<b>Council Member from Switzerland</b>		
S1	Introductory note concerning format:	The final Project Document has an improved format.
S2	<i>After Project ends – the “sustainability” of the Regional Authority and Secretariat</i> This is inherently a crucial aspect. Yet in the present project document, this aspect is not particularly evident – at least there is no concrete answer yet as to how the Project intends to make the Regional Authority and Secretariat sustainable. The solution may not be readily at hand!	Please see the response to G 6 above. We agree that this is a key issue. The lessons from Lake Victoria are valuable here, and there will be interchange of lessons. The bottom line is demonstrating the importance of the Regional Process for the shared lake resources to the national governments. It will be a learning process for all concerned.
S3	<i>Catchment processes:</i> Both the STAP	We respond here to two sets of lessons. Firstly <i>be</i>

	REVIEW and RESPONSE rightly address this issue including “lessons learned from past failures”. It is to be hoped that these lessons have been learnt, and that the Project develops some novel approaches in this respect.	<i>nationally driven but plan from the bottom-up – i.e. from household farm units through village plans to Districts. Secondly to plan to the best innovative regional-level technical framework. We use ICRAF for best practice and guidance in this regard, building on the experience of ICRAF from Lake Victoria.</i>
S4	<i>Integration of National Components into a Regional Format</i> Undoubtedly strong national components materially contribute to successful regional programs. On the other hand, the Project wants a strong regional (and sustainable!) Authority. The efficacy of a regional institution on the other hand originates from its capacity to monitor the regional benefits and implications of projects and interventions, to have a voice with the national institutions and to be founded on a sound institutional and financial basis. Sole financing by the riparian governments (after the Project ends) for instance could lead to a situation where this latter objective cannot be fulfilled. This reviewer is not convinced that all the answers to this can be found.	<p>This links back to G 6 and S 1 comments above – on “matching regional sustainable process with national benefit and ownership”.</p> <p>The project invests in strong institutional planning advice in this regard. Emerging lessons from Lake Victoria do show some positive results in this regard.</p> <p>We anticipate that riparian countries will finance lake activity BOTH through national investment and investment into a regional programme.</p>
S5	<i>Anthropogenic factors and climate change:</i> In the project documents, climatic change factors are given a somewhat predominant importance, at the expense of important local human-induced factors. On the other hand, reference to climate change should under no circumstances serve as an excuse to postpone urgent measures addressing present problems.	<p>The question of emphasis is important. Climate change was featured prominently in the Regional Components, but the human local impacts predominate in the NATIONAL texts – where Climate Change issues are not mentioned.</p> <p>However recent discussion in GEFSEC allowed us to drop the predominance of CC – Adaptation activity, and the whole project is now funded by IW funds – with NO CC funding. We still CC-A as one extra environmental issue to integrate into the revised SAP (see G2 above), and Annex 10 addresses this in the ProDoc.</p> <p>We note that the country driven national components respond to urgent on ground local issues and problems.</p>
S6	Importance of Capacity Building for the Authority	This was stressed as much as possible in the whole Brief. All members of the Donor Partnership are aware of the need to build real capacity in the Authority, with power to make decisions on the Lake. The Convention emphasises real empowerment of regional and national institutions and institutional strengthening to allow that.
S7	<i>Numerical modeling:</i> Project design and strategies, intervention measures, alleviation strategies and monitoring all depend on reliable and standardized data. One set of tools for this is numerical modeling of on-going processes, both historically and with various altered parameters. Such tools do not seem to be evident in sufficient detail from	The donor partnership builds on the past FAO- FINNIDA research and modelling programmes around fisheries and lake waters in Lake Tanganyika, and the growing level of modelling activity on sediment impacts on lake resources. The Monitoring Component from both GEF and Fisheries perspectives will look at such models. The LT project will also learn from ongoing modelling inputs within Lake Victoria and the Nile Basin (both with GEF support)

	the project document, at least not at first sight. The reviewer hopes that this aspect will be afforded due attention	
S8	<i>Immediate Objectives 1 and 2:</i> With Objective No. 1 being GEF-financed, and Objective No. 2 coming from other Partner Components, there is a danger that strategies will not be implemented in a coherent manner – well proven by past experience. The challenge is to achieve optimum donor coordination at donor level, consistently monitored through the LTMA.	The donors continue to invest in partnership processes; with an MOU being developed (this will now be finalized within the Authority itself). The creation of the Authority allows for greater NATIONAL and country driven REGIONAL input into such coordination processes (see S10 below).
S9	<i>National Branches of the Lake Authority.</i> In projects of a comparably complex nature, experience has shown that the regional “Authority and Secretariat” may work and act more efficiently if they have branches in all the riparian countries affected.	We agree with this comment, but note that this will be an issue for the Authority itself to debate. The project itself follows this model of regional leadership but with functional units at national levels. We note that the Lake Victoria model is moving to some level of increased decentralisation around a strong regional HQ.
S10	<i>Project Components:</i> The Project under review is complex and multi-disciplinary. Depending on one’s point of view and/or background, one or other project component or aspect may receive more or less attention. Admittedly these project-components are interrelated. But periodic screening of all project activities and decisions with respect to main four aspects could surely help to balance priority thinking.	Issue S8 above is relevant here. The project emphasises continuous M and E process (screening) with adaptive management. The strengthened PIR process of both UNDP and GEF allows us to track this issue. The inception report could well add this to the Risk Matrix of the project.

## REGIONAL ANNEXES

### ANNEX 3: TERMS OF REFERENCE – INSTITUTIONS<sup>7</sup> 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;
- Prepare the establishment of the Lake Tanganyika Authority;

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<sup>7</sup> 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 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) THE SENIOR ENVIRONMENTAL OFFICER FOR ILTMA**

##### **General Responsibilities**

The Senior Environmental Officer is a key member of the senior management team working under the Executive Director in the LTMS, with responsibilities to provide advice and direction on all environmental issues regarding the Lake and surrounding Catchment. The SEO will be responsible through the Executive Director to the Lake Tanganyika Management Secretariat (LTMS) to the Interim Lake Tanganyika Management Committee. A principal task of the SEO will be to liaise with and support the environmental support programmes to the Lake Tanganyika partnership, in particular the GEF and IUCN projects, and to assist in their coordination and integration into full Lake Tanganyika activity programmes.

##### **Specific Duties and Responsibilities**

The Senior Environmental Officer will have the following tasks and functions:

1. Serve as the head of the Environment Unit within LTMS, which provides overall support for the implementation of the environmental components of Lake Tanganyika Strategic Action Program

- (SAP), and to ensure linkages of environmental issues into the Fisheries Framework Management Plan (FFMP) and other parts of the Lake Tanganyika Programme.
2. On behalf of the Executive Director to manage the environment components of LTMS, its staff, core (non-GEF) budget and assets, and lead the LTMS Environment Team in carrying out the tasks assigned to it by the LTMC.
  3. Facilitate the implementation of the Environmental components of the LT Convention.
  4. Ensure that environmental protocols to Convention are established to harmonize policies and regulations, to establish regional frameworks on environmental matters, and to facilitate the exchange of environmental information under the Convention and its domestication.
  5. Assist the ED in the preparation of the overall development and management plan for the LTS, with regard to environmental matters.
  6. Ensure collaboration and reporting on environmental issues for LT. Act as Counterpart to the environmental part of the GEF Project components, in particular liaison with the GEF appointed TA on Environment. Arrange and support meetings of Environment Task Forces around the lake.
  7. In close collaboration with the Monitoring Officer, ensure that environmental issues are effectively integrated into the lake-wide Regional Monitoring Programme.
  8. Maintain contact with and facilitate the work-planning and implementation of national environmental activities for LT.
  9. Provide leadership within the LTMS and partners on new and emerging environmental issues, such as Invasive weeds, climate change implications and lake conservation and tourism.
  10. Assist the ED in other environmental matters as may be needed for the successful management of the Secretariat and its functions

### ***QUALIFICATIONS, WORK EXPERIENCE AND OTHER SKILLS***

The Senior Environment Officer (note title may change) 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 environmental subjects related to the work of the Program;
- Experience in the environmental fields related to the assignment, such as catchment and lake resource management, pollution control, resource monitoring etc; with at least seven years in a managerial position in these fields in government or international positions;
- Demonstrated team-work and planning 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.

### **5) UNDP-GEF PROJECT COORDINATOR: LEGAL/INSTITUTIONAL ISSUES AND COORDINATION**

#### **General Responsibilities**

The Project Coordinator (PC) will be recruited by 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.
- Secondly, 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 PC 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 fields 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:** Late 2006

**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.

### **6) 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 PC, 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:** Late 2006

**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.

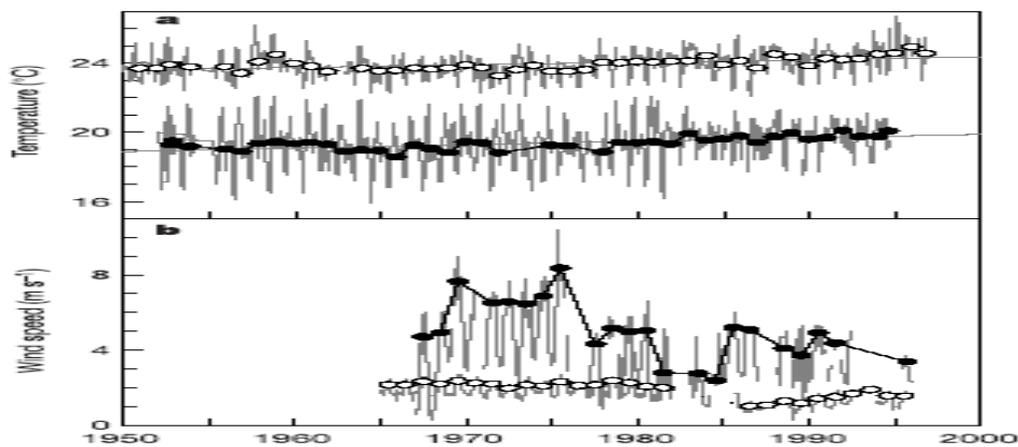
## Annex 4 (= Annex 10 of Project Brief): Climate Change around Lake Tanganyika

### A) Introduction

Eastern Africa has a well documented and long history of climate change, across the Pleistocene / Holocene periods. The Pleistocene ice ages of northern regions were accompanied by dry cold periods in the tropics, with intervening wet warm periods. The last cold period (peaking less than 19000 years BP) led to the almost total drying of Lake Victoria. Sediment cores with pollen analysis have documented changing climates over the last few thousand years (Hamilton). More recent historical records documented rapidly changing lake levels in a lesser Rift Valley Lake (Rukwa) over the past 200 years (Rodgers). El-Nino phenomena led to higher lake levels (exacerbated by huge sediment loads in more shallow lakes (Rukwa and Manyara) in this past 5 years). The Great Lakes Region is clearly an area of rapidly changing climatic processes.

Global warming has now become an acknowledged fact within the African context, and the Great Lakes Region of East Central Africa is no exception. Studies suggest higher temperatures and greater aridity (longer dry seasons with more evapo-transpiration rather than significant absolute reductions in precipitation), together with more extreme climatic events are still to come<sup>8</sup>. Climate change in the Lake Tanganyika Basin has been consistent with global patterns. Temperatures began measurable increases in the 1970s and long term records suggest that this increase has been of the order of 0.5 to 0.7°C (Figure 1a). During the 1970s precipitation patterns in the basin also began to change as both total rainfall and rainfall intensity increased through the end of the century. Along with increased temperatures, long term records show that wind velocities have decreased by 30% since the 1970s (Figure 1b). The combined effects of decreased wind speed and higher temperatures have led to higher stability of the lake and reduced the mixing depth, which has led to decreased productivity of the lake.

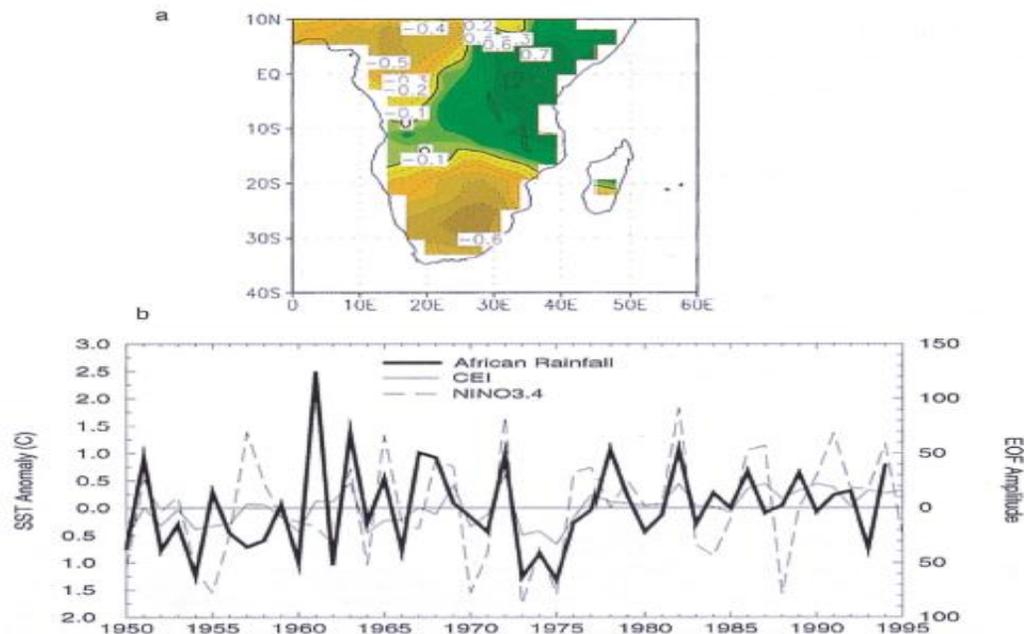
Expectations of future warming vary from model to model, but all of the General Circulation Models (GCMs) predict accelerated warming in the region. Predictions for the 21<sup>st</sup> century range from 1.3 to 5.4°C for the region. The Tyndall Centre analyzed the impact of climate change on the countries surrounding Lake Tanganyika and determined that each 1°C rise in temperature would result in US\$200 per capita decline in GDP by 2100 (Mitchell and Hulme, 2000). For reference, the per capita GDP of Tanzania is currently US\$ 700, 50% of which is generated from agriculture. Thus we expect that there will be a disproportionate negative effect of climate change on the rural poor.



<sup>8</sup> Discussion papers from Dr J. Mitchell and Dr J. Hulme, Tyndall Centre for Climate Change Research, University of Reading, UK. Whilst these centred on Tanzania forest scenarios, the results are applicable to the Lake Tanganyika area.

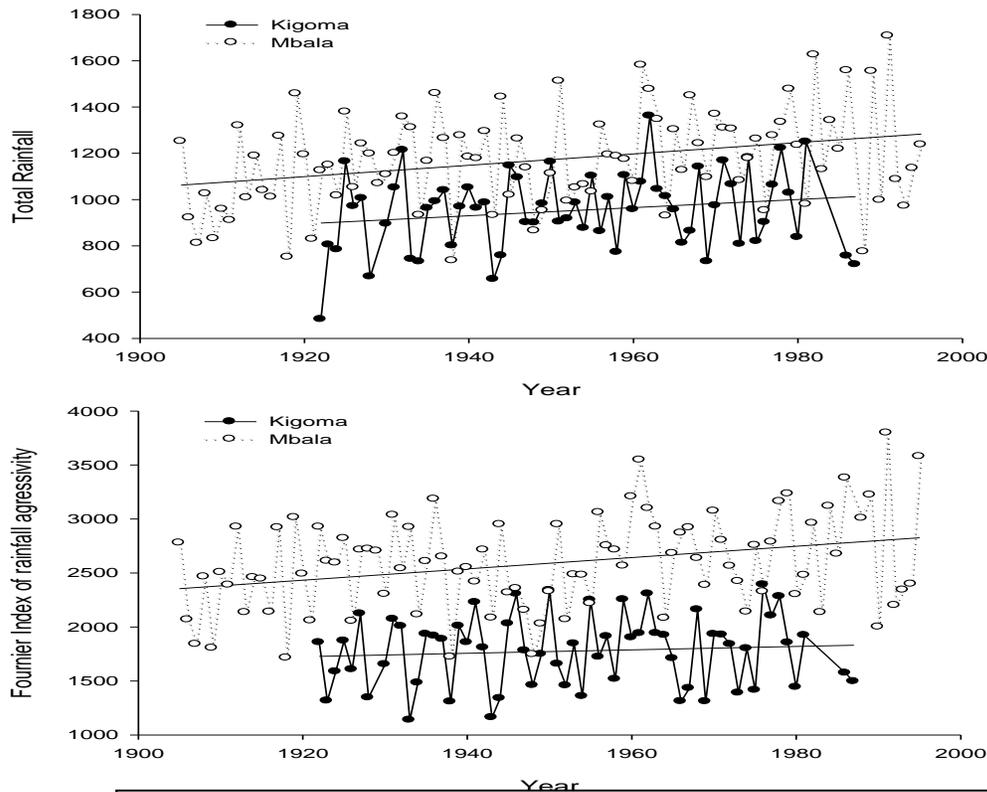
**Figure 1. Historical trends for temperature and wind speed. Monthly averages are shown in grey and are superimposed by annual means; regression (broken) lines are based on the full dataset. a, Wind speed. Monthly averages are shown in grey and are superimposed by windy season (May to**

Rainfall patterns East Africa are largely governed by the sea surface temperature (SST) in the Indian Ocean (Figure 2). The trend in the African Great Lakes region has been one of higher rainfall associated with the warming trend in the Indian Ocean (Goddard and Graham, 1999), while the trend in southern and western Africa show declining precipitation. This shift is associated with a southward shift in the Inter-Tropical Convergence Zones by 3 to 5°, which partially explains the decrease in the correlation from the mid 1970s. Along with the trend of increased rainfall in the Great Lakes region, is a trend of increasing intensity of rainfall rather than a lengthening of the growing season. Within the Lake Tanganyika Basin, this trend is apparent, but is stronger in the southern part of the Lake Basin. Figure 3 presents the only two long-term rainfall records within the basin and shows a stronger trend of both increased rainfall and increased rainfall intensity at Mbale in Northern Zambia that at Kigoma in the central part of the Lake. However, there is a significant but small trend of both increased rainfall and increased intensity at Kigoma.



**Figure 2.** (a) Observed rainfall anomalies for November–December–January 1950–1995, plotted as correlations between the rainfall anomalies and the temporal empirical orthogonal function (EOF) function. Green shows the areas where rainfall amount has increased as the sea surface temperature (SST) in the Indian Ocean has increased over the time period, orange indicates regions in Africa where rainfall has declined as SST has increased. (b) Time series for amplitude of EOF (shown in Plate 1a) (thick solid line), amplitude on right axis. Also plotted are time series of SST indices for the Pacific Ocean, NINO3.4 (58S–58N; 1708W–1108W) (dashed line), and the Indian Ocean, CEI (central equatorial Indian index) (158S–0; 508E–808E) (thin solid line). (Source: Goddard and Graham, 1999)

The combined effect of increased rainfall intensity and population growth, with the associated increased levels of deforestation and expansion of agriculture leads to increased erosion and increased sedimentation in the lakes. These changes have implications for the livelihoods of people living in this



**Figure 3.** Historical rainfall records and rainfall intensity index at two meteorological stations in the L. Tanganyika Basin.

area and for future development planning. Evidence presented in a recent Nature paper (O'Reilly et al., 2003) suggest that over the past 80 years, climate change has contributed to declines in the pelagic fishery, which has implications for the livelihoods of those in the basin who depend on this resource for their economic livelihood and for the growing population that depends on this fishery as a protein source.

Agriculture is the human enterprise that is most dependent on climate and as would be expected most analyses show that some of the most significant negative impacts of climate change in Africa involve loss of agriculture productivity (Mendelsohn, 2000). The main driver of these changes is the intensification of the El Niño Southern Oscillation (ENSO) and changes in the North Atlantic Oscillation (NAO), which leads to increased inter-annual rainfall variability. As expected, subsistence farmers are likely to be disproportionately affected. A recent paper in the Proceedings of the National Academies of Science suggests that the impact of changes in the ENSO and NAO will lead to a small decline in production of most cereal crops, an increase in production of root crops and a significant decrease in the productivity of pastures (Stige et al., 2006). However, the analysis showed that there are thresholds and non-linearities in the relationships and that once thresholds are crossed in the indices of these oscillations that there is generally a stronger downward trend for all production in the Great Lakes region.

### ***B) Implications of Warming of Lake Waters in Lake Tanganyika:***

Two recent studies (Verburg et al 2003 and O'Reilly et al 2003) have used historical (meteorological) and paleolimnological (carbon isotope signatures and modeling of thermocline density gradient) data to document warming trends in Lake Tanganyika. In the journal *Science* (July 2003), Verburg et al report that the surface waters of Lake Tanganyika have warmed 0.9 degrees Celsius since 1913 and more importantly, this has contributed to density differences between layers which inhibit mixing and thus the recycling of nutrients upwards. In the journal *Nature* August 2003, O'Reilly et al report that surface waters have warmed on average 0.1 degree Celsius per decade for the last three decades and that wind velocities have decreased about 30%, the combined effect of these factors being to increase stability of the lake's stratification and reduce mixing depth.

The scientific community does not dispute these trends in climate and water parameters. Some researchers, however, are concerned with the inferences drawn from these data. Verburg et al attribute a decrease in productivity offshore from Kigoma in the northern basin to the warming trend. O'Reilly et al infer a potential 20% reduction in primary productivity from carbon isotope signatures in cores which they maintain would be concordant with a 30% drop in fish yields due to lake warming. Most fisheries resource managers on the lake have attributed fish declines to increases in fishing pressure and other direct anthropogenic activities (e.g. industrial pollution in Bujumbura Bay). Indeed, neither the Verburg or O'Reilly papers thoroughly analyzes the vast fisheries literature assembled from 1992-2000 by the FAO/FINNIDA Lake Tanganyika Research Project. Other reasons put forwards for reduced catches (by the same group of researchers) have been reduced stocks due to increased sediment loads in lake waters and so greater turbidity and habitat substrate change. We note that climate change has the ability to increase the intensity of dry seasons, with more bare ground and so increased sedimentation into the lake can be expected in the future.

A consortium of ten scientists from the Lake Region and several European Research Institutes (Sarvala et al 2004) has prepared a response to these papers that was presented at the International Limnological Society Meetings in August 2004. They argue that the evidence for decreased productivity is ambiguous, as several studies note that decreased primary production has also been attributed to increased sediment input in the lake (Donoghue et al 2003 a and b). They report that total lake-wide fish catches had increased up until 1995 and that the regional declines in the industrial fishery are outweighed by increased artisanal catches. They conclude that declining fisheries stocks are a result of fishery intensification.

The position is still unclear and needs further attention in the context of adaptive management by all four nations – we note that the 2000 STAP report on Great Lakes calls for greater scientific documentation based on harder monitoring data. The project will invest in collaborative research and shared experiences. IW-Learn will form a core of the dissemination process as well as improved linkages to academia and scientific process and fora such as IDEAL.

### ***C) Implications on Catchment Management and Sedimentation Rates***

The lake catchments are badly denuded, satellite imagery shows the scale of loss of woody cover and satellite imagery shows the size of sediment plumes from the many micro-and macro- (Malagarasi and Ruzizi) catchments around the lake. Deforestation is a result of converting forest and woodland for agriculture (on very steep slopes), and a result of increasing pressure on wood resources for domestic and small-scale enterprise energy. Cultivation itself is relatively in-efficient, with little adaptation to farming steep slopes on easily erodible soils. Kigoma District (and by inference other lake areas) have shown considerable population growth (in-migration and normal reproductive growth). Increasing rates

of HIV-Aids have tempered this growth but removed productive and innovative members of the workforce, forcing greater reliance on poor fisheries, annual cropping and fuelwood collection. The solutions here have to be holistic, integrated and based on participatory approaches. They require greater emphasis on improved agriculture, maintaining and increasing woody vegetation cover and improving livelihoods through diversified incomes.

The ecological implications of this can be stated in general terms: greater aridity suggests a reduced woody vegetation cover, acting synergistically with present patterns of conversion of wooded habitats, dry-season fires, and so greater levels of bare soil and so both water based erosion (and so sedimentation), and wind based erosion and so greater dust levels. This latter consequence increases localized temperature increases, and reduced woody covers lowers carbon sequestration levels. Fire incidence will be increased. In turn generalized impacts on people can be visualized, cultivation will be more based on annual crops, with greater risk of crop losses, populations will move to more permanent water sources (lake shores), and livelihoods will be more fragile with greater incidence of poverty. This will increase pressure on natural resources (forest and fisheries) and so intensify this cycle of degradation. The Precautionary Principle suggests that action is taken to reduce the scale of impact of these potential changes, and that populations adapt to these changing circumstances. Impacts can be foretold for both fisheries themselves (due to postulated lake temperature changes) and for the lake watersheds as catchments continue to degrade.

#### ***D) The Project Response***

The Executive Summary to this document mentioned the probable importance of three CC issues:

*Over-fishing* is an issue to be addressed by co-finance for fisheries inputs from AfDB-FAO-EU-NDF partners (it was the FAO – FINNIDA fisheries project in the 1990s that produced the detailed scientific information now being debated) address this in several ways:

- The fisheries components will increase the intensity of monitoring fish stock and catch data.
- Fisheries communities will be supported to change fishing practices and reduce pressure by value-adding processing to fish catches.
- The EU and AfDB components of the partnership programme develop alternative income sources for marginalized fisher-folk. This provides mechanisms to mitigate against and adapt to vulnerability from changes in fish catch.
- The Monitoring Processes will address the issue of climate change and fisheries data.
- The Programme will build linkages to ongoing and potential lake scientific studies.

*The lake monitoring and management processes* are of great importance. The GEF component, working with IUCN co-finance, will put the climate change model on the monitoring agenda and seek additional finance from within the partnership to further adapt riparian communities and support mechanisms to potential patterns of change.

*Catchment Management to Reduce Sediment Inputs* forms the bulk of GEF funding (some 7.2 million \$ out of 13.5). Predictions of changing climates in central and eastern Africa suggest increased intensities of climatic phenomena (more extreme rainfall events and more severe drought periods etc). In the absence of catchment interventions it is probable that erosion, soil loss and so lake sedimentation would be increased. Catchment interventions therefore have two related benefits to the question of adaptation and vulnerability. Firstly interventions will reduce silt loads and so allow fish stocks to recover somewhat. Secondly, improved catchments, through social processes of increasing productivity of land, will allow greater support to livelihoods and so reduce vulnerability to climate changes. Such catchment interventions (eg reduced deforestation, less exposed soils) will also increase carbon sequestration through improved carbon sinks and less soil oxidization.

This overall partner intervention includes elements within both national and regional process that address directly the issues of adaptation and to climate change. Co-finance addresses fisheries. GEF funding has two main components. Firstly at regional level, the GEF intervention includes developing environmental protocols and standards, within the umbrella of the Convention, that include indicators related to CC issues and mitigation measures to reduce vulnerability of communities and resources. Secondly the emphasis on catchment management – with components on maintaining woody cover directly works to sequester carbon and maintain local catchments in ways that reduce climate change deleterious impacts.

The project seeks funding from the GEF Focal Areas on IW into three areas which are cognizant of climate change issues and need to adapt:

- Regional Process – updating SAP, adding protocols and standards to the Lake Tanganyika Convention that specifically target adaptation to Climate Change issues and responses.
- Monitoring and Management Responses – increasing our understanding of how climate change issues will affect lake sustainability.
- Catchment management, with an emphasis on maintaining vegetation cover and improving soil conservation measures. The project will invest in demonstrating the linkages between catchment health and sediment discharge, using the innovative and participatory M&E techniques of ICRAF (again with linkages to sharing experiences between lake projects – here from Lake Victoria work).

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## **Annex 5 Monitoring Programme for Lake Tanganyika**

### **Background**

Lake Tanganyika has had a century of scientific research; leading to much limnological and biodiversity documentation and applied fisheries data. Information has been collected from all parts of the lake; through investigations out of all four riparian countries. Much of this information was collated via the GEF funded TBDA and SAP process, and the FAO-FINNIDA Fisheries Research Project.

All four countries have national research organisations and regulatory organisations with a mandate to collect information on the Lake and its natural resources. These include specialised fisheries, hydrobiology, water, agricultural and land use and health agencies.

Unfortunately; capacities in these organisations have not been high and data collection has been ad-hoc and limited in scope and coverage. Data collection has been to national formats and criteria, with little regional collaboration. Past monitoring and much of the scientific data collection has not fed into the planning and implementation processes of the regulatory and management agencies responsible for the resources of the Lake.

### **The Monitoring Program**

All parties have agreed the need for an integrated monitoring program for Lake Tanganyika. Integration is both cross-sectoral (fish water, land use) and cross all four countries. All parties have agreed that this monitoring program be linked to the management of the lake and lake resources and should follow regionally agreed formats and protocols, and fall under the oversight of the developing Lake Tanganyika Authority and Secretariat.

The Tanganyika monitoring program is thus a negotiation process amongst the four countries. The project will facilitate an assessment of all relevant existing monitoring that is done on/near the lake by various national institutions, including: catchment land use, fisheries, water quality and some socio-economic parameters. The countries will come together to negotiate a regionally harmonised monitoring program. Resource Specialists facilitate the development and field-testing and revision of the regionally harmonized program, and countries will work at the national level through national institutions. And such institutions and come together regionally several times during this process to, for example, negotiate indicators and targets and provide feedback on the new program after field-testing.

### **Monitoring Parameters**

Sustainability; working within (enhanced) national capacities will be the key to a successful program. Networking and partnerships will link national agencies to other global monitoring programs and data sets; including remote sensed information.

#### **Key Issues will be:**

Water Quality	Temperatures, Oxygen, Phosphates, Nitrates, Solids, Turbidity.
Fisheries	Basic catch and effort statistics with socio-economic parameters.
Land Use	Vegetative cover, erosion, river based silt loads; agricultural crop cover.
Specific Studies	Water and health; point pollution, etc

These parameters, with details of spatial and temporary coverage, will be confirmed during the inception

process. These parameters are considered necessary to address the key issues surrounding the lake and the new dimensions of climate change.

**GEF Project Monitoring**

This is addressed in Annex 2A; The Results Measurement Template, this is based on the “ME Indicators and Guidelines for IW Projects”.

Monitoring protocols via annual reviews and reporting will be detailed in the operational project document.

## **PART 2: INTERVENTIONS THROUGH UNOPS EXECUTION**

UNOPS finances three parts of this project. The first part is the **REGIONAL COMPONENT**, providing the regional coordination and interaction for the whole project. This includes the **PROJECT COORDINATOR**, support to the developing Lake Tanganyika Authority (LTA), M and E and reporting processes and regional contracts.

The second part is the **DRC CONGO COMPONENT**, supported via contractual agreements with a consortium of experts selected through competitive international tender process.

The third part is the **BURUNDI COMPONENT**, for waste water treatment etc, in Bujumbura.

**The three parts are described below, copied from the approved GEF Project Proposal**

### **PART 1 : REGIONAL COMPONENT:**

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

##### **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 & E Indicators Framework (Nov 2002) provides the basis.

Fourthly, the Regional Component provides the forum and base for the Partnership Programme for the Lake – between Governments and Development Partners.

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 Project Coordination Unit is to be based at Bujumbura, together with the Lake Tanganyika Authority Secretariat. GEF funding supports regional activity over a four year period.

# DETAIL OF THE REGIONAL COMPONENT

## **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 section.

### **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 Objective, each leading to a distinct OUTCOME (linked to SAP priorities).

5. 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.
6. Reduction of water pollution by creating wastewater plants in Bujumbura and Kigoma.
7. 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;
8. 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).**

9. 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).
10. Improvement of community infrastructure through local development funds (AfDB).
11. Construction of wastewater treatment plant in Kigoma township (through NDF funding).
12. 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

<b>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)</b>	
<b>Outcomes</b>	<b>Country / Site</b>
<b>Outcome 1:</b> 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.	<b>Regional Activity</b>
<b>Outcome 2.</b> The quality of the water of Lake Tanganyika improved at two identified pollution hotspots through wastewater treatment. <b>See Outcome 2.7 NDF</b>	Tanzania and Burundi
<b>Outcome 3:</b> Sediment discharge reduced from demonstration catchment management sites; with providing significant livelihood benefits to local people.	Tanzania, Burundi, Zambia
<b>Outcome 4:</b> Regional monitoring - management system for the Lake.	<b>Regional Activity</b>

Outcomes 1 & 4 are the specific scope of this Regional component, being executed by UNOPS.

Outcomes 2 & 3 are implemented nationally, although UNOPS implements Burundi, DRC.

The Regional Component has responsibility for unified monitoring, evaluation and reporting.

### **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. (With -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 2008;
- Protocols to Convention established to improve environmental policy and frameworks;
- Environmental regional master plans developed and approved by countries by 2009

### Outcome 4:

- Regional Monitoring Systems established by 2009;
- Environmental and fisheries regional data-base established by 2009;
- Awareness Systems and web site in place and operational by 2008;
- Improvement in water quality monitoring data by 2010

## MONITORING AND EVALUATION

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.

## FINANCING THE INTERIM LAKE TANGANYIKA MANAGEMENT AUTHORITY

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)**

*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	680,000
Technical Advisor (Environment)	24 mm	320,000
Regional Staff for Lake Tanganyika Secretariat (support for 12 mm only)		-
Executive Director	12mm	110,000
Director, Environment	12mm	100,000
PCU Staff (6 posts including translator, locally recruited)	48 mm	560,000
Support to Lake Tanganyika Secretariat		260,000
Consultants International	11 mm	132,000
Consultants Regional	7.5 mm	90,000
Consultants Local	6 mm	36,000
Contract ICRAF (Catchment Management & Training)	Full	650,000
Contract IUCN (Monitoring Committees)	Full	200,000
Evaluation Missions (MTR, TR)	Two	60,000
Learning and information exchanges	18 workshops including 3 training visits	388,000
Communications (equipments, production costs)		55,000
Equipment (Vehicles, Office, Security etc)		197,000
Duty Travel		82,000
Operating costs, Audits, Sundry		271,000
<b>OVERALL TOTAL</b>		<b>4,191,000</b>

## 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 some of these obligations for the first year of operation Executive Director & Senior Environmental Officer – TOR are in annexes),<sup>9</sup> and AfDB can support similar allowance packages

<sup>9</sup> After one year, it is expected that such posts will have been approved through national budget processes.

Technical assistance will be provided through the donor interventions. GEF provides a PROJECT COORDINATOR 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).

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:

- 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 and a Senior Environmental Officer (GEF funding 12 months), a Senior Fisheries Officer (AfDB funding), a Senior M&E Officer (IUCN funding), and a Senior Administrative/ Finance Officer (AfDB funding). These staff-members 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 PROJECT COORDINATOR 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 field 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), Uvira<sup>10</sup> (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.

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<sup>10</sup> 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 GEF Uvira component to be managed elsewhere from Uvira.

**ANNEX B1: PROGRAMME LOGICAL FRAMEWORK FOR REGIONAL COMPONENT**

<b>Intervention Logic</b>	<b>Objectively Verifiable Indicators</b>	<b>Sources of Verification</b>	<b>Assumptions and Risks</b>
<p><b>OUTCOME 1</b> Regional and national institutions established and implementing the SAP and provide the institutional support for the cooperative management of Lake Tanganyika</p>	<p>ILTMA established;</p> <p>Inter-ministerial Committees established by 2007 Convention ratified by 2007;</p> <p>Protocols to Convention established Policies harmonized and regional master plans established by 2010;</p> <p>Additional resources leveraged for continuing activities and sustainability by 2010;</p> <p>Information Resource developed and maintained by 2010</p> <p>Lake Tanganyika Strategic Action Program is updated by 2009</p>	<p>Minutes and reports of the First Conference of Parties &amp; 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>
<p><b>OUTCOME 4</b> Regional monitoring decision-making support system to foster the Lake's management established</p>	<p>Monitoring and communication unit is equipped by 2008;</p> <p>Internal and external network for communication within the Program is established by 2008;</p> <p>Standardization of methods, parameters and targets in environment monitoring by 2009;</p> <p>A web site developed by 2009;</p> <p>Two reports are prepared each year to support decision-making at regional level by 2009</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>

<b>Component Budget for Regional Activities</b>						
<b>Item</b>	<b>Duration</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Total</b>
International Staff						-
Chief Technical Advisor	48mm	170,000	170,000	170,000	170,000	680,000
Technical Advisor (Environment)	24 mm	160,000	160,000	0	0	320,000
Regional Staff for Lake Tanganyika Secretariat (support for 12 mm only)						-
Executive Director	12mm	110,000	0	0	0	110,000
Director, Environment	12mm	100,000	0	0	0	100,000
PCU Staff (6 posts including translator, locally recruited)	48 mm	140,000	140,000	140,000	140,000	560,000
Support to Lake Tanganyika Secretariat		95,000	55,000	55,000	55,000	260,000
Consultants International	11 mm	30,000	36,000	36,000	30,000	132,000
Consultants Regional	7.5 mm	24,000	24,000	21,000	21,000	90,000
Consultants Local	6 mm	18,000	18,000	0	0	36,000
Contract ICRAF (Catchment Management & Training)	Full	100,000	200,000	200,000	150,000	650,000
Contract IUCN (Monitoring Committees)	Full	50,000	50,000	50,000	50,000	200,000
Evaluation Missions (MTR, TR)	Two	0	30,000	0	30,000	60,000
Learning and information exchanges	18 workshops including 3 training visits	100,000	100,000	100,000	88,000	388,000
Communications (equipments, production costs)		15,000	10,000	15,000	15,000	55,000
Equipment (Vehicles, Office, Security etc)		96,500	33,500	33,500	33,500	197,000
Duty Travel		20,000	20,000	21,000	21,000	82,000
Operating costs, Audits, Sundry		69,000	69,000	69,000	64,000	271,000
<b>OVERALL TOTAL</b>		<b>1,297,000</b>	<b>1,115,500</b>	<b>910,000</b>	<b>867,500</b>	<b>4,191,000</b>

## THE DRC CONGO COMPONENT

IMPLEMENTED VIA UNOPS WITH SUBCONTRACTED CONSORTIA OF EXPERTS  
SELECTED THROUGH AN COMPETITIVE INTERNATIONAL TENDER PROCESS

### Summary

The DRC component is totally within the Uvira watershed, seeking to control the extreme levels of land degradation that impact this regionally important town on the lake shore. Uvira town has great historical importance in this region as housing an old and prestigious research and documentation facility. The steep hillsides which rise from the lakeshore have been greatly degraded by high densities of people concentrating in the urban centre during conflict periods. Degraded “bare” hillsides suffer major erosion and so sediment inflows to the lake.

The project component is to build capacity for community based NRM on the hillsides and use this capacity to rehabilitate once natural areas and so reduce sediment flow. This is a combined local decentralised government and civil society responsibility.

A Consortium/a of experts will be selected through a competitive international tender process to carry out project activities in the Uvira basin. A proven history of experiences in catchment management preferably in the region, physical presence in or near the Uvira basin, inclusion of local expertise in a consortium for both capacity building and transfer purposes are among criteria for the selection of a consortium. Detailed TORs for a consortium will be finalized by the Regional Project Coordination Unit, lead by the Regional Project Coordinator, in consultation with the Lake Tanganyika Authority and Government of DRC.

### *Project Background / Context*

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** notwithstanding, 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

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 Trans Boundary 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 km<sup>2</sup>. 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 gully 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**

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*

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 fulfillment 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.***

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***

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 the Lake

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 governments (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 agro-forestry 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.

## **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.

### **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.

### **Monitoring and evaluation system**

The prevailing system in DRC – Kivu – Uvira will be assessed at project start-up, and M & E systems integrated into the implementation arrangements. The Project Management Unit to be based in the Uvira basin will have important roles in such M & 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 agro-forestry 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.

## 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.

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

- **Co-financing – Government of DRC’s contribution, in kind**

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

## **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. 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 a consortium/a of experts to work in collaboration with DRC government and the Uvira Region / Uvira Municipality Agencies, to seek partnership processes in implementation.

UNDP / UNOPS and Government of DRC will draw up a 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 include:

- Full stakeholder participation in project 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; and

- 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 Logical Framework Matrix DRC COMPONENT**

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
<p><b>Development objective:</b></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"> <li>√ 30 % improvement in sedimentation rates in target catchments</li> <li>√ 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.</li> </ul>	<ul style="list-style-type: none"> <li>√ Project &amp; Post project evaluation reports</li> <li>√ Annual reports of line Ministries (Tourism, Environment and Natural Resources, Agriculture and Cooperatives, Energy and Water resources)</li> </ul>	<ul style="list-style-type: none"> <li>√ The policy environment supporting community involvement in NRM continues to be favourable.</li> <li>√ The M and E process (see regional Proposal) is implemented.</li> </ul>
<p><b>Overall outcome</b></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"> <li>√ At least 60% of old woodlots rehabilitated.</li> <li>√ 60% of hills rehabilitated.</li> <li>√ At least 50 % of farmers use at least 2 agro-forestry techniques.</li> <li>√ At least 30 % of farmers use 1 anti-erosion technique.</li> <li>√ At least 20 % of households use charcoal ovens and improved stoves</li> </ul>	<ul style="list-style-type: none"> <li>√ Project annual and evaluation reports</li> <li>√ Community minutes and records implementing CBNRM</li> <li>√ Impact assessment studies</li> </ul>	<ul style="list-style-type: none"> <li>√ Internal security problems might affect good running of the project</li> <li>√ The weather conditions remain favourable</li> <li>√ Inflation rates remain manageable</li> </ul>

<b>Outcome 1: Government and community natural resource management institutions strengthened</b>			
<b><i>Output 1: Government and community natural resource institutions reviewed and strengthened for achieving integrated catchment basin management</i></b>	<ul style="list-style-type: none"> <li>√ Institutional agreements in place.</li> <li>√ No of staff in place and functioning</li> <li>√ No of community institutions</li> </ul>	<ul style="list-style-type: none"> <li>√ Signed agreements</li> <li>√ Government Rosters, and field verification</li> <li>√ Field Verification</li> </ul>	Agreements are possible, and communities can be mobilized.

<p><b><i>Output 2: Hydrology of priority high sediment load rivers investigated and river sediment reduction management plans developed and implemented</i></b></p>	<ul style="list-style-type: none"> <li>√ Hydrological parameters, linked to LT M and E process</li> <li>√ Sedimentation Plans in place</li> </ul>	<ul style="list-style-type: none"> <li>√ From LT M and E process</li> <li>√ Project Reports</li> </ul>	<ul style="list-style-type: none"> <li>√ M and E processes are agreed.</li> </ul>
<p><b>Outcome 2: The natural resource base in and around Uvira sustainably managed through improved land-use practices</b></p>			
<p><b><i>Output 3: Appropriate agroforestry practices and soil management needs assessed with stakeholders and popularly piloted in local farming systems</i></b></p>	<ul style="list-style-type: none"> <li>√ 50 % of farmers have adopted agro-forestry technique</li> <li>√ 30 % of fields have shrub/ grassy hedges</li> <li>√ 30 % of farmers have adopted at least 1 anti-erosion technique</li> <li>√ 1,000,000 agroforestry plants distributed</li> </ul>	<ul style="list-style-type: none"> <li>√ Farmers' survey</li> <li>√ Project annual and evaluation reports</li> </ul>	<ul style="list-style-type: none"> <li>√ Farmers have enough land to devote a portion to agroforestry</li> <li>√ Agroforestry benefits are tangible enough so that farmers accept and use the technology</li> </ul>
<p><b><i>Output 4: Capacity of government and communities to manage successful catchment project activities sustainably; with appropriate agro-forestry species is strengthened</i></b></p>	<ul style="list-style-type: none"> <li>√ Funding increases for catchment activity</li> <li>√ Increased staff allocation for catchment management</li> </ul>	<p>Institutional Records</p>	<ul style="list-style-type: none"> <li>√ Technicians will make use their training on the project and not seek employment elsewhere</li> <li>√ Agro-forestry will not be too heavy an investment in time and financial resources</li> </ul>
<p><b><i>Output 5: Old managed forest areas rehabilitated and new community and private woodlots established and sustainably managed regenerating appropriate forest cover</i></b></p>	<ul style="list-style-type: none"> <li>√ 100 ha of old woodlots rehabilitated, or 80% of old woodlots are rehabilitated</li> <li>√ 400 ha of plantations are established</li> <li>√ At least 60 % of plantations have established a functional community management system</li> </ul>	<ul style="list-style-type: none"> <li>√ Site surveys at the beginning and at the end of project to estimate deforested forested surfaces establish comparison</li> </ul>	<ul style="list-style-type: none"> <li>√ (A) viable local organisation(s) is/are put in place to supervise and protect the forested and woodlot areas</li> </ul>

	<ul style="list-style-type: none"> <li>√ 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</li> </ul>	<ul style="list-style-type: none"> <li>√ Field survey to measure planted areas at the end of project</li> <li>√ Survey of community woodlots to assess management system</li> </ul>	<ul style="list-style-type: none"> <li>√ The local reforestation is sufficient to respond to firewood demand</li> <li>√ The local community is willing to take part</li> </ul>
<p><b><i>Output 6: Appropriate energy-saving technologies assessed with stakeholders, advocated, piloted and widely adopted by targeted resource user groups</i></b></p>	<ul style="list-style-type: none"> <li>√ At least 20% of households use improved stoves in Uvira City;</li> <li>√ At least 50% of households use improved stoves in Uvira rural zones;</li> <li>√ At least 10% household groups use charcoal ovens in Uvira City ;</li> <li>√ At least 50% of household groups use charcoal ovens in Uvira rural zones.</li> </ul>	<ul style="list-style-type: none"> <li>√ Household surveys</li> </ul>	<ul style="list-style-type: none"> <li>√ The cost of ovens might be prohibitive</li> <li>√ The positive effect from utilisation of ovens and stoves on wood consumption might be counter-acted by locally increasing demographic pressure.</li> </ul>
<p><b><i>Output 7: Awareness of communities raised about soil erosion, deforestation and agro-forestry management issues in relation to local livelihoods and the conservation of Lake Tanganyika</i></b></p>	<ul style="list-style-type: none"> <li>√ At least 30% of local community participated in popular workshops</li> <li>√ At least 30 % of primary and secondary school students participated in workshops</li> <li>√ At least 75 % of ILDs and NGOs and local administration workers participate in popular workshops</li> </ul>	<ul style="list-style-type: none"> <li>√ Workshop reports</li> </ul>	
<p><b><i>Output 8: Project lessons and developments disseminated and replicated in priority outlying areas</i></b></p>	<ul style="list-style-type: none"> <li>√ PIR, MTR, TPR Processes</li> </ul>	<ul style="list-style-type: none"> <li>√ Minutes, Reports, Field Visits</li> <li>√ PIR, MTE, and TE reports</li> </ul>	

<p><b><i>Output 9: Project efficiently and effectively managed, monitored and evaluated</i></b></p>	<ul style="list-style-type: none"> <li>√ Appropriate Project staff in place within the first four month of the project start-up</li> <li>√ Key information requirements and reporting formats developed for the project</li> <li>√ Appropriate number of project plans and reports available in a timely manner at different management levels</li> <li>√ Appropriate Project baseline and benchmark outputs developed for monitoring project results.</li> <li>√ PIR, MTR, TPR Processes</li> </ul>	<ul style="list-style-type: none"> <li>√ Project progress reports</li> <li>√ Project MIS records</li> <li>√ Copies of AWPB</li> <li>√ Baseline Survey Reports</li> <li>√ Project MIS records</li> <li>√ Project progress reports</li> <li>√ Project MIS records</li> <li>√ Mid- term Review Report</li> <li>√ Impact Assessment Report</li> </ul>	<p>Consortium/a selection is completed in a timely fashion.</p>
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## **BURUNDI COMPONENT**

### **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..

**THIS COMPONENT IS EXECUTED VIA UNOPS**

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## **Project Background / Context**

### **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 meters 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 meters, but only receives 5,000 cubic meters a day. The primary network has a capacity of 60,000 cubic meters 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 fulfillment of the development objective, the stakeholders of this project have selected five tangible, specific outputs:

**Table 1: Project outputs**

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

**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 trans-boundary project.

**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 installments 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.

### **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.

### **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.

### 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. 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

**Table 2: Project Cost Estimates**

Outcome: <i>‘Wastewater management in Bujumbura strengthened through infrastructure completion, standards implementation, and community awareness raising’</i>	
<b>1:</b> Tertiary wastewater collection network constructed and completed	827,000
<b>2:</b> The water treatment lagoon station commissioned and pre-treatment facilities operational (1,193,000 \$ Co-Finance)	Co-finance
<b>3:</b> Discharge standards established, approved and issued	600,000
<b>4:</b> Awareness of urban communities about the biodiversity and public health impacts of pollution raised and monitoring inputs developed	360,000
<b>5:</b> Implementation study is updated and the project component is efficiently managed.	182,000
<b>Total (USD)</b>	<b>1,969,000</b>

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 3: Co-financing - Government of Burundi and Bujumbura Council Contribution**

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

### **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 Logical Framework Matrix BURUNDI

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
<p><b>Development objective:</b></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"> <li>√ % increase in household income arising from non-fishing sources for households engaging in enterprises.</li> <li>√ % improvements in biodiversity (land and water) indices.</li> </ul>	<ul style="list-style-type: none"> <li>√ Post project evaluation reports</li> <li>√ Annual reports of line Ministries (Environment and Natural Resources, Water, Agriculture, Energy)</li> </ul>	<ul style="list-style-type: none"> <li>√ The policy environment supporting community involvement in NRM continues to be favourable</li> <li>√ Conflict in the Lake Tanganyika Basin does not interfere with the project's implementation</li> </ul>
<p><b>Outcome:</b></p> <p>The wastewater management system in Bujumbura finalised, thereby reducing point source pollution levels of Lake Tanganyika waters and so improving biodiversity habitats</p>	<ul style="list-style-type: none"> <li>√ 38% of domestic wastewater and the full industrial discharges in Bujumbura are treated before being discharged in the lake.</li> <li>√ The frequency of diarrhea diseases has reduced up to more than 50%.</li> <li>√ The pollutant charge is reduced up to 21,000 kg of BOD per day or the treatment output is 95%.</li> </ul>	<ul style="list-style-type: none"> <li>√ Management system report</li> <li>√ Statistics from hospitals and health centres.</li> <li>√ SETEMU analysis reports.</li> </ul>	<ul style="list-style-type: none"> <li>√ The government of Burundi fully supports the project and the on-going peace process goes forward.</li> <li>√ Demographic growth has been taken into account</li> </ul>

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
<p><b>Output 1: Tertiary wastewater collection network constructed and commissioned</b></p>	<ul style="list-style-type: none"> <li>√ 20 km of tertiary network are constructed</li> <li>√ 40% of the urban population are connected to the collecting network</li> </ul>	<ul style="list-style-type: none"> <li>√ SETEMU internal monitoring quarterly reports</li> <li>√ SETEMU survey</li> </ul>	<ul style="list-style-type: none"> <li>√ The 1994 feasibility study took into account the demographic growth.</li> </ul>
<p><i>Sub-outputs / Activities</i></p> <p><b>1.1 The tendering procedure for selecting the construction contractor established</b></p>	<ul style="list-style-type: none"> <li>√ Terms of reference are published in newspapers</li> </ul>	<ul style="list-style-type: none"> <li>√ Applications available</li> </ul>	<ul style="list-style-type: none"> <li>√</li> </ul>

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
<b>1.2 The construction contractor selected</b>	√ Selecting committee is created	√ Committee report is available	√
<b>1.3 The sewage infrastructure constructed</b>	√ After 2 years, 3,400 pipes and 1,000 manholes are installed.	√ Activity progress reports	√
<b>Output 2: The water treatment lagoon station commissioned and pre-treatment facilities operational</b>	√ <b>The operating station receives 40,000 m<sup>3</sup> of waste water a day</b> √ <b>100% of the most pollutant industries in Bujumbura pre-treat their wastewater before rejecting them in the treatment station</b>	<b>Activity progress reports</b>	√ <b>Electricity is permanently supplied in the town</b> √ <b>All industries use their pre-treatment systems and do not try to reduce their operating costs</b>
<b>2.1 All pumping stations, public toilets, and water and electricity separators connected</b>	√ At the end of the 1 <sup>st</sup> year, 4 pumping stations, 6 public toilets and 15 separators are connected.	√ Activity progress reports	√
<i>Sub-outputs / Activities</i> <b>2.2 Pre-treatment facilities at all major industrial facilities completed.</b>	√ 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
<b>2.3 The water treatment lagoon commissioned</b>	√ Monitoring plan developed and implemented after one year	√ Monitoring reports and analysis of discharge samples per industry	√

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
<b>Output 3: Discharge standards established, approved and issued</b>	√ <b>The decree on discharge standards is published</b>	√ <b>Available at INECN and stakeholders aware of standards</b>	√ <b>The government encourages the creation of by-laws on the national environmental code</b>
<i>Sub-outputs / Activities</i> <b>3.1 Discharge monitoring laboratory established, equipped and commissioned</b>	√ The 2 labs (SETEMU and INECN) are equipped and SETEMU&INECN have adequate vehicles, computers and AV materials	√ Reports on equipment and laboratory acquisition	√
<b>3.2 Laboratory staff and management trained</b>	√ After the 1 <sup>st</sup> year, 11 SETEMU staff and 4 INECN staff are trained	√ Training reports	√ The external training may be late
<b>3.3 Discharge standards developed with stakeholders, validated and implemented</b>	√ 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	√ 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
<b>Output 4: Awareness of urban communities about the biodiversity and public health impacts of pollution raised and monitoring inputs developed</b>	√ <b>INECN produces 18 bi-monthly reports on water quality monitoring</b> √ <b>50% of the communities are sensitised</b> √ <b>100% of industrialists are sensitized.</b>	√ <b>Reports available at INECN</b> √ <b>Workshop reports and surveys</b>	√ <b>Good collaboration exists between SETEMU and INECN.</b>

<i>Narrative Summary</i>	<i>Indicators</i>	<i>Means of verification</i>	<i>Assumptions</i>
<i>Sub-output / Activities</i> <b>4.1 Strategy for raising urban community awareness developed</b>	√ A plan is prepared by the end of the 1 <sup>st</sup> year	√ Plan available at INECN	√
<b>4.2 Strategy implemented</b>	√ Sensitisation and education materials produced √ Radio and TV programmes √ 18 workshops will be held after the 1 <sup>st</sup> year, i.e. one workshop for each of the 6 identified groups	√ Sensitisation materials available to INECN	√
<b>4.3 Water quality control programme developed</b>	√ Programme available at the end of the 1 <sup>st</sup> year	√ Programme document available to INECN	√
<b>4.4 Water quality control programme implemented</b>	√ Sampling and analysis are carried out every 2 months	√ Control reports	√
<b>Output 5: Project implementation study updated and project effectively managed, monitored and evaluated</b>	√ <b>MIS maintained</b> √ <b>Project implementation study updated</b>	√ <b>MIS records and reports</b> √ <b>Project reports</b>	√ <b>All partners meet their commitments to the project</b> √ <b>Timely disbursement of funds from the donor for project implementation activities</b>
<i>Sub-outputs / Activities:</i> <b>5.1 Project implementation study updated</b>	√ Terms of conditions published in papers √ Feasibility study available by the end of the 1 <sup>st</sup> year	√ Applications available √ Study available to SETEMU	
<b>5.2 Recruitment of Project staff</b>	√ Appropriate Project staff in place by Project year	√ Project progress reports	

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

## SIGNATURE PAGE

Participating Country: DRC, Tanzania, Zambia,  
Burundi

UNDAF Outcome(s)/Indicator(s):

*(Link to UNDAF outcome., If no UNDAF, leave blank)*

### Expected Outcome(s)/Indicator (s):

**Outcome 1:** Regional and national institutions have internalized the implementation of the SAP and FFMP and provide institutional support for the cooperative management of Lake Tanganyika under the ratified Convention.

**Outcome 2:** The quality of the water of Lake Tanganyika is improved at two identified pollution hotspots through wastewater treatment.

**Outcome 3:** Sediment discharge reduced from demonstration catchment management sites; providing significant livelihood benefits to local people, and seeking long-term adaptation measures to changing climatic regimes.

**Outcome 4:** Regional monitoring and management systems contribute to the long-term sustainable management of Lake Tanganyika.

### Expected Output(s)/Indicator(s):

**1:** The Lake Tanganyika Secretariat is established; **2:** Protocols to Lake Tanganyika Convention are adopted; **3:** The GEF Project components are implemented in a cost-efficient and effective manner; **4:** The Wastewater Treatment Plant Network in Bujumbura City is connected to major effluent sources (industrial and domestic) to reduce raw discharge to the lake. **5:** Management capacity for Kigoma Wastewater Treatment Plant is built within Kigoma Authorities (compliance, by-laws, monitoring). **6:** The Nordic Development Fund (NDF) will construct a Wastewater treatment plant in Kigoma Township through NDF funding. **7:** Demonstration sites for sustainable catchment management established in Uvira region (DRC); Kigoma region (Tanzania); ; and Mpulungu District (Zambia); ); **8:** (AfDB Co-Finance) This provides further funding for catchment management in all four countries, with a focus on woodlot planting in degraded areas. **9:** A regionally harmonized and integrated monitoring program for Lake Tanganyika's fisheries, water quality and catchment is established. **10:** National inter-sectoral management committees established in the four countries and responding to monitoring data at both national and regional levels with supporting decision support tools. **11:** Regional technical committees for fisheries, water quality and catchment are established and various indicators/targets are agreed in the four countries and annexed as protocols to the Lake Tanganyika Convention.

Implementing partner:

UNOPS

*(designated institution/Executing agency)*

Other Partners:

IUCN & ICRAF

Programme Period: 2008-2012  
Programme Component: \_\_\_\_\_  
Project Title: Partnership Interventions for the Implementation of the Strategic Action Programme (SAP) for Lake Tanganyika  
Project ID: PIMS 1941  
Atlas proposal ID: 00049718, Project No. 60857  
Project Duration: 4 years  
Management Arrangement: Agency Execution

Total budget:	40,060,000 US\$
Allocated resources:	40,060,000 US\$
• GEF	8,560,000 US\$
• Other:	
○ ADB	30,000,000 US\$
○ IUCN	1,000,000 US\$
• In kind contributions (Governments)	500,000 US\$

<b>On Behalf of</b>	<b>Signature</b>	<b>Date</b>	<b>Name/Title</b>
Government of Burundi			<b>Minister of Foreign Affairs</b>
Government of DRC			<b>Mr. Antipas MBUSA NYAMUISI Minister of Foreign affairs and International cooperation</b>
Government of Tanzania			<b>Permanent Secretary Ministry of Finance</b>
Government of Zambia			<b>Permanent Secretary Ministry of Finance and Planning</b>
UNOPS			<b>Mr. Vitaly Vanshelboim Deputy Executive Director</b>
UNDP			<b>Mr. Yannick Glemarec Executive Coordinator UNDP/GEF</b>