



Lake Tanganyika Biodiversity Project
Projet sur la Biodiversité du Lac Tanganyika

**POLLUTION CONTROL AND OTHER MEASURES TO PROTECT
BIODIVERSITY IN LAKE TANGANYIKA
PROJECT RAF/92/G32**

Terminal Evaluation

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ABBREVIATIONS AND ACRONYMS

CoP	Conference of Parties
CRH	Research Center in Hydrobiology
EE	Environmental Education
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GIF	Geographical Information System
ILMC	Interim Lake Management Committee
ILMS	Interim Lake Management Secretariat
ILMB	Interim Lake Management Body
LTA	Lake Tanganyika Authority
LTBP	Lake Tanganyika Biodiversity Project
LTR	Lake Tanganyika Research Project
MAE	Ministry of Agriculture
MCD	Ministry of Community Development
NGO	Non Governmental Organization
NRI	Natural Resources Institute
NSC	National Steering Committee
NWG	National Working Group
PCU	Project Coordination Unit
RSC	Regional Steering Committee
SAP	Strategic Action Program
SLTA	Secretariat of the Lake Tanganyika Authority
TAC	Technical Advisory Committee
TC	Technical Committee
TDA	Transboundary Diagnostic Analysis
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNOPS	United Nations Office for Project Services

POLLUTION CONTROL AND OTHER MEASURES TO PROTECT BIODIVERSITY IN LAKE TANGANYIKA PROJECT (RAF/92/G32)

Terminal Evaluation

SUMMARY

The project 'Pollution Control and Other Measures to Protect Biodiversity in Lake Tanganyika' (RAF/92/G32) became active in September 1995 and is scheduled to terminate in July 31, 2000. The UNDP/GEF project budget was \$ 10,000,000. UNOPS was the Executing Agency, and the NRI Consortium was responsible for its implementation.

The project's development objective was to demonstrate an effective regional approach to control pollution and prevent the loss of the exceptional diversity of Lake Tanganyika's international waters. For this purpose, the project should create a capacity in the four participating countries, namely Burundi, Democratic Republic of Congo, Tanzania and Zambia to manage the lake on a regional basis as a sound and sustainable environment.

The development goal was composed of six immediate objectives:

1. Establish a regional long-term management program for pollution control, conservation and maintenance of biodiversity of Lake Tanganyika
2. Formulation of regional framework for cooperative management of the lake environment
3. Establish a program of environmental education and training for Lake Tanganyika and its basin
4. Establish tested mechanisms for regional coordination in conservation management of Lake Tanganyika basin
5. In order to produce a full Strategic Action Program for long-term application, some specific studies need to be undertaken. The special studies will also add to the understanding of the lake as a whole, and in some cases, provide the baseline and framework for long-term research and monitoring programmes
6. Implementation and sustainability of the Strategic Actions Program

The project's implementation was delayed by shortage of qualified national staff, slow process of national institutions identification and by relatively low priority attached to the Lake's environment problems. The project perception by the government improved considerably after an Inception Workshop in March 1996. The quality of workshop and sense of working program ownership developed by the member countries created a momentum that helped in launching and then executing most of the project's program.

Execution of the whole program was disturbed by civil unrest in Burundi and RD Congo and, in consequence, by limited access to the lakeshore areas. In particular, the project could prepare but not put into practice the regional cooperation and large-scale environmental education campaign.

The fact that despite remarkable obstacles the project succeeded so well, is an outstanding achievement. The project completed the special studies. It also prepared the Transboundary Diagnostic Analysis, the Strategic Action Program and the draft Convention on the sustainable management of the Lake, all nationally driven and good quality documents.

UNOPS who executed the project was strongly supportive, successfully helping to overcome the project's implementation and administrative difficulties. The UNDP/GEF helped the project in solving technical and organizational issues. The NRI provided experienced and dedicated staff and competent consultants. The Project achieved its objectives applying a participatory approach and building national consensus. The UNDP Offices of Burundi, Tanzania and Zambia assisted the project, followed attentively its progress and contributed to the Regional Steering Committee and Tripartite Review decisions. The supervision of the Steering Committee and Tripartite Review played an important role in approving the work programs and evaluating the results. The National Working Groups were also active as well, however the National Steering Committees, formed towards the end of the project, were less active and only met in two of the countries.

In spite of the prevailing insecurity conditions and conflicts between the riparian states, representatives of all four countries worked well together in a spirit of collaboration and harmonization to achieve project objectives. Technicians from all four countries participated in workshops; technicians, resource managers and policy makers also worked together in regional TDA, SAP and Convention meetings.

What characterized the governments' involvement in the project activities was a steady increase in sharing the project's goals, and contributing to realization of the project's objectives.

The Project Management and Project Implementation Group successfully responded to the changing environment.

As a result of review of the project's activities, the evaluation mission recommends:

Concerning the Immediate Objective I:

1. The Project Coordination Unit should prepare a synthetic document describing the current state of knowledge about Lake Tanganyika, indicating the remaining important studies to conduct, both to better understand the Lake's uniqueness and ways to protect it. Such a document will be of great value for future Lake Tanganyika management projects and for other countries of the region currently engaged in similar water protection activities. It will raise as well the Lake's visibility in the opinion of the public and decision makers of the riparian countries.

Since the present project could not fully involve the local people in the project activities

2. It is recommended to the governments that future research or applied research efforts aiming at the conservation of the Lake's biodiversity involve local community stakeholders as well, and their results contribute to solving specific practical problems.

3. Given the limited resources, it is further recommended that future Lake conservation projects sponsored by GEF compare the expected benefits from the financed activities with the activities' costs.

Since the countries' citizens' perception of the environment protection projects is so important for their success

4. It is recommended that the UNDP/GEF projects continue to incorporate into their work programs activities that will help them monitor changes in perception among the key stakeholders as a result of the project activities.

Due to the delays and work plan execution difficulties, the Strategic Action Program was drafted and finalized before the completion of the scientific studies final reports. As a consequence, the technical (or scientific) justification of many of the envisaged actions is not as specific as it could be.

5. It is recommended that further editions of the Strategic Action Programme and the Transboundary Diagnostic Analysis use fully the results of the special studies. It is also recommended that the final documents describing the results of the studies clearly indicate the link between the achieved results and national actions aimed at Lake protection.

6. It is recommended that the governments of the riparian countries maintain the SAP groups (or equivalent bodies) and charge them to promote the SAP implementation, and guide the country administration and private sectors investing in the SAP priorities.

Concerning the Immediate Objective II:

As for the SAP, the Convention draft produced by the riparian countries delegates after extensive national consultations is also a great project achievement. To assure its implementation it is recommended that

7. Future Project Management jointly with the National Governments should ensure the undertaking of wider national consultations for facilitating the Convention signature and ratification process.

The Convention will be binding for the riparian states. However, the Lake may be endangered by activities or events that occur in other countries situated in the lake proximity.

8. It is recommended that the Convention addresses as well the threats to the Lake originating in non-riparian countries.

Concerning the Immediate Objective III:

Environmental education campaign necessary to the Lake's protection measures implementation require technical capacity and financial means larger than those given to the project. By training the trainers and massively involving the national personnel in the studies and surveys, the project team, nevertheless, took the first step in environmental education.

9. It is recommended that the national institutions continue monitoring impact of the project's launched environmental education programme.

10. The government and donors should incorporate recommendations and lessons learned from the project's environmental education programme into other development activities in the Lake Tanganyika region.

11. Future poverty alleviation projects for the people living in the Lake's surroundings should take into account the results of the special studies. Regional coordination of such future projects would be most beneficial both for the population and for the Lake.

Concerning the Immediate Objective IV:

Since the national involvement is crucial to the success of regional initiatives it is recommended

12. That the Future Project Management and members of the ILMB facilitate the creation of national structures in each country charged with implementing the ILMB's decisions on the national level. These structures can act as a counterpart to the regional initiatives launched by the ILMB, promoting and transmitting national activities and concerns to the ILMB.

According to the proposal included in the SAP, the project should be immediately succeeded by an interim structure called the Interim Lake Tanganyika Management Body. This structure should assure regional cooperation until the signature of the Convention and implementation of the Lake Authority. The Interim Body will facilitate the signing of the Convention and assist the countries in implementing the Strategic Action Program priorities. The whole regional structure will be financed by donors. The work of the interim secretariat will be supervised by the Interim Lake Tanganyika Management Committee, but it is not clear who will be national partners.

Concerning the Immediate Objective V:

The project has established that the preservation of the Lake biodiversity status is dependent on sedimentation reduction and improvement of land management in the Lake's surrounded areas. This improvement requires national commitment and massive investment in education, training and input availability. The project should largely disseminate the study results to catalyze such a commitment.

13. It is recommended that the Future Project Management, and after the project termination, the national institutions and concerned technical ministries assure the highest visibility of the results of the sedimentation reduction and land management studies and raise awareness of the countries' citizens and the authorities about the importance of these problems both for the Lake and for the well being of the rural populations.

Another threat to the Lake's biodiversity comes from the Lake pollution. The project studied the problem and identified the major pollution sources. However, the studies are not yet completed. The unfinished work concerns integration of the current knowledge about the Lake pollutants into the existing model of particle transportation in the Lake, and formulation of detailed pollution survey systems.

14. It is recommended that the Future Project Management identify the steps needed to implement an integrated pollution monitoring system. This system should integrate pollution monitoring with biodiversity and sedimentation monitoring, as well link with law enforcement and awareness-raising national agencies.

The biodiversity special studies described the present state of the Lake's biodiversity, advanced practical proposals concerning the management of protected areas and created national capacity in biodiversity monitoring. The implementation of the biodiversity study findings is left to the national institutions and regional bodies charged with Lake Tanganyika biodiversity conservation.

15. It is recommended that the Future Project Management and National Coordinators identify the governmental structures that will be in charge of Lake biodiversity monitoring and creation of protected areas for biodiversity and fish reproduction.

The special study on fisheries produced some general information about fish exploitation in the Lake and fishing in the littoral zone, important for the biodiversity. It may be expected that the final document will include more specific management information.

16. It is recommended that all available data concerning fishing in the lake are analyzed from the standpoint of requirement of specific priority programs identified in the SAP. The Project Implementation Group may recommend that national agencies assure complementary or follow-up studies.

The socio-economic studies have shown once again that excessive fishing and inappropriate land exploitation are at the origin of threats to the Lake's biodiversity.

17. It is recommended that social studies aiming at reducing impact of human activity on the Lake's biodiversity are attached to any project dealing with sustainable management of the Lake and its catchment. The Project Implementation Group should continue to work with the most

appropriate institutions within the region to collect and analyze information from all social and socio-economic studies.

Concerning the Immediate Objective VI:

It seems that there is one predominant, general conclusion stemming from the project's studies: the Lake's biodiversity is threatened by inappropriate human exploitation of the Lake itself and the land in the lake watershed.

18. It is therefore recommended that the future projects and national institutions assure the follow-up of the activities launched by the project, closely collaborating with local administrations and existing poverty-alleviation programs

The project member countries should be fully informed about the actual state of knowledge about the Lake and be assured that they may easily access this information.

19. It is recommended that the Project Coordination Unit and the National Coordinators assure the transfer of all information sources and databases to the countries.

Identification of areas needing further studies is one of the tasks of the special studies.

20. The project and its national partners should prepare an inventory of research areas and prioritize them according to their importance to management of the Lake, implementation of the SAP, and understanding of the Lake's biodiversity.

It is expected that in the final report the project will suggest creation of underwater parks and indicate their location.

21. It is recommended that the national authorities include suggestions for the creation of aquatic protected areas in the future version of the SAP.

Other Impacts

The awareness of Lake Tanganyika's unique biodiversity has not yet reached a satisfactory level. (Although it is higher, among populations having direct contact

with the lake and among the citizens of countries such as Tanzania and Zambia that benefited from extensive awareness-raising campaigns.) The project did not evaluate the level of awareness.

22. It is recommended that the national authorities evaluate the level of awareness of the concerned stakeholders. Such an evaluation will indicate potential target groups, and the effort needed for awareness-raising. This will also help the authorities choose the most appropriate tools for raising awareness.

The lives and economy of millions of people are intimately linked to the Lake. Most of them live in extreme poverty and are ignorant of the medium-term consequences of unsustainable land exploitation. Raising awareness of these citizens is an important humanitarian responsibility of the project's follow-up institutions.

23. It is recommended that the current and future Project Managements and the National Coordinators assure large visibility of the project's results that may have an impact both on the countries' citizens' welfare and the Lake environment.

General Recommendation

The project indicated ways to achieve self-sustainable management and preservation of the Lake biodiversity. Probably, the most valuable contribution to the Lake Tanganyika biodiversity protection will be investment in a new generation of environmental projects that will put into practice the present project results within the framework of the Strategic Action Program and the Convention.

- **24. It is therefore recommended to the Regional Steering Committee and governments of the riparian countries to identify donors susceptible to support the next phase of the Lake Tanganyika biodiversity protection projects. During this phase, that may correspond to the interim period between the present project termination and the Convention implementation, the projects may concentrate on such activities as:**
 - **Promotion of the SAP integration in national development programs, and the Convention signature and ratification facilitation**
 - **Assistance in formulating specific Lake protection projects in accordance with the SAP**
 - **Test the importance of benefits generated by Lake protection activities**

- **Promote the Lake protection approach among donors for the riparian countries**
- **Disseminate the present project results among all stakeholders**

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INTRODUCTION

Project evaluation is an activity in the project cycle which attempts to determine as systematically and objectively as possible the relevance, efficiency, effectiveness, impact and sustainability of the project against its objectives (Annex I). In principle, every significant UNDP-sponsored project is subject to evaluation. The evaluation of the important UNDP/GEF project 'Pollution Control and Other Measures to Protect Biodiversity in Lake Tanganyika' (RAF/92/G/32) took place between April 28 and May 26, 1999 (Annex II). Two consultants contributed to the evaluation. They were:

- Team leader, Stanislaw Manikowski
- Environmental Law Consultant, Lothar Gündling

During the evaluation process, the mission met with several stakeholders (Annex III). It encountered the UNOPS and GEF officers who provided technical backstopping and administrative support for the project, the Regional Steering Committee delegates, the beneficiary country representatives, and the project team. The mission visited Dar es Salaam project implementation headquarters, and office in Bujumbura. Debriefing of the mission took place in UN offices in New York.

The evaluation referred to the procedures described in the Terms of Reference provided by the UNOPS (Annex I), and the guidelines for project evaluation by the UNDP Central Evaluation Office. The present report describes findings, conclusions, and recommendations of the mission. The report is organized so as to reflect concerns in regard to the Terms of Reference.

1 PROJECT IMPLEMENTATION

This section assesses the project's general implementation; the management arrangements for institutional set-up; inputs of the governments and UNDP; responsiveness of management to changes in the project's environment; UNOPS execution modality; and cooperation among project partners.

1.1 GENERAL IMPLEMENTATION

The project document was signed February 14, 1995, and the project was scheduled to start on August 1, 1995. It initiated its activities in September 1995 with the preparation of baseline reviews, consolidation of its logistical support in the region, and organization of regional cooperation. The identification of national key institutions that might be involved in the project's program execution and selection of the appropriate staff took more time than initially expected, resulting in delays in implementation of project activities.

The interviews with the project team and consultation of documents indicate several reasons for these delays. The national institutions of the recipient countries were poorly informed about the project's objectives and importance for Lake Tanganyika. Even the pressing necessity of the Lake's protection was not clearly visualized as a regional priority. The project was not included in the national development programs.

Another source of delays was a shortage of qualified technical staff and scientific personnel in the Lake shore stations and in institutions that might help the project realize its activities: the existing personnel were frequently assigned to other urgent tasks, and governmental funding shortage limited new staff recruitment possibilities.

The civil unrest in Burundi and DR Congo disturbed project implementation in these countries and considerably delayed execution of planned field activities. The project headquarters had to be based in Dar-es-Salaam rather than Bujumbura as originally planned, organization of workshops and regional meetings were more complex, and visits to the Lake were restricted.

The project perception by the governments and execution conditions improved considerably after the Inception Workshop held in Dar es Salaam in March 1966. The quality of the workshop presentations, the strength of arguments and sense of ownership of the proposed working program, created a momentum that helped start wide preparations to launching the whole research and capacity building

program. The project started to train national staff, equip laboratories and launch the activities. In the secure regions, the special study programs were in progress in 1997. At the same time, the national working groups started to draft contributions to the Transboundary Diagnostic Analysis (TDA) and the Strategic Action Program (SAP), and mobilize national legislators to design the Convention.

Now, two months before termination, the project realized most of assigned activities and is in the process of delivering the attained outputs. Among 80 activities only 11 were not executed, mostly because it became evident for the Project Management¹ that the project funding may be better allocated elsewhere. Unfortunately, the delay in project implementation and the insecurity still prevalent in two of four countries rendered the project unable to put in practice the programmed regional cooperation and launch a large environmental education campaign.

The fact that despite remarkable obstacles the project succeeded so well, is an outstanding achievement.

Legal aspect evaluation

The Draft Convention is a comprehensive and consistent document. It reflects the standards of international treaty-making in transboundary water management.

Improvements may still be possible, e.g. with regard to:

- Integration of the basin approach in a way which is acceptable to the four riparian countries
- Reference in the draft to status and delimitation problems
- Reference to other regional agreements and mechanisms
- Formal structure of the Draft

However, it is an acceptable strategy that these activities and modifications be left to the formal negotiation phase. During the negotiations, these improvements which must also be supported by a consensus of the riparian states, can be achieved.

The overall conclusion is that the Draft Convention is a good quality document.

¹ **Project Management** is used to refer to the high level management and supervision provided by GEF, UNDP and UNOPS and the Regional Steering Committee. Future Project Management refers to a similar level of management that will be required in any proposed future phases.

The **Project Implementation Group** is used to differentiate this high level management responsibility with the regular management activities of the project undertaken by the Project Coordination, the National Coordinators, the National Working Groups, and the NRI consortium.

1.2 MANAGEMENT, MONITORING AND BACKSTOPPING

The financial management of the project was localized in the NRI Consortium. According to the Project Management, this arrangement freed up the Project Coordination Unit from the everyday administrative work and allowed staff to focus on technical issues. The project program monitoring was assured by UNOPS. The UNOPS was strongly supportive of the project, helping to overcome activities implementation difficulties, and clarify national involvement. It kept the project informed about progress in administrative arrangements. The UNDP/GEF office in New York took care of technical backstopping. The presence of the GEF delegates at various project meetings was always helpful in solving technical and organizational issues. However, the Project Implementation Group expected more information from GEF about other lakes protection projects and about the formulation of TDA, SAP and the Convention.

The project was reviewed twice by the Tripartite Review. Each review introduced new and constructive elements into the project's program execution. The Project Management expected, however, that the Review will assure closer follow-up of its recommendations.

Globally, the management, monitoring and backstopping were judged by the Project Implementation Group as helpful, supportive and important in implementation of project activities.

Legal aspect evaluation (Details in Annex VI)

Basically two management options were available:

- Drafting by drafting group of representatives of the four countries, facilitated by international legal expert(s)
- Drafting of the text by international legal expert(s) with involvement of national experts (technical and legal)

The national delegations of the first regional workshop voted for the latter approach. Involvement of national governmental experts was ensured through sub-regional and regional workshops and in other ways (commenting on drafts by local lawyers). Lawyers involved came from Ministries of Environment, Foreign Offices and / or Ministries of Justice of the four project countries.

The approach chosen was appropriate; it was also a participatory procedure. The objective, the consensus at national levels, therefore, has been achieved.

1.3 STEERING COMMITTEES AND WORKING GROUPS - INSTITUTIONAL SET-UP

The project benefited from supervision by a Regional Steering Committee and advice from National Steering Committees. The Regional Steering Committee met six times and each meeting played an important role in evaluation of the project results, proposals, and validation of the work programs. The first Tripartite Review held in January 1998 recommended the creation in each country of a National Steering Committee. These National Committees would promote national participation in the project. Unfortunately, the Committees were not very active and only two of them organized a meeting. The National Working Groups were more active but there was a lack of continuity in the working programs of these national bodies.

The Regional Steering Committee played an important role in project execution. Unfortunately, the National Steering Committees were less effective in directing project implementation.

1.4 INPUTS OF THE GOVERNMENTS

At the beginning of project implementation, the governments manifested little interest in the project. However, governments' involvement increased when the project launched national discussions about the SAP and Convention. The representatives of the technical ministries involved in Lake Tanganyika activities informed the mission that the governments are awaiting the final version of the SAP and Convention to start working on their incorporation into the national programs and legislation. On the technical level, governments supported the project through sending administrative staff to participate in project meetings, technical personnel to implement the project work plan, and providing laboratory facilities and offices.

In spite of the prevailing insecurity conditions and conflicts between the riparian states, representatives of all four countries worked well together in a spirit of collaboration and harmonization to achieve project objectives. Technicians from all four countries participated in workshops; technicians, resource managers and policy makers also worked together in regional TDA, SAP and Convention meetings.

What characterized the governments' involvement in the project activities was a steady increase in sharing the project's goals, and contributing to realization of the project's objectives.

1.5 INPUT OF UNDP COUNTRY OFFICES TO THE PROJECT

The representatives of the UNDP Offices in Bujumbura, Dar es Salaam and in Lusaka attended the Regional Steering Committees and the Tripartite Reviews. The UNDP Offices supported and assisted the project in equipment importation, followed the progress of the project, and advised the project staff. The project personnel being employed by private organizations were not automatically eligible for full UN identify documents resulting in some hindrance of project execution and reduced security of staff.

1.6 RESPONSIVENESS OF THE PROJECT IMPLEMENTATION GROUP TO CHANGES IN THE ENVIRONMENT

The project has been working in very difficult conditions, requiring great flexibility and imagination for successful management of the work programs. Instability in the region and lack of access to almost half of the terrain that should be covered by the project investigations, required from the Project Implementation Group many ad hoc arrangements and a lot of endurance in pursuit of the assigned objectives. In spite of extremely adverse conditions, the project continued the activities and delivered most of its objectives.

In the beginning the governments of the riparian countries were not fully aware of the project's objectives and working program. Project Management and Project Implementation Group were obliged to add to their agenda actions that aimed at building awareness among the host governments about the Lake's environmental problems and the role of the project. The Project Management and Project Implementation Group succeeded in this endeavor, since at the end, the four riparian countries joined the project in designing new and unprecedented regional working programs and common legislative instruments directed to the protection of the Lake.

The Project Management and Project Implementation Group successfully responded to the changing environment.

2 PROJECT IMPACT

The project impact will be discussed in two separate sections: project achievement's impact and other impacts.

2.1 PROJECT ACHIEVEMENTS

The project achievements will be discussed in the same order as the project immediate objectives.

2.1.1 Objective 1: Establish a regional long-term management program for pollution control, conservation and maintenance of biodiversity of Lake Tanganyika

At the beginning of 1996, the project produced a thorough review of existing data relevant to Lake Tanganyika. This review was an outstanding output that shaped the future understanding of threats to the Lake Tanganyika biodiversity. The subsequent project's work programs, formulated during the Inception Workshop and approved by the Regional Steering Committee, were strongly shaped by this review. The baseline studies confirmed the diagnosis of threats formulated by the Project Document: that the Lake suffers mostly from inappropriate agricultural practices and excessive fishing. Having a clear diagnostic of the Lake situation, the project was able to propose a list of specific activities leading to pollution reduction and biodiversity maintenance. Since many of the activities extended the Lake knowledge and designed practical measures of Lake threat reduction, it is recommended to the Project Coordination Unit (PCU):

1. Prepare a synthetic document describing the current state of knowledge about Lake Tanganyika, indicating the remaining important studies to conduct, both to better understand the Lake's uniqueness and ways to protect it. Such a document will be of great value for future Lake Tanganyika management projects and for other countries of the region currently engaged in similar water protection activities. It will raise as well the Lake's visibility in the opinion of the public and decision makers of the riparian countries.

The Baseline Studies catalyzed interests in the project among the national scientific communities and decision-makers. They were reviewed during national informal meetings and extensively discussed during an Inception Workshop. The Workshop finalized the project work plan and created a sense of ownership of this plan by the country's delegates. The finalized work plan concentrated the project's effort on understanding of the Lake biology, the threats, and the link of the Lake with human activities. The Inception Report stressed the importance of involving local people at the start in project activities. This involvement remained at relatively low levels while attention was devoted to more academic subjects such as biodiversity monitoring, sedimentation study in the lake or particle movement in the Lake's water.

2. It is recommended to the governments that future research or applied research activities aiming at the conservation of the Lake's biodiversity involve local community stakeholders as well, and their results contribute to solving specific practical problems.

3. Given the limited resources, it is further recommended that future Lake conservation projects sponsored by GEF compare the expected benefits from the financed activities with the activities' costs.

The created ownership of the project program was an important step in building project visibility in the eyes of the riparian countries' public opinion, scientific communities and decision makers. This visibility building was an important result of the project's activities, since at the end it mobilized the ministries to collaborate in regional priorities identification and drafting of regionally binding laws.

Since the countries' citizens' perception of the environment protection projects is so important for their success

4. It is recommended that the UNDP/GEF projects continue to incorporate into their work programs activities that will help them monitor changes in perception among the key stakeholders as a result of the project activities.

In general, the project was very successful in executing the activities that were independent (or almost independent) of the local security conditions. The process of drafting the Strategic Action Program was an example of this efficiency. The preliminary draft of the plan was produced as early as 1996. It was subsequently improved and replaced by one that was extensively discussed in national workshops. In fact, the project provided the national groups (purposely created to discuss the plan) with GEF guidelines and assistance assuring regional coherence of this document. The Lake threats diagnosis, and the protection plan were produced by national technicians and decision makers. Creation of conditions allowing national ownership of the Strategic Action Program is one of the project's greatest achievements. The Program, however, was drafted and finalized well before the final write-up of the specific studies. As a consequence, the technical (or scientific) justification of many of the envisaged actions is not as specific as it could be.

5. It is recommended that further editions of the Strategic Action Programme and the Transboundary Diagnostic Analysis use fully the results of the special studies. It is also recommended that the final documents describing the results of the studies clearly indicate the link between the achieved results and national actions aimed at Lake protection.

Both the TDA, SAP and the Diagnosis are at the stage where they indicate the actions and rank them in priority order. Such a regionally agreed upon inventory of Lake protection priorities is a great and lasting achievement of the project. It is also an example for other regions facing a similar need to produce a common international coherent environment protection program. There is, however, a need for the next steps that will assure implementation of the program:

endorsement of the priorities by the governments, incorporation of the Plan into the national development and investment programs, preparation of specific implementation proposals and investment projects². These actions should be assured after the project termination (According to the initial project's work plan, beginning implementation of these investments should take place before the project termination; however, the implementation delays and difficult humanitarian situation of the region delayed the project's program implementation.)

6. It is recommended that the governments of the riparian countries maintain the SAP groups (or equivalent bodies) and charge them to promote the SAP implementation, and guide the country administration and private sectors investing in the SAP priorities.

2.1.2 Objective 2: Formulation of regional framework for cooperative management of the lake environment

The project produced a draft of the Convention on the sustainable management of the Lake which represents a joint effort of senior lawyers, policy makers and key technicians from the riparian countries. As the SAP, the Convention is a participatory effort of the Lake Tanganyika riparian countries. Once signed, the Convention will become a framework for other national legislation concerning Lake Tanganyika environment protection. The country delegates expect that it will lead to other national legislation adjustments. The Convention provisions about environmental impact assessment, public awareness building and public participation in the decision making process, are new in these countries and will probably impact other domains of public life.

The Convention draft produced by the riparian countries delegates after extensive national consultations is another great project achievement.

7. Future Project Management jointly with the National Governments should ensure the undertaking of wider national consultations for facilitating the Convention signature and ratification process.

The Convention will be binding for the riparian states. However, the Lake may be endangered by activities or events that occur in other countries situated in the lake proximity.

² It is worth noting that the four countries have signed a PDF Block C Grant Request to support an interim detailed planning and budget negotiation phase, necessary to lead into a full SAP implementation phase.

8. It is recommended that the Convention addresses as well the threats to the Lake originating in non-riparian countries.

Legal component evaluation

The objective to formulate a regional legal framework has been achieved. A Draft Convention has been submitted as a working document for formal political negotiations, signature, ratification and implementation by the four riparian countries. It is important to note that the Draft Convention reflects international standard of law-making and, at the same time, is based on a consensus among the four countries.

2.1.3 Objective 3: Establish a program of environmental education and training for Lake Tanganyika and its basin

Since the most imminent threat to Lake biodiversity comes from pollution and inappropriate land exploitation by farmers and herders, and excessive fishing, environmental awareness raising and education programs are at the core of the project activities. The programs launched by the project concerned the first steps in environmental education: training of trainers, workshop organization, preparation of environment education work programs and some limited environment education activities. The project contributed largely to national capacity building in Lake protection studies and Lake surveys. About 340 national scientists, managers and technicians from 49 institutions participated in the activities contributing to the project outputs. Unfortunately, the project was much less involved in the training and awareness raising of the Lake's direct beneficiaries. This was mostly due to insecurity prevailing in more than half of the Lake shore territories. In addition, the project was not equipped to launch a massive awareness campaign addressed to about 10 million people. Moreover, the sociological studies launched by the project demonstrated that awareness itself is not sufficient. The population living around the Lake are poorer than the countries' averages, and the current unsustainable practices are the only way for them to survive.

In consequence, providing that security permits, a large efficient environmental education campaign accompanied by appropriate interventions, requires technical capacity and financial means largely superior to those given to the project. Training the trainers and massively involving the national personnel in the studies and surveys, the project team, nevertheless, initiated environmental education.

9. It is recommended that the national institutions continue monitoring impact of the project's launched environmental education programme.

10. The government and donors should incorporate recommendations and lessons learned from the project's environmental education programme into other development activities in the Lake Tanganyika region.

11. Future poverty alleviation projects for the people living in the Lake's surroundings should take into account the results of the special studies. Regional coordination of such future projects would be most beneficial both for the population and for the Lake.

2.1.4 Objective 4: Establish tested mechanisms for regional coordination in conservation management of Lake Tanganyika

The project proposed a regional structure that will implement the Convention and an interim structure that should assure transition between the termination of the present regional protect and the Convention implementation.

According to the proposed structures, the convention will be implemented through decisions of the Conference of the Parties. The specific decisions and recommendations of the Conference of the Parties will be transmitted for planning and organizing to a Lake Tanganyika Management Committee. The execution of the Committee designed program will be in the hands of its Secretariat and Technical Committees. This structure (Management Committee, Secretariat, and Technical Commission), called the Lake Tanganyika Authority (LTA), will be financed by member countries and by donors. The Convention document is not specific about national arrangements that should assist execution of the Convention recommendations, and be counterparts to the LTA.

Moreover, according to the proposal included in the SAP, the project should be immediately succeeded by an interim structure called the Interim Lake Tanganyika Management Body (LTMB). This structure should assure regional cooperation until the signature of the Convention and implementation of the LTA. The Interim Body will facilitate the Convention signature and assist the countries in implementation of the Strategic Action Program priorities. The regional structure will be financed by donors. While there is an Interim Lake Tanganyika Management Committee, that supervises the work of the Secretariat, it is not clear who will be the national partner of the Body.

Since the experience of the past five years of project activities shows that large national involvement is crucial to the success of regional initiatives it is recommended:

12. That the Future Project Management and members of the ILMB facilitate the creation of national structures in each country charged with implementing the ILMB's decisions on the national level. These structures can act as a counterpart to the regional initiatives launched by the ILMB, promoting and transmitting national activities and concerns to the ILMB.

2.1.5 Objective 5: Specific studies

Sediment

The project has launched a series of surveys and studies about sediment deposition in the Lake and sediments' impact on biodiversity. The studies confirmed the previous findings about negative impact of sediment deposition in some Lake areas on the biodiversity. The studies provided valuable information about the existing link between plants, animals, and sediment pollution. The most important result is the confirmation that sediment input to the Lake is a primary threat to lake biodiversity since the sedimentation is responsible for the slow disappearance of the original biota. The studies about the sediment impact have important consequences for Lake biodiversity protection programs. It must be mentioned that the excessive sedimentation is an indicator of highly unsustainable agricultural practices combined with rapidly increasing population of the region. It is now well documented that preservation of the biodiversity status should go through improvement of land management in the areas that surround the Lake inhabited by 10 million people, mostly farmers. This improvement requires national commitment and massive investment in education, training and input availability. The project should largely disseminate the study results to catalyze such a commitment.

13. It is recommended that the Future Project Management, and after the project termination, the national institutions and concerned technical ministries assure the highest visibility of the results of the sedimentation reduction and land management studies, and raise awareness of the countries' citizens and the authorities about the importance of these problems both for the Lake and for the well being of the rural populations.

Pollution

Another danger to the Lake's biodiversity comes from pollution. The project studied the problem and identified the major pollution sources. In the future, pollution control will require thorough monitoring, formulation of regional pollution control strategies and introduction of incentives motivating polluters to reduce discharges to the Lake. The project-trained personnel and equipped laboratories may continue to monitor the pollution. The yet unfinished work concerns

integration of the current knowledge about the Lake pollutants into the model of particle transportation in the Lake, and formulation of detailed pollution survey systems.

14. It is recommended that the Future Project Management identify the steps needed to implement an integrated pollution monitoring system. This system should integrate pollution monitoring with biodiversity and sedimentation monitoring, as well link with law enforcement and awareness-raising national agencies.

Biodiversity

A biodiversity special study created national capacity in biodiversity monitoring, and produced a thorough description of the present state of the Lake's biodiversity. It advanced as well practical proposals concerning management and creation of protected areas. The existing results provide a rational basis for delimiting areas that should be protected for biodiversity conservation and for commercial fish reproduction. The implementation of the biodiversity study findings is left to the national institutions and regional bodies charged with Lake Tanganyika biodiversity conservation.

15. It is recommended that the Future Project Management and National Coordinators identify the governmental structures that will be in charge of Lake biodiversity monitoring and creation of protected areas for biodiversity and fish reproduction.

Fisheries Practices

The special study on fisheries available in May produced some general information about fish exploitation in the Lake and fishing in the littoral zone of key importance for biodiversity. It may be expected that the final document (in preparation) will also include more specific and important managerial information as commercial fish stock availability; fish reproductive capacity; fishing population projections; and fish population dynamics. The results should include the pertinent information from the LTR/FAO project. Intensive fishing and fish catch in littoral zones are, after excessive sedimentation, the most important threat to the Lake's biodiversity. If the current studies cannot yet provide the SAP with all the needed information, it will be necessary to continue the study.

16. It is recommended that all available data concerning fishing in the lake are analyzed from the standpoint of requirement of specific priority programs identified in the SAP. The Project Implementation Group may recommend that national agencies assure complementary or follow-up studies.

Socio-Economics

The socio-economic studies have shown once again that excessive fishing and inappropriate land exploitation are at the origin of threats to the Lake's biodiversity. The human behavior that is at the origin of these threats cannot be modified without changing the production practices, and the social and economic life of the people in the region. These modifications may be difficult to achieve since they are accompanied by widespread insecurity, large numbers of refugees, high population growth and poverty. The project indicates the general strategy of handling the problem from the social point-of-view.

17. It is recommended that social studies aiming at reducing impact of human activity on the Lake's biodiversity are attached to any project dealing with sustainable management of the Lake and its catchment. The Project Implementation Group should continue to work with the most appropriate institutions within the region to collect and analyze information from all social and socio-economic studies.

Information Management

The project developed and delivered two modern data analysis and information distribution tools a Geographical Information Systems (GIS) and project Website.

The GIS includes a metadatabase that lists datasets generated by the project as well as other sources. These datasets may be integrated and mapped to study patterns and processes as Lake's biodiversity changes, pollutant's distribution or sedimentation patterns. The GIS is a new and valuable tool for scientists, resource managers and environmental planners.

The project Website (www.ltbp.org) serves as an international library, archive and information exchange forum concerning the Lake biodiversity. It contains the project documents database with electronic copies of all project reports, as well as general extension information about the Lake, prepared by the project. The Website will continue to be maintained and developed by the next phase of the Lake Tanganyika Project and by the ILMB.

2.1.6 Objective 6: Implementation and sustainability of the Strategic Actions Program

The research programs designed for the life of the present project, aimed at raising the general level of understanding about the Lake's biodiversity and its

threats. The produced documents increased knowledge about the Lake and raised numerous questions requiring future investigation. It seems that there is one predominant, general conclusion stemming from these studies: the Lake's biodiversity is threatened principally by inappropriate human exploitation of the Lake itself and the land in the lake watershed, and this inappropriate exploitation threatens the economic basis of human welfare as well. Consequently, actions aimed at sustainability of the fishing and land exploitation reduce the threat to the Lake's biodiversity. Future research programs oriented toward specific practical problems concerning fishery and land exploitation identified in the Strategic Action Program will benefit both the Lake and people.

18. It is therefore recommended that the future projects and national institutions assure the follow-up of the launched activities, closely collaborating with local administrations and existing poverty-alleviation programs.

Implementation of the Strategic Action Program depends on the commitment of the countries to assure the Lake's biodiversity conservation. However, the success of the specific actions depends on existing information. The project member countries should be fully informed about the actual state of knowledge about the Lake and be assured that they may easily access to this information.

19. It is recommended that the Project Coordination Unit and the National Coordinators assure the transfer of all information sources and databases to the countries.

Identification of areas needing further studies is one of the tasks of the special studies.

20. The project and its national partners should prepare an inventory of research areas and prioritize them according to their importance to management of the Lake, implementation of the SAP, and understanding of the Lake's biodiversity.

The project did not consider it necessary to prepare specific management plans for development of underwater reserves. However it proceeded to scrutinize the Lake from the reserve-creation standpoint. The results of the studies show that creation of underwater reserves is valid for biodiversity conservation, is an economical necessity for fisheries sustainability, and a potential source of supplementary revenue from tourism. If, in the final report, the project will suggest creation of underwater parks and indicate their location

21. It is recommended that the national authorities include suggestions for the creation of aquatic protected areas in the future version of the SAP.

2.2 OTHER IMPACTS

Under this section we deal with level of awareness, level of countries commitment, and impact on policies, and sector cooperation

2.2.1 Level of Awareness

The awareness of Lake Tanganyika's unique biodiversity did not yet reach a satisfactory level. It is high though, among populations having direct contact with the lake and among the citizens of countries such as Tanzania and Zambia that benefited from extensive awareness-raising campaigns. The project did not evaluate the awareness level.

22. It is recommended that the national authorities evaluate the level of awareness of the concerned stakeholders. Such an evaluation will indicate potential target groups, and the effort needed for awareness-raising. This will also help the authorities choose the most appropriate tools for raising awareness.

Legal component evaluation

The Draft Convention has been prepared with the involvement of the national governments of the four riparian states Burundi, Democratic Republic of Congo, Tanzania and Zambia. The national governments through lawyers from various concerned ministries provided the necessary feedback to the drafters. The present Draft appears to be accepted by the governmental institutions involved in the process. At the 6th Steering Committee Meeting it became clear that these governmental institutions are prepared to mobilize more support for the Draft Convention at the national levels through further consultations with other concerned ministries and departments. An indicator of such commitment also is the support of the Strategic Action Plan which provides for provisional institutional arrangements at the regional level. It can, therefore, be concluded that the governments will do all necessary, so that formal negotiations on the Draft Convention may start very soon.

2.2.2 Level of Commitment of Countries and Support of government to integrate the project objectives into national goals

According to the declaration of the interviewed countries' delegates, the countries are committed to implementing the SAP according to the guidelines of the Convention. Implementation of this commitment requires SAP approval by technical ministries and development planning authorities within the countries. The formal approval would require the signing of the Convention by the respective governments.

The countries' representatives stressed, that although for the time being there is no major direct government investment in realization of the objectives designed by the project, the project only recently started to propose specific actions to implement. In fact, the SAP was proposed for consideration to the Steering Committee less than one month ago. In the meantime, the countries' governments provided the project with requested facilities and detached its staff to participate in the project's launched activities and organized meetings.

In fact, the results of the project's findings show that support of the proposed actions is not only a matter of commitment to ecological ethics or a will to preserve biodiversity, but the easiest way to assure the habitants of the Lake shores decent living conditions.

2.2.3 Impact of project on policy

There is as yet, no specific policy declaration in support of the Lake's biodiversity. However, the project findings, especially the strong link existing between the welfare of people living around the Lake and the Lake's ecological health, is so strong a political issue that once the results become available, probably in one or two months, the countries' policy toward the Lake cannot remain unchanged.

The life and economy of millions of people is intimately linked to the Lake. Most of them live in extreme poverty and are ignorant to the medium-term consequences of unsustainable land exploitation. Raising awareness of these consequences for these citizens of the Lake's riparian countries is an important humanitarian responsibility of the project's follow-up institutions.

23. It is recommended that the current and Future Project Managements and the National Coordinators assure large visibility of the project's results that may have an impact both on the countries' citizens' welfare and the Lake environment.

Legal component evaluation

Policies and strategies to implement the Draft Convention at the national level cannot be expected yet; the immediate steps to be taken are (a) further consultations at national level and (b) negotiations among the four countries. The

consensus however, to the regional strategy, the SAP, can be taken as a manifestation of the shared commitment of the four countries.

2.2.4 Sector cooperation

Legal component evaluation

In preparing the Draft Convention sectoral cooperation has taken place at national levels, at least as far as Ministries of Environment, Ministries of Foreign Affairs and Ministries of Justice are concerned. More sectoral cooperation is intended for the immediate future (through upcoming national consultations).

3 CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations are regrouped into four sections: general conclusions, conclusions on the realization of the objectives, significant lessons and further actions.

3.1 GENERAL CONCLUSIONS

The project provided the region with three outstanding outputs: an augmented and updated knowledge about the Lakes biodiversity; a program of action needed to protect the Lake and assure its sustainable exploitation; and a coherent, well-defined regional management structure. The three key outputs are of very high quality. This high standard was achieved thanks to an appropriate choice by the UNOPS of the project executing consortium (Natural Resources Institute working together with Marine Resources Assessment Group, and Institute of Freshwater Ecology), known for its commitment to research and applied research in the region.

The project results were achieved by the joint effort of 38 expatriates and 339 national staff from 49 national institutions. National staff were trained and prepared for project follow-up activities. The national laboratories were equipped for the purpose of lake monitoring. The Strategic Action Program and Convention were prepared by the national technicians and decision-makers, and extensively discussed in the regional forums. In consequence, it seems that the project did the most to assure the national and regional ownership of its products. The project's effort will likely be continued well after its end.

The project's results were achieved in very precarious security conditions, and the countries of the region are poor or very poor. In this situation of uncertainty and strong competition for extremely limited governmental resources, the realization of the project-designed program may suffer from delays and financial cuts. The project itself did not propose a detailed program to achieve material self-sustainability of the Lake protection programs, but it indicated the ways to achieve it. Probably, the most valuable future contribution of the Lake Tanganyika biodiversity protection will be a new generation of environmental management projects that will incorporate the latest project results and recommendations and launch a new phase of the Lake management in the setting designed by the Strategic Action Program and framed by the Convention.

24. It is therefore recommended to the Regional Steering Committee and governments of the riparian countries to identify donors susceptible to support the next phase of the Lake Tanganyika biodiversity protection

projects. During this phase, that may correspond to the interim period between the present project termination and the Convention implementation, the projects may concentrate on such activities as:

- Promote the SAP integration in national development programs, and the Convention signature and ratification facilitation**
- Assist countries and donors in formulating specific Lake protection projects in accordance with the SAP**
- Test the importance of benefits generated by Lake protection activities**
- Promote the Lake protection approach among donors for the riparian countries**
- Disseminate the present project results among all stakeholders**

Legal component evaluation

The objectives of the legal component were achieved: a draft legal instrument as basis for the next formal political steps. Even if some improvements of the text appear to be possible, they can be achieved during the next phase; the text can be optimized during the negotiations which have to begin now.

Momentum has been generated at the national level for the next steps through fairly broad involvement of governmental institutions. These next steps are:

- National consultations on the draft
- Negotiations between the four countries
- Signing of convention
- Ratification of convention
- Implementation through law reform in the four countries

Crucial will be: national campaigns and workshops to further increase awareness and sensitize government and society.

3.2 OBJECTIVES REALIZATION

The ultimate objective of the project was to demonstrate an effective regional approach to control pollution and to prevent the loss of the exceptional diversity of Lake Tanganyika's international waters. For this purpose, the development objective which has been met was the creation of the capacity in four participating countries to manage the Lake on a regional basis as a sound and sustainable environment. This goal should have been achieved through realization of six immediate objectives:

1. Establishment of a regional long-term management program for pollution control, conservation and maintenance of biodiversity in Lake Tanganyika
2. Formulation of a regional legal framework for cooperative management of the lake environment

3. Preparation of a program of environmental education and training for Lake Tanganyika and its basin
4. Elaboration and test of mechanisms for regional coordination in conservation management of Lake Tanganyika
5. Undertake some specific studies that will add understanding of the lake as a whole, and in some cases, provide the baseline and framework for long-term research and monitoring programs
6. Implement a sustainable Lake Tanganyika Strategic Plan incorporating environmental management proposals

1) The project successfully established a regional long term management program.

For this purpose it organized a review of relevant data on the Lake and its basin. This review, a Baseline Study of excellent quality, provided a platform for improvement and implementation of the project's work program and formulation of an initial version of a Strategic Action Plan for management of the Lake. The Baseline Studies were widely distributed and reviewed by national specialists and technicians, and international project partners. An Inception Workshop that was convened as a follow-up of the studies developed the project work plan. Parallel to the ongoing implementation of the work program, the project launched major national consultations aimed at redrafting the Strategic Action Program. During the drafting process the SAP was enriched with information from the project's special studies. The final version of the SAP and other complementary documents such as Transboundary Diagnostic Analysis and National Plans, were finalized in May 2000. The documents will be binding once the countries sign the Convention. For the time being, the technical ministries will use the SAP as a guide in preparation and selection for financing and implementation of current and proposed development projects. The SAP indicates management actions to take, but does not include, as was requested in activity 1.4.9, an economic evaluation of costs and benefits.

2) The project also formulated a regional framework for cooperative management of the lake in form of The Convention on the Sustainable Management of Lake Tanganyika.

For this purpose the project consultants reviewed existing laws for protection of the Lake environment and other existing laws in the countries of the region. The project itself launched a major consultation program among the national specialists and decision makers. Four successive Convention drafts were prepared and reviewed by senior national lawyers and governmental officials. The last version of the Convention was discussed in May 2000. In the next step, before the project termination, the Convention will be submitted to the riparian countries' governments for their further development, negotiation and signature.

The project prepared several elements of environmental education programs and trained trainers in all four countries. It also provided training for national technicians and scientists in skills needed to monitor the Lake's biodiversity, sedimentation and pollution, and to continue the initiated research programs. The project organized environmental education in Tanzania and in Zambia. However, the satisfactory completion of this output was hampered by insecurity prevailing in the Lake Tanganyika region and by a lack of efficient rural organizations that may be the target of the education programme.

3) In summary, the third immediate objective was partially achieved.

The project established an efficient structure of regional coordination for its own activities. According to the SAP proposal, this structure may be transformed into an interim one that will be active during the period of time between the project's termination and the Convention signature. Then, the region may implement a third structure described in the Convention that will assure implementation of the SAP and application of the Convention. The interim and the definitive structures were approved by the project's Regional Steering Committee.

4) In summary, the regional coordination structures were elaborated, but only the project's regional structure was tested.

5) The project launched five special studies. Their results contributed to formulation of a global Lake biodiversity protection strategy and helped identify the priority actions that were included in the Strategic Action Program.

The field program of these studies is terminated, but the results are still being elaborated. The available results, although incomplete, are very promising. Final evaluation of the results of special studies should be performed after their publication.

6) The environmental management proposals were not implemented by the project.

The Project Implementation Group hesitated to launch the implementation of the program before having a clear picture of their scientific and economic value. This decision is wholly justified, since implementation of management proposals have strong consequences on the economy of neighboring fishermen and farmers. The ongoing special studies are proposing managerial programs that successfully link biodiversity benefits to the lake with advantages for the riparian populations, thus giving solid ground for environment management proposal implementation.

In summary, the project successfully achieved four immediate objectives. Completion of two others was delayed directly or indirectly by insecurity prevailing in the region. The project outputs are of very high quality and of great regional importance.

3.3 LESSONS THAT CAN BE DRAWN FROM THE PROJECT EXPERIENCE

Human development. Increasing the knowledge is relatively easy task in comparison to changing human's attitudes. The sustainability of environmental projects depends on how much public, business community and decision-makers have learned about the project achievements and to what extent they are ready to change their attitude toward the environment. The success in the message transmission and its adoption by the population depends on many factors such as local cultures, traditions and taboos. The projects should systematically monitor the results of their actions. To preserve experience in this domain the projects may maintain a database of information transmission techniques and their success.

Capacity building. Many projects help national staff in new skills and knowledge acquisition. However, there are few occasions to evaluate the use of the acquired knowledge after the project termination. The present project trained many national staff in biodiversity data collection, pollution monitoring or environmental training. The personnel were predominantly employed by governmental or state sponsored institutions that have been strengthened by the project. It would be useful for the GEF to evaluate the impact of the trained persons on the national institutions.

Make research applied. Previous projects employing scientific staff frequently experience difficulties in taking full profit from the research results. The specific answers containing in the research papers are too narrow to be applied, the general solution advanced by scientist are frequently to impractical. It seems that the present project experienced similar difficulties with respect to many of the scientific documents produced by the consultants. Periodic meetings of the research staff with the managerial one may be helpful in generating constructive and practical approaches.

3.4 FURTHER ACTIONS

In order to increase the project's impact and sustainability of the results, each country should designate one institution that will become the custodian of the documents, databases and other materials produced by the project. These documents and information should be made available to all interested persons

and institutions. The designated institutions should be given the responsibility of translating the pertinent documents into local languages and produce extension material.

Independent of the SAP implementation and the Convention negotiation process, the governments of the riparian countries should carefully evaluate the project's findings and take them into consideration in planning and designing their own development programs. The project results bear an implicit message that should warn the governments against lax attitude toward the Lake environmental problem: the populations depending on the Lake resources are exposed to high risk of their revenue source collapse. Inappropriate farming practices prevailing in the Lake surrounding mountainous areas will soon reduce the harvest below the population subsistence level. The GEF and UNDP may help government to incorporate appropriate environmental measures into their macroeconomic policy.

There is a need to integrate technical, political and social dimensions into the Lake Tanganyika protection programme. The quality of the Lake ecosystem depends on risks that accompany technological progress. Populations living around the Lake frequently ignore the harm they are doing to the land and indirectly to the Lake by inappropriate agricultural practices. The problem is compounded by political and military instability in the region which has resulted in major refugee inflow that further impact on the lake and the surrounding environment.

The project follow-up activities should continue to raise the governments and civil society awareness about the limitation and fragility of the Lake resources.

Annexes

Annex I. Terms of Reference

FINAL EVALUATION

RAF/92/G32

POLLUTION CONTROL AND OTHER MEASURES TO PROTECT BIODIVERSITY IN LAKE TANGANYIKA

BACKGROUND

Lake Tanganyika is one of the Great Lakes and it has an important role in the economies of Burundi, Tanzania, D.R. Congo and Zambia. It possesses the highest biodiversity of any lake on earth. The lake is very vulnerable to pollution, and there are presently few efforts to conserve its biodiversity. The most immediate threats to the lake environment and biota are pollution from excess loads of sediment and nutrients caused by erosion in the watershed, industrial and urban pollution including boat discharges, and intensive fishing with inappropriate methods. These problems and their effects are increasing, and others such as oil exploration and transportation of the lake cause concern.

This five year project aims to improve understanding of the ecosystem functions and effects of stresses on the lake system; to take action on all other measures necessary to maintain the health and biodiversity of the ecosystem; and to coordinate the efforts of the four countries to control pollution and to prevent the loss of the exceptional biodiversity of Lake Tanganyika.

The project's five immediate objectives are to:

- Establish a regional long-term management program for pollution control, conservation, and maintenance of biodiversity in Lake Tanganyika
- Formulate a regional legal framework for cooperation management of the lake environment
- Establish a program of environmental education and training for Lake Tanganyika and its basin
- Establish tested mechanisms for regional coordination in conservation management of the Lake Tanganyika basin
- Undertake some special studies to provide data as inputs to the establishment of a complete strategic plan for long-term education. They will add to the understanding of the lake as a whole and, in some cases, provide the baseline and framework for long-term research and monitoring programmes.

The project is funded by the Global Environment Facility (GEF) through the United Nations Development Programme (UNDP) and is executed by the United Nations Office for Project Services (UNOPS). The total budget for the project is US \$10,000,000 (including executing agency support cost). The original estimated project starting date was 1 January 1994; the actual starting date was 1 August 1995. This was partly due to civil unrest in the Francophone countries. The project is scheduled for completion on 31 July 2000. A project mid-term evaluation was undertaken in November 1998.

The project has been implemented by a consortium of consulting firms led by the Natural Resources Institute (United Kingdom), which was selected following a process of international pre-qualification and competitive bidding. NGOs are involved, particularly through community education and conservation, and the private sector through promotion of tourism and the control of industrial pollution.

After completion of the project, the co-operative activities among the government authorities, scientists, affiliated institutions, and other stakeholders including NGOs and the private sector, are expected to continue to preserve the Lake ecosystem under the framework of a regionally cooperating organization.

OBJECTIVE AND SCOPE OF THE EVALUATION MISSION

The evaluation is an activity in the project cycle which attempts to determine as systematically and objectively as possible, the relevance, efficiency, effectiveness, impact and sustainability of the project against its objectives. It will also identify factors that have facilitated or impeded the achievement of these objectives. While a thorough review of the past is in itself very important, the in-depth evaluation is expected to lead to detailed recommendations and lessons learned for the future.

The mission will assess, with respect to:

(i) Project Implementation

- general implementation and management of the project in terms of quality and timeliness of inputs and activities, adherence to workplans and budgets
- adequacy of management arrangements as well as monitoring and backstopping support given to the project by all parties concerned
- institutional set-up through the Regional Steering Committee and the National Steering Committees and Working Groups and the degree to which it has encouraged full involvement of the countries
- inputs of the Governments of the four countries at national and local levels
- inputs of UNDP country offices to the project
- responsiveness of project management to changes in the environment in which the project operates

- UNOPS execution modality
- co-operation among project partners (UNOPS, UNDP/GEF, Natural Resources Institute, Project Coordination Unit, UNDP Country Offices, National Coordinators)

(ii) Project Impact

- achievements of the project against the original objectives, outputs and activities as detailed in the project document
- level of awareness of the participating countries regarding project outputs
- level of ownership of the project by the participating countries
- level of commitment of countries to support ongoing project and potential future project phase
- degree of support given by the riparian Governments in integrating the project objectives and goals into the national development programmes and other related projects, and how well the project fits into national development policy
- impacts on policy and strategy of countries
- project impact on enhancing co-operation among sectors and project partners

(iii) Project Design

- appropriateness of the project's concept and design to the overall situation of Lake Tanganyika
- relevance of project design within the framework of GEF programmes and guidelines

Conclusions and Recommendations

Based on the above points, the evaluation mission should provide conclusions and recommendations, including:

- general recommendations on the implementation of the project
- the degree to which the project objectives have been satisfied
- significant lessons that can be drawn from the experience of the project and its results, particularly those elements that have worked well and those that have not
- recommendations on further actions in the region upon completion of the current project

METHODOLOGY

The evaluation will be composed of three activities: studying documents, observing project participatory processes, and interviewing individuals who are

either involved in the project, or who have or might be expected to have been impacted by the project.

(i) Studying documents

The team members shall familiarize themselves with the project through a review of relevant documents prior to travel to the region. These documents include inter alia,

- Project Document
- Project Budget
- Convention draft (no. 4)
- Strategic Action Plan (SAP) draft
- Transboundary Diagnostic Analysis (TDA) draft
- Project Performance Evaluation Report (PPER) 1997
- GEF Project Implementation Review (PIR) 1998 and 1999
- Mid-Term Evaluation Report 1998
- Response of Project Coordination Unit to Mid-Term Evaluation Report
- Minutes of Tripartite Review Meetings 1998 and 1999
- Minutes of Steering Committee Meetings 1-5
- UNDP Handbook for Programme Managers: Results-Oriented Monitoring and Evaluation
- other project documents which may be found on the project website: <http://www.ltbp.org>

Hard copies of selected documents shall be sent by courier to the Evaluators in advance of the mission.

(ii) Observing project participatory processes

- observe last day of Strategic Action Plan meeting, 3 May, Lusaka
- observe Steering Committee Meeting, 4-5 May, Lusaka

(iii) Interviewing project partners

- Project Coordination Unit (Project Coordinator, Scientific Liaison Officer)
- National Coordinators
- UNDP Country Office focal points
- representatives of Natural Resources Institute
- GEF focal point
- UNOPS focal point

And in doing so, undertaking field visits to:

- the Lake
- National focal institutions

- project laboratories
- co-operating institutions

COMPOSITION OF THE MISSION

The evaluation team shall be composed of two international consultants.

- (i) Team Leader who shall be responsible for the overall review of the project. The Team Leader should have extensive technical and managerial background at both policy and institution level of environment and international waters in particular, and in-depth experience of project evaluation techniques, particularly of those projects which are funded by GEF. Experience in Africa is preferable. Fluency in English and French is required.
- (ii) Environmental Law Consultant who shall focus on the Lake Management Convention, including the processes that have led to its current form. The Environmental Law Consultant should have extensive background in environmental legislation, with emphasis on international waters. Experience in Africa is preferable. Fluency in English and French is required.

The members of the evaluation team should not have been directly involved in the design or implementation of the project.

MISSION TIMETABLE AND ITINERARY

The duration of the consultancy for the Team Leader shall be 21 working days, including travel time, based on the following itinerary:

28-29 April	Homebase review of relevant documents (2)
30 April – 2 May	Travel to Lusaka
3-5 May	Strategic Action Plan Meeting (day 2), Steering Committee Meeting
6-11 May	Bujumbura, Uvira. Consultations. Field visits. Lake, laboratories
11 May	Kigoma. Consultations. Field visits. Lake, laboratories
12-13 May	Dar-es-Salaam. Wrap-up with Project Coordinator
13-14 May	Return travel
15-26 May	Draft and finalize report (5 days)

The duration of the consultancy for the International Environmental Law Consultant shall be 7 working days, including travel time, based on the following itinerary:

1 May	Homebase review of relevant documents (1)
2 May	Travel to Lusaka
3-5 May	Strategic Action Plan Meeting (day 2); Steering Committee Meeting
6 May	Return travel
8-12 May	Draft and finalize report (1 day)

REPORT

In drafting the report, the Team Leader will be guided by the standard UNDP Guidelines for Evaluators.

The final report of each of the evaluators should contain the following Annexes:

- Terms of Reference for final evaluation
- Itinerary (actual)
- List of meetings attended
- List of persons interviewed
- Summary of field visits
- List of documents reviewed
- Any other relevant material

As the report is the product of an independent evaluation team, it is up to the team to make use of the information provided during the mission. However, the evaluation team is responsible for reflecting any factual corrections brought to their attention prior to the finalization of the report. Therefore, in order to ensure that the report considers the view of all parties concerned, is properly understood, and is factually accurate, it is required that both consultants submit draft reports to UNOPS and UNDP/GEF. UNOPS will revert promptly with collective feedback from project partners in order that the evaluators may finalize their reports.

The final version of the evaluation mission report should be submitted in electronic format (MS Word) to UNOPS and UNDP/GEF no later than 26 May 2000. The report shall also be submitted in five hard copies to UNOPS.

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Annex II. Itinerary

30 April - 3 May	Travel to Lusaka
4 and 5 May	Steering Committee Meeting
6 May	Travel to Bujumbura
6 - 11 May	Bujumbura, meetings, field visits, Lake visit
12 May	Travel to Dar es Salaam
13 - 16 May	Dar es Salaam, meetings, document collection
16 - 17 May	Return travel
18 - 26 May	Draft and finalize report
5 June	Debriefing in New York

Annex III. Documents Consulted

1. 1st Mtg. Steering Committee
2. 2nd Mtg. Steering Committee
3. 3rd Mtg. Steering Committee
4. 4th Mtg. Steering Committee
5. 5th Mtg. Steering Committee
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32. How the Draft Convention on the Sustainable Management of Lake Tanganyika was Developed. C. Cilligan and S. Hodgson. 2000.
33. Hydrological and Sedimentological Sampling of Lake Tanganyika Basin. M. Sabahane, M. Nduwayo, T. Songore and G. Ntungumburanye. December 1999. 58 pages
34. Hydrology of Lake Tanganyika – Selected Catchment Area. H. Nkotagu. 6 Pages
35. Inception Report. 1997. 103 pages plus Annexes
36. Key to Recent Invertebrate of Lake Tanganyika. 9 Sept 1997. K. Martens. 34 pages
37. Legal and Institutional Baseline Study. 1996. 134 pages
38. Legal Briefing Paper. Sixth Meeting of the Regional Steering Committee. 2000
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49. Pollution and Its Effects on Biodiversity. January 1996. 47 pages
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54. Preliminary Strategic Action Plan. Draft, 1997
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108. TANESCO Power Station and Oil Pollution in Kigoma Bay. By Chris Foxall, 11/2/98. 5 pages
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116. Travaux hydrologique et d'échantillonnage sedimentologique du bassin du Lac Tanganyika. Paus Burundi. Final Report. 1999.
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119. Zambia Pollution SS Progress Report. By Makasa L and Mwape L.W. March-October 1999. 2 Pages
120. Zambia Special Sediment Study. Final Report. Zambia. 1999. 72 pages

Annex IV. List of interviewed persons

Bhandari, Ritesh	Project Assistant, LTBT
Bihamiriza, Benoit.	Directeur, Departement des Affaires Juridiques et Contentieux. Burundi
Chi, Margaret (Ms.)	Portfolio Manager, Division for Environmental Programmes, UNOPS
Chitalu, George Munshimbwa	Assistant National Coordinator LTBP, Environmental Council of Zambia
Hodgson, Nicholas	National Resources Planner, SAP Consultant, NRI
Kanyaru, Roger	Directeur, Département des Eaux, de la Pêche et de la Pisciculture, ministère de l'Agriculture et de l'Élevage. Bujumbura, Burundi
Ledant, Jean-Paule	SAP Consultant LTBP
Lindley, Robert	Coastal Fisheries Specialist
Masanja, Faustin, W. M.	Senior Hydrobiologist - Water Resources Department Ministry of Water. Dar Es Salaam, Tanzania
Menz, Andrew	Project Coordinator LTBT. Dar Es Salaam, Tanzania
Msham, Hawa Sekela	Assistant National Coordinator, LTBP. Dar Es Salaam, Tanzania
Muderhwa, Nshombo	Directeur Général du Centre de Recherche en Hydrobiologie (CRH) Uvira. DR Congo
Musonda, Winnie (Ms.)	Programme Analyst, UNDP. Zambia
Nduwimana, Louis	Chef de Programme, PNUD. Bujumbura, Burundi
Ngamani, Mbusu	Secrétaire général, ministère de l'Environnement
Nkotagu, Hudson, H.	MHO Programme Coordinator and lecturer in Applied Hydrogeology, University of Dar Es Salaam. Tanzania
N'Sibula, Mulimbwa	Directeur scientifique du Centre de Recherche en Hydrobiologie (CRH) Uvira. DR Congo
Nsongela, Shadreck Yona	Senior Environmental Impact Assessment Officer, Environmental Council of Zambia.
Ntakimazi, Gaspard	Professeur l'Université de Burundi
Nyakageni, Boniface	LTBP, Ex-Coordonnateur national. Burundi
Schuetz-Mueller, Ingolf	Division Chief, Division for Environmental Programmes, UNOPS
Sisila, Sylvester	Assistant Resident Representative, UNDP. Tanzania
Tarimo, Bartholomew, D.	Environmental Education Officer, National Environment Management Council. Tanzania
West, Kelly (Ms.)	Responsable de la Liaison Scientifique, LTBP. Bujumbura, Burundi
Yonazi, Rawson	LTBP National Coordinator, Tanzania
Zwick, Karen (Ms.)	LTBP Socio-Economics Facilitator

Annex V. Project Evaluation - Technical Issues

Development Objective

The ultimate objective of the project is to demonstrate an effective regional approach to control pollution and prevent the loss of the exceptional diversity of Lake Tanganyika's international waters. For this purpose, the development objective to be met is the creation of capacity in the four participating countries to manage the lake on a regional basis as a sound and sustainable environment.

Immediate Objective 1.

Establish a regional long-term management program for pollution control, conservation and maintenance of biodiversity in Lake Tanganyika.

Output 1.1 Review all existing relevant data on Lake Tanganyika and its basin to provide a platform for pollution control, conservation and maintenance of biodiversity.

Table I. Output 1.1. Activities scheduled (S) and carried out (C)

Activity			1995		1996				1997				1998				1999				2000	
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
1.1.1	Review biological, hydrological and water quality information	S																				
		C																				
1.1.2	Review demographic trends	S																				
		C																				
1.1.3	Review capability of host institutions	S																				
		C																				
1.1.4	Review legislative aspects	S																				
		C																				
1.1.5	Dialogue with lakeside communities	S																				
		C																				

Activities

Soon after initiation, the project commissioned baseline reviews concerning biodiversity; pollution and its effects on biodiversity; sediment discharge and its consequences; socio- economics; and legal and institutional aspects. Once the studies were completed, each National Coordinator received 10 copies of each study and distributed them (and their photocopies) to key institutions. The studies were discussed in national workshops, edited, and published for a wider audience. The information from studies was the basis for work programming

during an Inception Workshop. This was summarized in the Inception Report, and incorporated later in the first version of the Strategic Action Program.

The project assessed capabilities of the host countries' institutions and the staff that may be important for the work program and interested in the project. The assessment took more time than the initial allocation. The delay in assessment completion resulted from political situations in some of the project members' countries, and from a lack of specifics in the Project Document about the criteria of institution, staff choice and evaluation.

The review of demographic trends and dialogue with lakeshore communities could not be completed as scheduled due to instability around the Lake. Only in 1999 did the project team of sociologists start to work in Burundi and in D.R. Congo.

Results

The project financed the compilation of information about the biodiversity of Lake Tanganyika; the impact of sediment discharge; pollution and its effects on biodiversity; social and economics aspects of the basin inhabitants; and legal and institutional features. All these documents are exhaustive, extremely well-presented and very instructive. They have very strong and positive impacts on the whole project program. Intended as baseline studies, they lead to the design of a platform from which the project launched further studies.

The Biodiversity study provided evidence justifying the global significance of Lake Tanganyika for biodiversity conservation. The study underlined our inadequate knowledge of significant lake habitats, which is essential in designing proper conservation measures. It identified three major threats to biodiversity, namely: fishing, sedimentation, and pollution. The study indicated that the conservation efforts to preserve the diversity of species should be directed not only to the underwater reserves but to the whole lake as well as to its catchment area.

The Lake Tanganyika ecosystem suffers the consequences of overpopulation of the Lake region: deforestation and agricultural land degrading practices lead directly to increased sedimentation and to its local eutrophication. In the northern end of the Lake, the deforestation approached 100 per cent of the original forests, and in the central lake's drainage basin it attains 40-to-60 per cent. Sediment pollution has been shown to impact negatively on fish and ostracods in coastal waters, especially in rocky habitats. There was a lack of specific information about the contemporary rate of sedimentation and much more studies were needed to understand its impact on the Lake's biodiversity and productivity.

The Lake is not yet polluted. However, urbanization, agricultural development and industrial activity, if not properly managed, will inevitably pollute the Lake.

Although many pollution hot spots are known, there is little information about quantities of emanated pollutants and on their distribution in the lake and their impact on biodiversity.

The Lake Tanganyika catchment area is inhabited by between 7 and 10 million people (without refugees that may represent more than two million in the whole great lake region). Over one million are supported by fishing from the lake and fisheries related activities. There is a trend for farmers to move, at least temporarily, from agriculture into the fishery. There are remarkable differences in political and social conditions among the four Lake basin countries. Burundi is shattered periodically by political and military conflicts. The Lake catchment population work on hillside farming with very little investment in soil conservation and land management. The mountains are deforested. There is little or no community involvement in Lake conservation. Congo is stricken by civil war and the Lake region receives an influx of hundreds of thousand refugees. The rural economy is dominated by subsistence production. As in Burundi, the local communities are not involved in Lake conservation policy. Tanzania enjoys political and military stability. As a result of a village programme, the rural population was agglomerated into nuclear settlements which resulted in extensive local deforestation. The government provided them with rural development programs. Tanzania has developed (in 1991) a community participation approach to managing the protected areas. Finally, Zambia is politically stable and secure. The villages preserved the original settlement pattern and land management, and the farmers organize co-operatives for marketing and input supply. The country developed (since 1989); community integration program in conservation of protected areas.

Conclusions

Although Tanzania and Zambia have developed community involvement into the protected area conservation, and the governments established a variety of environmental education programs, the local populations are still not as actively involved in conservation as policy suggests. This situation may change if the population is fully aware of the benefits of community participation planning. It is therefore deemed important for the project to involve more actively the communities in the Lake resources conservation. This should be achieved by developing a participatory diagnostic process, and provide the local communities with sufficient incentives to be involved in the project's programmed activities. The special studies launched by the project should link with a participatory appraisal process involving the government and the NGOs in the villages located in or near the sites under investigation.

The legal and institutional baseline study identified the existing laws in areas relevant to sustainable management of the Lake as obsolete or incomplete. Their whole harmonization will be a long process that would be best guided by a body representing all interested states. The project should promote the development of

consensus among stakeholders in the Lake's to what kind of regulatory framework would be appropriate.

To contribute immediately to Lake biodiversity protection, the project may provide legal technical assistance for implementation of the more crucial aspects of the strategic plan rather than restrict the outputs to analyses and recommendations.

The baseline studies confirm the diagnosis of the Project Document: Lake Tanganyika suffers mostly from inappropriate agricultural practices and the remedy is the participatory approach of the communities involved in the land and Lake exploitation. The project should define these findings, elaborate the conservation measures and put them into action.

Output 1.2 Inception Report based on all review data which will provide bench-line data for the planning of the management program.

Table II. Output 1.1. Activities scheduled (S) and carried out (C)

Activity			1995		1996				1997				1998				1999				2000		
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
1.2.1	Identify the negative trends influencing the Lake	S																					
		C																					
1.2.2	Identify major information gaps	S																					
		C																					
1.2.3	Compile data in Inception report	S																					
		C																					
1.2.4	Create and update database	S																					
		C																					

Activities

Activities one and two (identification of negative trends among processes influencing the lake and identification of the major gaps in information available) were conducted in conjunction with the baseline review. Together with the baseline studies, the results of these two activities were extensively discussed in an Inception Workshop held in Dar es Salaam, March 25 to 28, 1996, attended by about 50 delegates from the region, UNDP, GEF, UNOPS, PCU and NGOs. The workshop contributed to the creation of a common understanding of the Lake Problem by the participants; liaisons among the stakeholders, UNOPS/UNDP/GEF and the project management; design of an indicative work plan for the special studies; and, most important, creation of a sense of ownership of the designed program by the delegates from the countries. The results of the Inception Workshop were the basis of an Inception Report that was circulated among the participants, and then assessed and adopted by the Regional Steering Committee.

The results of the baseline studies were included in the databases.

Results

The Inception Report is the result of the Inception Workshop. The final version of the Report incorporates the workshop's findings, and observations and recommendations of the project Steering Committee. As such, the Inception Workshop was considered an important guide to developing an effective approach to the project objectives' realization. The Inception Report concentrated mostly on development of indicative work plans for the Special Studies, further developing the knowledge about biodiversity; legal and institutional aspects; socio-economics and environmental education; sediment discharge and its consequences; pollution of international waters and its effects on biodiversity; and fishing practices and biodiversity. The description of baseline study results, national concerns and work plans for each of these studies covered about 70 per cent of the Inception Report's volume (from 28 to 100 pages) leaving 30 pages for managerial issues, training and capacity building.

The Inception Report notes the importance of involving local people at the start and through the duration of EE programs as a guarantor of long-term sustainability of the project.

Output 1.3 Drawn preliminary Lake Basin Strategic Plan.

Activities

Table III. Output 1.3. Activities scheduled (S) and carried out (C)

Activities			1995	1996				1997				1998				1999				2000			
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
1.3.1	Attempt initial prioritization of conservation areas	S	■	■																			
		C																					
1.3.2	Finalize work program for special studies	S	■	■																			
		C			■	■	■	■	■	■													
1.3.3	Prepare and initiate four project centers, one in each country	S	■	■																			
		C			■	■	■	■	■	■	■												
1.3.4	Finalize list of equipment and services for procurement	S	■	■																			
		C			■	■	■	■	■	■	■												
1.3.5	Identify needs of future staff and draw training programs	S	■	■																			
		C			■	■	■	■	■	■	■	■	■	■	■	■							
1.3.6	NGOs carry out community consultations	S	■	■																			
		C																					

The prioritization of the conservation areas was attempted, but not conducted as was requested in the Project Document. According to the preliminary assessments, there was not yet sufficient evidence justifying designation of some Lake areas as needing more protection than another and, as a consequence, recommended specific actions to national administration about modification of human activities in these areas.

Longer than foreseen identification and assessment of key national institutions and national staff, was at the origin of extension of activities two to five until 1998. The finalization of the work programs, preparation of national centers, purchase of equipment and training were conducted or organized progressively, starting from February 1996.

Community consultations to determine their reactions to and suggestions for the proposed plan were not carried out. The plan proposed in the Inception Workshop and accepted at the Steering Committee and drafted in the Strategic Plan, were in too premature a stage for vast consultation with local populations. From the other side, the communities around the Lake were not yet adequately organized. However, the local NGOs participated in defining of the project work plan (see output 1.1 and 1.2) and they maintained close work relations with the project.

Results

The preliminary version of the Strategic Plan titled 'Preliminary Strategic Action Plan' was drafted in February 1997. On the basis of the threats to the Lake identified at the Inception Workshop in January 1996, the Plan has outlined and ranked the threats in order of national importance. The most important threats come from fishing practices, increased rates of sedimentation and pollution. For each threat, the Plan distinguishes some components. For example, threats from fishing practices are composed of ornamental fish trade, damaging commercial fisheries, damaging artisanal (traditional) fisheries, and nine others. For each component, it proposes mitigation or avoidance and management actions. For example, for the first component of the first threat, the ornamental fish trade as mitigation the Plan proposes national and international regulation of trade, and local captive breeding. The management actions consisted of establishing allowable limits of extraction, monitoring and licensing, promoting captive breeding, and alternative income for traders. The Plan flagged the actions that are included in the project activities program. For example, the action 'promote alternative income' for the ornamental fish traders was included in the special studies program. As a separate table, the Plan lists the threats to the Lake's biodiversity. The Plan suggested monitoring of the management actions as a way of evaluating their effectiveness. It attached a sample list of such monitoring indicators.

According to the first version of the SAP, as next steps, the project should provide support for further refining the list of threats and actions, prioritize them, and the final stage adopted by the governments of the four riparian countries.

The special studies were key to the project. They were designed to develop an understanding of the lake, the communities relying on the lake's resources and threats to its biodiversity. The information generated by these studies should enrich the strategic action planning process.

Output 1.4 Finalization of the Lake Tanganyika Strategic Plan.

Activities

According to the project document, the SAP should guide management actions for the lake. It should be designed during the third year of the project's life and then refined as additional data becomes available. The SAP should be conducted by the Project Co-ordination Unit with the National Coordinators and the assistance of an environmental planner and environmental scientist, plus any appropriate specialist required. The plan should be accompanied by an economic appraisal which determines costs of the various elements and translates them into annual budgeting requirements over a 10-year planning horizon.

Table IV. Output 1.4. Activities scheduled (S) and carried out (C)

Activities			1995		1996				1997				1998				1999				2000		
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
1.4.1	Select areas to be give National Park or other protected status	S																					
		C																					
1.4.2	Instigate actions to combat pollution	S																					
		C																					
1.4.3	Harmonize measures to mitigate pollution	S																					
		C																					
1.4.4	Draw up management measures for zones in the Lake	S																					
		C																					
1.4.5	Draw up legislative framework	S																					
		C																					
1.4.6	Propose infrastructure for tourism and pollution	S																					
		C																					
1.4.7	Identify major long-term impacts	S																					
		C																					
1.4.8	Discuss proposals for final plans with local communities	S																					
		C																					
1.4.9	Economic evaluation of costs and benefits of the plan	S																					
		C																					
1.4.10	Produce final Strategic Action Program	S																					
		C																					

The final version of the SAP is based in the Preliminary Strategic Action Programme and results of discussion of the Program at a regional meeting in December 1997, and the commitment of the four countries in the January 1998 Project Regional Steering Committee meeting. The Steering Committee decided that the consultation process leading to the final version of the SAP will be lead by National Working Groups (NWG), whereas the regional level will be coordinated by a Technical Advisory Committee (TAC).

The management objectives situated within the overall biodiversity conservation goal were defined in a Transboundary Diagnostic Analysis (TDA). The TDA was then used to set priorities for actions to address in the SAP. The four countries developed a common analytical approach helping bring together national conclusions into a regional framework. In each country, the NWG initiated one planning meeting followed by two workshops. The participants represented a wide range of stakeholders including NGOs and the private sector. The national consultations' results led to the preparation of a preliminary TDA. The preliminary TDA was endorsed by the project Steering Committee in May 1999; the second (and final) version of the TDA was prepared during a workshop held in March 2000. The TDA brought together the results of national reviews and added the regional and transboundary perspective. The TDA prioritized the threats to biodiversity of the Lake, attached to them specific problems, proposed interventions, identified key agencies that should lead a proposed action, and indicated available human or material resources.

As the TDA, the SAP was also deeply rooted in the national perception of risks to the Lake's biodiversity and sustainability of its resources. After an initial planning meeting, each country held two workshops. These workshops identified main biodiversity problems, the accompanying sectoral causes and reviewed management actions and agreed on priorities. The national workshops respected a common analytical approach that helped develop a coherent regional program. The TAC that led the regional SAP preparation convened two drafting workshops, one in November 1998 and the second in January 2000, and the final meeting in May, 2000.

Results

The SAP identified the main threats to the Lake's biodiversity and sustainability (unsustainable fisheries, increasing pollution, excessive sedimentation, and habitat destruction). Within each of the four main threats, the SAP distinguishes specific problems (ranked by countries) and proposes actions to mitigate the problems. For each problem in the respective countries, the SAP identifies the stakeholders and provides a list of uncertainties. It identifies as well the key agency or agencies responsible for implementation or coordination of the corresponding action (s). For example, the unsustainable fisheries is considered as the first main threat to biodiversity and sustainable use of the Lake's resources. One of three specific problems identified is excessive fishing pressure in the littoral zone. Specifically, in Burundi this problem is perceived as excessive fishing pressure. The stakeholders are fisheries administrations, fishermen, owners of fishing units, local associations and communities, and Burundi University. The proposed actions, and key agencies, are listed as follows: Ascertain potential, fishing standards and acceptable licensing quotas (responsibility of the Ministry of Agriculture - MAE); support other income

generating activities or those that supply animal proteins (Ministry of Community Development - MDC); strengthen capacities for Fisheries Department to control and supervise (MAE); raise awareness and train fishermen, boat owners, and administration (MAE); update and issue draft law and by-laws, as well as ordinances (MAE); translation in Kirundi and extension (MAE).

The SAP is not conceived as a final document. It should be revised periodically and adjusted to new information about the biodiversity and new threats to the Lake. The implementation of the SAP will be supported by a Convention.

Conclusions

The SAP and the TDA are extremely important documents produced by the project. Their importance stem mainly from their participatory origin and from the comprehensive perception of the Lake's environmental problems.

The SAP value would be even greater if it could have been supported by more specific information from the special studies. As it is presented now, the SAP refers frequently to facts and justifications that were known before the project studies and that were presented in the baseline studies. This is understandable by the fact that most of the specific studies did not yet elaborate their results.

The SAP lists the important actions and arranges them according to national priorities, but it does not specify to which extent this national priority reflects the government commitment to devote national or donor's resources to invest in the SAP priority. It is not indicated if these actions will be incorporated into the governmental investment programs and when. The SAP actions are also lacking evaluation of their cost effectiveness and assessment of their acceptability by citizens.

Immediate Objective 2

Formulation of a regional legal framework for cooperative management of the lake environment

Output 2.1 Analysis of existing laws and recommendations for harmonizing legislation and/or new legislation placed in an international legislative framework. This work will be done with the assistance of an expert in environmental legislation, particularly with expertise in legislation relating to internationally shared lakes; and an expert in environmental negotiation and conflict resolution.

Table V. Output 2.1. Activities scheduled (S) and carried out (C)

Activities			1995		1996				1997				1998				1999				2000	
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
1.1.1	Review existing law and regulation for Lake protection	S																				
		C																				
1.1.2	Identify shortcoming in legislation implementation	S																				
		C																				
1.1.3	Harmonize legislation among countries	S																				
		C																				
1.1.4	Recommend a framework of Lake environment legislation	S																				
		C																				

Activities

A legal team contracted by the the Project Implementation Group in October 1995 reviewed the national laws, policies, institutions and international obligations of the Lake riparian countries in November and December 1995, and presented the results in January 1996 in a Legal and Institutional Baseline Study. The project's inception workshop held in April 1996 highly apprised the study. In view of preparation of the Convention, the Project Implementation Group convened the first legal orkshop in July 1997. The legal team prepared three presentation papers dealing with international environmental law and the law of transboundary watercourses, conflict resolution, and legal and institutional arrangements for the management of lake river basins in other countries and consideration of possible approaches for Lake Tanganyika. The papers facilitated active participation of the delegates in drafting the Convention.

Delays in reaction of the countries to the proposal of workshop organization, and in approving the names of delegates obliged the Project Implementation Group to reschedule the workshop for February 1998. The workshop was held in Lusaka. The countries were represented by delegations of five to six members including senior lawyers and policy makers. The workshop launched the drafting of the Convention and recommended the process of agreement on the text and submission to the governments. The Convention draft was discussed in two sub-regional workshops (Anglophone and Francophone) and sent for comments to the UNDP and UNOPS. After the workshops the draft was edited, circulated and discussed at the second regional workshop held in Arusha in November 1999. The discussed document was then drafted again and presented in May 2000 to the Regional Steering Committee for approval.

The Convention will be submitted to the governments for formal negotiations and signatures before the project's termination.

The Convention Articles may be clustered into six sections:

1. Introductory (Articles 1 to 3)

The introductory part defines the meaning of terms, states objective's of the Convention which aim to ensure the protection and conservation of the biological diversity and the sustainable use of the natural resources of the Lake and its environment, and establish the jurisdictional scope.

2. Principal Obligations (Articles 4 to 12)

The Convention obliges the States to cooperate in good faith to protect, conserve, manage, and use in a sustainable manner the Lake resources; prevent and minimize transboundary adverse impacts; prevent and control pollution; prevent sedimentation; conserve biological diversity; control access to genetic resources; reduction pollution from any vessels.

3. Mechanisms for the Convention Implementation (Articles 13 to 22)

The measures set out in the Convention should have given effect through implementation of a strategic action program integrated into relevant national policies, strategies, programs and plans. Each State should adopt and implement environmental impact assessment of proposed activities and projects that are likely to give rise to adverse impacts on the Lake. Moreover, concerning the Lake, each State should promote environmental education and build public awareness, ensure public participation in the decision making process, deal effectively with emergencies, exchange of information and reports.

4. Institutional Arrangements (Articles 23 to 28)

The Convention established a Conference of the Parties, the Lake Tanganyika Authority, the Secretariat of the Lake Tanganyika Authority, Technical Committees and the articles that describe their functions.

5. Dispute Settlement and Liability (Articles 29 to 31)

Articles of this section establish dispute settlement mechanisms, and determine liabilities of operators of dangerous activities and compensation structures.

6. Other (Articles 32 to 44)

Articles of the last section deal with various procedures as the right to vote, protocols, amendment proposals and others.

Conclusions

The Convention draft represented a joint effort of senior law and policy makers, and key technicians from the riparian countries. As such, it has a great chance to be positively evaluated by the government's and rapidly signed. In the opinion of the representatives of the member countries encountered by the evaluation mission, once signed, the Convention will become a framework for other national legislation adjustments.

Even at this stage, giving the economic and political circumstances prevailing in the region, the whole Convention is a great achievement. The Convention's most important and innovative points are the imposition of environmental impact assessment on all new activities, obligation of public awareness building and public participation in the decision making process. These actions will assure better control over future development and more transparency in Lake management. They will also probably impact legislation dealing with other environmental problems in the countries.

The Convention will be binding on the four riparian states. However, the Lake may be endangered by activities or events that occur in non-riparian countries. For example air borne pollution, agrarian practices that increase sedimentation through rivers originating in watersheds situated beyond the riparian countries, or wars and insecurity that contribute to human emergency. It would be useful if the Convention could address these points.

Immediate objective 3

The third immediate objective aims to establish a program of environmental education and training for Lake Tanganyika and its basin. This aims could be achieved through:

- Increased environmental awareness and sensitivity among lakeshore communities concerning the fragility of the lake, the international nature of its problems and the interdependence of people with the lake.
- Producing a cadre of trained environmental scientists and technicians to provide a core of expertise for managing the biodiversity of the lake and protecting its watershed in the future³.

Output 3.1

Increased environmental awareness and sensitivity among lakeshore communities concerning the fragility of the lake, the international nature of its problems and the interdependence of people with the lake.

³ Project Document, page 29.

Table VI. Output 3.1. Activities scheduled (S) and carried out (C)

Activities			1995		1996				1997				1998				1999				2000		
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
3.1.1	Dissemination of information	S																					
		C																					
3.1.2	Organize teachers groups among local schools	S																					
		C																					
3.1.3	Produce specific printed material for communities	S																					
		C																					

Objectives

According to the Project Document, serious environmental threats justify the necessity of environmental awareness building among the lakeshore communities. The most imminent is the excessive amount of suspended sediments entering the lake from surrounding deforested hills and slopes and from cultivated lands. Another serious problem is excessive fishing, especially in areas where fishermen utilize improved mechanized methods of catching. There are other environmental threats to the lake such as chemical pollution from urban and industrial sources, oils spills and leaks, but these are, for the time being, far less menacing since only one major town (Bujumbura) discharges waste to the lake, and the oil spill is perceived as a potential threat.

The gravity of the threats may be measured by the importance of human populations living in the lake catchment. The rapidly growing population is estimated at about 10 million, mostly striving on extensive agriculture on sloping fields in surrounding deforested mountains rising up to 3000 meters above lake level.

According to the Project Document, there were about 36,000 fishermen on the lake. About one million people depend permanently or temporarily on the lake resources. Recently reduced fish catches indicate overexploitation of fish stocks.

In short, the most imminent threat to Lake Tanganyika is biodiversity comes from inadequate exploitation of land from the lake catchment and from overfishing. Thus, Objective 3 and its first outputs may be regarded as the most important lake pollution countermeasures. The project was supposed to launch the environmental education at the community level through NGOs. The NGOs should open up channels of communication with the local communities through existing community structures. The Project Document is not specific about the channels or the matters to communicate. It stipulates only that they may be used for 'persuasion or extension if new practices are recommended' and considers the schools and school teachers as particular targets.

The Environmental Education Baseline Review (1966) has settled the conceptual approach to environmental education as a fully integrated critical component towards a sustainable and participatory system of natural resource management in the lake basin. The local capacity should be built equally through a participatory and cyclic process giving and receiving information between 'national stakeholders' and the 'local people'.

The Inception Report⁴ repeats the Project Document's suggestions, adding that⁵ *'The importance of involving local people at the start and throughout the duration of EE programs was specially noted. Without this, the long term sustainability of the project might be seriously compromised.'* The various groups should be reached through seminars, training of trainers, use of mass media, and the establishment of local level institutions for women and environmental clubs in secondary schools.

According to the work plan⁶, by the end of 1998 the countries should have developed the EE plans; selected sites for socio-economic monitoring and proceeded with monitoring; proposed protected areas; synthesizes special study results; and prepared inputs to the strategic planning process.

Results

Until 1998, in Zambia and Tanzania the project organized environmental awareness campaigns through national EE institutions. Especially in Zambia, the EE program used innovative and efficient awareness raising methods such as development of 'strata management committees', village drama groups, or study tours. However, in spite of the satisfactory implementation of the program, it became evident⁷ that *'awareness alone is not enough for improvements in resource management, which require the introduction of real alternatives and incentives for change at local level.'* In the following year the program was still satisfactory in Zambia, 'patchy' in Tanzania and still non-existent in Burundi and Congo. In 1999 the EE program was still unsatisfactory. Only in 2000 were the Burundi and Congo project's team able to start the EE programs.

Thus, globally, the EE program was performing well, so far as it was involved in training of trainers, workshop organization and preparation of work programs. In the countries where field work was possible, the awareness building in the villages took place as well. The effect of the program is however, still unknown. The project did not yet produce the final report describing the output.

Conclusions

⁴ Inception Report, page 49 and 100

⁵ Ibid., page 60

⁶ Ibid., page 62 and 63

⁷ Project Performance Evaluation Report, 1998, page 27

Three facets of the realized output are probably of the highest importance:

Detailed description of attained technical results (number of person trained, village associations created, primary beneficiaries sensitized and so on) and the attached costs. The description will help future programs aiming at similar objectives.

The final report should analyze the achieved impact on the beneficiaries in terms of improvement in fishing, cultivating and logging. This analysis will have immediate effect on choice of future awareness-raising methods.

Analysis of difficulties and limitations of the applied awareness increasing methods. The results of this analysis may impact the future approach to the awareness campaigns, and shed light on the foundations of the awareness building concept.

Critical examination of motivation that should drive the populations to respect the EE recommendations. The current agricultural and fishing practices damaging the lake environment cannot be perceived as merely the results of ignorance or absence of environmental awareness. They should be considered as an optimum achieved by a farmer or fisherman given his situation. Change of behavior should be perceived not as an act of good will that will follow an awareness building campaign, but as a result of a decision that will leave him better off. The EE analysis should provide the authorities with managerial options and not only with advice.

Output 3.2

A cadre of trained environmental scientists and technicians to provide a core of expertise for managing the biodiversity of the lake and protecting its watershed in the future will be produced.

Table VII. Output 3.2. Activities scheduled (S) and carried out (C)

Activities			199	1996				1997				1998				1999				200	
			5	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
3.2.1	Establish an in-service training for technical staff	S																			
		C																			
3.2.2	Provide support for Universities	S																			
		C																			
3.2.3	Provide fellowship to students working on the Lake	S																			
		C																			
3.2.4	Provide on-the-job training for park managers	S																			
		C																			

The information about this output realization is scattered throughout project reports and could not be summarized completely for the purpose of the present evaluation. However, the involvement of national institutions and national staff in

project objective realization who received training that upgraded their capacity is impressive (Table VIIa). Three hundred thirty nine national personnel from 49 governmental institutions participated in the project activities. They were seconded by 38 expatriates from 25 institutions. This statistic does not include direct lake stakeholders such as farmers and fishermen. During three years the project sponsored 11 students participating in Nyanza every year.

Table VIIa. National and Expatriate participation in the Project

Project Component	Scientists, Managers, Technicians Involved	
	Regional	Expatriate
Biodiversity	31	4
Pollution	22	3
Sediments	35	6
Fishing	17	3
Socio-economics	20	4
Training and EE	20	5
Legal	20	2
SAP and TDA	160	7
PCU	11	3
Total	339	38
Institutions	Government	Other
	49	25

Immediate Objective 4

Establish tested mechanisms for regional coordination in conservation management of the Lake Tanganyika basin

Output 4.1

Mechanisms for regional coordination will be introduced and developed

During realization of this output, the project installed an effective communication system between the PCU and the four national stations, providing them with telephone, telefax, and email/internet connection. The Project edited and distributed four Newsletters and developed a website containing general information about the project, an electronic copy of the Newsletter, and all produced documents. It produced a CD with the Website information copied for computer users having no internet access.

The project activities and results were examined by six Steering Committees. Virtually all modifications on the project's work plan and all important technical documents (for example the Inception Report, SAP and the Convention) were analyzed and actualized by the Steering Committees. The National Steering Committees assured supplementary channels for increasing regional cooperation.

Frequent workshops and common training sessions helped to create informal regional links among national institutions and their staff.

Table VIII. Output 4.1. Activities scheduled (S) and carried out (C)

Activities			1995		1996				1997				1998				1999				2000	
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
4.1.1	Install an effective communication system	S																				
		C																				
4.1.2	Organize regular meetings of Steering and Technical Comm.	S																				
		C																				
4.1.3	Prepare for approval a system of lake management	S																				
		C																				
4.1.4	Prepare newsletters	S																				
		C																				
4.1.5	Carry out other tasks according to Steering Committee	S																				
		C																				

Results

During the project's duration regional cooperation was executed through the project structures. After the project termination and before the Convention signature, the Strategic Action Plan propose an Interim Structure and, finally, once the Convention was signed and implemented, it will be implemented through a final structure. It is important for the riparian countries to preserve the vast information accumulated by the project and to keep alive the research and implementation structures animated by the project. If this will not be assured with enough attention and material means a lot of information will be lost, the ongoing initiatives will lose their momentum and the executing staff will attach to other projects. In this section we will review all three structures.

Project structure

The project structure is composed of its financing and implementation bodies, Regional Steering Committee (RSC), Project Coordination Unit (PCU), National Steering Committees (NSC), and National Working Groups (NWG). (Figure 1.)

Regional Steering Committee

The Committee is the principal institutional mechanism for regional co-operation within the project and for maintaining, directing and supporting its activities. It comprises:

- The Principal Secretaries or equivalent from the leading organizations
- The National Co-ordinators
- Two senior officials from key institutions
- UNDP Program Officers from the four countries

The function of the Regional Steering Committee is to:

- Provide overall direction of the project

- Review the progress of the project and the various national activities, ensuring a regionally integrated approach
- Direct on policy matters, and monitor the utilization and availability of counterpart staff
- Approve future planning, and make recommendations to the executing agency as to changes in project timetables, inputs and budgets which may be necessary from time to time
- Provide guidance and support to the Technical Advisory Committee and Project Co-ordinator

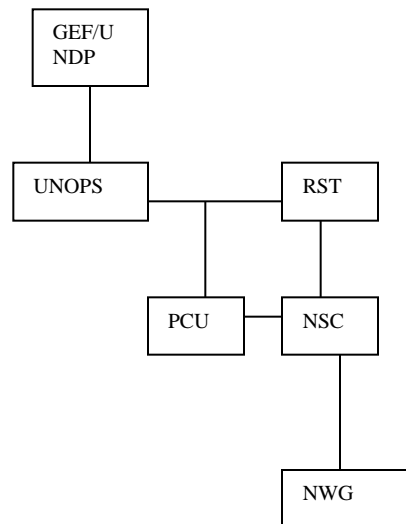


Figure 1. The Project is Financed by the GEF/UNDP. The UNOPS is the Implementing Agency. The Project Co-ordination Unit (PCU) is controlled directly both by the Implementing Agency and by a Regional Steering Committee (RSC). The RSC and the PCU co-ordinate the activities with National Steering Committees (NSC). The NSC are responsible for implementation of the activities through the National Working Groups.

Project Coordination Unit

The PCU comprises the Project Coordinator and the Project Scientific Liaison Officer. Supported by National Coordinators, and for the past 12 to 18 months by four special study regional facilitators, it maintains offices in Bujumbura and Dar es Salaam, and field offices in Kigoma and Mpulungu. It provides the focal point for management of all field activities including financial control, liaison with countries and NRI, and it acts as secretariat to the Regional Steering Committee.

National Steering Committee (NSC)

The NSCs were created in February 1998 as a means of enhancing national ownership and involvement in decision making. The National Coordinators were mandated to:

- Convene the meetings of the committees with participation of representatives of all relevant ministries, the private sector and NGOs
- Provide overall direction and guarantee the full involvement of the national institutions
- Review progress and direct the national implementation of the project, ensuring integrated participation of counterpart institutions
- Advise the Regional Steering Committees on policy of a regional character and monitor the participation of counterpart institutions
- Approve project plans at a national level and make recommendations to Regional Steering Committees as to changes in project implementation
- Provide guidance and support to National Working Group and the Project Co-ordinator

National Co-ordinators and National Working groups

Their role was to bring together the key institutional stakeholders at a senior level, and other interested parties in order to exchange information and ensure collaborative approaches to project implementation.

For the specific purpose of preparation of the SAP, the project was assisted by a Technical Advisory and Strategic Action Program Planning Group. This Group comprised of senior scientists and National Coordinators developed the Strategic Action Program and the Transboundary Diagnostic Analysis.

The Interim Lake Tanganyika Management Body (ILTMB)

The ILTMB should assure regional cooperation during the period between termination of the present project and the Convention signature. The Body will ensure that urgent actions identified in the SAP are implemented, promote the signing of the Convention and establishment of functioning management bodies required in the Convention, and maintain and preserve information.

The ILTMB will have the following structure (Figure 2):

Interim Lake Management Committee (ILMC)
Interim Lake Management Secretariat (ILMS)

Interim Lake Management Committee (ILMC)

The Chair for the ILMC will be selected at the first meeting. Each participatory country will be represented on the committee by the Permanent Secretary of the relevant ministry, supported by three appointed members.

The ILMC will:

- Supervise activities detailed in the SAP
- Direct the activities of the ILMS
- Approve and support project proposals developed by ILMS
- Approve and finalize funding agreements developed by the ILMS
- Approve procedures for the Conference of Parties developed by ILMS
- Meet at least once per year
- Agree to rules of procedure for itself, the secretariat and any subsidiary bodies
- Approve the recruitment and appointment of other senior staff considered to be necessary to the functioning of the secretariat, and approve the recruitment of consultants thought necessary to assist the secretariat.

The Interim Lake Management Secretariat (ILMS)

The ILMS will be a full time body, with a Director and Deputy Director recruited and appointed by the ILMC. The Director of the ILMS will act as the Secretary for the ILMC. The ILMS headquarters will be established in a country identified in the first ILMC meeting.

The ILMS will:

- Coordinate, support and prepare costed project proposals for the priority actions listed in the SAP
- Act as the lead group to coordinate and leverage funding at national and regional levels in support of the SAP - negotiating finance for regional projects and assisting national agencies in negotiating finances for national projects
- Coordinate lake management interventions implemented by national institutions within the framework of the SAP
- Coordinate Lake Monitoring Programme
- Establish and maintain an Information Center incorporating central database, a GIS support unit and lake website, as well as holding copies of printed reports and papers
- Facilitate the finalization of the draft Convention
- Invite the participating countries to sign the Convention and promote the ratification of the convention
- 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
- Prepare annual reports for the ILMC on the implementation of the SAP and any additional new activities within the basin that may affect the management of the lake
- Arrange and support meetings for the ILMC
- Prepare annual budgets for the functioning of the ILMB

Financing of the ILTMB should be assured entirely by donors

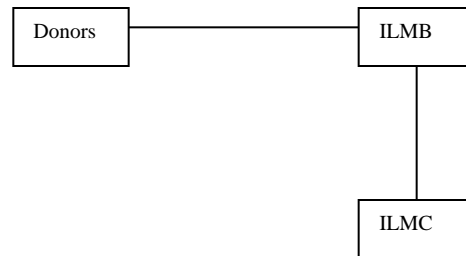


Figure 2. Structure of the Interim Lake Tanganyika Management Body. According to the Strategic Action Program the Interim function will be confined to a Interim Lake Tanganyika Management Body (ILTMB) that will be comprised by the Interim Lake Management Committee (ILMC) and of the Interim Lake Management Secretariat (ILMS). The ILMC will be financed by donors.

The regional structure that will be responsible for the Convention implementation is composed of a Conference of the Parties (CoP), the Lake Tanganyika Authority (LTA), and Technical Committees (TC).

Conference of the Parties (CoP)

The Conference of the Parties should regularly evaluate the implementation of the Convention. For this purpose it should:

- Consider and adopt protocols to be concluded
- Consider and adopt additional annexes and amendments
- Establish the necessity of subsidiary bodies
- Undertake any additional actions

Lake Tanganyika Authority (LTA)

The Lake Tanganyika Authority should co-ordinate implementation of the Convention by the Contracting States and advance and represent the common interests of the Contracting States in matters concerning the management of Lake Tanganyika and its environment. The Authority is comprised of the Management Committee and the Secretariat.

Lake Tanganyika Management Committee (LTMC)

The Lake Tanganyika Management Committee consists of three members appointed by each Contracting State. The Executive Director of the Secretariat should serve as the secretary of the LTMC. Each country appoints persons with

the relevant expertise as members of the LTMC. The LTMC should support, co-ordinate and monitor implementation of the Convention. To this purpose it will:

- Implement the policies and decisions of the CoP
- Provide scientific and technical advice to the CoP
- Prepare SAP and propose it for approval to the CoP
- Co-ordinate and supervise implementation of the SAP
- Negotiate with donors interested in programs and projects for consideration by the CoP
- Commission studies and assessments
- Supervise and assist the activities of the Secretariat

Secretariat of the Lake Tanganyika Authority (SLTA)

The Secretariat is the executive organ of the Authority and should be under the supervision of the LTMC. It should comprise an Executive Director, a Deputy Director and any other requested staff.

The SLTA will:

- Carry out the tasks assigned to it by the LTMC
- Provide technical and scientific services and advice required by LTMC
- Perform financial and administrative services
- Formulate annual work program and budgets for the Authority
- Maintain databases, regularly obtain and update information and facilitate information exchange under the Convention
- Arrange and support meetings of the CoP and LTMC

Technical Committees (TC)

The LTMC will be assisted by a Socio-economic Technical Committee, Fisheries Management Committee, Biological Diversity Technical Committee, and with the consent of CoP, other committees.

The Authority should be financed by the contributions of member countries, donors and other sources.

Conclusions

The proposed mechanisms of regional cooperation are to a large extent a continuation of the existing project structure. The Regional Steering Committee becomes the Conference of the Parties, the Project Coordination Unit and the four field stations correspond to the Lake Tanganyika Authority with its Management Committee and Secretariat. Finally, the National Working Groups have their partners in the form of Technical Committees. During the interim phase, the regional activities will be carried out by the ILMC only.

The analysis of the project activities shows that success is largely related to a strong involvement of national institutions in planning of outputs and realization of activities. This was achieved through creation of national partner structures such as the NSC and NWG. The Convention covers only regional cooperation, leaving to the member countries the establishment of their own bodies dealing with Convention implementation. The project initiative to establish the NSC as a national partner of the Steering Committee that provides directions and enhances involvement of national institutions may be maintained by the Convention member countries. The NSC may be especially useful at the phase immediately succeeding the Convention implementation, in creating a network of stakeholders and in catalyzing financing for priority investment. The experience of regional collaboration gained by the national institutions may be used to create such networks and guide its activities.

The Interim structure is comprised of a transitional regional institution composed of two units. This institution will be mandated to receive financing for implementation of activities in the future Convention member countries. However, according to the management plan, it will not be accountable for its actions before any supervisory body. Nor is it not clear who will be the national partner of this interim body. It is possible that this arrangement may be designed on an ad-hoc basis among donors, the ILTMB and the interested institutions from the member countries. However, it would be more appropriate to assign the supervisory role to an Interim Steering Committee, and conduct the national execution through Interim National Steering Committee and National Working Groups.

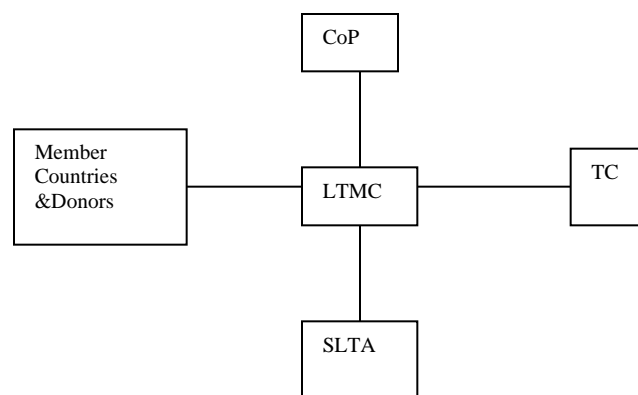


Figure 3. The Lake Tanganyika Authority and Convention. The Lake Tanganyika Management Committee (LTMC) implements the decisions of the Conference of the Parties (CoP). To this effect it has a Secretariat of the Lake Tanganyika Authority (SLTA) and the Technical Committees (TC). The financing is assured by the member countries and by donors.

Immediate Objective 5

In order to produce a full Strategic Plan for the long-term, some specific studies need to be undertaken. These special studies will also add to the understanding of the lake as a whole and, in some cases, provide the baseline and framework for long-term research and monitoring programs.

Output 5.1

Determination of the biological consequences of sediment discharge into Lake Tanganyika caused by watershed deforestation and erosion.

According to the Project Document, the output should determine importance of the sediment discharge into the Lake, effects of the sediment on animals and vegetation abundance, and impacts on biodiversity.

Sediment discharge study should result in:

- Deforestation and sediment plume survey using remote sensing
- Historical analysis of deforestation to start near the beginning of the project
- Quantification of volumes of sediment currently entering the lake through major inflows
- Detailed sedimentation and sediment impact studies
- Tracing the fate of particles discharged into the lake, establish lake monitoring sites measuring quantity of sediment discharged
- Comparison of the sediment discharges in disturbed and undisturbed areas

Effect of sediment on biota concerned mainly studies on water column impact and implication for commercial fisheries

Benthos impacts on biodiversity should be documented by faunal census.

The Inception Workshop complemented the Project Document by indicating 13 priority studies:

- Give a broad view of vegetation changes within the catchment area
- Produce high resolution imagery of special significance areas for time series analysis
- Upgrade river gauging and measurement of sediment flow
- Investigate non-point sources of suspended sediment
- Understand the fate of sediments entering the lake
- Proceed to Physico-chemical analysis of sediments
- Consider effect of high sediment loads on limnological processes near shore
- Examine how sediments influence nutrients in the water column
- Perform a whole lake survey of sediments
- Do more detailed sediment dating on some sites

- Identify current rates of sedimentation and horizontal distribution
- Consider role of wetlands in the catchment and their impact on possible reduction of sediment load of inflowing rivers
- Understand effect of high sediment load on key indicator species of the lake

Activities

The activities progress was satisfactory throughout the study period and the produced summary of findings contributed to formulation of the Strategic Action Program.

Table IX. Output 5.1. Activities scheduled (S) and carried out (C)

Activities		1995	1996				1997				1998				1999				2000			
		3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
5.1.1	Regular determination of sediments	S																				
		C																				
5.1.2	Satellite monitoring of deforestation	S																				
		C																				
5.1.3	Analysis of transported sediment particles	S																				
		C																				
5.1.4	Impact of sediment on lake's ecosystem	S																				
		C																				
5.1.5	Add output to the Lake database	S																				
		C																				

The findings of the sedimentation studies are described in 16 documents. The key findings may be summarized as follow:

The threat to biodiversity of suspended solids is regarded as high and has probably resulted in some recent loss of diversity in parts of the lake. The suspended solids is a principal and current threat to the lake's biodiversity.

In particular:

- There is strong evidence of a large increase of suspended solids entering the lake compared to historical rates of input
- It is clear that a combination of woodland clearances and agricultural practices carried out in the catchment is responsible for increases in entries of suspended solids to the lake
- Strong evidence that increase in sediment input is correlated to increases in nutrient and organic matter input to the lake

Moreover it was found that:

- Medium size catchments (between 50 km² and 4 000 km²) are particularly responsible for changing the biodiversity adjacent to their river mouth
- The impact is most likely where rivers discharge onto relatively gently sloping lake floors; sediment can be transported at least 10 km from the source

- The literature data and the results of the project's research suggest that diversity (particularly in the inshore region) is negatively correlated to sediment input; the sediment load increase reduces distribution of the most diverse habitat

Conclusions

The studies confirm and precisely define the previous results described in the Inception Reports. They contain valuable information about sedimentation impact and the link between plant, animals and sediment pollution. It was the first time that such detailed study was conducted in Lake Tanganyika. From the Lake conservation point of view, they proved that sedimentation is the primary risk to Lake biodiversity. The sedimentation is responsible for slow disappearance of the original biota.

Output 5.2

Determination and prediction of consequences of chemical pollution discharges from the land or boats

The project document assigned to the study two main goals:

- Identify existing and potential pollution sources, including sediments, and where possible quantify types and levels of pollutants
- Investigate and model circulation of lake waters, transport and dispersal of pollutants; identify areas of special risk

The Inception Report recommended:

- Identifying the main sources of pollution to the Lake and where possible quantify the pollutant inputs
- Obtaining a lakewide assessment of pollution and its effects on lower organism diversity
- Evolving systematic programs of pollution and biodiversity description and monitoring
- Developing teams capable of planning and executing field and laboratory programs, analyzing the data and reporting the findings
- Developing pollution control strategies

The realized objective was to:

- Identify the main sources of pollution
- Determine where and how the pollution is negatively impacting biodiversity
- Establish a monitoring program for pollution in the lake

Activities

In 1997 the project identified the principal location for the pollution studies; started to increase awareness of the pollution problem and its impact on the biodiversity; started to train the national personnel assigned to the pollution studies and to install the laboratory equipment. These actions aimed at development of human and equipment resources able to sustain the pollution measures after the end of the project. The project developed a pollution database that will be finalized in June and contribute to the Strategic Action Program.

The Lake water circulation was analyzed and the circulation models developed.

Table X. Output 5.2. Activities scheduled (S) and carried out (C)

Activities			1995		1996				1997				1998				1999				2000	
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
5.2.1	Identification and quantification of sources of pollutants	S																				
		C																				
5.2.2	Analysis and modeling of lake circulation	S																				
		C																				
5.2.3	Add outputs to database	S																				
		C																				

Results

The water quality analyses suggests that Lake Tanganyika may be considered as healthy and not impacted by nutrient enrichment, although the Lake cannot be classified as ultra-oligotrophic as are the typical pristine systems.

Human activities are, however, beginning to alter the quality of littoral habitats. Bujumbura and Kigoma emit substantial quantities of industrial contaminants to the bays; no domestic and industrial wastes are treated anywhere around the Lake. Rapid population increase and prospects for industrialization require thorough monitoring of water pollution.

The UNOPS-FAO supported study of flow, thermal regime and sediment transport revealed tilting of thermocline along the main axis of the Lake, high speed and variation of the currents down to 20 or 40 meters. The study calculated water circulation pattern and its evolution with time, and developed (and validated) a model of the circulation and a separate PC model of particle tracking that may include an oil drifting module.

Conclusions

Further actions for pollution control require thorough monitoring, formulation of a regional Lake-wide pollution control strategy and introduction of incentives that will motivate the polluters to reduce discharges into the Lake. The available documents do not contain proposals describing systematic regional pollution-monitoring procedures that will be applied by the four countries laboratories. The proposal formulation is left to the countries as part of Strategic Action Program implementation.

The existing documents did not yet integrate the results of pollution studies into the model of sediments, nutrient and pollutant transportation.

Output 5.3

Determination of patterns and structure of biodiversity in Lake Tanganyika with emphasis on proposed national parks and other conservation areas

According to the Project Document, the output should:

Make inventories of aquatic animals and plants that will provide information necessary for identifying reserves and planning their management. The inventories should be made by geographic distribution and habitat type and monitoring changes over time

Determine various biodiversity indicators

Help understand the extent of diversification for management decision and conserving biodiversity.

The inception workshop approached the biodiversity study from the following standpoint.

The study should lead to:

- Collation of all existing patterns of diversity from literature and national records
- Inventory of locations of previous studies
- Standardization of timing for working teams
- Identification of priority locations assessment of criteria for biodiversity monitoring program
- Assessment of community variability within and between unmodified habitats
- Creation of baseline inventory of community structures in pristine sites
- Qualitative and quantitative assessment of effects on impacted sites
- Assessment of 'charismatic species' in links with tourism, support conservation activities in national parks and other restricted areas

This work plan should be implemented in three phases:

- Collation of existing data
- Rapid assessment of promising localities
- Detailed studies of 10 to 12 localities

The Special Study Work Plans stated that the objective of the biodiversity studies was to support the development of the Strategic Actions Program to manage the Lake. To achieve it the studies should:

- Develop a sustainable biodiversity monitoring program
- Identify the distribution areas for conservation, based on existing knowledge and recommendations from other studies, and supplement by additional survey work where necessary
- Review current levels of biodiversity in the Lake

Finally, the Project designed the objective of the biodiversity study mainly to support the Strategic Action Program that in turn should provide for the regional management of the Lake to enable the sustainable management of biodiversity and the livelihood of present and future generations of lakeside communities.

Activities

The project trained national personnel in surveys, visual census and sampling for the biodiversity studies. The field activities began in national parks and then moved to other key areas. In 1998, with the security situation improvement in DR Congo, the biodiversity surveys were extended to locations south of Uvira. The studies provided extensive input to the Strategic Action Program. The final report is expected in June or July.

Table XI. Output 5.3. Activities scheduled (S) and carried out (C)

Activities		1995		1996				1997				1998				1999				2000		
		3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
5.3.1	Prepare inventories of species	S																				
		C																				
5.3.2	Determine various criteria for diversity assessing	S																				
		C																				
5.3.3	Study causes of biodiversity	S																				
		C																				
5.3.4	Determine criteria for selecting protected areas	S																				
		C																				
5.3.5	Add output to database	S																				
		C																				

Results

The studies addressed two main specific objectives:

1. Define and prioritize the management actions required to conserve biodiversity of Lake Tanganyika
2. Enable the Lake Basin Management Committee to provide guidance to the international community on the needs of the Lake region in terms of biodiversity conservation and sustainable use of resources.

To achieve these objectives, the project reviewed current levels of biodiversity of the Lake.

Identified distribution of major habitat types with particular focus on existing and suggested areas.

Suggested priority areas for conservation, and developed a sustainable biodiversity monitoring program.

For this purpose the project realized two field programs:

- SURVEY program of biodiversity and habitat surveys from areas adjacent to existing national parks
- MONITORING program of biodiversity monitoring over time

The biodiversity information is stored in two databases: one collating species location from previous studies, and the second containing the results of the project's surveys and monitoring.

Since the littoral zone of the Lake harbors the highest number of species and is the most exposed to threats from sedimentation and pollution, the Project recommends adoption of a coastal zone management approach as a complement to transboundary management. This approach aims at a combination of shore waters and shore land management and has the advantage of focusing effort and resources to specific areas where the intervention is most needed. This focus should help propose manageable solutions. The proposal is an innovation since the original project document specifies two options for biodiversity protection: national parks or unprotected areas.

The project teams surveyed the waters adjacent to the existing national parks and found that the majority of littoral habitats in the lake can be protected by associating an aquatic zone with an existing terrestrial park. The parks may gain on this extension by enlarging their tourism potential. As a consequence of this extension, the capacity of the relevant institutions should be improved to monitor and manage the new component of the park.

Additionally, the project identified sites of special scientific interest in the DR Congo, and others in the areas of Gitaza in Burundi, near Kitwe Wildlife Sanctuary, south of Kigoma and the mouths of Lufubu and Chisala rivers in Zambia.

Furthermore, the project recommends designation of the Rusizi and the Malagarasi deltas, and the Lukuga effluent or the Lufubu/Chisala river mouth as areas under the Convention of Wetlands protection. These areas are important fish nurseries and spawning grounds.

Conclusions

The biodiversity study produced two important results: a thorough description of the present state of the Lake biodiversity, and practical proposals concerning installation of protecting areas. The results may have important practical consequences for both the Lake and the adjacent human populations. It is possible now to follow evolution of the Lake's diversity. Then, it is possible to increase economic value of the Lake by installation of underwater parks available for tourism. Finally, there is a rational basis for delimitation of protected areas for commercial fish reproduction. Implementation of these beneficial proposals is in the hands of national Authorities as one of the project follow-up activities.

Output 5.4

The damaging effect of exploitation on the fish of Lake Tanganyika will be investigated and recommendations made for their mitigation

According to the Project Document, the study output should:

- Identify and recommend fishing methods less harmful to biodiversity than those used presently and recommend them to fishery projects
- Determine target species and quantity of fish taken for ornamental fish trade; identify potential threat and advise legislative actions
- Using the available fisheries and community data assess the knock-on effects of fishing through the system

The Inception Workshop modified the objectives according to the following lines:

- Collation of existing national, Lake Tanganyika research project, and other international statistics in commercial fisheries to assess direct effects on lake-wide biodiversity
- Village survey of gear use, catch composition by gear and habitat, total catch and fishery structure and role of fishing in the community

- Survey rapid assessment methods of fish abundance on fishing grounds
- Specific inshore habitat studies particularly in vegetated nursery areas and river mouth
- Analysis of dynamic of inshore fish population and linkage with pelagic fishery with models where appropriate
- Assessment of ornamental fish trade including species and habitats most affected, and potential impact.

Finally, the work plan for the fishing practice recommended that the aim of the study is to support the development of the Strategic Action Program by improving the understanding of fishing practices in their impact on biodiversity and socioeconomic importance to riparian communities. To achieve it the project should:

- Assess the impacts of individual fishing practices on biodiversity
- Assess the socio-economic significance of individual fishing practices for riparian communities
- Determine the prevalence of individual fishing practices around the lake
- Explore options for improved management of fisheries to minimize the impact on biodiversity

Activities

The studies about fishing were conducted in close collaboration with the socio-economic studies. The fishing surveys started in Tanzania and Zambia in 1997, then extended to all four countries. Presently, the studies are terminated, the information is entered into the database and the final report is in preparation.

Table XII. Output 5.4. Activities scheduled (S) and carried out (C)

Activities		1995	1996				1997				1998				1999				2000	
		3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
5.4.1	Estimate impact of fishing	S																		
		C																		
5.4.2	Examine ornamental fish trading	S																		
		C																		
5.4.3	Investigate use of computer-based models to impact study	S																		
		C																		
5.4.4	Identify alternative fishing methods	S																		
		C																		

Results

The available study results deal with assessment of fishing in general and assessment of fishing in the biodiverse littoral zone.

Concerning the fishing in the pelagic zone, the study indicates that sustainable management of pelagic fish is important for maintaining Lake biodiversity, since in case of collapse of that fishery, the on-shore fishing area rich in biodiversity will be overexploited. The rapid change in the abundance of the commercial pelagic fish may result not only from the overexploitation, but as well from changes of water temperature or other not yet fully understood factors. The reduction of fishing may be achieved as well through reduction of post-harvest loss that occurs during storage and transportation.

Concerning the littoral zone, the study advises replacement of reliance on legislation enforcement mechanisms by co-management of fishing communities, NGOs and governments, and recommend that this co-management should be developed as the most appropriate mechanism to manage fishing in the littoral zone. Under the project's auspices, riparian communities in Zambia have established village conservation and development committees. They may be considered as a transitional stage of the Lake co-management system.

The study also prepared a report describing fishing activities adjacent to each of the national parks on the Lake.

Concerning the monitoring of fisheries, it is recommended to maintain existing monitoring and aiming at its improvement through better training of the staff rather than by extending or intensifying the monitoring program.

Conclusions

The available results are highly general and they are not supported by evidence. They might have been appropriate as advice to the Strategic Action Program, however, they are of little use for management decisions since they give no insight into such elements as the fish stock availability, fish reproductive capacity, fishing projections and fish population dynamics. There is no information about the utility of the results of the LTR/FAO project for the Lake biodiversity management. In summary, it may be expected that the final report will bring much more detailed and specific information important for managerial decisions.

Output 5.5

Developments in other sectors within the lake basin intimately affects what happens in the lake itself. A detailed examination of present and future plans in these other sectors needs to be carried out so that they can be taken into account in the Lake Tanganyika Strategic Plan.

Activities and results

The Baseline Review and the project collated information about a wide range of activities that may affect the Lake. Among them, the most important are:

- Rapid human population growth
- Periodical influx of refugees
- Prospect of oil exploitation
- Lake transport and port development.

The Strategic Action Program address as the last two problems.

Table XIII. Output 5.5. Activities scheduled (S) and carried out (C)

Activities		1995	1996				1997				1998				1999				2000	
		3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2			
5.5.1	Collects sectoral plans, synthesize potential impacts	S																		
	C																			

Output 5.6

The prospects for the future of Lake management may depend upon additional benefits generated. The nature and direction of those benefits will be investigated and recommendations made for their distribution.

According to the Project Document, the output should provide:

- Recommendations on needs for tourism development organization and infrastructure
- Ascertain the role of fishing in the local economy, the pattern of fishing, organization of lakeside communities and their decision-making structure
- Assessment of the public awareness of the project
- Information about income generating activities along the lakeside
- Study of economical sectors in respect to actions which will affect the lake

According to the Special Study Work Plan

The project should identify how local communities and local actions contribute to strategic lake basin management. To this effect it is required to provide information that will:

- Detail the socio-economic characteristics, priorities and needs of local communities in relation to the project
- Identify environment education requirements
- Recommend measures to enhance lake basin community livelihoods, incomes and participation in lake basin management (both during the project life and to be included in the SAP)

- Train country teams in participatory approach
- Asses, where possible, impacts of any pilot environmental education and management actions

It was presumed that the local teams and consultants will subsequently participate in further investigations.

Activities

Studies of existing tourism potential have started as early as September 1995. The other activities were implemented at the end of 1996. Until the end of 1997 there were no specific managerial proposals. The more intensive field work started only in 1999.

Table XIV. Output 5.6. Activities scheduled (S) and carried out (C)

Activities			1995	1996				1997				1998				1999				2000			
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
5.6.1	Study existing tourism potential	S																					
		C																					
5.6.2	Precise economic role of fishing	S																					
		C																					
5.6.3	Enquiry about Lake and project awareness among peoples	S																					
		C																					
5.6.4	Examine possibilities of other income generation activities	S																					
		C																					

Results

Fisheries livelihoods and practices

The most common fishing gear belong to three categories:

Lift nets used from catamarans targeting sardines offshore

Beach seines used at night with lamps to catch sardines, and other littoral fish during the day

Gillnets and lines that target large fish

The catches remain high near refuges, but in other areas they have declined so much that some wealthy fishermen diversify their activities into other domains such as commerce or farming. When supply exceeds demand the fish surplus is processed (sardines are dried, large fish smoked) and marketed.

Agricultural land use and livestock

Generally, flat land for farming is limited. The principal subsistence crop is cassava; cash crop is oil palm. Many lakeshore villages do not meet their non-fish food requirements. Declining fishing, steady increases of human populations and land shortages oblige farmers to clear slopes for field. The slopes are, however, steep and sometimes after two or three harvests the soil is unusable for farming. Fish smoking and palm oil processing, consume great amounts of wood for fuel.

Deforestation, energy needs, and woodland management

Clearing woodland for agriculture, village programs in Tanzania in the 1970s, periodical refugee influxes and use of wood for fuel, all contributed to wood shortages in many villages.

Population, movement and livelihood strategies

Population growth and movement is a primary contributor to unsustainable natural resources exploitation in certain areas.

Protected areas

There is mounting pressure from the local populations on existing protected areas like deltas, national parks and forest reserves. Forest Reserve Land in Zambia and a section of Rusizi National Park have already been degazetted to allow for exploitation.

Conclusions

It results from the study that excessive fishing and inappropriate land exploitation which are at the origin of the threat to Lake biodiversity, are difficult to change without profound modifications in the social and economic life of the region. These difficulties are compounded by widespread insecurity, large number of refugees from the combat areas, high growth of population and poverty. The study brings very valuable and detailed information about the relation between the human economy and Lake resources. It attempts to draft ways to improve life for the riparian populations. The designed program, if pursued along the same line after the project termination, will provide the Lake Management with valuable information.

Immediate Objective 6

The Implementation and sustainability of the Lake Tanganyika Strategic Action Program and incorporated environmental management proposals

Initially (before 1997), the project intended to identify future aquatic protected areas.

The results of special studies and indications of the Strategic Action Program were expected to provide the necessary information for the protected areas' identification. At the same time, some difficulties became perceptible, among them difficulties in accessing some sites and delays in implementation of special studies. As a consequence, some activities were abandoned and others completed with important delays. Only at the end of the project did it become possible.

Output 6.1

Creation of long-term research programs

Activities

Identification of areas needing further investigation is one of the tasks of the special studies whose final results will be available in two months. Some of the research priorities were outlined in the contributions of the studies to the Strategic Action Program. The pollution monitoring program developed during the special study is a part of the SAP. The delay in the activities implementation is the consequence of the delay in special studies' launching.

Table XV. Output 6.1. Activities scheduled (S) and carried out (C)

Activities		1995		1996				1997				1998				1999				2000		
		3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
6.1.1	Identify areas needing further work	S																				
		C																				
6.1.2	Consolidate pollution monitoring programme	S																				
		C																				

Results

The whole results of the research program are not yet available. The proposals included in the recently produced documents point at problems or questions of particular interests important to better understanding the studied problems.

Conclusions

We can safely say that the proposed needs reflect the research priorities. What should be done is to prioritize and integrate them into one systematic program that will cover research, monitoring of the Lake's biodiversity and biodiversity threats, Lake communities needs, and management interventions. The findings of specific studies should promote Lake conservation and Lake management sustainability.

The Commission that will be the custodian of the results of this output will be operational in some yet undetermined future. In the meantime, Project Management should tentatively designate the national institutions of the riparian countries as leaders in the further realization of the research programs. It may as well inform other potential research institutions about the identified priorities using developed information channels such as the World Wide Web, published newsletters and the contacts developed during the ongoing research.

Output 6.2

Management plans will be drawn up for the development of four underwater reserves in Lake Tanganyika for the protection of biodiversity, the conservation of commercial fish nursery grounds and the enhancement of tourism

Table XVI. Output 6.2. Activities scheduled (S) and carried out (C)

Activities			1995	1996				1997				1998				1999				2000			
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
6.2.1	Make ecological surveys of proposed reserves	S																					
		C																					
6.2.2	Define socio-economic interests and reserves	S																					
		C																					
6.2.3	Recommend reserves boundaries	S																					
		C																					
6.2.4	Produce management plans	S																					
		C																					

The project did not yet produced a management plan for development of underwater reserves that specifically address Output 6.2. However it proceeded to scrutinized the Lake from the reserve creation standpoint as was requested by

the Project Document. The elements that have been taken into consideration comprised:

Current ecological state

Environmental threat

Existence of adjacent terrestrial and aquatic parks

Existence of management capacity among existing institutions

Involvement of local communities and their acceptance

Political will and financial support

The results of the special studies indicate two ways of further development of underwater areas for the Lake's biodiversity protection.

In its final report concerning management plans for the development of underwater reserves, the project should outline the arguments advocating the proposals, assess them and propose follow-up actions. The results of the studies show that creation of underwater reserves is valid for biodiversity conservation, an economical necessity for fishery sustainability, and a potential source of supplementary revenue from tourism.

Output 6.3

Establish and manage new underwater components of reserves with trained management. Both terrestrial and underwater components of the reserves will be managed as one interdependent unit. In the existing protected areas that are presently managed as parks, the project will work with the park managers to determine the best options to achieve effective management and will provide additional training.

Table XVII. Output 6.3. Activities scheduled (S) and carried out (C)

Activities			1995		1996				1997				1998				1999				2000	
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
6.3.1	Manage underwater reserve at Nsumbu	S																				
		C																				
6.3.2	Mange underwater reserve at Mahali	S																				
		C																				
6.3.3	Make recommendation to SAP about future reserves	S																				
		C																				
6.3.4	Develop community participation programs	S																				
		C																				
6.3.5	Develop user facilities	S																				
		C																				
6.3.6	Produce underwater guidebooks	S																				
		C																				
6.3.7	Convene a workshop on underwater reserves tourism	S																				
		C																				
6.3.8	Prepare budgeting of underwater reserves	S																				
		C																				
6.3.9	Provide support for management of reserves	S																				
		C																				

The activities leading to creation of underwater reserves and underwater components of the existing reserves were not realized, except analyses that have lead to recommendations to the Strategic Action Program. To support the decision the project advances the following arguments:

Effective protection of an aquatic reserve requires protection of adjacent catchment areas. The activities in Output 6.3 required creation of underwater reserves adjacent to Nsumbu and Mahale Parks with a third reserve to be created in an unspecified location. However, these Parks (and two others) are situated precisely in the catchment areas. Extension of the existing parks to the Lake by creation of underwater reserves would require that hundreds of local fishermen change their practices. The project felt that before recommending to displace people, it should better understand the need for reserve creation. Namely it should understand better what habitats the future reserve will include, what species depend on them, and these species unique to the Lake. Only if such understanding is developed would it be possible to assess the cost of the associated socio-economic changes.

Surveying the waters adjacent to existing parks is a time-consuming process of local capacity-building. Twenty-four technicians and researchers from universities, fisheries departments, national parks and other institutions were trained to dive. The fauna of the Lake is complex. The technicians should learn to identify about 380 fish and 80 molluscs. The survey data should be introduced into the general database and analyzed. All these activities were conducted in the framework of the biodiversity special studies and the results were analyzed in a regional workshop held in Kigoma in February and March 2000.

Thus, it is only now, after this long process of training and surveying that the project may more confidently recommend creation of underwater parks. The final project report will contain these recommendations.

Output 6.4

Mechanisms for ensuring the involvement and cooperation of local populations

Table XVIII. Output 6.4. Activities scheduled (S) and carried out (C)

Activities			1995		1996				1997				1998				1999				2000		
			3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	
6.4.1	Form local consultative groups of teachers	S																					
		C																					
6.4.2	Give all support to teachers	S																					
		C																					
6.4.3	Analyze scale and distribution of benefits	S																					
		C																					

Annex VI. Legal Component

**PROJECT RAF/92/G32
POLLUTION CONTROL AND OTHER MEASURES
TO PROTECT BIODIVERSITY
IN LAKE TANGANYIKA**

**Final Project Evaluation
-Legal Component-**

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Terms of Reference and evaluation approach

The following evaluation of the legal component of the Project RAF/92/G32/Pollution Control and Other Measures to Protect Biodiversity in Lake Tanganyika (Lake Tanganyika Biodiversity Project or LTBP) has been undertaken as part of the final project evaluation. Its TOR are included in the TOR of the Final Evaluation which are reproduced in full text as Annex 1 to this report.

The essential task of the legal evaluation report was to assess the procedure used and result achieved during the legal component of the project. As the major result of the legal component has been the preparation of a Draft Convention on Lake Tanganyika, the evaluation focused on an assessment of the Draft Convention as well as on the procedure used to prepare it. The Draft Convention was assessed with regard to its relevance, efficiency, effectiveness, impact and sustainability. The legal evaluation followed as closely as possible the format given for the Final Evaluation generally, i.e. an attempt was made to answer the questions raised with regard to:

- project implementation,
- project impact,
- project design and
- conclusions and recommendations.

As required by the TOR, relevant documents made available by UNOPS and received at the 6th Steering Committee Meeting of the Project held in Lusaka, Zambia on 4/5 May 2000 (see Annex 6 for documents reviewed). The 6th SCM was attended during which a number of delegates from the four project countries as well as other participants could be interviewed (see Annex 4 for list of persons interviewed). No field visits were scheduled for the legal evaluation.

It should be taken into account that only a short time was allocated to the legal evaluation (7 days altogether, including travel from Germany to Zambia, attending 1 day of the Strategic Action Programme Meeting and 2 days of the 6th SCM, and 1 day of report-writing). Consequently, it was not possible to interview all persons who may have been involved in the process of developing the Draft Convention; it was not possible either to interview all participants attending the above mentioned meetings in Lusaka, or to study all documents which may have been produced during the 5 year project.

However, the evaluator felt that the final and documentation base were sufficient to carry out the legal evaluation and to submit the following report.

I. Project concept, context and objectives

The project documents provided for the following legal component:

Immediate Objective 2

Formulation of a regional legal framework for cooperative management of the lake environment.

Output 2.1

Analysis of existing laws and recommendations for harmonizing legislation and/or new legislation placed in an international legislative framework. This work will be done with the assistance of an expert in environmental legislation, particularly with expertise in legislation relating to internationally shared lakes; and an expert in environmental negotiation and conflict resolution.

- | | |
|-----------------------------|--|
| Activity 2.1.1. | Existing laws for the protection of the lake environment and other existing laws and regulations which impact the lake in the |
| | four countries will be reviewed. |
| Activity 2.1.2
existing | Shortcomings in the implementation and enforcement of legislation will be identified. |
| Activity 2.1.3
countries | A comparative analysis for discussion between the four countries with the view of defining compatible legislation and means to harmonize realistic legislation will be prepared. |
| Activity 2.1.4 | A basic framework of lake environment legislation for consideration by the four countries will be recommended. |

During the carrying out of the project it was decided to focus on activity 2.1.4 (recommendation of a basic framework of lake environment legislation for consideration by the four countries). This basically meant a shift in emphasis: The regional instrument to be prepared to guide the development of national legislation was considered to be the major output of the legal component of the project while the review and analysis of national legislation of the four project countries, the comparative analysis as well as specific activities with regard to environmental negotiations and conflict resolution were considered activities to follow the preparation of the regional basic framework, i.e. activities for the implementation phase (possible follow-up project).

The project also decided that the basic framework (activity 2.1.4) be a regional legal instrument, i.e. a convention. Although a framework “for consideration by the four project countries” can, in principle, also consist of a non-legal instrument (recommendation, checklist, code of conduct, guidelines or the like), it was,

nonetheless, consistent to target a draft convention as the overall objective (in the legal part of the project) is “a regional legal framework for cooperation management of the lake environment”.

It should be noted, however, that the decision to develop a draft convention had particular implications. A project like the LTBP can develop a draft only which, as the Legal Briefing Paper for SCM 6 rightly observes, serves as a working document for the formal decisions to be taken at the political level. A regional convention eventually requires the following steps:

- ❖ national consultations to involve, beyond the technical level, all other interested and concerned institutions in government as well as NGOs and other stakeholders;
- ❖ formal negotiations of the four states to agree on the final version of the text;
- ❖ adoption of the text of the draft convention;
- ❖ signing of the convention;
- ❖ ratification of the convention;
- ❖ implementation of the convention at both the regional level (in particular: establishment of the mechanism) and the national level (in particular: adoption of legal, regulatory and administrative measures to achieve the objectives of the convention).

In short: A convention requires a complex procedure to be followed and, consequently, the momentum which a project has to create must be considerably high to achieve results. This must be taken into account when measuring the impacts of the project. On the other hand: There can be no doubt that if the project is successful in initiating a process to the conclusion of a regional convention the achievements of the projects are of particular and outstanding value.

II. Project implementation

In the legal component of the project the following outputs were produced:

- ❖ review of relevant national legislation of the four project countries;
- ❖ Draft Convention on the Sustainable Management of Lake Tanganyika (Draft No. 1-4; Explanatory Memorandum for Working Draft 1.2; Explanatory Memorandum on drafting procedure and commentary, under preparation).

Although a budget line had been provided, the Project Document did not specify activities on conflict resolution matters; consequently no specific activities were carried out on conflict resolution.

However, it was correctly assumed that conflict resolution aspects will be taken into account in the draft convention. Consequently, as the evaluator has been

informed, the budget for the conflict resolution component was merged with the general budget for the legal activities.

This decision has been appropriate.

(1) General implementation and management

a) Quality:

The review of national legislation was undertaken as a desk study, the reason being that limited funds were available which did not allow for missions to the four project countries.

The review produced provided a valuable information base for the drafting of the convention. It should be noted, however, that in-country reviews of national legislation involving national legal experts, among other things:

- ❖ provide a better and easier information;
- ❖ generate interest for the project among local lawyers;
- ❖ mobilize support for the regional legal instruments, and
- ❖ provide training.

(See also recommendations below).

With regard to the Draft Convention:

Quality criteria are:

- ❖ Is Draft comprehensive and consistent, and does it reflect the international “state of the art” of transboundary water resource management agreements?
- ❖ Does Draft respond to specific conditions of Lake Tanganyika management?
- ❖ Does Draft reflect consensus of the four riparian states?

All criteria must be taken into account at the same time.

The Draft Convention is a comprehensive and consistent document. It reflects the standards of international treaty-making in transboundary water management.

Improvements may still be possible, e.g. with regard to:

- ❖ integration of the basin approach in a way which is acceptable to the four riparian countries;
- ❖ reference in the draft to status and delimitation problems;
- ❖ reference to other regional agreements and mechanisms;
- ❖ formal structure of the Draft.

However, it is an acceptable strategy that these activities and modifications be left to the formal negotiation phase. During the negotiations, these improvement which must also be supported by a consensus of the riparian states, can be achieved.

The overall conclusion is that the Draft Convention is a good quality document.

b) Timeliness:

No formal work plan and time-schedule were provided. Given the overall time-frame of the project the main legal outputs, i.e. review of national legislation and Draft Convention were delivered in time.

(2) Management arrangements

Basically two options were available:

- ❖ drafting by drafting group of representatives of the four countries, facilitated by international legal expert(s);
- ❖ drafting of the text by international legal expert(s) with involvement of national experts (technical and legal).

The project has chosen the latter approach. Involvement of national governmental experts was ensured through sub-regional and regional workshops and in other ways (commenting on drafts by local lawyers). Lawyers involved came from Ministries of Environment, Foreign Offices and / or Ministries of Justice of the four project countries.

The approach chosen was appropriate; it was also a participatory procedure. The objective, the consensus at national levels, therefore, has been achieved.

(3) Institutional set-up:

Information received allows for the conclusion that through the Regional Steering Committee and the National Steering Committees and Working Groups the riparian countries were finally involved in the preparation of the Draft Convention.

(4) Governments

The governments of the riparian states were fully involved. Lawyers from relevant ministries made their contribution to the drafting process.

(5) UNDP

(6) UNOPS

(7) Cooperation among project partners:

On (5) to (7): Information gathered suggests that inputs by and cooperation between projects partners were appropriate and satisfactory.

III. Project impact

1. Achievements as provided in the Project Document:

Objective to formulate a regional legal framework has been achieved. A Draft Convention has been submitted as a working document for formal political negotiations, signature, ratification and implementation by the four riparian countries. It is important to note that the Draft Convention reflects international standard of law-making and, at the same time, is based on a consensus among the four countries.

2. Awareness / ownership / commitment / support in the four countries

The Draft Convention has been prepared with the involvement of the national governments of the four riparian states Burundi, Democratic Republic of Congo, Tanzania and Zambia. The national governments through lawyers from various concerned ministries provided the necessary feedback to the drafters. The present Draft appears to be accepted by the governmental institutions involved in the process. At the 6th Steering Committee Meeting it became clear that these governmental institutions are prepared to mobilize more support for the Draft Convention at the national levels through further consultations with other concerned ministries and departments. An indicator of such commitment also is the support of the Strategic Action Plan which provides for provisional institutional arrangements at the regional level. It can, therefore, be concluded that the governments will do all so that formal negotiations on the Draft Convention may start very soon.

3. Policies and Strategies

Policies and strategies which may implement the Draft Convention at the national level cannot be expected yet; the immediate steps to be taken are (a) further consultations at national level and (b) negotiations among the four countries. The consensus however, to the regional strategy, the SAP, can be taken as a manifestation of the shared commitment of the four countries.

4. Sector cooperation:

In preparing the Draft Convention sectoral cooperation has taken place at national levels, at least as far as Ministries of Environment, Ministries of Foreign

Affairs and Ministries of Justice are concerned. More sectoral cooperation is intended for the immediate future (through upcoming national consultations).

IV. Conclusions and recommendations:

The process of project implementation has been appropriate. More time and financial means should, however, be allocated to the in-country review of national legislation. It would help generate momentum for the main output in the legal component: the draft regional convention.

The objectives of the legal component were achieved: a draft legal instrument as basis for the next formal political steps. Even if some improvements of the text appear to be possible, they can be achieved during the next phase; the text can be optimized during the negotiations which have to begin now.

Momentum has been generated at the national level for the next steps through fairly broad involvement of governmental institutions. These next steps are:

- national consultations on the draft,
- negotiations between the four countries,
- signing of convention,
- ratification of convention,
- implementation through law reform in the four countries.

Crucial will be: national campaigns and workshops to further increase awareness and sensibilization in government and society. Involvement of UNITAR's Environmental Law Programme with specific courses on international fresh-water management may help.

ANNEX 1

Itinerary of mission

May 1, 2000	Home office review of major documents received
May 1 / 2, 2000	Travel to Lusaka via London
May 2, 2000	Arrival at Lusaka Briefing by Dr. Andrew Menz, PCU Reception of up-dated documents Review of documents
May 3, 2000	Attending SAP Meeting (3 rd day) Meetings with FAO, participants of SAP Meeting Briefing meeting with Dr. Ingolf Schütz-Müller and Ms. Margaret Chi Preparatory meeting for Steering Committee Meeting with UNOPS (Dr. Ingolf Schütz-Müller, Margaret Chi), GEF (Mr. David La Roche) and PCU (Dr. Andrew Menz, Dr. Kelly West)
May 4, 2000	Attending Steering Committee Meeting 6 Meetings with participants, particularly lawyers from participating countries Exchange of views with legal consultant of the project (Mr. Cormac Cullinan) Coordination with Team Leader of Evaluation Team (Mr. Stanislaw Manikowski)
May 5, 2000	Attending SCM (continued) Final exchange of views with legal consultant Further meetings with SCM participant
May 6-7, 2000	Return travel to Germany via Johannesburg Commencing drafting report
May 7, 2000	Arrival in Germany
May 8-12, 2000	Finalizing Draft Report

ANNEX 2

List of persons met and interviewed

Project Coordination Unit

Dr. Andrew Menz
Dr. Kelly West

Project Legal Consultant

Mr. Cormac Cullinan

Burundi

Mr. Benoit Bihamiriza
Mr. Boniface Nyakageni

DRC

Mr. Mbusu Ngameni
Mr. Mapango Kemishanga
Dr. Nshombo Muderhwa

Tanzania

Mr. Rawson Yonazi
Prof. Hudson Nkotagu, Member of SAP Planning Group
Ms. Hawa Msham

Zambia

Mr. James Phiri
Mr. George M. Chitalu
Ms. Maureen Nsomi
Mr. Shadreck Yona Nsongela

UNOPS

Dr. Ingolf Schütz-Müller
Ms. Margaret Chi

GEF

Mr. David La Roche

Observers to SCM

Richard W. Fuller, FAO

George W. Ssentongo, CIFA

ANNEX 4

Summary of Field Visits

No Field Visits were scheduled for the legal component of the final evaluation mission.

ANNEX 5

List of documents reviewed

- Draft Convention on Lake Tanganyika (Drafts 1-4; Draft 4 entitled “The Convention on the Sustainable Management of Lake Tanganyika”);
- Comments from UNEP on Draft Convention on Lake Tanganyika (Comments on Draft No. 1);
- Comments on the Convention on the Sustainable Management of Lake Tanganyika (Working Draft No. 4)
- Proceedings of the Regional Legal Workshop held in Arusha, Tanzania
- Legal Briefing Paper (for SCM);
- UNDP Project Document;
- The First Strategic Evaluation Review 1999, Draft Document;
- The Transboundary Diagnostic Analysis;
- Documents from Steering Committee Meeting 6.