

Republic of Malawi
Lake Malawi/Nyasa Biodiversity Conservation

Project Document
December 1994

CURRENCY EQUIVALENTS

Currency Unit = Malawi Kwacha (MK)
MK 7.14 = US\$1

WEIGHTS AND MEASURES

The metric system is used throughout this report

GOVERNMENT FISCAL YEAR

April 1 - March 31

ACRONYMS AND ABBREVIATIONS

BMPL	Biodiversity Map and Management Plan for Lake Malawi/Nyasa
CIDA	Canadian International Development Agency
DNPW	Department of National Parks and Wildlife
FD	Fisheries Department
GEF	Global Environment Facility
GET	Global Environment Trust
IDA	International Development Association
JICA	Japan International Cooperation Agency
LMNP	Lake Malawi National Park
MFNR	Ministry of Forestry and Natural Resources
MK	Malawi Kwacha
MPPS	Ministry of Physical Planning and Surveys
NGO	Non-governmental Organization
SADC	Southern Africa Development Community
UN	United Nations
UNDP	United Nations Development Programme

REPUBLIC OF MALAWI
LAKE MALAWI/NYASA BIODIVERSITY CONSERVATION PROJECT

GRANT AND PROJECT SUMMARY

Recipient: Government of Malawi
Grantee: Global Environment Trust
Beneficiary: Ministry of Forestry and Natural Resources
Amount: SDR 3.5 million (US\$5 million equivalent)
Terms: Grant
Financing Plan:

Source	Local	Foreign	Total
	(US\$Million)		
GEF Grant		5.0	5.0
CIDA Inc.		0.24	0.24
Government	0.2		0.2
TOTAL	0.2	5.24	5.44

Economic Rate of Return: Not calculated, though substantial environmental, social and economic benefits are expected.

Poverty Category: Not applicable

Map: IBRD No. 25786

REPUBLIC OF MALAWI

SADC LAKE MALAWI/NYASA BIODIVERSITY CONSERVATION PROJECT

Background

- 1. Biological Significance.** Lake Malawi/Nyasa (the Lake) is the southern-most lake in the African rift valley and ranks among the largest fresh water lakes in the world. The Lake is surrounded by Malawi to the west and south, and Mozambique and Tanzania to the east and north. Thirteen major river systems drain the Lake's total catchment area of 75,000 km². The majority of the Lake's surface area is within Malawi, along with 80% of the total Lake shore population.
- 2.** The riparian human population density and growth rate is high, and the Lake's resources provide substantial economic and nutritional benefits to the local communities in all three countries. In Malawi, fish accounts for about 70% of the protein consumed by the country's population. About 90% of the Lake's fish catch is caught by small-scale fishermen using artisanal methods. Fishing employs about 40,000 people directly, and another 250,000 people in related employment activities, such as fish processing and marketing.
- 3.** The diversity of the Lake's native fish species is unparalleled in the world, with 500 to 1000 fish species from ten families recorded to date. Particularly noteworthy are the cichlids, of which all but five of the more than 400 species are endemic to the Lake. Many cichlids have localized distributions within the Lake. Consequently, they are vulnerable to extinction from overfishing, localized effects of pollution, and other environmental problems. The 94 km² Lake Malawi National Park (LMNP), which adjoins and extends into the southern portion of the Lake, is the only protected area for the cichlid fishes in the tripartite Lake. The LMNP was established in 1980 by the Government of Malawi as the first freshwater, underwater national park in Africa, and is now a UNESCO World Heritage Site.
- 4. Natural Resource Management Policy.** While no comprehensive management plan currently exists for the Lake, Malawi, Mozambique and Tanzania are at various stages of developing National Environmental Action Plans (NEAPs) and related environmental policies which will provide the frameworks for general environmental management at the national level. They all recognize the importance of preserving the Lake ecosystem, and that this will depend on tri-national participation in lake management as well as building capacity in the monitoring, legislative and enforcement capabilities of the riparian governments.
- 5. Related Conservation and Natural Resource Management Projects.** The IDA Malawi Fisheries Development Project became effective in 1991 and is being implemented by the Malawi Fisheries Department (FD). In 1993, the project was restructured from a focus on fisheries production to an emphasis on sustainable resource management of the Lake's fisheries stocks. A pilot Aquaculture and Hatchery Program to be financed by the Japan International Cooperation Agency (JICA) is being prepared with the aim of establishing a research center for the mpasa and nchila indigenous fish species and to promote small-scale market oriented aquaculture using these species. JICA's pilot project will complement the GEF project by increasing the populations of these two specific species. As a pilot program it will also identify the potential for aquaculture production of indigenous species as a means of reducing pressure on the Lake's resources and creating employment

opportunities. A third project, the United Kingdom/Southern Africa Development Community (UK/SADC) Pelagic Fish Project, concluded in May 1994. It was a tripartite research venture focusing on the productivity of pelagic fish. The project findings have led to the recommendation that a regional consultative group be established for the management of the Lake by the three countries. This goal has been adopted by the GEF project and it will maintain the Steering Committee management structure established under the UK/SADC project.

6. The research activities of the GEF project would complement the above projects by providing needed information on the occurrence, distribution and ecology of the rare endemic species which will have relevance for zoning the coastline and establishment of reserves to protect the whole range of the Lake's biodiversity. Moreover, the project's training program will strengthen capacity among the riparian countries which is critical for implementing action programs to sustainably manage the lake over the long-term.

Project Objectives

7. The main objective of the project is to assist the riparian states in creating the scientific, educational, and policy basis necessary for conserving the biological diversity of the Lake and its unique ecosystem. It will be achieved through the following specific activities:

- building scientific capacity within the riparian countries to survey, study and monitor the Lake's biodiversity, identify threats, and provide recommendations for the Lake's management;
- surveying and inventorying species, identifying critical habitats and biodiversity hotspots and recommending preliminary measures to demarcate and protect such areas;
- identifying pollution sources and measuring water quality at sites where human activities threaten biodiversity;
- preparing a Strategic Plan for the Nankumba Peninsula and Lake Malawi National Park for eco-tourism development, consistent with the protection and conservation of the Lake's biodiversity;
- preparing a comprehensive Biodiversity Map and Management Plan for Lake Malawi/Nyasa based on the information provided by the species, habitat, and water quality analyses;
- increasing conservation awareness among the lakeshore population and regional and national policy makers, whose decisions regarding regional development have an impact on the Lake's ecosystem; and
- reviewing the adequacy of existing national environmental legislation in Malawi, Mozambique and Tanzania and making appropriate legislative recommendations for revising and/or strengthening enforcement for the conservation of the Lake's biodiversity.

Project Description

8. The project's main output will be the Biodiversity Map and Management Plan for Lake Malawi/Nyasa (BMPL). The BMPL will recommend conservation actions and investments to protect the Lake's biodiversity. These will include zoning of the Lake's coastline for appropriate biodiversity

conservation, and identifying a system of potential protected areas that are representative of the Lake's biodiversity hotspots which will be complementary to the Lake Malawi National Park. The development of the BMPL will be achieved through the project's four components.

- (a) The **Research Component** consists of: (i) biodiversity surveys to inventory fish species and their distribution, identify critical habitats and biodiversity areas in the Lake, produce a map of critical habitats, and identify threats to the Lake's biodiversity; (ii) studies on the taxonomy, ecology and distribution of the cichlid species; (iii) a limnology and water quality monitoring program to identify pollution threats to hotspots and fish replenishment areas; and (iv) modest rehabilitation of the Cape MaClear Research Station in Malawi, the Kyela Centre Fisheries Research Station in Tanzania, and the Metangula Fisheries Research Station in Mozambique.
- (b) The **National Capacity Building** component consists of "on-the-job" training of officer level and technical staff from the riparian countries in ecology, taxonomy, limnology, and environmental education. The training will focus on building local capacity for the research and conservation planning activities in future lake project/programs. Activities under this component will also increase conservation awareness among all sectors of society from decision-makers to resource users of the Lake through informal and formal educational initiatives implemented by the Wildlife Society of Malawi and development of a Conservation Awareness Program, including media productions. Financing will also be provided for rehabilitation of the Environmental Education Facility at Lake Malawi National Park which has established an important educational link with the local schools and residents of the Park's enclave villages.
- (c) The **Environmental Legislation** component will review and evaluate the compatibility of the existing legislation in Malawi, Mozambique and Tanzania for the management of the Lake's biodiversity. The results of the review will be presented at an environmental legislation conference of the three countries, and will culminate in a report to the riparian governments, providing recommendations for revising and strengthening legislation and enforcement ability, while creating a harmonized and effective legal framework for the conservation of Lake Malawi/Nyasa's biodiversity.
- (d) The **Protected Areas Management** component involves the preparation of a Strategic Plan for Nankumba Peninsula and Lake Malawi National Park. The Strategic Plan will be prepared in two phases. The first phase, dealing with data survey and collection of information, will be financed by Canadian International Development Agency, Industrial Cooperation Division (CIDA INC). The Project will finance the second phase which will emphasize community participation in the planning process, identify community roles in Park and Lake conservation, and conclude with proposals for preferred development options and their environmental implications. Assistance will also be provided to the Government of Malawi to design a funding mechanism to address recurrent funding for the sustainable development, management and maintenance of Lake Malawi National Park and the continued monitoring of biodiversity conservation indicators.

Project Implementation

9. At the regional level, Malawi's Ministry of Forestry and Natural Resources (MFNR) is the SADC Sector Coordinator for Inland Fisheries, Forestry and Wildlife. The Principal Secretary for MFNR will be responsible for the implementation of this GEF project on behalf of the riparian countries. A Steering Committee comprising members from the Fisheries Departments and the National Parks Departments or equivalents from the riparian countries, and NGO/community representatives will serve as an advisory body under the leadership of the Principal Secretary of MFNR. A Project Manager (PM) and Financial Controller based in Senga Bay, Malawi, will manage the project's activities consistent with the Global Environment Trust Fund and the Project Implementation Plan under the guidance of the Principal Secretary of MFNR. Under the PM's supervision, 3 scientific experts will be recruited to lead the research and training components; an international law expert will be recruited to support the implementation of the environmental legislation component; and the Wildlife Society of Malawi, an NGO, will be contracted for the conservation awareness sub-component. The Ministry of Physical Planning and Surveys (MPPS) will supervise the preparation of the Strategic Plan for Nankumba Peninsula and Lake Malawi National Park. The rehabilitation of National Research Stations in Mozambique and Tanzania will be the responsibility of the respective governments, according to programs designed and implemented through UNDP for each country. UNDP will be responsible for all procurement and disbursement under this sub-component. Modest rehabilitation of the National Research Station in Malawi will be implemented under the project's research component.

10. A draft Project Implementation Plan has been prepared which includes *inter alia* a procurement plan, training programs, and M&E procedures. The main instruments for monitoring project progress will be quarterly reports covering the various project activities, submitted to the PM by the leaders of each project component, including UNDP reports on project activities in Mozambique and Tanzania. A consolidated quarterly progress report prepared by the PM, and copied to the Bank, will be regularly reviewed by the Steering Committee, who will recommend corrective actions, if any.

Project Sustainability

11. Through scientific research, the project will identify priority areas for biodiversity conservation and establish the basis for sustainable utilization and management of the Lake's globally important biodiversity. A key element in the project's sustainability will be the training of local scientists and technicians in the fields of fish ecology, taxonomy, and limnology and water quality monitoring who will continue this work beyond the life of the project. The identification of pollution sources and measurement of water quality at sites where human activities threaten biodiversity will facilitate routine, cost-effective monitoring of identified biodiversity indicators on an ongoing basis by all three countries. The establishment of a systematic reporting of scientific findings to administrative, policy, and donor institutions, and the general public will provide authorities with the needed knowledge base for sustainable resource utilization and alert them of the need for tripartite corrective action if there is an indication of ecosystem degradation or threat to the biodiversity of the Lake. The Biodiversity Map and Management Plan for the Lake, as well as the Strategic Plan for Nankumba Peninsula and LMNP, will provide a long term plan for the sustainable management of the Lake's aquatic and coastal resources, and the legislative review will recommend the environmental policy changes needed for sustainable management.

Past Experience and Lessons Learned

12. Experience with similar projects has shown that international coordination is an issue of concern. For example, the proposed GEF project for Lake Tanganyika has had difficulties in orchestrating a forum in which the riparian countries can agree on project components. The Lake Malawi/Nyasa GEF project will benefit from existing coordination arrangements under the SADC umbrella.

13. While all efforts have been made to limit the amount of technical assistance in this project, the implementation experience of other projects which have large scientific or technical components indicates the need for staff with substantial scientific expertise in order to achieve desired results. Where this expertise is not available within the project countries, suitably qualified local individuals will be selected to be trained on-the-job by the external experts to assure the continuation of scientific components after project completion.

Rationale for Bank Involvement and GEF Funding

14. The global importance of Lake Malawi/Nyasa for biodiversity conservation is derived from the exceptional diversity of its unique fishes, estimated to number between 500 and 1000 endemic species, of which less than half have been formally described taxonomically. The Lake Malawi/Nyasa ichthyofauna represents the world's most diverse evolutionary radiation of fishes within a single lake. The project represents an important contribution to the GEF portfolio as it will address the problems of: (a) maintaining the stability and diversity of a biota which includes a number of exploited species; (b) enabling local communities to better understand the issues involved and engage in the ecologically sustainable use of the Lake's resources; and (c) creating the framework for international cooperation in the management of the Lake. The project will serve as a model for other large freshwater ecosystems where similar problems of overfishing, pollution and other perturbations, and international interdependency arise. The GEF is the only significant source of funding for biodiversity conservation of this nature.

Agreed Actions

15. Prior to Negotiations, the Government of Malawi agreed to and granted a continuation of the declaration of Trust for SADC's use and maintenance of the Senga Bay research facility for the duration of the GEF project.

16. During negotiations the Government of Malawi agreed: (a) to enter into agreement between the Recipient and UNDP for the rehabilitation of National Research Stations in Mozambique and Tanzania and submit a duly-signed withdrawal application, in an amount of US\$400,000 payable to UNDP; (b) to have the first project annual work plan included in the Project Implementation Plan and subsequent consolidated work plans prepared for project components before the end of the year preceding the year addressed by the plan and provide them to the Steering Committee for review with copies sent to the Bank; (c) to prepare a Strategic Plan for Nankumba Peninsula and Lake Malawi National Park and submit it to the Bank for comments within one year after project effectiveness; (d) to undertake development activities in Nankumba Peninsula and Lake Malawi National Park consistent with the Strategic Plan; (e) to prepare a preliminary draft of the Biodiversity Map and Management Plan for Lake Malawi/Nyasa to be reviewed with the Riparian States and the Bank within twenty-four months after Grant effectiveness; (f) to submit a final draft Biodiversity Map and Management Plan for Lake Malawi/Nyasa to the Bank for comments no later than 36 months after Grant effectiveness;

and (g) to submit to SADC within 42 months after Grant effectiveness, a time-bound proposal for the implementation of the Biodiversity Map and Management Plan for Lake Malawi/Nyasa by the riparian countries.

17. As conditions of Grant effectiveness the Government will: (a) establish a Project Steering Committee with membership acceptable to the Bank, chaired by the Principal Secretary for the Ministry of Forestry and Natural Resources; (b) appoint a Project Manager and Financial Controller; and (c) finalize the Project Implementation Plan.

Environment Aspects

18. The project was assigned environmental assessment category B due to infrastructure development in Lake Malawi National Park which required an environmental mitigation plan. However, infrastructure development has been halted pending the development of a Strategic Plan for Nankumba Peninsula and Lake Malawi National Park which will identify activities that require appropriate environmental impact assessments. There is, therefore, no need to prepare an environmental mitigation plan for the project at this time.

Benefits

19. The project is designed to establish the scientific, educational and policy basis for the conservation of the Lake's globally important biodiversity. A major goal of the project is to strengthen capacity among the riparian countries in the fresh water management, research, and environmental education disciplines. The project will provide baseline biological and water quality information as a basis for future scientific monitoring and lake resources management. These outputs, together with the initiatives to harmonize policy and legislation, will strengthen tri-national participation in lake management and provide the capacity and information necessary for maintaining the Lake's unique biodiversity resources.

20. The Biodiversity Map and Management Plan for the Lake will recommend specific follow-up conservation actions and investments, and identify a system of protected areas that will be representative of the biological hotspots of the Lake, and complementary to Lake Malawi National Park, to protect samples of all habitats and fish communities. This plan will provide the framework for follow-up national and potential international action programs to manage the Lake on an environmentally sound and sustainable basis.

Risks

21. Limited government implementation capacity may be a major constraint to the realization of the full project benefits. The design of this project minimizes such risks. First, it will utilize the tri-national Steering Committee Management structure which has proved to be successful in the UK/SADC project. Second, technical assistance will be used selectively to augment government capability during the investment period. Third, the extensive training under the project will enable nationals of the riparian states to manage follow-up conservation actions and investments identified in the Biodiversity Map and Management Plan for Lake Malawi/Nyasa, and minimize the need for further foreign technical assistance. The risk that this capacity may be compromised by additional development obligations in the future cannot be entirely dismissed. However, it is anticipated that Government commitment to the management of the Lake will be sufficiently strengthened under the project to mitigate this risk. There is also a risk that the future scarcity of investment sources will

prevent the full implementation of the Biodiversity Management Plan for the Lake. The strengthening of scientific work on the Lake, and increased involvement of the international community in its monitoring and management should help to mobilize the resources needed for its sustainable development.

Schedule A
Table 3.1: Summary of Project Costs by Component

Project Component	COST						% Foreign Exchange	% Total Base Costs
	MK '000			US\$				
	Local	Foreign	Total	Local	Foreign	Total		
1. Research ^A	9,185.0	8,379.6	17,564.5	1,287,528	1,173,611	2,461,139	48	51
2. Strengthening National Capacity	1,876.3	674.2	2,550.5	262,786.2	94,431.1	357,217.3	26	7
3. Legislation	308.1	601.1	909.2	43,154.8	84,188.3	127,343.1	66	3
4. Protected Areas	655.8	7,119.3	7,775.1	91,843.1	998,527	1,090,370	92	22
5. Project Administration	2,923.6	2,989.7	5,913.4	409,473.4	418,728.6	828,202.1	51	17
Total Baseline Costs	14,948.8	19,764.0	34,712.7	2,094,786	2,769,486	4,864,272	57	100
Physical Contingencies	913.0	1,229.2	2,142.2	127,869.4	172,163.7	300,033.1	57	6
Price Contingencies	1,934.4	2,630.8	4,565.2	116,157.2	159,539.4	275,696.6	58	6
Total Project Costs	17,796.1	23,624.0	41,420.1	2,338,813	3,101,189	5,440,001	57	112

^A Includes US\$400,000 for the rehabilitation of the Kyela Research Station in Tanzania and the Metangula Research Station in Mozambique which will be implemented by UNDP.

Schedule B
PROCUREMENT ARRANGEMENTS
(US\$Thousands)

Expenditure Category	Procurement Method				N.B.F.	Total
	International Competitive Bidding	Local Competitive Bidding	Other	Consulting Services		
A. Civil Works	-	571	-	-	-	571
B. Equipment and Goods	68	-	-	-	-	68
C. Vehicles	98	-	-	-	-	98
D. Consultant Services	-	-	-	2,583	254	2,837
E. Service Contracts	-	-	535	-	200	735
F. Incremental Operating Costs	-	-	1,131	-	-	1,131
TOTAL	166	571	1,666	2,583	454	5,440

**Schedule C
DISBURSEMENT**

Category of Items	US\$Equivalent	% of Expenditure to be Financed
A. Civil Works ^A	571,000	100
B. Equipment and Goods	68,000	100
C. Vehicles	98,000	100
D. Technical Assistance	3,410,000	100
E. Training	162,000	100
F. Incremental Operating Costs	1,131,000	100
TOTAL	5,440,000	100

^A US\$400,000 covers National Research Stations in Mozambique and Tanzania (US\$200,000 each)

**Schedule D
TIMETABLE OF PROJECT PROCESSING**

A. Time Taken to Prepare:	35 months
B. Prepared by:	Government of Malawi with Bank assistance
C. First Bank Mission:	September 1991
D. Appraisal Mission Departure:	February 1993
E. Negotiations:	September 1994
F. Planned Date of Effectiveness:	January 1995
G. List of Relevant PCRs and PPARs:	None

Based on the finding of an appraisal mission, this report was prepared by the following: E. Asibey (Senior Ecologist and Task Manager, AF1AE), J. Larson (Operations Analyst, AF1AE), and S. Riddle (Consultant, AF1AE). The cost tables were prepared by R. Kirubaidoss (Senior Staff Assistant, AF4PH). E. Loayza (AGRTN) was the Lead Advisor, and R. Zweig (ASTEN) and G. Van Santen (EMTAG) were the peer reviewers. The Division Chief is C. Helman and the Department Director is K. Marshall.

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MK 7.14 = US\$1

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GOVERNMENT FISCAL YEAR

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ACRONYMS AND ABBREVIATIONS

BMPL	Biodiversity Map and Management Plan for Lake Malawi/Nyasa
CEO	Community Education Officer
CIDA	Canadian International Development Agency
DNPW	Department of National Parks and Wildlife
DREA	Department of Research and Environmental Affairs
EEO	Environmental Education Officer
FAO	Food and Agricultural Organization
FD	Fisheries Department
GEF	Global Environment Facility
GET	Global Environment Trust
ICB	International Competitive Bidding
ICS	International Competitive Selection
IDA	International Development Association
JICA	Japan International Cooperation Agency
LCB	Local Competitive Bidding
LMNP	Lake Malawi National Park
LOI	Letter of Invitation
MFNR	Ministry of Forestry and Natural Resources
MK	Malawi Kwacha
MPPS	Ministry of Physical Planning and Surveys
MREA	Ministry of Research and Environmental Affairs
NEAP	National Environmental Action Plan
NEMP	National Environmental Management Program
NGO	Non-governmental Organization
ODA	Overseas Development Administration
RAG	Research Advisory Group
SADC	Southern Africa Development Community
TFAP	Traditional Fisheries Assessment Project
UN	United Nations
UNDP	United Nations Development Program
WSM	Wildlife Society of Malawi

GOVERNMENT OF MALAWI
SADC LAKE MALAWI/NYASA BIODIVERSITY CONSERVATION PROJECT

TABLE OF CONTENTS

	Page
1. BACKGROUND	1
A. General	1
B. Threats to the Sustainability of Lake Malawi/Nyasa's Biodiversity	1
C. Current Natural Resource Management Policy and Legislation	2
D. Regional and Malawi Institutions Relevant to the Project	3
E. The Project's NGO Involvement	4
F. Related Conservation and Natural Resource Management Projects	5
2. THE PROJECT	8
A. Project Concept and Objectives	8
B. Detailed Project Description	9
C. Project Management and Implementation Arrangements	15
D. Monitoring, Evaluation, and Reporting	16
E. Project Costs and Financing	18
(1) Cost Estimates	18
(2) Procurement	19
(3) Disbursements	21
(4) Financial Accounting and Audit Requirements	22
3. ENVIRONMENTAL IMPACT, BENEFITS AND RISKS	23
A. Environmental Impact	23
B. Project Benefits	23
C. Project Risks	23
4. ASSURANCES, CONDITIONS OF EFFECTIVENESS, AND RECOMMENDATION . . .	25
 ANNEXES	
1. Project Components, Activities and Outputs	28
2. Project Implementation Chart	29
3. Steering Committee Terms of Reference	30
4. Project Administration Terms of Reference	31
5. Research Component Terms of Reference	34
6. Strategic Plan for Nankumba Peninsula, Lake Malawi National Park and Enclave Villages ..	38
7. Legislation Component Terms of Reference	41
8. Tanzania National Research Station	43
9. Mozambique National Research Station	44
10. Implementation Schedule	45
11. Consultancies and Training Schedule	48
12. Supervision Schedule	50
13. Estimated Project Costs	53



GOVERNMENT OF MALAWI
SADC LAKE MALAWI/NYASA BIODIVERSITY CONSERVATION PROJECT

1. BACKGROUND

A. General

1.1 Lake Malawi/Nyasa (the Lake) is the southern-most lake in the African rift valley and ranks amongst the largest freshwater lakes in the world. The Lake is surrounded by Malawi to the west and south, and Mozambique and Tanzania to the east and north. Thirteen major river systems drain the Lake from its total catchment area of 75,000 km².

1.2 The riparian human population density and growth rate are high, and the Lake's resources provide substantial economic and nutritional benefits to the local communities in all three countries. Malawi is a major beneficiary, as the majority of the Lake's surface area is within Malawi, along with about 80% of the total Lake shore population. About 90% of the Lake's fish catch is caught by small-scale or artisanal methods within 2 km of the shoreline. Fish accounts for about 70% of the animal protein consumed by the population of Malawi, and fishing employs about 40,000 people directly, and another 250,000 people in related employment activities such as fish processing and marketing.

1.3 The diversity of the Lake's native fish species is unparalleled in the world with over 500-1000 fish species from ten families recorded to date. Particularly noteworthy are the 400 documented species of cichlids, of which all but five are endemic to the Lake. Cichlids, due to their sedentary nature, have localized distributions within the Lake. Consequently, they are vulnerable to extinction from overfishing, localized effects of pollution, and other environmental problems. The only area which protects the cichlid fishes is the 94 km² Lake Malawi National Park (LMNP), which adjoins and extends into the southern portion of the Lake. The LMNP was established in 1980 by the Government of Malawi as the first freshwater, underwater national park in Africa (and now a UNESCO World Heritage Site).

B. Threats to the Sustainability of Lake Malawi/Nyasa's Biodiversity

1.4 **Fisheries.** The Lake ecosystem is not, at this point known to be, critically endangered; however there are disturbing signs and the riparian governments and communities are concerned that unsustainable fishing practices, the lack of knowledge of the Lake's resources, and the lack of a coordinated management plan will threaten the environmental integrity and productive capacity of the Lake in the future. The example provided by the nearby Lake Malombe, located south of Lake Malawi/Nyasa, illustrates the potential crisis that could arise if measures are not taken to use the Lake's resources in a sustainable manner. The chambo fish catch in Lake Malombe was recorded at 10,000 tons in 1986. This has now dropped to between 200 and 300 tons per year.

1.5 Recently fishermen on Lake Malawi have reported declining returns per unit of fishing effort in the southern part of the Lake. In the same area, the commercial trawl fisheries have also experienced declining harvests in recent years, despite being more closely regulated than the inshore artisanal fisheries. Species such as the cichlid "utaka," harvested by local fishing communities as a significant protein source, are declining. Others, such as "mpasa", an endemic cyprinid, have already shown precipitous declines in recent years. It is likely that significant management interventions will be required to make their recovery possible.

1.6 Malawi's aquarium fish trade, while probably greater now than at any time in the past (50,000 fish per annum, roughly contributing US\$350,000 to the local economy), has probably had little impact on the fish resources. While more than 140 species are taken for the aquarium trade, the number taken of any given species is usually small. Although this industry merits careful monitoring, current indications are that the net benefits to the local economy through direct revenues outweigh the environmental risks of the trade.

1.7 **Population Growth and Land Use Practices.** The Lake ecosystem is also increasingly under pressure from the rapid population growth and intensified land use practices in the catchment areas. Land policy and an increased demand for arable land have accelerated the expansion of agriculture into marginal lands; in addition, increased soil erosion is occurring, resulting in increased sedimentation of streams and rivers which feed into the Lake. For example, changing land use practices have caused alterations in stream flow patterns associated with the water runoff regime into the Lake. Both the quantity and distribution of sediments in this runoff -- containing human wastes, fertilizer and agro-chemical inputs -- may be threatening the sustainability of both anadromous and sedentary fishes which utilize the rocky littoral zone. More research is needed to confirm the effects of this runoff. The conflict between the human demands on the riparian resources and environmental sustainability has become a particularly pressing issue in the Nankumba Peninsula and the Lake Malawi National Park in the southern end of the Lake within Malawi.

C. Current Natural Resource Management Policy and Legislation

1.8 **Government Capacity and International Coordination.** The current knowledge of the Lake's ecology is fragmentary, making it difficult to assess the status of the Lake's ecosystem and the extent of its degradation. Most of the major scientific work on the Lake has been done in Malawi territorial waters and thus the statistical information used in this document relates largely to Malawi. The riparian governments as a group have limited management, monitoring, regulatory and enforcement capabilities. They all recognize the importance of preserving the Lake ecosystem and that this will depend on tri-national participation in lake management as well as building capacity in research, development, and conservation.

1.9 While no comprehensive management plans for the Lake exist in any one of the three countries, Malawi, Mozambique and Tanzania are all at various stages of developing National Environmental Action/Management Plans and related environmental policies which will provide a framework for general environmental management at the national level.

1.10 In Malawi, the Department of Research and Environmental Affairs (DREA) was established in 1991, as part of the Office of the President and the Cabinet. DREA was responsible for the preparation of Malawi's National Environmental Action Plan (NEAP), which was completed in June 1994. DREA, in September 1994, became the Ministry of Research and Environmental Affairs (MREA). MREA's mandate is the coordination of national policies that will help protect the environment and sustain development. The depletion of fish stocks has been identified as an important environmental issue in Malawi's NEAP. The government's strategy to address this issue is to develop a watershed program to reduce the sediment load in both the rivers and lake waters and improve information on fish species, fish stock and regeneration capacities to formulate guidelines for sustainable management of the country's rivers and lakes. Malawi has also established an Environment

Committee and is currently reviewing laws relating to the protection of the environment. It has covered, to date, the fishery, wildlife and national parks sectors.

1.11 In Mozambique, the Government has established the National Commission for the Environment (Comissao Nacional do Meio Ambiente - CNA) by Presidential Decree (No. 2/92) on June 3, 1992. CNA is coordinating the preparation of the National Environmental Management Program (NEMP, the NEAP equivalent), which will be prepared in three phases. The NEMP is envisaged to provide for environmental sustainability in sector plans and the national reconstruction plans currently under preparation, and to aid in refining and developing investment projects by the Government of Mozambique and the donor community. A draft NEMP has identified the lack of scientific data and information available on fisheries resources in Mozambique's territorial waters of Lake Malawi/Nyasa as an issue of concern. With regard to Mozambique's national legislation, a working group has been established under the Provisional Environmental Secretariat, and it is expected that in the near future Mozambique will promulgate an Environmental Protection Act.

1.12 In Tanzania, the National Environment Management Council (NEMC) is spearheading the NEAP process. The deterioration of marine and fresh water systems has been identified in the NEAP as one of the six major problems needing urgent national attention. Among the required actions identified in the NEAP to address this environmental problem are: (i) to develop legal requirements and legally based management plans on the basis of population, habitat conservation, multiple uses and sustained yield of the resource; (ii) to establish regional coordinating committees for rivers and lakes, giving priority to systems where conflicts are already occurring or where there is pollution or threats to biodiversity; and (iii) to monitor aquatic ecosystems - both freshwater and marine - to ensure that fish stocks are not being depleted. The Government has also made efforts through the National Environment Management Council and the Ministry of Tourism, Natural Resources and Environment to develop an Environmental Protection Act. This bill, which is in the final stages of presentation to Parliament, will cover all areas of environmental management in one consolidated act.

1.13 In addition to the above national environmental plans, Malawi, Mozambique, and Tanzania are all contracting parties to the following international agreements:

- The 1972 UNESCO Convention concerning the protection of the World Cultural and Natural Heritage; and
- The United Nations Convention on the Law of the Sea (Malawi is a signatory).

As of November 1994, these riparian countries were not Parties to the 1971 Ramsar Convention on Wetlands of International Importance.

D. Regional and Malawi Institutions Relevant to the Project

1.14 **Southern African Development Community (SADC).** At the regional level the most important institution within the current context is the Southern African Development Community (SADC), of which Malawi, Mozambique and Tanzania are all members. Within SADC, the responsibility for the coordination of different developmental functions are apportioned among the member states, with environmental issues coordinated by Lesotho; inland fisheries, forestry, national parks and wildlife issues coordinated by Malawi; and

marine fisheries coordinated by Namibia. This project has been formally endorsed by SADC. The Governments of Malawi, Mozambique and Tanzania have endorsed the project with the understanding that it will cover the whole lake for the benefit of the riparian countries.

1.15 The Ministry of Forestry and Natural Resources of Malawi (MFNR). The MFNR's scope encompasses both the use and conservation of natural resources. There are three departments within the MFNR: Forestry, National Parks and Wildlife, and Fisheries. The latter two departments are of particular relevance to the GEF project.

1.16 The Fisheries Department of Malawi (FD). The FD, within the Ministry of Forestry and Natural Resources (MFNR), is responsible for all aspects of fishery and aquaculture, research, management, development and training, through the enforcement of the Fisheries Act. The Department is supported by a number of internationally recruited and financed technical assistants in its Headquarters in Lilongwe, including a research coordinator, a planner and an economist. It has a small but experienced professional staff, however financial constraints severely weaken their enforcement capacity.

1.17 The Department of National Parks and Wildlife of Malawi (DNPW). DNPW, within the MFNR, is responsible for the establishment, development, and management of National Parks. It is also responsible for all aspects of the control and management of hunting, and wildlife management and conservation throughout the country.

1.18 The Ministry of Physical Planning and Surveys (MPPS). The Physical Planning Department (PPD) within the MPPS is responsible for all aspects of physical planning in the country. The PPD is a member of the Lake Shore Development Committee which authorizes development along the Lake Shore in the Mangochi area which covers Nankumba Peninsula.

E. The Project's NGO Involvement

1.19 The following Non-Governmental Organizations (NGOs) are actively involved in conservation in the project areas:

- (i) The Wildlife Society of Malawi (WSM), founded in 1937, is a local NGO supported by donations and subscriptions. The society has played an important role in recent years in community education in wildlife and environmental issues. It is committed to working towards building popular appreciation of natural assets through public awareness campaigns and environmental education programs. WSM in cooperation with Malawi's DNPW will be responsible for implementing the project's conservation awareness program.
- (ii) The Presbyterian Church of Malawi. Within the Chembe village and adjacent to the boundaries of Lake Malawi National Park is the historic site of the first Livingstone mission settlement and burial grounds. The Presbyterian Church of Malawi has plans to restore the site. The Church will be involved in the review and implementation of the Strategic Plan for Nankumba Peninsula and Lake Malawi National Park, which would include these historical sites.
- (iii) World Wildlife Fund (USA) (WWF-US) has assisted with planning, training and delivery of park interpretation and environmental education at Cape MaClear. It has established an environmental education center upon which

this project will build. WWF will participate in the discussions and reviews associated with the strategic plan for the Nankumba Peninsula and the Lake Malawi National Park. WWF participated in the project's appraisal mission and is now in the process of developing an integrated conservation and development program for the Lake Malawi National Park, complementing this project's activities in Malawi.

F. Related Conservation and Natural Resource Management Projects

1.20 Pelagic Fish Resource Assessment Project (UK/SADC). The UK/SADC project funded by the Overseas Development Administration (ODA) concluded in May 1994, was a joint Malawi/Mozambique/Tanzania/UK research venture. The project fielded a large international research team equipped with a multi-purpose 15m research vessel (R/V Usipa), and established a shore base at Senga Bay, Salima in Malawi.

1.21 The principal objectives of the UK/SADC project were:

- (a) to assess the abundance and distribution of the off-shore (pelagic) fish populations in Lake Malawi/Nyasa and describe their structure and biology;
- (b) to investigate the productive base supporting the pelagic fish resources and the factors affecting their abundance and distribution;
- (c) to quantify the potential sustainable yield from fisheries based on the pelagic fish populations, should any of sufficient size be found; and
- (d) to indicate appropriate economically viable options for the sustainable utilization and management of the pelagic fishery.

Based on information received from ODA, the project's final biomass figures for offshore unexploited pelagic stocks are discouraging.

1.22 One of the successful aspects of the project has been the Steering Committee Management structure. The project findings have led to the recommendation that a regional consultative group be established for the management of the Lake by the three countries. This goal has been adopted by the GEF project and it will maintain the Steering Committee Management structure established under the UK/SADC project.

1.23 Malawi Fisheries Development Project (IDA). The IDA Malawi Fisheries Development Project became effective in September 1991, and is being implemented by the Malawi Fisheries Department. The co-lenders are the Nordic Development Fund and the Icelandic International Development Agency. It is a seven year project with a total estimated cost of US\$15.5 million. The project initially comprised four components: (i) **institution building** to strengthen the Fisheries Department in regulatory functions, policy formulation, staff training and technical assistance; (ii) **research** to strengthen the Fisheries Department's research capacity focusing on demersal stock assessment, lake resource conservation, and developing fish farming models that would help integrate aquaculture into crop farming systems in different ecological zones; (iii) **production** to rehabilitate and develop the existing capture fisheries by supporting artisanal fishermen, semi-commercial and commercial fishing activities, and establishing a pilot program to increase the involvement of women in fisheries

particularly in fish processing and marketing; and (iv) **infrastructure** to rehabilitate, upgrade and build access roads, as well as jetties for fish landing, and shore based facilities.

1.24 Since the IDA Project was appraised in June 1991, the fisheries subsector's performance in Malawi has steadily declined. Increasing population pressures around the Lake and overfishing in the near shore areas (Lake Malombe and the two southern arms of the Lake) account for this decline. FAO's Chambo Fisheries Research Project drew attention to the collapse of the chambo fishery in Lake Malombe and the likely collapse of the remaining kambuzi fishery in the absence of management intervention. Fisheries management problems have also been highlighted in a series of working papers under the Traditional Fisheries Assessment Project (TFAP) which outlined as major trends in Lakes Malawi and Malombe artisanal fisheries a large and widespread increase in the fishing effort, declining catch rates and the increasing use of small-meshed nets. TFAP concluded that most of the artisanal fisheries were at, or already beyond, the biological maximum sustainable yield.

1.25 In 1993 - based on the available stock assessment research - the IDA Fisheries Development Project was restructured from its focus on production to an emphasis on sustainable resource management of the Lake's fisheries stocks. The project's incremental production targets (an increase in annual landings of about 7,500 tons) have essentially been removed. Actions to deal with the problems of overfishing such as net mesh control, closed areas and seasons are being addressed under the Project. Two initially identified project activities - aquaculture and rural access roads - have now been omitted.

1.26 **Research Project to Promote Small Scale Commercial Farming of Lake Malawi Indigenous Species (ntchila and mpasa) - Japan International Cooperation Agency (JICA).** JICA is preparing a five-year pilot project to undertake research on the biological studies of the indigenous mpasa and ntchila species, as well as to undertake a feasibility study for broodstock management, hatchery operations, feed development and cage culture for the fish. The broad objective of the proposed project is to establish a research center for the mpasa and ntchila and to promote small-scale market oriented aquaculture using these species. The project will be implemented by Malawi Fisheries Department's Aquaculture Section. One of the reasons for the low output from aquaculture in Malawi is the lack of a suitable (fast growing, late maturing, easy to culture, high commercial value) fish species. The cyprinid populations of Lake Malawi are almost an endangered species. It is the intent of the JICA project to restock the Lake with artificially hatched juveniles for these species. Concurrent with the hatchery work, studies will be undertaken to investigate habitat conservation and management for the breeding areas of the fish. The project will also have a training component and will coordinate with Bunda College to have students work in the hatchery and laboratories to carry out research according to their educational requirements; and on-the-job training of counterparts in the areas of hatchery, feed development, biology and ecology of migratory fishes. This project is designed to complement the GEF and IDA projects by working with two specific species (mpasa and ntchila) to increase their populations. As a pilot program, it will also identify the potential for aquaculture production of indigenous species as a means of reducing pressure on the Lake's resources, and creating employment opportunities.

1.27 The cichlid fishes of the Lake can be categorized into two groups: the wide-ranging pelagic species and the more resident populations. The widely-fished pelagic species has been the focus of the research activities undertaken in the UK/SADC and IDA projects. The research activities of the GEF project would complement these projects by providing needed

information on the occurrence, distribution and ecology of the more localized endemic species, which will be relevant for the lakeshore zoning and establishment of reserves to protect the whole range of the Lake's biodiversity. Staff from the Fisheries Departments and the National Parks Departments from the riparian states will also be trained through the GEF project, which is critical for implementing action programs to sustainably manage the lake over the long-term.

2. THE PROJECT

A. Project Concept and Objectives

2.1 Project Concept. The global importance of Lake Malawi/Nyasa for biodiversity conservation derives from the exceptional diversity of its unique fishes. The Lake Malawi ichthyofauna is the world's most diverse evolutionary radiation of fishes within a single lake. The ecological requirements and distributional limits are known for only a minor fraction of these fish species. The project will carry out essential research initiatives to determine what species are in the lake and to identify and document biodiversity "hotspots," or areas of exceptional species diversity and circumscribed centers of endemism within the rocky inshore zone. The project will also create the needed framework for conservation and development among Malawi, Mozambique, and Tanzania by supporting the development of a Biodiversity Map and Management Plan for the Lake, and a plan for ecologically compatible development within the Nankumba Peninsula and Lake Malawi National Park. Project initiatives will also be undertaken to review the scope for harmonization and strengthening of environment-related policy and legislation among the riparian nations and increase conservation awareness among all sectors of society on issues affecting the lake's biodiversity.

2.2 Project Objectives. The main objective of the project is to assist the riparian states in creating the scientific, educational, and policy basis necessary for conserving the biological diversity of the Lake and its unique ecosystem. It will be achieved through the following specific activities:

- (a) building scientific capacity within the riparian countries to survey, study and monitor the Lake's biodiversity, identify threats, and provide recommendations for the Lake's management;
- (b) surveying and inventorying species, identifying critical habitats and biodiversity hotspots and recommending preliminary measures to demarcate and protect such areas;
- (c) identifying pollution sources and measuring water quality at sites where human activities threaten biodiversity;
- (d) preparing a Strategic Plan for the Nankumba Peninsula and Lake Malawi National Park for eco-tourism development, consistent with the protection and conservation of the Lake's biodiversity;
- (e) preparing a comprehensive Biodiversity Map and Management Plan for Lake Malawi/Nyasa based on the information provided by the species, habitat, and water quality analyses;
- (f) increasing conservation awareness among the lakeshore population and regional and national policy makers, whose decisions regarding regional development have an impact on the Lake's ecosystem; and
- (g) reviewing the adequacy of existing national environmental legislation in Malawi, Mozambique and Tanzania and making appropriate legislative

recommendations for revising and/or strengthening enforcement for the conservation of the Lake's biodiversity.

2.3 Project Site. The GEF project will be based at Senga Bay in Malawi, although educational and scientific activities will be conducted on the Lake shores and at various stations around the Lake. The use of the existing UK/SADC Senga Bay facilities in the project will be very cost-effective, saving the project some US\$2.0 million in equipping or constructing similar facilities. Prior to project negotiations, the Government of Malawi agreed to the use of the Senga Bay facilities and the continuation of the declaration of trust to SADC for the duration of the GEF project. The use of this site and Senga Bay facilities will be the Government's contribution to the project. ✓

B. Detailed Project Description

2.4 Biodiversity Map and Management Plan for Lake Malawi/Nyasa. The project manager will coordinate the preparation of a Biodiversity Map and Management Plan for the Lake (BMPL). The BMPL will be based on the project's major activities/outputs as detailed below and in Annex 1 and will include *inter alia*: (i) the Biodiversity Report and habitat map, that draw together the biodiversity survey work and identify biodiversity hotspots; (ii) the Report on Water Quality/Pollution and Threats to Biodiversity; (iii) the taxonomic and ecological research; (iv) the Strategic Plan for Nankumba Peninsula and Lake Malawi National Park; and (v) the report with recommendations to the riparian countries for revising and/or strengthening legislation for the effective conservation of the Lake. Other relevant sources of information such as related conservation projects and the riparian countries' National Environmental Action Plans will be taken into consideration in the preparation of the plan. The PM will ensure that a preliminary draft of the BMPL is prepared and reviewed with the Bank and the riparian countries within 24 months of Grant effectiveness [para. 4.1 (a)]. The draft BMPL will be discussed at the project's mid-term review (para. 2.48).

2.5 The BMPL will make recommendations for the required follow-up conservation actions and investments, based on the information obtained from this project's research phase. For example, the management plan would recommend actions for the zoning of the Lake's coastline appropriate for biodiversity conservation, such as identifying areas as fisheries replenishment zones or ecologically fragile zones not appropriate for intrusive development. The plan would also identify a system of potential protected areas that together will be representative of its biodiversity and complementary to the Lake Malawi National Park.

2.6 The BMPL will be discussed by the project's Steering Committee as it is being prepared and a final draft will be circulated to the Bank for comments no later than 36 months after Grant effectiveness [para. 4.1 (a)]. The Government of Malawi will present to SADC within 42 months after Grant effectiveness a time-bound proposal for the implementation of the BMPL by the riparian countries [para. 4.1 (b)].

(1) Research

2.7 To conserve and manage biodiversity in Lake Malawi/Nyasa, it is necessary to determine the species diversity that exists in the Lake. Current estimates of the number of fish species range between 500 and 1000 in ten families. Two of the main reasons for the uncertainty in the estimate of the number of species are: (i) the lack of taxonomic work on

many of the species groups; and (ii) large portions of the Lake have not been surveyed for fishes. These two issues will be addressed under parts (a) and (b) of the research program.

(a) Biodiversity Surveys

2.8 Most of the current research available on the Lake has been done in Malawi waters. Further biodiversity survey work is needed, particularly in the relatively understudied waters of Mozambique and Tanzania. This lack of scientific data and information available on fish resources in the Mozambican territorial waters of the Lake has been identified as an important environmental issue in Mozambique's draft NEMP (para 1.11).

2.9 The research team will consist of an ecologist, taxonomist, research officers and technical staff who will carry out a program to inventory species and their distribution and identify critical habitats and biodiversity hotspots in the Lake. The taxonomist will supervise and provide on the job training to the local research officers and technicians in the identification of species. The ecologist will supervise and provide on the job training to the local research officers and technicians in mapping the distribution of various species and relating this to habitat types and ecology. The training of research officers and technicians from the riparian countries will assure the continuation of biodiversity surveys and monitoring beyond the life of the project (Annex 11).

2.10 **Output:** The main output of this sub-component will be a report which identifies biodiversity conservation priorities for Lake Malawi/Nyasa and includes:

- survey reports;
- maps of species distribution which identify critical habitats and biodiversity hotspots;
- species checklists for each of the identified hotspots;
- identification of main threats to biodiversity in the Lake and recommendations for amelioratory action; and
- recommendations for preliminary measures to demarcate and protect critical habitats or fisheries replenishment zones.

An interim report will be completed within 18 months of Grant effectiveness and submitted to the riparian states and the Bank for comments and review. The final draft will be prepared within 30 months of Grant effectiveness [para. 4.1 (c)].

(b) Ecology, Systematics, and Taxonomy

2.11 A major threat to biodiversity in the Lake is overfishing by both commercial and traditional fishermen. One much needed aspect of fisheries management therefore, is studies on taxonomy, ecology and distribution of the cichlid species.

2.12 The ecologist and taxonomist will supervise and provide on-the-job training to research officers and technicians to determine distribution patterns, breeding grounds, and ecology of the cichlid, to produce a Species Identification Manual, and coordinate ecological research with taxonomy and limnology research. Fish will be sampled throughout the lake especially

around the shoreline using a variety of fishing and sampling techniques (trawling, gill nets, scuba). Regular surveys will be conducted in the northern, central, and southern regions of the lake. The taxonomist will supervise and provide on-the-job training to complete taxonomic work on the cichlid stocks, produce a Species Identification Manual, and train technicians in reliable identification techniques.

2.13 Outputs. This sub-component will produce: (i) primary scientific information on ecology, species distribution, and taxonomy; (ii) baseline information for future monitoring and evaluation; and (iii) a Species Identification Manual [para. 4.1 (d)].

(c) Limnology and Water Quality Monitoring

2.14 The aim of the limnology and water quality monitoring program will be to identify major pollution sources and threats to the Lake. Specifically it will:

- provide baseline information on and identify long-term trends in water quality;
- identify pollution threats to biodiversity hotspots and fish replenishment areas;
- develop a model for understanding the ecological interactions among the biotic and physical elements of the ecosystem in order to quantify trends concerning the function, structure and integrity of the Lake ecosystem; and
- train research officers and technicians from the riparian nations in limnology and aquatic resource monitoring.

2.15 A baseline ecological monitoring program is a key feature of this component. The program will include an evaluation of the physical, chemical and biological characteristics of the lake and identify sites where pollution/sedimentation is likely to have a serious impact on biodiversity.

2.16 Monitoring cruises will be carried out monthly, based out of the Senga Bay laboratories. Additional experimental work will be carried out at permanent lake-wide stations, and rivers will be selected for monitoring from the research vessel. Climate stations and fixed thermistor buoy instrumentation with continuous recording equipment will be installed at a number of sites around the lake. Full lake surface temperature profiles started during the UK/SADC project will continue to be received via satellite images. Shorter cruises will also be included in the program to carry out limnological studies, and to service climate stations and fixed buoys. At least 24 months of data will be collected under this sub-component.

2.17 In order to be cost effective, the limnology and water quality sampling will be carried out in close coordination with the biodiversity surveys, taxonomic and ecological studies. The sampling, as it develops and matures, will provide an increasingly useful tool to assess priorities for biodiversity conservation, as well as providing the information to alert government authorities to initiate environmental protection measures.

2.18 Outputs. The limnologists/water quality scientists will produce an interim report on water quality/pollution within 18 months after Grant effectiveness, outlining major existing and/or potential threats to biodiversity, recommendations to combat pollution and defining

requirements for long term monitoring. This interim report will be circulated to the riparian states and Bank for comments and review. The final draft will be completed within 30 months of Grant effectiveness [para. 4.1 (e)].

(d) Research equipment and facilities in Malawi

2.19 The use of the Senga Bay facilities, equipped by the UK/SADC project, allows the expenditure of the research component to consist largely of salaries, the running costs of the vessel, and the three-year operating costs of the research program. The facilities include a research vessel (the R/V Usipa), laboratory, offices and accommodations that are ideally suited for the research activities outlined above. The R/V Usipa is a 15-meter steel catamaran with berths for 11 personnel, and small wet and dry laboratories. The vessel is rigged for stern trawling and deployment of standard fish and plankton sampling gear via the main or hydrographic winches. Modest rehabilitation of the Cape MaClear research station will also be financed under the project to enhance its value for monitoring and research activities.

2.20 **Output.** An enhanced National Research Station in Malawi for local and visiting scientists to monitor and undertake research activities on the Lake.

(e) Research facilities in Mozambique and Tanzania

2.21 The project will also finance the modest rehabilitation of the Kyela Center Fisheries Research Station in Tanzania, and the Metangula Fisheries Research Station in Mozambique, with the main objective of enabling these stations to participate in surveys, limnological research and systematic monitoring of the Lake. The rehabilitation of these research stations would be carried out by the United Nations Development Program (UNDP) field offices in Mozambique and Tanzania. At negotiations, the Government of Malawi agreed to submit a duly-signed withdrawal application immediately upon signature of an agreement/protocol between the Recipient and UNDP, in an amount of US\$400,000 payable to UNDP [para. 4.1 (f)].

2.22 **Outputs.** Enhanced research facilities in Mozambique and Tanzania for local and visiting scientists to study the lake's biodiversity.

(2) National Capacity Building

(a) Training

2.23 The effective management of the lake is presently constrained in all three riparian countries by the lack of trained personnel in fish ecology and taxonomy, limnology and environmental education. One of the main activities of the technical experts financed under this GEF project will be to train "on-the-job" officer level and technical staff from appropriate agencies (paras. 2.9, 2.12, 2.14 and Annex 11) from the riparian countries to carry out the needed research and conservation planning activities to implement this project, as well as future lake projects/programs.

2.24 To provide additional training and sustained research activities after the end of this project, a "twinning" arrangement with foreign universities or management institutions will be explored. This approach has proven successful in a number of fisheries and other scientific research activities throughout Africa.

2.25 The Government of Malawi will produce training programs as part of the project's annual work program [para 4.1 (g)].

2.26 **Outputs.** By the project's fourth year, a total of 32 individuals from the riparian countries will have completed either short (six months) or long term training in the scientific research and environmental education disciplines and will return to their parent institutions (Annex 11).

(b) Building Conservation Awareness

2.27 Many of the current users of the Lake have no formal education. The informal educational system is therefore the most effective means of communication for conservation awareness to explain the need for new fishing regulations or techniques to conserve the lake's biodiversity. Under the project, the Wildlife Society of Malawi (WSM) will train and supervise an environmental education officer (EEO) and a community education officer (CEO) who will implement the informal sector initiatives working closely with the Project Manager and the scientific team.

2.28 In addition to financing on-the-job training of an EEO and a CEO, the GEF project will finance the rehabilitation of the Environmental Education Facility at the Lake Malawi National Park (LMNP) and housing for the two officers. The Environmental Education Facility has already established an important educational link with local schools, international and national visitors, and the residents of the Park's enclave villages. The Park's proximity to areas with great pressure on biodiversity resources makes the education facility's location all the more pertinent. The project will also support environmental education in the schools through the fostering of school wildlife clubs run by WSM. Other educational activities financed by the project include: (i) the production and dissemination of an environmental video program; (ii) the development, recording and broadcasting of a series of environmental radio programs; (iii) the production of books, posters and magazines; and (iv) a bus for the transportation of students, community leaders and traditional associations to visit the LMNP Environmental Education Center.

2.29 The WSM, in cooperation with Malawi's Department of National Parks and Wildlife (DNPW), will be responsible for implementing this sub-component. The WSM & DNPW will devise a systematic approach for receiving client feedback from the users of the lake which will be used to determine the project's viability.

2.30 **Outputs.** The output will be the development of a Conservation Awareness Program, including media productions, for all sectors of society [para. 4.1 (h)].

(3) Environmental Legislation

2.31 To implement a coordinated biodiversity management plan for the Lake, it is necessary for the three riparian states to coordinate environmental activities and programs, as well as to promulgate and implement appropriate environmental laws and regulations. Currently, the laws and regulations of the three riparian states related to lake management issues are weak. There is also little coordination in the enforcement of laws related to the protection of the biodiversity or management of natural resources in the watershed area or the lake.

2.32 A senior legal advisor will be contracted for 60 days and financed by the project. The legal advisor will prepare the TOR and discuss the work program at the start of the study with legal experts from Malawi, Mozambique and Tanzania also financed by the project. The main task of the legal experts will be to review the legislation in their country, with the objective of identifying inadequacies and inconsistencies related to the conservation of biodiversity in Lake Malawi/Nyasa.

2.33 The senior legal advisor will then return to the riparian countries to review the work of the legal experts and organize a workshop by the end of the project's first year. This senior legal advisor will also coordinate the preparation of a paper, based on the detailed national legislative reviews and other assistance provided by the local consultants, which will identify gaps in the current legal framework and provide recommendations as to revisions, new policy initiatives, and implementation arrangements. The outcome of the workshop will be a synthesis which builds upon those legal and institutional assessments emanating from the National Environmental Action Plans (or their equivalents) related to each of the riparian states.

2.34 **Output.** The product of the legislation component will be a report which provides recommendations to the riparian countries for revising and strengthening legislation and enforcement ability (and the preparation of draft legislation when appropriate) to create a harmonized and effective legal framework for the conservation of Lake Malawi/Nyasa's biodiversity. A draft report will be discussed during the project's mid-term review.

(4) Protected Areas Management

2.35 **Nankumba Peninsula and Lake Malawi National Park.** The Nankumba Peninsula divides Lake Malawi/Nyasa into its two southern arms. It comprises a region of considerable natural beauty. The northern half of the Peninsula and the surrounding islands are the core of Lake Malawi National Park (LMNP). Despite international recognition and protection under Malawi law, the Peninsula has become a prime example of the environmental problems that can be caused by the unplanned evolution of tourism and economic development in close proximity to a park.

2.36 The environmental pressure on the LMNP comes in part from the enclave villages dependent on the fish, forest, and other resources available in the LMNP and the Peninsula. In addition, growing international tourist interest in the Park has strained the capacity of the LMNP facilities, which are in urgent need of expansion and renovation. Concern has also been expressed over plans submitted to the Department of National Parks and Wildlife (DNPW) by international developers for large-scale hotel complexes, golf courses, and casinos in LMNP. The present state of the Park infrastructure, and the lack of resources to develop proper facilities, constantly undermine the DNPW's ability to manage and protect LMNP from environmental degradation associated with these pressures.

2.37 In recognition of the need to address these issues for the sustainable use of the lake and its riparian resources, a Strategic Plan will be prepared for Nankumba Peninsula and Lake Malawi National Park. Preparation will proceed in two phases: (1) data survey and collection of information; and (2) assessment and evaluation, and the development with local participation of a plan for conservation and development (Annex 6). Canadian International Development Agency, Industrial Cooperation Division (CIDA INC) will finance the

preparation of the plan's first phase. The Government of Malawi and a Canadian consulting firm have already signed a contract and the work began in October, 1994.

2.38 This project will finance the second phase of the plan. Building upon the work and information collected in Phase I, the second phase will be undertaken with assistance from an international consulting firm, in consultation with local communities and in close collaboration with local counterparts drawn from relevant government agencies (particularly those involved with NEAP preparation). The consulting firm for the preparation of phase II will be recruited following the Bank's Guidelines for Use of Consultants. The overall supervision of the consultant's work will be the responsibility of the Ministry of Physical Planning and Surveys (MPPS), in coordination with MREA, MFNR, and the PM.

2.39 The agenda and scope of Phase II of the strategic planning process will be determined collaboratively with the national agencies involved (see Annex 6 for proposed terms of reference). Phase II will emphasize community participation in the planning process, and identify community roles in Park and Lake conservation. Phase II will conclude with a proposal of preferred options and analysis of their environmental implications for development in a detailed report, submitted to the MPPS for its review and recommendations to the Government of Malawi. The government will submit the Strategic Plan for Nankumba Peninsula and Lake Malawi National Park to the Bank for review and comments by the first anniversary of Grant effectiveness [para. 4.1 (i)]. At negotiations, an agreement was reached with the Government of Malawi that development activities in Nankumba Peninsula and LMNP will be consistent with the Plan [para. 4.1 (j)]. The project will also assist the Government of Malawi to design a funding mechanism to address recurrent funding for the sustainable development, management and maintenance of the LMNP and the continued monitoring of biodiversity conservation indicators.

2.40 **Outputs.** A Strategic Plan for Nankumba Peninsula and Lake Malawi National Park development including recommendations for increasing community involvement in its implementation and management will be prepared within one year after Grant effectiveness. This will be complemented by a Biodiversity Map and a Management Plan for the Lake indicating potential protected areas and parks.

C. Project Management and Implementation Arrangements

2.41 The Principal Secretary of Malawi's Ministry of Forestry and Natural Resources, in his capacity as SADC Sector Coordinator for In-land Fisheries, Forestry and Wildlife, will be responsible for the implementation of the project on behalf of the riparian countries (see Project Implementation Chart in Annex 2). The Government agreed at negotiations to deploy appropriately qualified staff in required numbers for project implementation in accordance with a schedule in Annex 11 [para. 4.1 (k)]. A draft Project Implementation Plan (PIP) has been prepared which includes *inter alia* a procurement plan, training program, and M&E procedures which were discussed at negotiations. The PIP, incorporating Bank comments, will be finalized prior to Grant effectiveness [para. 4.2 (a)].

2.42 The project will be guided by a Steering Committee (SC), chaired by the Principal Secretary (PS) of MFNR, with membership from the Fisheries Departments and the National Parks Departments or equivalent of all the riparian countries, NGO/community representatives, and international expertise as needed. The SC will be an advisory body under the leadership of the PS. The Steering Committee will meet at least three times a year: (1)

to review and approve progress reports and work plans; (2) to solve coordination problems which may arise; (3) to advise the Project Manager (PM) on general implementation issues; and (4) to inform the relevant Governments and the Bank of decisions made and actions taken. The SC will also assist with the organization and participation of the project's mid-term review. The project will finance the costs of the SC meetings.

2.43 The PM will convene the SC meetings, and prepare the agenda and minutes. Some of the meetings will be held in Mozambique and Tanzania. The SC membership is expected to enhance the effective dissemination of project findings, as well as build an understanding of issues related to biodiversity management. The establishment of the SC will be a Condition of Grant Effectiveness [para. 4.2 (b)].

2.44 **Project Manager.** An internationally recruited PM will have the overall responsibility for managing the activities of this project, consistent with the Global Environment Trust (GET) Agreement and the Project Implementation Plan. The consultants financed under the project (both long and short-term) will report to the PM. The PM will be responsible for day-to-day management of the project in accordance with the PIP and approved work plan. The PM will be guided by the SC and, on important day to day decisions, by the PS of MFNR. The PM will be assisted by a Financial Controller (FC) and local support staff. Appointment of both the PM and the FC will be a Condition of Grant Effectiveness [para. 4.2 (c)].

2.45 The PM will be responsible for the preparation of the annual consolidated work plan for the project components and the annual budget allocations within each component and will submit the plan to the Steering Committee and the Bank for comments [para. 4.1 (l)]. The first annual work plan will be included in the PIP. The PM will have principal supervisory responsibility for the implementation and the progress of all components and, will keep a database on all project-related activities. A Research Advisory Group (RAG), comprised of Chief Fisheries Officers and Chief National Parks and Wildlife Officers from the riparian countries, will participate in periodic reviews and advise the PM on the project's research activities. The procedures for implementation and project supervision will be outlined in the PIP. The PM will prepare and submit quarterly reports as described below (para. 2.47). The PM will ensure the drafting of the Biodiversity Map and Management Plan for the Lake (para. 2.4). At the end of his assignment the PM will prepare information which the Government will use to assist the Bank with the preparation of the Implementation Completion Report within six months of the project closing date [para. 4.1 (m)]. The TOR of the PM are provided in Annex 4.

2.46 **Implementation of the National Research Stations.** The implementation of the component for rehabilitating the National Research Stations in Mozambique and Tanzania will lie with the respective governments, formulated with UNDP assistance for each country, and the Governments will be the respective executing agencies for the UNDP schemes. UNDP will be responsible for procurement and disbursement under this component (see Annexes 8 and 9). The work on the National Research Station at Cape MaClear in Malawi is incorporated into the research component of the project.

D. Monitoring, Evaluation and Reporting

2.47 Detailed M&E procedures and monitorable indicators will be outlined in the PIP. Overall responsibility for M&E will be with the PM. The main instruments for monitoring

project progress will be quarterly progress reports on each of the various project activities, submitted to the PM by the leaders of each project component, including UNDP reports on the progress with the implementation of the project components in Mozambique and Tanzania. These reports will compare actual implementation to the plan schedule, analyze the reasons for any significant delays and propose corrective actions. A consolidated quarterly Progress Report, including an account of beneficiary assessment, prepared by the PM, and copied to the Bank, will be regularly reviewed by the Steering Committee within one month after the end of the period reported [para. 4.1 (n)]. The SC will recommend corrective actions, if any. The WSM will assist and train staff of DNPW to undertake systematic beneficiary assessment to provide feedback into project implementation, ensure sensitivity to lake users, and ensure that conservation awareness messages are appropriate to users.

2.48 A mid-term progress review for the project will be conducted not later than 24 months after project effectiveness. To facilitate this review, the Government of Malawi, the PM and the FC will prepare a report not later than 90 days prior to the mid-term review, which will cover both past activities and anticipated future activities to the end of the project and propose changes, if any. The mid-term review will also discuss the draft BMPL and its policy, legal, and financial implications [para 4.1 (o)].

E. Project Costs and Financing

(1) Cost Estimates

2.49 Total project costs over the 1995-1999 period, for all capital and operating expenditures, including physical and price contingencies, are estimated at MK 41.4 million (US\$5.4 million). Estimated project costs are summarized in Table 1 and detailed in Annex 13. The total cost of the project is net of taxes and duties. Donor supported projects have a tax-free status in Malawi.

2.50 Base costs are expressed in 1994 values. The total project costs include an allowance, of US\$575,730 equivalent for contingencies. Physical Contingencies were estimated at US\$300,033 equivalent or 6%. Price Contingencies were estimated at US\$275,697 or 6% based on: domestic inflation rates of 8.6% for 1995/96, 5% for 1996-1999; and foreign inflation rates of 3% for 1995-1997, and 2.9% for 1997-1999.

Schedule A
Table 1: Summary of Project Costs by Component

Project Component	COST						% Foreign Exchange	% Total Base Costs
	MK '000			US\$				
	Local	Foreign	Total	Local	Foreign	Total		
1. Research ^A	9,185.0	8,379.6	17,564.5	1,287,528	1,173,611	2,461,139	48	51
2. Strengthening National Capacity	1,876.3	674.2	2,550.5	262,786.2	94,431.1	357,217.3	26	7
3. Legislation	308.1	601.1	909.2	43,154.8	84,188.3	127,343.1	66	3
4. Protected Areas	655.8	7,119.3	7,775.1	91,843.1	998,527	1,090,370	92	22
5. Project Administration	2,923.6	2,989.7	5,913.4	409,473.4	418,728.6	828,202.1	51	17
Total Baseline Costs	14,948.8	19,764.0	34,712.7	2,094,786	2,769,486	4,864,272	57	100
Physical Contingencies	913.0	1,229.2	2,142.2	127,869.4	172,163.7	300,033.1	57	6
Price Contingencies	1,934.4	2,630.8	4,565.2	116,157.2	159,539.4	275,696.6	58	6
Total Project Costs	17,796.1	23,624.0	41,420.1	2,338,813	3,101,189	5,440,001	57	112

^A Includes US \$400,000 for the rehabilitation of the Kyela Research Station in Tanzania and the Metangula Research Station in Mozambique which will be implemented by UNDP.

(2) Procurement

2.51 All items to be financed under the GEF Grant will be procured in accordance with the Bank's Guidelines for Procurement (May 1992) [para. 4.1 (p)]. Procurement arrangements are summarized in Table 2 below.

Schedule B
Table 2: Procurement Arrangements

Expenditure Category	Procurement Method				N.B.F.	Total
	International Competitive Bidding	Local Competitive Bidding	Other	Consulting Services		
A. Civil Works^A	-	570,867.5	-	-	-	570,867.5
B. Equipment and Goods						
1. Research Equipment	5,772.3	-	-	-	-	5,772.3
2. Office Equipment	62,294.9	-	-	-	-	62,294.9
3. Vehicles/Boats	98,460.3	-	-	-	-	98,460.3
C. Consultant Services						
1. Nankumba Peninsula/Lake Malawi National Park	-	-	-	960,292.9	254,047	1,214,339.9
2. International Experts/Consultants	-	-	-	1,427,232	-	1,427,232
3. National Experts	-	-	-	8,323.4	-	8,323.4
4. Report Production	-	-	-	24,982.8	-	24,982.8
5. Training and Studies	-	-	-	161,783.2	-	161,783.2
D. Service Contracts						
1. Salaries	-	-	256,425.5	-	200,000	456,425.5
2. Wages	-	-	62,557.0	-	-	62,557.0
3. Overseas Travel	-	-	92,159.2	-	-	92,159.2
4. Local Travel	-	-	57,452.4	-	-	57,452.4
5. Regional Travel (MOZ/TANZ)	-	-	2,575.3	-	-	2,575.3
6. Travel Allowances	-	-	64,487.4	-	-	64,487.4
E. Incremental Operating Costs						
1. Office Supplies	-	-	-	-	-	-
2. Equip/Operating & Maint.	-	-	79,869.0	-	-	79,869.0
3. Veh. & Boats/Oper. & Maint.	-	-	219,537.8	-	-	219,537.8
4. Research Vessel/Oper. & Maint	-	-	251,971.3	-	-	251,971.3
5. Site Running Costs	-	-	492,700.2	-	-	492,700.2
6. Other Recurring Costs	-	-	86,209.8	-	-	86,209.8
TOTAL	166,527.5	570,867.5	1,665,944.9	2,582,614.3	454,047	5,440,001

^A Procurement [of Mozambique (US\$200,000) and Tanzania (US\$200,000) portions] by UNDP under conditions acceptable to the Bank.

2.52 Civil Works. The civil works under the project would be national lakeshore fish laboratories' improvements, such as expansions, repairs, renovations, electrical connections, and wiring. All works will be procured under Local Competitive Bidding (LCB) procedures acceptable to the Bank. The bidding process is the responsibility of the Government of Malawi and will be reviewed by and be acceptable to the Bank. Interested, foreign bidders will be allowed to submit bids, and will not be required to have local agents or local registration to be able to participate in bidding. Bids will be opened in public, and contracts will be awarded to the lowest bidder. In the absence of pre-qualification, post-qualification criteria will be explicitly stated in the bidding documents.

2.53 Equipment, Goods and Vehicles. Equipment will consist of scientific and office equipment and supplies. Scientific and office equipment, including computers and printers, will be procured for Research and National Capacity Building components. These items will be organized into suitable bid packages by the Project Manager. Items will be grouped, to the extent possible, into packages estimated to cost US\$100,000 or greater, to be procured in accordance with the International Competitive Bidding (ICB) procedures and packages valued at less than US\$100,000 may be procured using Local Competitive Bidding (LCB) and procedures acceptable to the Bank. Those items which cannot be so packaged and such contracts estimated to cost less than US\$50,000 each will be procured by prudent shopping or from the International Agency Procurement Office (IAPSO). The Bank's Standard Bidding Documents will be used for ICB.

2.54 Technical Assistance.¹ The project will have a provision for Resident Technical Assistance to include the PM (four years), and a Limnologist (36 months), an Ecologist/Conservation Planner (42 months), and a Taxonomist (36 months). Short-term technical assistance may be used for monitoring and evaluation activities which would require the assistance of experts in environmental education, limnology/water quality, taxonomy/ecology, or conservation planning. A specific provision has been made for the hiring of a legal expert for the purposes indicated in the text and Annex 7. Technical assistance assignments will involve both individual consultants and consulting firms. The selection of consultants will be performed in accordance with the *Guidelines for the Use of Consultants by the World Bank Borrowers* (August 1981), using the Bank's standardized Letter of Invitation (LOI) and Standard Form of Contract for Consultants' Services (May 1993) [para. 4.1 (p)]. International firms will be encouraged to associate with domestic firms of their choice.

2.55 Review of Procurement. The Bank will carry out a prior review of all contracts for equipment goods, works and consultant services with firms of US\$100,000 or greater in value, and all contracts with individual consultants above US\$50,000. All documentation below the prior thresholds will be retained by the Government and assisting staff, and made available to the Bank for post-review as requested. Quarterly reports will include information on procurement.

¹ **The Use of Consultants and TA.** Every effort has been made to minimize the need for foreign TA, especially long-term expatriate consultants. The use of such consultants has been limited to basic research components which will be completed by the end of this project and for which no adequate expertise is available in the riparian countries, and for short term transfer of technology/management. Given the training/capacity building efforts planned under the project, it is anticipated that when it ends, adequate number of scientific and technical personnel will have been trained in-service so that the monitoring/management of the Lake can be undertaken by nationals of the riparian countries.

(3) Disbursements

2.56 **Disbursements.** Malawi's disbursement profile indicates for all sectors an average of 7 ½ years from the approval date. However, it is expected that the project will be disbursed over a period of 4 ½ years (Annex 13) from 1995 to 1999 since technical assistance is the major activity and will begin soon after effectiveness and continue throughout the project. Civil works, comprising the rehabilitation of laboratories and the construction of simple artisan quarters, do not exceed \$600,000. Purchase of all vehicles, video equipment and computers will be tendered soon after project effectiveness. Experienced staff who have effectively operated from the Senga Bay site will assure timely packaging and delivery. All project activities are expected to be completed by January 31, 1999, and the grant closing date will be July 31, 1999. Project disbursements are shown in Table 3.

Schedule C
Table 3: Disbursement

Category of Items	US\$Equivalent	% of Expenditure to be Financed
A. Civil Works [^]	571,000	100
B. Equipment and Goods	68,000	100
C. Vehicles	98,000	100
D. Technical Assistance	3,410,000	100
E. Training	162,000	100
F. Incremental Operating Costs	1,131,000	100
TOTAL	5,440,000	100

[^] \$400,000 covers National Research Stations in Mozambique and Tanzania (\$200,000 each) to be implemented by the UNDP

2.57 Disbursements under the project will be made against Statement of Expenses (SOE) for contracts for equipment, goods, works and consultant services for firms valued at less than US\$100,000 and for individual consultants valued at less than US\$50,000. Documentation for SOE expenditures will be retained by the project implementation agencies and the Directorate General of Budget (Ministry of Finance) and be made available for inspection by Bank supervision missions and external auditors. These agreements were obtained during negotiations. [para. 4.1 (q)].

2.58 **Special Account.** To facilitate disbursements and to ensure that the funds are available when needed, the Government of Malawi will establish a Special Account with a commercial bank to be administered by MFNR [para. 4.1 (r)]. The Special Account will be maintained in US dollars with an initial deposit of US\$300,000. The Special Account will be for withdrawals, in all categories, relating to all expenditures. The Government will request replenishment of the Special Account on a monthly basis or more frequently, if necessary, upon receipt of satisfactory evidence of disbursements for eligible expenditures. Should any disbursement be made for items not eligible, the Government will be required to reimburse the corresponding amount.

(4) Financial Accounting and Audit Requirements

2.59 Accounts and Audits. MFNR, through the Financial Controller, will be responsible for preparing financial statements and accounts relating to the disbursement of the GEF grant. Agreement was obtained at negotiations [para. 4.1 (s)] that the Government of Malawi and its agencies will comply with the following project reporting and auditing arrangements: (i) to facilitate the audit of project accounts, MFNR, the project lead agency, will collect and present the project accounts of all implementing agencies in coordination with the PM; (ii) all project accounts including schedules of expenditures claimed under SOE procedures and usage of the Special Account will be audited annually by the Government of Malawi Auditor General, or other suitably qualified auditors acceptable to the Bank; and (iii) audit reports of the project accounts, SOE and Special Account will be submitted to the Bank within nine months of the end of the Government of Malawi's fiscal year.

3. ENVIRONMENTAL IMPACT, BENEFITS AND RISKS

A. Environmental Impact

3.1 The project was assigned environmental assessment category B due to infrastructure development in the Lake Malawi National Park which required an environmental mitigation plan. However, infrastructure development has been halted, pending the development of a Strategic Plan for Nankumba Peninsula and Lake Malawi National Park, which will identify activities that require appropriate environmental impact assessments. There is, therefore, no need to prepare an environmental mitigation plan for the project at this time. At negotiations the Government of Malawi agreed that development activities in Nankumba Peninsula and Lake Malawi National Park will be consistent with the Strategic Plan to be developed under the project [para. 4.1 (j)].

B. Project Benefits

3.2 The project is designed to establish the scientific, educational, and policy basis for the sustainable conservation and management of the Lake's globally important biodiversity. A major goal of the project is the strengthening of capacity among the riparian countries in fresh water management, ecology, taxonomy, limnology, and environmental education. The project will provide baseline biological and water quality information as a basis for future scientific monitoring and lake resources management. The establishment of a systematic reporting of scientific findings to administrative, policy, and donor institutions and the general public will alert authorities of the need for tripartite corrective action if there is an indication of ecosystem degradation or threats to the biodiversity of the Lake. These outputs, together with the initiatives to harmonize policy and legislation, will strengthen tri-national Lake research and management, and provide the capacity and information necessary for maintaining the Lake's unique biodiversity resources.

3.3 All of the project's activities will lead to the development of a Biodiversity Map and Management Plan. The plan will identify biodiversity hotspots, make recommendations for follow-up conservation actions and investments, and identify a system of protected areas that will be representative and complementary to Lake Malawi National Park and represent all major habitats and fish communities. This plan will provide the framework for follow-up national and potential international action programs to manage the Lake on an environmentally sound and sustainable basis.

C. Project Risks

3.4 Limited government implementation capacity may be a major constraint to the realization of the full project benefits. The design of this project minimizes such risks. First, it will utilize the tri-national Steering Committee Management structure which has proved successful in the UK/SADC project. Second, technical assistance will be used selectively to augment government capability during the investment period. Third, the extensive training under the project will enable nationals of the riparian states to manage follow-up conservation actions and investments identified in the Biodiversity Map and Management Plan for the Lake, and minimize foreign technical assistance. The risk that this capacity may be compromised by additional development obligations in the future cannot be entirely dismissed. However, it is anticipated that the Government's commitment to the management of the Lake will be sufficiently strengthened under the project to mitigate this risk. There is also a risk that the

future scarcity of investment resources will prevent full implementation of the Biodiversity Map and Management Plan. The strengthening of scientific work on the lake, and increased involvement of the international community in its monitoring and management should help to mobilize the resources needed for its sustainable development.

4. ASSURANCES, CONDITIONS OF EFFECTIVENESS, AND RECOMMENDATION

4.1 Agreements:

The following agreements were reached by the Bank with the Government during negotiations:

- (a) to prepare a preliminary draft of the Biodiversity Map and Management Plan for Lake Malawi/Nyasa (BMPL) to be reviewed with the riparian countries and the Bank within 24 months of Grant effectiveness. The final draft will be circulated to the Bank for comments no later than 36 months after Grant effectiveness (paras. 2.4 and 2.6);
- (b) to submit to SADC within 42 months after Grant effectiveness a time-bound proposal for the implementation of the BMPL by the riparian countries (para. 2.6);
- (c) to prepare an interim report on biodiversity conservation priorities for Lake Malawi/Nyasa within 18 months after Grant effectiveness and submit it to the riparian states and the Bank for comments and review. The final draft will be prepared within 30 months of Grant effectiveness (para. 2.10);
- (d) to prepare a Species Identification Manual (para. 2.13);
- (e) to prepare an interim report on water quality/pollution within 18 months after Grant effectiveness submitted to the riparian states and Bank for comments and review. A final draft report on water quality/pollution will be prepared within 30 months of Grant effectiveness (para. 2.18);
- (f) upon signature of an agreement/protocol between the Recipient and UNDP to submit a duly-signed withdrawal application, in an amount of US\$400,000 payable to UNDP (para. 2.21);
- (g) to produce training programs as part of the project's annual work program (para. 2.25);
- (h) to develop a conservation awareness program (para. 2.30);
- (i) to prepare a Strategic Plan for Nankumba Peninsula and Lake Malawi National Park, and submit it to the Bank for comments one year after Grant effectiveness (para. 2.39);
- (j) that development activities in the Nankumba Peninsula and Lake Malawi National Park will be consistent with the Strategic Plan (paras. 2.39 and 3.1);
- (k) to deploy appropriately qualified staff in required numbers for project implementation, in accordance with a schedule agreed upon with the Bank during negotiations (para. 2.41);

- (l) to have the first project annual plan included in the Project Implementation Plan. Annual plans for subsequent years should be prepared before the end of the year preceding the year addressed by the plan and provided to Bank for comments (para. 2.45);
- (m) to assist the Bank with the preparation of an implementation completion report within six months of the project closing date (para. 2.45);
- (n) to have quarterly progress reports prepared by the PM sent to the Bank within one month after the end of the reporting period (para. 2.47);
- (o) to have a mid-term review conducted not later than 24 months after project effectiveness, at which time the draft BMPL, and its policy, legal, and financial implications will be discussed as well as other implementation and management aspects of the project (para. 2.48);
- (p) to procure goods and services in conformance with the Bank's procedures set forth in the "Guidelines for procurement under IBRD loans and IDA credits" (May 1992) and "Guidelines for the use of consultants by World Bank borrowers and by the World Bank as executing agency" (August 1981) (paras. 2.51 and 2.54);
- (q) to have the project implementing agencies and the Ministry of Finance retain all documentation for SOE expenditures and make it available for inspection by Bank supervision missions and external auditors (para. 2.57);
- (r) to establish a special account in a commercial bank acceptable to the Bank (para. 2.58); and
- (s) to have all project accounts audited by the Government of Malawi Auditor General, or other suitably qualified auditors acceptable to the Bank and that all audited accounts, together with the auditors report, will be submitted to the Bank not later than nine months after the end of each Government fiscal year (para. 2.59).

4.2 Conditions of Effectiveness:

Prior to Grant effectiveness, the Government will:

- (a) finalize the Project Implementation Plan (para. 2.41); and
- (b) establish a Steering Committee chaired by the Principal Secretary for the MFNR with membership and TOR acceptable to the Bank (para 2.43);
- (c) appoint a Project Manager and Financial Controller selected under procedures and TOR, acceptable to the Bank (para. 2.44).

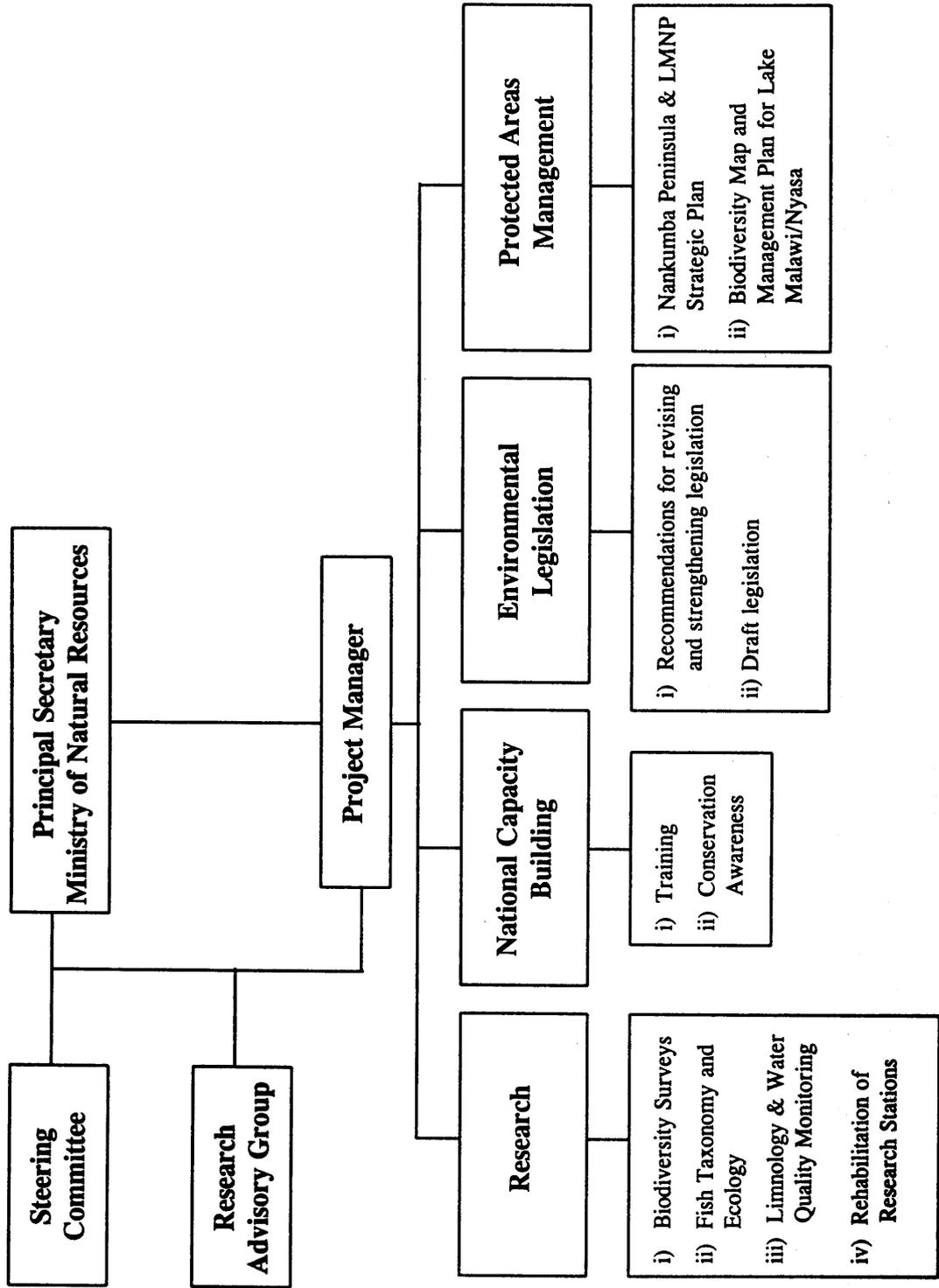
4.3 Disclosure of Information: The Government of Malawi agreed at Negotiations to make this document available to the public.

4.4 Recommendation. With the above agreements, the project will be eligible for a GEF grant of US\$5 million equivalent to the Government of Malawi.

Table 4: Project Components, Activities and Outputs

Project Components	Major Activities	Major Outputs
<p>1. Research</p> <p>a. Biodiversity Surveys</p> <p>b. Limnology & Water Quality Monitoring</p> <p>c. Fish Taxonomy and Ecology</p> <p>d. Rehabilitation of Research Stations</p>	<p>* Survey and develop inventory of Lake habitats and species to identify biodiversity hotspots in Lake Malawi/Nyasa</p> <p>* Identify major pollution sources and monitor water quality and threats to Lake</p> <p>* Research on taxonomy and ecology of fish populations especially, endemic cichlids</p> <p>* Rehabilitate national research stations</p>	<p>* Biodiversity Report of Lake and maps showing critical habitat and biodiversity hotspots (includes all survey reports and species checklist)</p> <p>* Report on water quality of Lake habitats outlining major threats to biodiversity</p> <p>* Primary scientific information on species distribution and ecology</p> <p>* Species Identification Manual</p> <p>* Enhanced facilities for local and visiting scientists</p>
<p>2. National Capacity Building</p> <p>a. Training</p> <p>b. Conservation Awareness</p>	<p>* In-country training of technical and scientific staff to strengthen national capacity to develop and implement national conservation programs</p> <p>* Explore "twinning" with appropriate scientific or management institutions</p> <p>* Develop and implement Community Awareness Program</p>	<p>* Thirty-two trained individuals in scientific, technical, and education disciplines</p> <p>* Informal and formal information exchange programs</p> <p>* Conservation awareness program including media productions</p>
<p>3. Environmental Legislation</p>	<p>* Review environmental legislation related to the Lake in the riparian countries, with the objective of identifying inadequacies and inconsistencies related to the conservation of biodiversity in Lake Malawi/Nyasa</p>	<p>* Recommendations to riparian countries for revising and strengthening legislation and/or enforcement ability to create harmonized and effective conservation, including the preparation of draft legislation as appropriate</p>
<p>4. Protected Areas Management</p>	<p>* Identify community roles in park and Lake conservation</p> <p>* Prepare Plan for Nankumba Peninsula and Lake Malawi National Park</p>	<p>* Strategic Plan for Nankumba Peninsula and Lake Malawi National Park, including recommendations for community involvement in its implementation and management</p>
<p>Project Administration</p>	<p>* Management of all Project Components</p>	<p>* Biodiversity Map and Management Plan for Lake Malawi/Nyasa</p> <p>* Quarterly Reports/Progress Reports</p>

Project Implementation Chart



STEERING COMMITTEE TERMS OF REFERENCE

Purpose

1. The Steering Committee will approve annual work programs; monitor and evaluate the progress of the project, especially interim and final results of studies; and ensure that all parties to the project are regularly informed of the project progress and findings.

Composition and Membership

2. The Steering Committee shall comprise members from relevant government institutions (with expertise in natural resource management, environment, and international law) of the three riparian states of Malawi, Tanzania, and Mozambique, and selected international and local NGOs and academic institutions with a particular stake in the Lake environment. The establishment of the Steering Committee with membership acceptable to the Bank will be a condition of effectiveness. This membership would serve to disseminate project findings efficiently while building capacity for biodiversity management in government, academia, and non-governmental organizations.

Duties and Responsibilities

3. The Steering Committee will:

- meet at least three times a year to review project component progress and project findings, and make recommendations or prescribe actions to remedy problems in project implementation;
- review and approve the annual work program of the project and make necessary recommendations for project orientation and implementation;
- respond immediately to issues identified by the Project Manager or Principal Secretary for action, and inform the relevant Governments, and the Bank of decisions made and actions taken;
- assist in the organization of the mid-term review; and
- review and approve the Biodiversity Map and Management Plan for Lake Malawi/Nyasa.

**SADC LAKE MALAWI/NYASA
BIODIVERSITY CONSERVATION PROJECT**

PROJECT ADMINISTRATION TERMS OF REFERENCE

PROJECT MANAGER

Qualification and Experience:

1. The Project Manager (PM) will have an advanced degree and a post-graduate training in one of the following areas: project administration, fish ecology or systematics, natural resource management, limnology and/or conservation of biodiversity. It would be useful if the PM had good knowledge of the fish fauna and ecological conditions within Lake Malawi/Nyasa.
2. The PM should have experience in the design, execution and administration of Fisheries Projects and be conversant with projects involving the use of aquatic research vessels, and lengthy periods of off-land research. It would be useful if he/she had experience with projects in Africa.
3. The PM should have proven experience in the administration and training of project personnel. It is also desirable that he/she has experience in working with international organizations concerned with biodiversity conservation and should demonstrate the capacity to maintain an effective liaison with the scientific and developmental communities on matters relevant to fish conservation. English fluency will be required and a knowledge of Portuguese would be useful.

Duties and Responsibilities:

4. Under the supervision and guidance of the Principal Secretary of the MFNR, and advice of the Steering Committee, the PM will have principal and overall responsibility for the management of the SADC Lake Malawi/Nyasa Biodiversity Conservation Project. He/she will:
 - assist in the preparation and elaboration of Terms of Reference for consultants and staff hired;
 - prepare the annual work plan and budget of the project with assistance from the Financial Controller, and submit it to the Steering Committee, and Bank;
 - keep a data base on implementation activities of all components and project activities, and identify as early as possible constraints to project implementation and propose remedies;
 - oversee the training of research and technical officers;

- assist in exploring "twinning" arrangements with appropriate scientific and/or management institutions and enhance prospects for local and visiting scientists to work on the project;
- maintain regular contact with project component staff by visiting sites and convening meetings as necessary;
- maintain regular contact with the Principal Secretary of MFNR and cooperate fully with tasks required by the PS and Steering Committee for effective project implementation;
- produce quarterly reports on project implementation and submit them in a timely manner to the Steering Committee, and Bank;
- ensure that procedures for procurement, accounting, auditing, disbursement and budget preparation are followed as agreed according to the Implementation Plan;
- review the work plans, procurement, disbursement, and general progress of each component on an regular, ongoing basis; and
- coordinate the preparation of the Biodiversity Map and Management Plan for Lake Malawi/Nyasa drawing on the outputs of the project components.

FINANCIAL CONTROLLER

Qualification and Experience:

The Financial Controller (preferably a national), should have an internationally recognized accountancy qualification from such bodies as the Association of Certified Chartered Accountants, the Institute of Management Accountants or equivalent. In addition, he/she should have had at least three years accounting experience, preferably with an international organization. English fluency will be required, and computer (spreadsheet) familiarity would be advantageous. Experience of general and personnel administration would also be helpful.

Duties and Responsibilities:

The principal job objective of the Financial Controller is to assist the Project Manager by providing financial analysis, administrative, and logistical support to the project. He/she will have responsibilities as follows:

A. Finances

- Establish and supervise a system of procedures for budgeting, disbursement, accounting and internal financial controls for project implementation;
- Manage a revolving imprest account and maintain an up to date account of all local and overseas project expenditures;

- Deal with finance and financial documents including the preparation of project accounts, banking and bank reconciliations; and
- Assist the Project Manager in preparation of the annual project budget and the budget for each project component.

B. Personnel

- On a daily basis to deal directly with conditions of service and welfare issues of concern to locally engaged staff, referring appropriate cases to the Project Manager for further action; and
- Maintain up-to-date personnel records including pay progress and leave records.

C. General

Achieve efficient and effective procurement of goods and supplies by monitoring and ensuring an economical system of holding and control of stores stock

**SADC LAKE MALAWI/NYASA
BIODIVERSITY CONSERVATION PROJECT**

**RESEARCH COMPONENTS
TERMS OF REFERENCE**

A. ECOLOGY

Ecologist/Conservation Planner

Qualification and Experience. The Ecologist/Conservation Planner will have an advanced degree and post-graduate training in fish ecology and some experience in planning conservation areas. The Ecologist/Conservation Planner should preferably have good knowledge of the ecological conditions within Lake Malawi. He/she should have experience in the design, execution and assessment of research programs concerning fish ecology and ecological interactions in aquatic ecosystems.

Duties and Responsibilities. The Ecologist/Conservation Planner will be responsible to the Project Manager. He/she will have principal responsibility for the planning, design, execution and overall coordination of the biodiversity surveys and inventories of species and habitats to identify biodiversity hotspots in the Lake, supervise cichlid ecological research, and contribute to the preparation of the work plan for this component. With the Taxonomist, the Ecologist/Conservation Planner will submit quarterly progress reports to the PM. In addition, he/she will assist with the training of research officers/technicians in fish ecology and research design and analyses. Experience with scuba and fishing boats is considered useful.

Ecology Research Officer

Qualification and Experience. The Research Officer will have experience in fish ecology and conservation of biodiversity. An advanced degree is not required since the research officer will be provided with on the job training by the Ecologist/Conservation Planner.

Duties and Responsibilities. The Research Officer will be responsible to the Ecologist/Conservation Planner. The Research Officer will collect and analyze relevant data, and carry out other tasks assigned by the Ecologist/Conservation Planner for the implementation of the Fish Ecology Research program.

Ecology Technician

Qualification and Experience. The Technician will have experience in fish ecology and a good knowledge of the ecological conditions within Lake Malawi/Nyasa. Experience with international research projects is considered useful. A diploma/certificate in Fisheries is desirable.

Duties and Responsibilities. The Technician will assist the Ecologist/Conservation Planner and Research Officer in the Fish Ecology Research Program. Primary responsibilities will include sampling on lake cruises, fish sorting, stomach content analyses and data entry and analysis.

B. TAXONOMY

Taxonomist

Qualifications and Experience: The Taxonomist will have an advanced degree and post-graduate training in fish taxonomy and conservation of biodiversity. The Taxonomist should have a good knowledge of fish taxonomy and be able to utilize modern systematic techniques in his/her research. He/she should have experience in the design, execution and assessment of research programs concerning fish taxonomy and if possible, aquatic ecosystems.

Duties and Responsibilities: The Taxonomist will be responsible to the Project Manager. The Taxonomist will have principal responsibility for the planning, design, execution and overall coordination of research on taxonomy of the fish population in the Lake, particularly the cichlid species and preparation of the sub-component's work plan for PM review. He/she will submit quarterly progress reports to the PM of the sub-component's activities for review. In addition, the Taxonomist will be responsible for the training of the research officers/technicians in fish taxonomy, systematic methodologies and analyses. Experience in scuba and Fishing Boats is considered useful.

Taxonomy Research Officer

Qualification and Experience: The Research Officer will have experience in fish taxonomy and biodiversity conservation. An advanced degree is not required since the research officer will be provided with on the job training by the Fish Taxonomist.

Duties and Responsibilities: The Research Officer will be responsible to the Fish Taxonomist. As part of his/her program, the Research Officer will prepare fish samples for identification, analyze data and carry out other tasks assigned by the Fish Taxonomist.

Taxonomy Technician

Qualifications and Experience: The Technician will have experience and knowledge of the fishes of Lake Malawi/Nyasa. Experience with international research projects is considered useful. A diploma/certificate in Biological Sciences or Fisheries is desirable.

Duties and Responsibilities: The Technician will assist the Fish Taxonomist and the Research Officer in the Fish Taxonomy Research Program. His/her primary responsibilities will include sampling on the lake cruises, fish identification, preservation and sorting of samples, data entry and analysis.

Ecology and Taxonomy Outputs

The ecologists and taxonomists financed under this project will be responsible for producing:

- Primary scientific information on ecology, species distribution, and taxonomy;
- Baseline information for future monitoring and evaluation;
- A Species Identification Manual; and
- A draft report which identifies biodiversity conservation priorities for Lake Malawi/Nyasa" which will include maps of species distribution identifying critical habitats and biodiversity hotspots; biodiversity survey reports; species checklists; and recommendations for preliminary measures to demarcate and protect critical habitats or fisheries replenishment zones within 30 months of grant effectiveness.

C. LIMNOLOGY/WATER QUALITY

Limnologist/ Water Quality Scientist

Qualifications and Experience: The Limnologist/Water Quality Scientist will have an advanced degree and post-graduate training in limnology and conservation of biodiversity. The scientist should have good knowledge of the limnological conditions within African or other tropical aquatic ecosystems and experience in the design, execution and assessment of limnology research programs and biolimnological interactions in aquatic ecosystems.

Duties and Responsibilities: The Limnologist/Water Quality Scientist will be responsible to the Project Manager and will have principal responsibility for the planning, design, execution and overall coordination of the limnology/water quality monitoring research program, including preparing the work plan for the component. He/she will submit quarterly progress reports to the PM. In addition, the Limnologist/Water Quality Scientist will be responsible for the training of the research officer in water quality sampling, and research design and analysis, and for supervising and guiding any research officers/technicians attached to the project.

Limnology/ Water Quality Research Officer

Qualifications and Experience: The Research Officer will have experience in limnology and water quality monitoring. An advanced degree is preferable but not required as the Research Officer will be provided with on the job training by the Limnologist/Water Quality Scientist.

Duties and Responsibilities: The Research Officer will be responsible to the Limnology/Water Quality Scientist. The Research Officer will assist the Limnologist/Water Quality Scientist with the implementation of the Limnology/Water Quality Monitoring Research Program.

Limnology/ Water Quality Technician

Qualifications and Experience: The Technician will have experience in water quality and good knowledge of Lake Malawi/Nyasa. Experience with international research projects is considered useful. A diploma/certificate in Biological Sciences or Fisheries is desirable.

Duties and Responsibilities: The Technician will assist the Limnologist and the Research Officer in the Limnology/Water Quality Monitoring Research Program. His/her primary responsibilities will include sampling on the lake cruises, conducting analyses of samples and data entry and analysis.

Limnology/Water Quality Output:

The limnologists/water quality scientists will provide baseline water quality information and establish the parameters for future monitoring; identify threats to hotspots and replenishment areas; and adopt a model for understanding the ecological interactions among the biotic and physical elements of the ecosystem in order to quantify trends concerning the function, structure and integrity of the Lake ecosystem. Within 30 months of grant effectiveness, the limnologist/water quality scientist will produce a final draft report on water quality/pollution outlining major existing and/or political threats to biodiversity and recommendations for their mitigation.

**SADC LAKE MALAWI/NYASA BIODIVERSITY CONSERVATION PROJECT
STRATEGIC PLAN FOR NANKUMBA PENINSULA,
LAKE MALAWI NATIONAL PARK
AND ENCLAVE VILLAGES
TERMS OF REFERENCE**

1. Overview

The conflict among *ad hoc* tourist developments, and traditional and other forms of land use within the Peninsula is increasing. A comprehensive Strategic Plan For Nankumba Peninsula and Lake Malawi National Park is required to minimize the potential damage of the unique environment. The Strategic Plan would assess present uses and allocate areas for future activities to maximize the use and benefits which could accrue from the area and to ensure maximum protection of its critical resources.

The Strategic Plan would be based on a sound understanding of environmental and socioeconomic opportunities and constraints. The Plan would integrate all aspects of land and water use, tourism, resorts, agricultural development, park development, fisheries management, forestry development, and community development, thereby enhancing the status of cultural heritage of the area.

The strategic planning framework may be used as a model for future community development in association with sustainable tourism and conservational development of the Lake Malawi basin and other areas in Malawi. The Plan will allow evaluation and integration of all anticipated future proposals, thereby avoiding the current *ad hoc* approach. The Strategic Plan will address, in an integrated manner, environmental issues, environmentally sound infrastructure requirements and costs, and investment opportunities.

The preparation of the Strategic Plan will include an in-depth analysis and evaluation of the five village communities enclaves in the National Park, the external communities of Kassaha Bay, and Monkey Bay and other areas.

2. Study Area

The geographic region incorporates the Nankumba Peninsula as illustrated on the Department of Surveys sheet # 1434B2 and part of sheet # 1334D4 (scale 1:50,000). More detailed surveys and plans at larger scales will be required for the enclave villages and the Park Visitor's Center Site (Golden Sands).

3. Objective And Approach

The objective of this activity is to prepare an integrated strategic plan based on a comprehensive resource and human activity assessment, followed by an analysis of issues and options. The development of the Strategic Plan For Nankumba Peninsula and Lake Malawi National Park will be a *two phase process* consisting of: (1) data survey and collection of information; (2) assessment and evaluation, and the development of a plan for conservation and development.

(1) Phase 1 (Data Survey and Collection)

An international firm, funded by the Canadian International Development Agency (CIDA) will complete Phase 1, in partnership with local expertise. This group will establish a Planning Team and report to the Ministry of Physical Planning and Surveys (MPPS). The DHPP will coordinate the pertinent activities with all other Government of Malawi agencies, such as the Ministry of Forestry and Natural Resources (MFNR), the Ministry of Finance, Tourism, Department of Antiquities, District Administration and the Malawi Development Corporation (MDC), as well as local communities, chieftains and donors, which may have a role to play in the development of the Strategic Plan. Phase 1 will include the following activities:

- the development of a natural resources data-base and completion of detailed surveys of soils, slopes, geological structures, vegetation associations, limnological features, drainage, climate, etc., which will form a basis for planning (all relevant data will be utilized in the development of a project geographic information system (GIS);
- a socioeconomic survey of village communities to cover all aspects of community organization and institutions including property rights, inheritance, health, education and population issues, traditional access, and land use patterns;
- survey and mapping all existing and historic (Livingstonian site) land and aquatic uses and activities,
- identification of current transportation, communication, energy, water, waste management issues, requirements, and their environmental costs if any; and
- completion of a market survey and assessment of existing tourism statistics and infrastructure facilities related to the Nankumba Peninsula. Assess the flow of tourism into Malawi from the Southern African region, Europe, etc., and the infrastructure facilities within the country leading to the Nankumba Peninsula.

(2) Phase 2 (Assessment and Evaluation and Strategic Plan for Conservation and Development)

Phase 2 will build upon the work and information collected in Phase 1. The consulting firm and Planning Team, in consultation with local communities, will focus on a number of major activities including:

- the identification of cross linkages amongst activities and sectors, with the objective of pinpointing all key issues requiring resolution;
- the preparation of a series of opportunity and constraint maps (using GIS) based on the identified and agreed issues;
- the identification of optional plans to resolve the identified issues; and
- the review of optional plans, with the Steering Committee, to select the preferred option(s).

As a result of this evaluation process, the consulting firm and the Planning Team would develop an integrated and detailed action plan that would refine, prioritize and expand the conclusions of the assessment and evaluation work. The development of the Strategic Plan will require the following:

- due and diligent consideration of all potential uses for the study area, including tourism, resort development, recreation and eco-tourism, and related essential services, such as the facilities and infrastructure required to support all related activities and potential investment;
- the development of a community plan for the villages within the Nankumba Peninsula, including potential agriculture, forestry and fisheries options;
- the development of an infrastructure development plan for the entire study area, including the National Park; this plan will include communication systems, roads, air strips, marine transportation, solid and liquid waste management, energy production and overall cost estimates;
- detailed environmental planning guidelines to ensure public access to the beaches, maintenance of visual quality of the area and avoidance of standard strip development of hotels along the beaches;
- architectural and landscape plans and working drawings for the National Park Visitor's Center Site (aquarium, food and beverage services, etc.);
- proposed legal and institutional arrangements to implement the plan; .
- proposed programs for resource protection, research, visitor's center and facilities, interpretation, surveillance and enforcement;
- overall cost estimates including social costs and benefits and overall environmental mitigation plans; and
- proposals outlining operational and financial alternatives that DNPW could consider, to obtain adequate tourism-related revenue from activities and facilities within the study area, to manage and conserve the Park for the enjoyment of present and future generations.

**SADC LAKE MALAWI/NYASA
BIODIVERSITY CONSERVATION PROJECT**

LEGISLATION COMPONENT TERMS OF REFERENCE

Legislation Expert

Qualification and Experience: The expert should have a law degree with substantial experience in environment and natural resource laws and regulations, particularly in Sub-Saharan Africa.

Duties and Responsibilities:

- Develop TORs, with the PM, for a local consultant from each riparian country to cover duties and responsibilities of this component (see below for recommended **TOR for Consultants**);
- Assist with the selection of the local consultants;
- Prepare the work plan and budget for the Legislation component and submit it to the PM for approval;
- Review, evaluate and assess the work of the local consultants and keep the PM informed;
- Produce a background paper, based on the detailed legislative reviews and assistance provided by the local consultants, for an intergovernmental workshop to identify the inadequacies and inconsistencies among the riparian countries' legislation and explore ways and means of revising and strengthening the legislation and/or enforcement ability to create harmonized and effective biodiversity conservation;
- Develop TOR for the workshop organizer, with the PM, and help with the organization of the workshop;
- Based on the comments expressed by the workshop participants (senior law officials and natural resource officers from each of the three countries) prepare a report which provides recommendations to the riparian countries for revising and strengthening legislation and/or enforcement ability to create the legal framework for a harmonized and effective conservation of Lake Malawi/Nyasa's biodiversity and including the preparation of draft legislation as appropriate;
- Assist the PM with the legislative recommendations for the Biodiversity Map and Management Plan for Lake Malawi/Nyasa as requested by the PM and Steering Committee.

Recommended TOR for the National Consultants (to be elaborated by the Legislation Expert):

The Legislation Expert will supervise three national consultants, one from each of the riparian states. The tasks of each of the three national consultants will be to prepare a written report identifying and analyzing all national legislation relevant to the environmental and natural resource quality of the Lake and its surrounding areas, including instruments relevant to international agreements. This report should identify laws in force, as well as areas of deficiency and inconsistency and including the preparation of draft legislation as appropriate. The report should take advantage of documentation already prepared during the National Environmental Action Plan process and avoid the creation of any new reports that would reiterate the findings from the NEAPs. The Legislation Expert shall then prepare a paper, based on the written reports of the national consultants, to be presented at the workshop referred to in para 2.33. This paper shall propose the legal framework necessary to implement a Biodiversity Map and Management Plan for Lake Malawi.

Following the workshop participant's review of the paper, the national consultants shall propose revisions and additions to their national legal framework and /or enforcement ability with a view toward establishing a harmonized approach for the conservation and sustainable use of Lake Malawi/Nyasa's biodiversity.

**SADC LAKE MALAWI/NYASA
BIODIVERSITY CONSERVATION PROJECT**

**TERMS OF REFERENCE FOR THE LOCAL CONSULTANT
TO PREPARE THE UNDP PROJECT FOR THE REHABILITATION
OF THE TANZANIA NATIONAL RESEARCH STATION**

A GEF project is being prepared to establish the basis for conserving the biodiversity of Lake Malawi/Nyasa through research, legislative, and planning initiatives. Building national capacity and reinforcing regional initiatives concerned with lake monitoring and management are the principal project goals. The project consists of the following components: (i) Research; (ii) National Capacity Building; (iii) Environmental Legislation; and (iv) Protected Areas Management.

It is proposed that US\$200,000 of the total GEF grant of US\$5,000,000 be allocated to UNDP for a project rehabilitating the National Research Station at Kyela in Tanzania through 100% cost sharing from the Government of Malawi.

UNDP would hire a local consultant, funded through a trust fund of the World Bank, to review with staff from the Tanzania Fisheries Department, or other relevant Government Agencies, the rehabilitation needs and estimated costs of the National Research Station at Kyela. On the basis of this information, the local consultant and government staff will design a UNDP project to rehabilitate the national research station - in line with the objectives and goals of the GEF project.

Specifically, the local consultant would:

- (1) Review with staff from the Fisheries Department a proposal they have drawn up for the rehabilitation of the National Research Station;
- (2) Make a field visit to the National Research Station;
- (3) Determine if civil works are necessary and whether any environmental analysis is required;
- (4) Determine a budget for the rehabilitation of the National Research Station; and
- (5) Prepare a project to rehabilitate and equip (computers, software, etc.) the National Research Station.

**SADC LAKE MALAWI/NYASA
BIODIVERSITY CONSERVATION PROJECT**

**TERMS OF REFERENCE FOR THE LOCAL CONSULTANT
TO PREPARE THE UNDP PROJECT FOR THE REHABILITATION
OF THE MOZAMBIQUE NATIONAL RESEARCH STATION**

A GEF project is being prepared to establish the basis for conserving the biological diversity of Lake Malawi/Nyasa through research, legislative, and planning initiatives. Building national capacity and reinforcing regional initiatives concerned with lake monitoring and management are the principal project goals. The project consists of the following components: (i) Research; (ii) National Capacity Building; (iii) Environmental Legislation; and (iv) Protected Areas Management.

It is proposed that US\$200,000 of the total GEF grant of US\$5,000,000 be allocated to UNDP for a project rehabilitating the National Research Station at Metangula in Mozambique through 100% cost sharing from the Government of Malawi.

UNDP would hire a local consultant, funded through a trust fund of the World Bank, to review with staff from the Mozambique Fisheries Department, or other relevant Government Agencies, the rehabilitation needs and estimated costs of the National Research Station at Metangula. On the basis of this information, the local consultant and government staff will design a UNDP project to rehabilitate the national research station - in line with the objectives and goals of the Lake Malawi GEF project.

Specifically, the local consultant would:

- (1) Review with staff from the Fisheries Department a proposal they have drawn up for the rehabilitation of the National Research Station;
- (2) Make a field visit to the National Research Station;
- (3) Determine if civil works are necessary and whether any environmental analysis is required;
- (4) Determine a budget for the rehabilitation of the National Research Station; and
- (5) Prepare a project to rehabilitate and equip (computers, software etc.) the National Research Station.

**SADC LAKE MALAWI/NYASA
BIODIVERSITY CONSERVATION PROJECT**

IMPLEMENTATION SCHEDULE

Project Year	Activity/Task	Responsibility	Executing Period
PY 0 from September 1994 to December 1994	Negotiations	Government of Malawi	September 1994
	Signature of Grant Agreement	Government of Malawi	December 1994
	Finalize Project Implementation Plan	MFNR	November/December 1994
	Establish a Steering Committee	MFNR	November/December 1994
	Appoint a Project Manager	MFNR	November/December 1994
	Appoint a Financial Controller	MFNR	November/December 1994
PY 1 from January 1995 to December 1995	Procurement of Goods, Services and Works	MFNR	First quarter
	Establish lake research stations	PM	First quarter
	Preparation of first quarterly report	PM	Second quarter
	Prepare Annual Report	PM	Second quarter
	Initiate limited rehabilitation of research stations in Mozambique, Tanzania and Cape MacClear in Malawi	UNDP/PM	Second quarter
	Second quarterly report	PM	Third quarter
	Third quarterly report	PM	Fourth quarter
	Legislation Workshop	PM/Legislation Expert/ MFNR	Fourth quarter

Project Year	Activity/Task	Responsibility	Executing Period
	Strategic Plan for Nankumba Peninsula and Lake Malawi National Park	MPPS	Fourth quarter
	Prepare Work Program and Budget for 1996	PM	Fourth quarter
PY 2 from January 1996 to December 1996	Fourth quarterly report	PM	First quarter
	Annual Audit of Project Accounts	MFNR/Auditors	First quarter
	Report on recommendations for strengthening legislation for harmonized and effective conservation of Lake Malawi/Nyasa's biodiversity	Legislation Expert	First quarter
	Report on Biodiversity Conservation Priorities for Lake Malawi/Nyasa	Ecologists/Taxonomists	Second quarter
	Report on the Water Quality/Pollution of Lake Malawi/Nyasa	Limnologists	Second quarter
	Conservation Awareness Program	WSM/DNPW	Second quarter
	Fifth quarterly report	PM	Second quarter
	Prepare Annual Report	PM	Second quarter
	Sixth quarterly report	PM	Third quarter
	Seventh quarterly report	PM	Fourth quarter
	Draft BMPL	PM/SC	Fourth quarter
	Mid-Term Project Review	MFNR/PM/SC/Bank	Fourth quarter
	Prepare Work Program and Budget for 1997	PM	Fourth quarter
PY 3 from January 1997 to December 1997	Eighth quarterly report	PM	First quarter
	Ninth quarterly report	PM	Second quarter

**SADC LAKE MALAWI/NYASA
BIODIVERSITY CONSERVATION PROJECT
CONSULTANCIES AND TRAINING SCHEDULE**

COMPONENT	PERSONNEL	SOURCE	PROCUREMENT	EST. PERSON MONTHS	EXPECTED BIDDING
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RESEARCH **	Ecologists/Conservation Planner	International	SS	42	1995
	Ecology Research Officer	Local	SL	42	1995
	Ecology Technician	Local	SL	42	1995
	Taxonomist	International	SL	36	1995
	Taxonomy Research Officer	Local	SL	36	1995
	Taxonomy Technician	Local	SL	36	1995
	Limnologist/ Water Quality Scientist	International	SL	36	1995
	Limnology/Water Quality Researcher	Local	SL	36	1995
	Limnology/Water Quality Technician	Local	SL	36	1995

**NATIONAL CAPACITY
BUILDING
(Training)**

Ecology 4 Research Officers Local	NA	NA	6 months each	NA
Taxonomy 4 Research Officers Local	NA	NA	6 months each	NA
Limnology/Water Quality 4 Technicians Local	NA	NA	6 months each	NA
4 Research Officers Local	NA	NA	6 months each	NA
4 Research Officers Local	NA	NA	6 months each	NA
4 Technicians Local	NA	NA	6 months each	NA
4 Research Officers Local	NA	NA	6 months each	NA
Education Officer Local	NA	NA	36	NA
Community Education Officer Local	NA	NA	36	NA

Project Year	Activity/Task	Responsibility	Executing Period
PY 4 from January 1998 to December 1998	Prepare Annual Report	PM	Second quarter
	Annual Audit of Project Accounts	MFNR/Auditors	Third quarter
	Tenth quarterly report	PM	Third quarter
	Fish Species Identification Manual	Ecologists/Taxonomists	Fourth quarter
	Eleventh quarterly report	PM	Fourth quarter
	Final draft BMPL	PM/SC	Fourth quarter
	Prepare Work Program and Budget for 1998	PM	Fourth quarter
	Twelfth quarterly report	PM	First quarter
	Thirteenth quarterly report	PM	Second quarter
	Time bound proposal for implementation of BMPL	SADC	Second quarter
PY 5 from January 1999 to July 1999	Grant Closing	Government of Malawi	First quarter
	Implementation Completion Report	Bank	Second quarter
	Follow-up Disbursements	MFNR	Second quarter
	Annual Audit of Project Accounts	MFNR/Auditors	Fourth quarter
	Fifteenth quarterly report	PM	Fourth quarter
	Fourteenth quarterly report	PM	Third quarter
	Fourteenth quarterly report	PM	Third quarter
	Annual Audit of Project Accounts	MFNR/Auditors	Fourth quarter

COMPONENT	PERSONNEL	SOURCE	PROCUREMENT	EST. PERSON MONTHS	EXPECTED BIDDING
ENVIRONMENTAL LEGISLATION	Legislation Expert	International	SL	2	1995
	Malawi Legal Officer	Local	SL	3	1995
	Mozambique Legal Officer	Local	SL	3	1995
	Tanzania Legal Officer	Local	SL	3	1995
PROTECTED AREA MANAGEMENT	Nankumba/LMNP Strategic Planning Firm	International	SL	6	1995
** PROJECT ADMINISTRATION	Project Manager	International	SL	48	1994
	Financial Controller	Local	SL	48	1994
	Secretary	Local	SS	48	1994

** It is envisaged that the ecologist and the secretary of the past ODA/SADC Pelagic Fish Resource Assessment Project will be procured through sole source. This will bring to the project individuals experienced in working on the lake and ensure a smooth project start-up. These individuals have also worked well with the local staff of the riparian countries and have properly managed the facilities at Senga Bay.

**SADC LAKE MALAWI/NYASA
BIODIVERSITY CONSERVATION PROJECT**

SUPERVISION SCHEDULE

Project Year	Mission No.	Activity	Skill Requirement	SW
PY1	1 Jan/Feb 1995	Review of Legal issues, organizations and management establishment of M&E system, procurement arrangements and plan, establishment of service contracts, work plans PY1.	- Task manager	3
			- Financial analyst/Disbursement specialist	2
			- Conservation specialist	2
			- Procurement specialist	2
			- M & E specialist	2
January 1995 - December 1995	2 Jun/Jul 1995	Review of field activities, training, procurement and disbursements.	- Task manager	3
			- Conservation specialist	3
			- M & E specialist	3
	3 Nov/Dec 1995	Review of field activities, training, procurement and disbursements. PY1 performance review Discuss PY2 work programme	- Task manager	3
			- Conservation specialist	3
			- M & E specialist	3

Project Year	Mission No.	Activity	Skill Requirement	SW
PY2	4 Apr/May 1996	Review of activities, training, procurement, disbursements.	- Task manager	3
			- Conservation specialist	3
			- M & E specialist	3
January 1996 - December 1996	5 Sept/Oct 1996	Review of annual activities, training, procurement, financial performance, PY2. Discuss annual work plan PY3.	- Task Manager	3
			- Conservation specialist	3
			- M & E specialist	3
PY3	6 Feb/Mar 1997	Mid-term review	- Task manager	3
		- Project design	- Conservation specialist	3
		- Training	- Financial analyst	3
		- Monitoring	- M & E specialist	3
		- Procurement		
		- Accounting		
		- Audit		
		- Disbursements		
		- Others		
January 1997 - December 1997	7 Jul/Aug 1997	Review of activities, procurement, disbursement, financial performance.	- Task manager	3
			- Conservation specialist	3
			- M & E specialist	3
	8 Nov/Dec 1997	Review of activities PY3 and discuss work plan for PY4.	- Task manager	3
			- Conservation specialist	3
			- M & E specialist	3

Project Year	Mission No.	Activity	Skill Requirement	SW
PY4	9 Apr/May 1998	Review of activities and disbursements.	Task manager	2
			- Conservation specialist	2
			- M & E specialist	2
January 1998 - December 1998	10 Sept/Oct 1998	Review of activities PY4, disbursements, Grant closing.	- Task manager	2
			- Financial analyst	2
January 1999 - July 1999	11 Apr/May 1999	Review of activities, disbursements, implementation completion report.	- Task manager	2

ESTIMATED PROJECT COSTS
MALAWI
LAKE MALAWI/NYASA BIODIVERSITY
CONSERVATION PROJECT

MAJLIM
SUDUC LAKE MALAWI/NYASA BIODIVERSITY CONSERVATION PROJECT
Table 3 RESEARCH
Detailed Costs
(US\$)

Line	Description	Quantities					Unit Cost	Base Cost					Total	Parameters (%)			
		52/96	60/97	67/98	69/98	70/98		52/96	60/97	67/98	69/98	70/98		Total	Inv. Cost	Per. Rate	Gross Rate
I. Investment Costs																	
A. ECOLOGY, SYSTEMATICS, AND TAXONOMY																	
1. CICH, D MANAGEMENT EXPERTS																	
1	Fish Ecologist /a																
2	Subtotal CICH, D MANAGEMENT EXPERTS	6	12	12	12	12	5,170	31,020.0	62,040.0	62,040.0	62,040.0	217,140.0	5.0	100.0	0.0		
2. EQUIPMENT (ECOLOGY, SYSTEMATICS, AND TAXONOMY)																	
1	Underwater Photo Equipment /c																
2	Computer 486 /d																
3	Printer Laserjet /e																
4	Software for Research																
5	Subtotal EQUIPMENT (ECOLOGY, SYSTEMATICS, AND TAXONOMY)	1	2	2	2	2	5,170	5,170.0	10,340.0	10,340.0	10,340.0	31,020.0	10.0	100.0	0.0		
3. TRAVEL																	
1	Travel for Fish Ecologist /f																
2	Travel for Fish Taxonomist /g																
3	Local Travel for Technical Assistants A																
4	Subtotal TRAVEL	1	1	1	1	1	5,170	5,170.0	5,170.0	5,170.0	15,510.0	5.0	100.0	0.0			
3. OTHER INCREMENTAL COSTS																	
1	Lab. Equip. & Consumables																
2	Site Running Costs: Telephone /h																
3	Site Running Costs: Electricity /i																
4	Site Running Costs: Maintenance /j																
5	0.5 M for Boat /k																
6	0.5 M for Vehicle 4 (4x4) /l																
7	Subtotal OTHER INCREMENTAL COSTS																
B. ECOLOGY, SYSTEMATICS, AND TAXONOMY																	
1. RESEARCH																	
1	Report and Publication Costs																
2	1. Report and Publication Costs																
3	2. EQUIPMENT																
4	3. TRAVEL																
5	4. OTHER INVESTMENT COSTS																
6	Report and Publication Costs /a																
7	Subtotal OTHER INVESTMENT COSTS																
8. LUMINOLOGIST /n																	
1	Report and Publication Costs																
2	1. Report and Publication Costs																
3	2. EQUIPMENT																
4	3. TRAVEL																
5	4. OTHER INVESTMENT COSTS																
6	Report and Publication Costs /a																
7	Subtotal OTHER INVESTMENT COSTS																
1. CIVIL WORKS																	
1	Bigg Rehab- Cape Medeur Sub Station																
2	Bigg Rehab- Kyda Sub Station																
3	Bigg Rehab- Madangya Sub Station																
4	Subtotal CIVIL WORKS																
2. EQUIPMENT																	
1	Computer 486-Cape Medeur Sub. Sta.																
2	Printer Laserjet-Cape Medeur Sub. Sta.																
3	Software for Res.-Cape Medeur Sub. Sta.																
4	Equipment (486PC, LIP, SW) for Kyda Sub Sta.																
5	Equip. (486PC, LIP, SW) for Madangya Sub. Sta.																
6	Subtotal EQUIPMENT																
Subtotal RESEARCH																	
1	Report and Publication Costs																
2	2. EQUIPMENT																
3	3. TRAVEL																
4	4. OTHER INVESTMENT COSTS																
5	Report and Publication Costs /a																
6	Subtotal OTHER INVESTMENT COSTS																
Total Investment Costs																	
A. ECOLOGY, SYSTEMATICS, AND TAXONOMY																	
1. SALARIES/WAGES - COUNTERPARTS																	
1	Consultant Research Officer-Ecologist /a																
2	Consultant Research Officer-Taxonomist /b																
3	Consultant Research Officer-Taxonomist /c																
4	Consultant Research Officer-Ecologist /d																
5	Consultant Research Officer-Taxonomist /e																
6	Consultant Research Officer-Ecologist /f																
7	Consultant Technical Assistant (Ecology) /g																
8	Consultant Technical Assistant (Taxonomy) /h																
9	Consultant Technical Assistant (Taxonomy) /i																
10	Subtotal SALARIES/WAGES - COUNTERPARTS																
2. TRAVEL																	
1	Travel for Fish Ecologist /j																
2	Travel for Fish Taxonomist /k																
3	Local Travel for Technical Assistants A																
4	Subtotal TRAVEL																
3. OTHER INCREMENTAL COSTS																	
1	Lab. Equip. & Consumables																
2	Site Running Costs: Telephone /l																
3	Site Running Costs: Electricity /m																
4	Site Running Costs: Maintenance /n																
5	0.5 M for Boat /o																
6	0.5 M for Vehicle 4 (4x4) /p																
7	Subtotal OTHER INCREMENTAL COSTS																
B. ECOLOGY, SYSTEMATICS, AND TAXONOMY																	
1. RESEARCH																	
1	Report and Publication Costs																
2	2. EQUIPMENT																
3	3. TRAVEL																
4	4. OTHER INVESTMENT COSTS																
5	Report and Publication Costs /a																
6	Subtotal OTHER INVESTMENT COSTS																
Total Investment Costs																	
A. ECOLOGY, SYSTEMATICS, AND TAXONOMY																	
1. SALARIES/WAGES - COUNTERPARTS																	
1	Consultant Research Officer-Ecologist /a																
2	Consultant Research Officer-Taxonomist /b																
3	Consultant Research Officer-Taxonomist /c																
4	Consultant Research Officer-Ecologist /d																
5	Consultant Research Officer-Taxonomist /e																
6	Consultant Research Officer-Ecologist /f																
7	Consultant Technical Assistant (Ecology) /g																
8	Consultant Technical Assistant (Taxonomy) /h																
9	Consultant Technical Assistant (Taxonomy) /i																
10	Subtotal SALARIES/WAGES - COUNTERPARTS																
2. TRAVEL																	
1	Travel for Fish Ecologist /j																
2	Travel for Fish Taxonomist /k																
3	Local Travel for Technical Assistants A																
4	Subtotal TRAVEL																
3. OTHER INCREMENTAL COSTS																	
1	Lab. Equip. & Consumables																
2	Site Running Costs: Telephone /l																
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4	Site Running Costs: Maintenance /n																
5	0.5 M for Boat /o																
6	0.5 M for Vehicle 4 (4x4) /p																
7	Subtotal OTHER INCREMENTAL COSTS																
B. ECOLOGY, SYSTEMATICS, AND TAXONOMY																	
1. RESEARCH																	
1	Report and Publication Costs																
2	2. EQUIPMENT																
3	3. TRAVEL																
4	4. OTHER INVESTMENT COSTS																
5	Report and Publication Costs /a																
6	Subtotal OTHER INVESTMENT COSTS																
Total Investment Costs																	
A. ECOLOGY, SYSTEMATICS, AND TAXONOMY																	
1. SALARIES/WAGES - COUNTERPARTS																	
1	Consultant Research Officer-Ecologist /a																
2	Consultant Research Officer-Taxonomist /b																
3	Consultant Research Officer-Taxonomist /c																
4	Consultant Research Officer-Ecologist /d																
5	Consultant Research Officer-Taxonomist /e																

Code	Description	Unit	Rate	Quantity	Amount	Code	Description	Unit	Rate	Quantity	Amount	Code	Description	Unit	Rate	Quantity	Amount	Code	Description	Unit	Rate	Quantity	Amount			
	Countertop - Technical Assistant (Lth) / Job	Month		12	401,814		4,821.8		4,821.8		4,821.8		44,665.3		5.0	0.0	0.0									
	Subtotal COUNTERTOP SALARIES						14,455.3		14,455.3		14,455.3		143,385.9		0.0	0.0	0.0									
	C. WAGES FOR RWUSIPA CREW																									
	Local Support/Man. (EL P8) / Job	Month		12	430,515		5,196.2		5,196.2		5,196.2		2,593.1		5.0	0.0	0.0									
	Engineer / Job	Month		12	430,515		5,196.2		5,196.2		5,196.2		2,593.1		5.0	0.0	0.0									
	Support	Month		12	191,723		2,300.7		2,300.7		2,300.7		1,150.3		5.0	0.0	0.0									
	Declared fee	Month		12	191,723		2,300.7		2,300.7		2,300.7		1,150.3		5.0	0.0	0.0									
	Cost / Job	Month		12	181,723		2,200.7		2,200.7		2,200.7		1,150.3		5.0	0.0	0.0									
	Subtotal WAGES FOR RWUSIPA CREW						17,234.4		17,234.4		17,234.4		8,817.2		43,085.9		0.0	0.0								
	D. TRAVEL																									
	RWUSIPA Crew/Group 1) Overnight Salary / Job	Month		12	361,632		5,170.0		5,170.0		5,170.0		15,510.0		5.0	0.0	0.0									
	RWUSIPA Crew/Group 2) Overnight Salary / Job	Month		12	292,725		4,336.6		4,336.6		4,336.6		2,168.8		5.0	0.0	0.0									
	RWUSIPA Crew/Group 3) Overnight Salary / Job	Month		12	206,647		3,513.0		3,513.0		3,513.0		1,756.5		5.0	0.0	0.0									
	Subtotal TRAVEL						2,478.8		2,478.8		2,478.8		1,238.9		6,199.4		0.0	0.0								
	E. RESEARCH VESSEL - RWUSIPA																									
	O & M for RWUSIPA / Job	Per Annum		1	89,693.296		89,693.3		89,693.3		89,693.3		44,846.6		224,233.2		5.0	100.0								
	F. OTHER INCREMENTAL OPERATING COSTS																									
	Lab Consumables (Chemicals & Glassware)	Amount			5,170.0		5,170.0		5,170.0		5,170.0		20,680.0		5.0	100.0	0.0									
	Sample Analysis	Amount			15,510.0		15,510.0		15,510.0		15,510.0		46,530.0		5.0	100.0	0.0									
	Satellite Imagery & Analysis / Job	Amount			6,251.6		6,251.6		6,251.6		6,251.6		18,754.7		5.0	100.0	0.0									
	Shipping (Samples for Analysis) / Item	Amount			2,525.0		2,525.0		2,525.0		2,525.0		7,575.1		5.0	100.0	0.0									
	Communication Costs	Amount			3,102.0		3,102.0		3,102.0		3,102.0		12,408.0		5.0	100.0	0.0									
	O & M for Equipment	Amount			8,943.9		8,943.9		8,943.9		8,943.9		33,897.7		5.0	100.0	0.0									
	Subtotal OTHER INCREMENTAL OPERATING COSTS				16,328.9		40,878.2		41,142.9		41,407.8		138,755.4													
	G. BIODIVERSITY SURVEYS																									
	1. TRAVEL																									
	Travel/Support (for Survey Team/Countertop)	Amount			3,444.1		3,444.1		3,444.1		3,444.1		13,778.5		5.0	0.0	0.0									
	2. OTHER INCREMENTAL OPERATING COSTS																									
	Microscopic Survey Supplies	Amount					5,170.0		5,170.0		5,170.0		10,340.0		5.0	100.0	0.0									
	O & M for Boat for Surveys	Amount					5,740.2		5,740.2		5,740.2		11,480.4		5.0	100.0	0.0									
	Subtotal BIODIVERSITY SURVEYS						10,810.2		10,810.2		10,810.2		21,820.4													
	Total Recurrent Costs						3,444.1		3,444.1		3,444.1		14,554.3		35,596.9											
	Total						333,905.6		327,664.0		338,152.8		281,061.4		1,281,823.8											
							396,356.7		1,012,960.7		963,530.8		487,191.8		2,461,139.0											

- 1a. Landlogist, Taxonomist, Ecologist at US\$5,000 per month.
- 1b. Landlogist, Taxonomist, Ecologist at US\$5,000 per month.
- 1c. Underwater Photo Equip. at US\$5,000 per unit.
- 1d. Computer 486 at US\$2,000 per unit.
- 1e. Laserjet Printer at US\$2,000 per unit.
- 1f. Zodiac Outboard Eng. Boat estimated at US\$10,000 per unit.
- 1g. Report and Publication Costs at US\$3,000 for the component.
- 1h. Landlogist, Taxonomist, Ecologist at US\$5,000 per month.
- 1i. Countertop - Research Officer salary at US\$700 per month.
- 1j. Countertop - Research Officer salary - Government contribution.
- 1k. Countertop - Research Officer Salary at US\$700 per month.
- 1l. Countertop - Technical Assistant salary - Government contribution.
- 1m. Countertop - Technical Assistant salary at US\$350 per month.
- 1n. Countertop - Technical Assistant salary - Government contribution.
- 1o. Countertop - Technical Assistant salary at US\$350 per month.
- 1p. Countertop - Technical Assistant salary - Government contribution.
- 1q. Overseas travel (airfare) at US\$5,000 per trip.
- 1r. Overseas travel (airfare) at US\$5,000 per trip.
- 1s. Local Travel covers: travel expenses, day and night subsistence.
- 1t. Local Travel covers: travel expenses, day and night subsistence.
- 1u. Based on estimate from UN/SDOC project at Salina.
- 1v. Based on estimate from UN/SDOC project at Salina.
- 1w. Based on estimate from UN/SDOC project at Salina.
- 1x. O & M for Equipment at 5% on cumulative investment cost per year.
- 1y. O & M for Boat at 10% of the investment cost of MK\$3,000.
- 1z. O & M per vehicle (524) at 40,000 per annum, from L. MK\$3,001, plus 10% of new vehicle cost of MK\$60,300.
- 2a. Countertop - Research Officer salary at US\$350 per month.
- 2b. Countertop - Research Assistant salary at US\$175 per month.
- 2c. Local RWUSIPA crew (Equipment) salary at US\$375 per month.
- 2d. Local RWUSIPA crew (Equipment) salary at US\$375 per month.
- 2e. Local RWUSIPA crew (Risks, Ditchend, Cook) salary @US\$187 per month.
- 2f. Local RWUSIPA crew (Risks, Ditchend, Cook) salary @US\$187 per month.
- 2g. Overseas travel (airfare) at US\$5,000 per trip.
- 2h. Night support (for Group 1) (Research Assistants, Captain, Marine Eng, Admin, Officer and Para, Aerial) at US\$315 month (US\$210high X 15 nights).
- 2i. Night support (for Group 2) (Driver, Store Keeper, Handman, Ship's Cook and Ship's Mate) at US\$255 per month (US\$170high X 15 nights).
- 2j. Night support (for Group 3) (all other grades) at US\$180 per month (US\$120high X 15 nights).
- 2k. Research Vessel RWUSIPA Operating and Maint. costs are estimated at US\$98,744 per annum. Includes spares at 10% of O & M costs.
- 2l. Satellite Imagery & Analysis (including miscellaneous & replacement costs) are estimated at US\$10,000 per year.
- 2m. Shipping costs for Sample Analyte (fitemanual) estimated @US\$5,000 per year.

MALAWI
SADC LAKE PALAMU/RYNSA BIODIVERSITY CONSERVATION PROJECT
Table 2. STRENGTHENING NATIONAL CAPACITY
Detailed Costs (US\$)

	Quantities					Unit Cost	Base Cost					Total	Parameters (In \$)	
	Unit	95/96	96/97	97/98	98/99		95/96	96/97	97/98	98/99	Phy. Cont.		For. Tan	Rate
I. Investment Costs														
A. CONSERVATION ACTIVITIES														
1. CAPE NUCLEAR ENV. EDUCATION CENTER														
Housing for EDO in LMNF, Cape Nuclear /a	Unit	1	-	-	-	1 8,036.275	-	8,036.2	-	-	8,036.2	10.0	0.0	0.0
Plumbing/Electricity for EDO/Driver /b	Unit	1	-	-	-	1 5,073.185	-	5,073.2	-	-	5,073.2	10.0	0.0	0.0
Subtotal CAPE NUCLEAR ENV. EDUCATION CENTER	Unit	1	-	-	-	1 2,410.882	-	2,410.9	-	-	2,410.9	10.0	0.0	0.0
2. EQUIPMENT														
Computer 486 /d	Unit	1	-	-	-	5,170	-	5,170.0	-	-	5,170.0	10.0	100.0	0.0
Laserjet Printer /e	Unit	1	-	-	-	2,060	-	2,060.0	-	-	2,060.0	10.0	100.0	0.0
Audio/Video Equipment (TV/VCR) /f	Unit	1	-	-	-	4,136	-	4,136.0	-	-	4,136.0	10.0	100.0	0.0
Subtotal EQUIPMENT	Unit	1	-	-	-	11,376.0	-	11,376.0	-	-	11,376.0	10.0	100.0	0.0
3. VEHICLES														
Bus/3 seater /g	Unit	-	1	-	-	51,700	-	51,700.0	-	-	51,700.0	10.0	100.0	0.0
Pick Up 4x4 /h	Unit	-	-	1	-	21,714	-	21,714.0	-	-	21,714.0	10.0	100.0	0.0
Subtotal VEHICLES	Unit	-	-	-	1	73,414.0	-	73,414.0	-	-	73,414.0	10.0	100.0	0.0
4. SALARIES														
a. Research														
F. Officers /i														
Technical Officer /j	Person	6	6	-	-	12 6,005.692	-	20,834.2	20,834.2	-	57,668.2	5.0	0.0	0.0
Subtotal Research	Person	6	6	-	-	12 2,462.886	-	10,417.2	10,417.2	-	20,834.2	5.0	0.0	0.0
b. Community Substantion														
P. Officers	Month	12	12	12	12	803.627	-	43,251.2	43,251.2	-	86,502.5	5.0	0.0	0.0
e. Environmental Education														
5. OTHER INVESTMENT COSTS														
Video on Malawi	Amount	-	-	-	-	-	9,643.5	9,643.5	9,643.5	20,930.6	5.0	0.0	0.0	
Radio Workshops	Amount	-	-	-	-	-	7,045.7	7,045.7	7,045.7	10.0	100.0	0.0	0.0	
Radio Programs	Amount	-	-	-	-	-	267.5	267.5	267.5	10.0	0.0	0.0	0.0	
Band Uniforms & Instruments	Amount	-	-	-	-	-	1,735.8	1,735.8	1,735.8	5,207.5	10.0	0.0	0.0	
Publication Costs	Amount	-	-	-	-	-	2,597.4	2,597.4	2,597.4	10.0	100.0	0.0	0.0	
Subtotal OTHER INVESTMENT COSTS	Amount	-	-	-	-	-	5,740.2	11,480.4	5,740.2	22,969.8	10.0	0.0	0.0	
Total Investment Costs														
II. Investment Costs														
A. EDUCATION CAPITAL														
1. SALARIES														
Bus Driver - Cape Nuclear Env. Edu. Center amount	Month	-	-	-	-	-	2,056.1	2,056.1	2,056.1	6,168.4	5.0	0.0	0.0	
Pick up truck driver /k	Month	-	-	-	-	-	2,056.1	2,056.1	2,056.1	6,168.4	5.0	0.0	0.0	
Subtotal SALARIES	Month	-	-	-	-	-	4,112.3	4,112.3	4,112.3	12,336.8	5.0	0.0	0.0	
2. OTHER INVESTMENT COSTS														
O & M for Bus /l	Amount	-	-	-	-	-	10,412.7	10,412.7	10,412.7	31,238.1	5.0	0.0	0.0	
O & M for Pick Up 4x4 /m	Amount	-	-	-	-	-	7,742.4	7,742.4	7,742.4	23,227.1	5.0	0.0	0.0	
Performance Fees	Amount	-	-	-	-	-	640.6	640.6	640.6	1,921.8	5.0	0.0	0.0	
Subtotal OTHER INVESTMENT COSTS	Amount	-	-	-	-	-	17,795.7	17,795.7	17,795.7	54,387.5	5.0	0.0	0.0	
Total														
House for EDO at Cape Nuclear estimated at US\$7,000 per unit, includes transportation.							2,056.1	2,056.1	2,056.1	6,168.4	5.0	0.0	0.0	
House for Driver at Cape Nuclear Education Center estimated at US\$4,419 per unit, includes transportation.							2,056.1	2,056.1	2,056.1	6,168.4	5.0	0.0	0.0	
Plumbing and Electricity for EDO & Driver at Cape Nuclear estimated at US\$2,100.							4,112.3	4,112.3	4,112.3	12,336.8	5.0	0.0	0.0	
Computer 486 at US\$5,000 per unit.							5,170.0	5,170.0	5,170.0	15,520.3	10.0	0.0	0.0	
Laserjet Printer at US\$2,000 per unit.							2,060.0	2,060.0	2,060.0	6,180.0	10.0	100.0	0.0	
Audio/Video Equipment at US\$4,000 per unit.							4,136.0	4,136.0	4,136.0	12,408.0	10.0	100.0	0.0	
Bus for Cape Nuclear Environmental Education Center at US\$30,000 per unit.							51,700.0	51,700.0	51,700.0	155,100.0	10.0	100.0	0.0	
Pick Up 4x4 for Cape Nuclear Environmental Education Center at US\$21,000 per unit.							21,714.0	21,714.0	21,714.0	65,142.0	10.0	100.0	0.0	
Treating 12 Pops for 6 months at a total estimated cost US\$33,750.							803.627	803.627	803.627	2,410.882	5.0	0.0	0.0	
Pick up truck Driver at Cape Nuclear Education Center at US\$150 per month.							1,735.8	1,735.8	1,735.8	5,207.5	10.0	0.0	0.0	
Cost for bus at \$9,000/month, 6m, US\$5.5/2 plus 10% of new vehicle cost of US\$215,000.							51,700.0	51,700.0	51,700.0	155,100.0	10.0	100.0	0.0	
Cost for 4x4 at \$9,000/month, 7m/2, US\$59/2 plus 10% of new vehicle cost of US\$9,300.							21,714.0	21,714.0	21,714.0	65,142.0	10.0	100.0	0.0	
O & M for Equipment at \$8 on cumulative investment cost per year.							17,795.7	17,795.7	17,795.7	54,387.5	5.0	0.0	0.0	

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MALawi
SADC LAKE MALAWI/WITASA BIODIVERSITY CONSERVATION PROJECT
Table 3. LEGISLATION
Detailed Costs
(US\$)

	Unit	Quantities					Unit Cost	Base Cost					Total	Parameters (in \$)		
		53/95	96/97	97/98	98/99	Total		53/95	96/97	97/98	98/99	Total		Per Cont.	For Tan	
I. Investment Costs																
A. LEGISLATION REVIEW																
Legislation Report /a	Day	60	-	-	-	60	620.4	37,224.0	-	-	-	37,224.0	5.0	100.0	0.0	
Local Report for L Study in Malawi /b	Day	90	-	-	-	90	26,701	2,503.1	-	-	-	2,503.1	5.0	0.0	0.0	
Local Report for L Study in Mozambique /c	Day	90	-	-	-	90	26,701	2,503.1	-	-	-	2,503.1	5.0	0.0	0.0	
Local Report for L Study in Tanzania /d	Day	90	-	-	-	90	26,701	2,503.1	-	-	-	2,503.1	5.0	0.0	0.0	
Report & Production Costs /e	Amount	-	-	-	-	-	-	9,184.3	-	-	-	9,184.3	10.0	0.0	0.0	
B. LEGISLATION COMMENCE																
Conference Consultant (incl.) /f	Day	10	-	-	-	10	620.4	24,816.0	-	-	-	24,816.0	5.0	100.0	0.0	
Multinational Conference Expenses /g	Amount	-	-	-	-	-	-	2,286.1	-	-	-	2,286.1	10.0	0.0	0.0	
Subtotal LEGISLATION COMMENCE																
Total Investment Costs																
II. Investment Costs																
A. LEGISLATION REVIEW																
Trip for Legislation Report /A	Unit	2	-	-	-	2	5,170	10,340.0	-	-	-	10,340.0	5.0	100.0	0.0	
Regional Trip (Mozambique) for L Report /1	Day	1	1	1	1	4	574.02	574.0	574.0	574.0	2,296.1	5.0	0.0	0.0		
Subsistence for Legislation Report /3	Day	60	-	-	-	60	172,206	10,332.4	-	-	-	10,332.4	5.0	0.0	0.0	
Trip-local L Exp. Malawi /k	Unit	6	-	-	-	6	574.02	3,444.1	-	-	-	3,444.1	5.0	0.0	0.0	
Trip-local L Exp. Mozambique /l	Unit	6	-	-	-	6	574.02	3,444.1	-	-	-	3,444.1	5.0	0.0	0.0	
Trip-local L Exp. Tanzania /m	Unit	6	-	-	-	6	574.02	3,444.1	-	-	-	3,444.1	5.0	0.0	0.0	
Subsistence for Local L Exp. Malawi /n	Day	20	-	-	-	20	21,714	434.3	-	-	-	434.3	5.0	100.0	0.0	
Subsistence for Local L Exp. Mozambique /o	Day	20	-	-	-	20	21,109	482.2	-	-	-	482.2	5.0	0.0	0.0	
Subsistence for Local L Exp. Tanzania /p	Day	20	-	-	-	20	24,109	482.2	-	-	-	482.2	5.0	0.0	0.0	
Subtotal LEGISLATION REVIEW																
B. LEGISLATION COMMENCE																
Trip for Conference Consultant /q	Unit	1	-	-	-	1	5,170	5,170.0	-	-	-	5,170.0	5.0	100.0	0.0	
Subsistence for Conference Consultant /r	Day	10	-	-	-	10	155.1	6,204.0	-	-	-	6,204.0	5.0	100.0	0.0	
Subtotal LEGISLATION COMMENCE																
Total Investment Costs																
								125,251.0	374.0	574.0	574.0	574.0	157,303.1			
								125,251.0	374.0	574.0	574.0	574.0	157,303.1			

1a International Expert/Consultant rate at US\$600 per day.
 1b National Expert/Consultant rate at US\$25 per day.
 1c National Expert/Consultant rate at US\$25 per day.
 1d National Expert/Consultant rate at US\$25 per day.
 1e Report & Publication costs for L Study per country estimated at US\$600 per day.
 1f International Expert/Consultant rate at US\$600 per day.
 1g Miscellaneous conference costs include communication and conference location costs.
 1h Overseas travel (airfare) at US\$5,000 per trip.
 1i Based on 2 trips to Mozambique and 2 trips to Tanzania at US\$500 per trip.
 1j Subsistence for International scientist Report/Consultant at US\$150 per day.
 1k Travel for regional scientists from Mozambique and Tanzania at US\$500 per trip.
 1l Travel for regional scientists from Mozambique and Tanzania at US\$500 per day.
 1m Subsistence for National Expert at US\$21 per day.
 1n Subsistence for National Expert at US\$21 per day.
 1o Overseas travel (airfare) at US\$5,000 per trip.
 1p Subsistence for International Expert/Consultant at US\$150 per day.

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MALAMI
 SAUC LAKE MALAMI/NVACA BIODIVERSITY CONSERVATION PROJECT
 Table 4. PROTECTED AREAS
 Detailed Costs
 (US\$)

	Quantities				Unit Cost	Base Cost				Parameters (In \$)		
	Unit	95/96	96/97	97/98		98/99	95/96	96/97	97/98	98/99	Phy. Cont. Rate	Gross For. Exch. Rate
I. Investment Costs												
A. PROTECT AREAS												
1. NANKINGBA PENINSULA AND LAKE MALAMI NATIONAL PARK												
2. NANKINGBA PENINSULA AND LAKE MALAMI NATIONAL PARK /a												
Total												
/a US\$256,017 Canadian contribution.												
Tue Nov 01 11:52:29 1998												

MALAWI
SADC LINKS MALAWI/NTASA BIODIVERSITY CONSERVATION PROJECT
Table 5. PROJECT ADMINISTRATION
Detailed Costs
(US\$)

	Quantities				Unit	Cost	Base Cost			Total	Parameters (in \$)		
	51/95	96/97	97/98	98/99			96/97	97/98	98/99		Rate	For. Exch. Rate	Gov. Tax
I. Investment Costs													
A. PROJECT ADMINISTRATION													
Project Manager /a	Month	12	12	12	12	7,000.10	84,002.2	84,002.2	84,002.2	336,008.8	5.0	100.0	0.0
Financial Controller /b	Month	12	12	12	12	5,992.765	71,913.2	71,913.2	71,913.2	287,652.7	5.0	0.0	0.0
Secretary /c	Month	12	12	12	12	287.01	3,444.1	3,444.1	3,444.1	13,776.5	10.0	0.0	0.0
Total Investment Costs							159,359.5	159,359.5	159,359.5	637,437.8			
II. Recurrent Costs													
A. SALARIES FOR SITE WORKERS													
NV-Dajips Security Guards /d	Year	3	3	3	3	694.564	2,083.7	2,083.7	2,083.7	8,334.8	5.0	0.0	0.0
PMU Site Security Guards /e	Year	12	12	12	12	694.564	8,334.8	8,334.8	8,334.8	33,339.1	5.0	0.0	0.0
PMU Site Workers /f	Year	8	8	8	8	667.011	5,336.1	5,336.1	5,336.1	21,344.3	5.0	0.0	0.0
PMU Site Carpenter/Handyman /g	Year	1	1	1	1	1,869.008	1,869.0	1,869.0	1,869.0	7,476.0	5.0	0.0	0.0
PMU Site Carpenter's Assistant /h	Year	1	1	1	1	667.011	667.0	667.0	667.0	2,668.0	5.0	0.0	0.0
PMU Site Office Cleaner /i	Year	1	1	1	1	781.0	781.0	781.0	781.0	3,164.0	5.0	0.0	0.0
PMU Site Driver/Mechanic /j	Year	1	1	1	1	2,269.7	2,269.7	2,269.7	2,269.7	9,078.7	5.0	0.0	0.0
PMU Site Driver /k	Year	1	1	1	1	1,067.7	1,067.7	1,067.7	1,067.7	4,270.7	5.0	0.0	0.0
Subtotal SALARIES FOR SITE WORKERS							22,418.9	22,418.9	22,418.9	89,675.6			
B. Travel													
Travel for Project Manager /l	Unit	1	1	1	1	5,170	5,170.0	5,170.0	5,170.0	20,680.0	5.0	100.0	0.0
Project Steering Committee Meetings /m	Unit	3	3	3	3	5,170	15,510.0	15,510.0	15,510.0	62,040.0	5.0	100.0	0.0
Other Travel (Local) /n	Amount						4,592.2	4,592.2	4,592.2	18,368.6	5.0	0.0	0.0
Subtotal Travel							25,272.2	25,272.2	25,272.2	101,088.6			
Total Recurrent Costs							207,050.5	207,050.5	207,050.5	828,202.1			

- la International Expert/Consultant at US\$6,770 per month.
- lb International Expert/Consultant at US\$5,220 per month.
- lc Salary for secretary for the PMU at US\$250 per month.
- ld Research Vessel NV-Dajips Security Guard salary estimated at US\$695 per year.
- le PMU Site Security Guard salary estimated at US\$695 per year.
- lf PMU Site Worker salary estimated at US\$501 per year.
- lg PMU Site Carpenter/Handyman salary estimated at US\$1,638 per year.
- lh PMU Site Carpenter's Assistant salary estimated at US\$501 per year.
- li PMU Site Office Cleaner salary estimated at US\$690 per year.
- lj PMU Site Driver/Mechanic salary estimated at US\$1,977 per year.
- lk PMU Site Driver salary estimated at US\$1,067 per year.
- lm Overseas travel (airfare) at US\$5,000 per trip.
- ln Project Steering Committee meetings 3 per year at US\$1,000 per meeting, includes travel, accommodation and subsistence.
- lo Estimated at US\$4,000 per year for Project Management Unit.

Tue Nov 01 11:52:35 1994

MALAWI
SADC LAKE MALAWI/VASA BIODIVERSITY CONSERVATION PROJECT
Procurement Arrangements
(US\$)

	Procurement Method				N.B.F.	Total
	International Competitive Bidding	Local Competitive Bidding	Local Shopping	Consulting Services		
A. CIVIL WORKS &		370,867.5				370,867.5
B. EQUIPMENT						
RESEARCH EQUIPMENT	5,772.3					5,772.3
OFFICE EQUIPMENT	62,294.9					62,294.9
VEHIC BOATS	98,460.3					98,460.3
C. CONSULTANT SERVICES						
NANKUNBA PENINSULA LAKE MALAWI NATIONAL PARK				980,292.9	254,047.0	1,234,339.9
INTERNATIONAL EXPERTS/CONSULTANTS				1,427,232		1,427,232.0
NATIONAL EXPERTS				8,323.4		8,323.4
REPORT PRODUCTION				24,982.8		24,982.8
TRAINING AND STUDIES				161,783.2		161,783.2
D. SERVICES CONTRACTS						
SALARIES			256,423.5		200,000	456,423.5
WAGES			62,557.0			62,557.0
OVERSEAS TRAVEL			92,199.2			92,199.2
LOCAL TRAVEL			57,432.4			57,432.4
REGIONAL TRAVEL			2,575.3			2,575.3
TRAVEL ALLOWANCES			64,487.4			64,487.4
E. MISCELLANEOUS						
OFFICE SUPPLIES						
EQUIP. OPERATING & MAINT.			79,869.0			79,869.0
VEHICLES & BOATS/OPERATING & MAINT.			219,537.8			219,537.8
RESEARCH VESSEL/OPERATING & MAINT.			231,971.3			231,971.3
SITE RUNNING COST			492,788.2			492,788.2
OTHER INVESTMENT COSTS			86,299.8			86,299.8
TOTAL	166,537.5	370,867.5	1,665,944.9	2,582,614.3	434,047	5,448,001

U Procurement of Materials (US\$300,000) and Transport (US\$300,000) provided by UNDP under conditions acceptable to the Bank.
May Oct 31 14:57:42 1994

MALAWI
SADC LARG MALAWI/IRVISA BIODIVERSITY CONSERVATION PROJECT
Procurement Accounts by Source
(US\$)

	Totals Including Contingencies			
	95/96	96/97	97/98	98/99
A. CIVIL WORKS /a				
RESEARCH EQUIPMENT	5,772.3	-	-	5,772.3
OFFICE EQUIPMENT	16,162.5	13,000.0	33,692.4	62,294.9
VEHICLES/BOATS	11,544.6	-	86,915.7	98,460.3
Subtotal EQUIPMENT	33,479.4	13,000.0	119,908.1	166,527.5
C. CONSULTANT SERVICES				
HANUUBA PERINSULA/LAKE MALAWI NATIONAL PARK	254,047.0	960,292.9	-	1,214,339.9
INTERNATIONAL EXPERTS/CONSULTANTS	265,945.2	374,357.8	306,994.9	947,297.9
NATIONAL EXPERTS	8,323.4	-	-	8,323.4
REPORT PRODUCTION	12,918.2	-	12,064.7	24,982.9
TRAINING AND STUDIES	-	57,691.3	71,075.9	128,767.2
Subtotal CONSULTANT SERVICES	541,233.7	1,402,342	680,070.7	2,623,646.6
D. SERVICE CONTRACTS				
SALARIES	231,048.4	71,237.0	74,799.7	377,085.1
WAGES	23,109.6	24,280.8	15,190.6	62,581.0
LOCAL TRAVEL	22,199.7	22,700.9	23,370.4	68,271.0
REGIONAL TRAVEL (NOZ./TZNG.)	616.5	11,183.7	11,742.9	23,123.1
TRAVEL ALLOWANCES	23,083.9	621.3	652.4	24,357.6
Subtotal SERVICE CONTRACTS	299,788.3	143,938.4	141,264.2	584,990.9
E. MISCELLANEOUS				
BOOTH/OPERATINGMAINT.	18,190.3	19,130.0	20,533.2	57,853.5
VEHICLES/BOATS/OPERATINGMAINT.	34,526.7	54,444.8	63,690.9	152,732.4
RESEARCH VESSELS/OPERATINGMAINT.	-	96,456.3	101,362.1	197,818.4
SITE RUNNING COST	3,075.4	31,761.1	28,295.9	93,132.4
OTHER INVESTMENT COSTS	1,024,504	2,458,398	1,077,526	4,560,428
Total	1,024,504	2,458,398	1,077,526	5,440,428

/a Procurement of Mozambique (US\$200,000) and Tanzania (US\$200,000) problems by UNDP under conditions acceptable to the bank.

Tue Nov 01 11:57:44 1994

MALAWI
SADC LAKES MALUMBI/NYASA BIODIVERSITY CONSERVATION PROJECT
Project Cost Summary

	(MK '000)		(US\$)		Foreign Exchange	Base Costs	Total
	Local	Foreign	Local	Foreign			
1. RESEARCH	9,185.0	0,379.6	17,564.5	1,287,528	1,133,611	2,461,139	48
2. STRENGTHENING NATIONAL CAPACITY	1,876.3	674.2	2,550.5	282,786.2	94,431.1	357,217.3	26
3. LEGISLATION	389.1	601.1	7,909.2	43,134.8	84,188.3	127,343.1	66
4. PROTECTED AREA	855.8	7,119.3	7,975.1	91,843.1	998,527.0	1,096,370	3
5. PROJECT ADMINISTRATION	2,923.6	2,989.7	5,913.4	109,473.4	418,728.6	828,202.1	22
Total Base/Prep Costs	14,948.8	19,784.0	34,732.7	2,094,786	2,769,486	4,864,272	17
Physical Contingencies	913.0	1,229.2	2,142.2	127,869.4	172,163.7	300,033.1	57
Price Contingencies	1,934.4	2,630.8	4,565.2	116,157.2	159,539.4	275,696.6	6
Total Project Costs	17,796.1	23,624.0	41,420.1	2,338,813	3,101,189	5,440,001	57
							112

Tue Nov 01 11:53:38 1994

MALAWI
SADC LAKE MALAWI/NYASA BIODIVERSITY CONSERVATION PROJECT
Project Cost Summary

	(HK '000)		(US\$)		Foreign Exchange	Total Base Costs
	Local	Foreign	Local	Foreign		
I. Investment Costs						
A. CIVIL WORKS						
B. EQUIPMENT						
RESEARCH EQUIPMENT						
OFFICE EQUIPMENT						
VEHICLES/BOATS						
Subtotal EQUIPMENT						
C. TRAINING AND STUDIES						
D. TECHNICAL ASSISTANCE						
INTERNATIONAL EXPERTS/CONSULTANTS						
LOCAL EXPERTS						
Subtotal TECHNICAL ASSISTANCE						
E. OTHER INVESTMENT COSTS						
REPORT PRODUCTION						
OTHER MISCELLANEOUS INVESTMENT COSTS						
Subtotal OTHER INVESTMENT COSTS						
F. NANJOMBA PENINSULA/LAKE MALAWI NATIONAL PARK						
Total Investment Costs						
II. Recurrent Costs						
A. SALARIES & WAGES						
SALARIES						
WAGES						
Subtotal SALARIES & WAGES						
B. TRAVEL						
LOCAL TRAVEL						
REGIONAL TRAVEL (MOZ. ATANZ.)						
OVERSEAS TRAVEL						
TRAVEL ALLOWANCES						
Subtotal TRAVEL						
C. EQUIP./OPERATING/MAINT.						
D. VEHICLES/BOATS/OPERATING/MAINT.						
E. RESEARCH VESSEL/OPERATING/MAINT.						
F. OTHER INCIDENTAL OPERATING COSTS						
Total Recurrent Costs						
Total Base Costs						
Physical Contingencies						
Price Contingencies						
Total PROJECT COSTS						

Tue Nov 01 11:53:44 1990

HAUJAMI
SBOC LARK HAUJAMI/RYANSA 3100/UNIVERSITY CONSERVATION PROJECT
Expenditure Accounts by Components - Base Costs
(in '000)

	STRENGTHENING		LEGISLATION	PROTECTED AREA	PROJECT ADMINISTRATION		Physical Contingencies		
	RESEARCH NATIONAL	NATIONAL CAPACITY			Total	Total	%	Amount	
I. Investment Costs	3,483.7	110.0	-	-	-	3,593.5	10.0	359.5	
A. CIVIL WORKS	36.9	81.2	-	-	-	36.9	10.0	3.7	
B. EQUIPMENT	302.7	73.0	-	-	-	383.9	10.0	38.4	
RESEARCH EQUIPMENT	73.0	524.2	-	-	-	598.0	10.0	59.8	
OFFICE EQUIPMENT	413.4	605.4	-	-	-	1,018.8	10.0	101.9	
VEHICLES/BOATS	-	-	-	-	-	-	-	-	
C. TRAINING AND STUDIES	-	1,030.0	-	-	-	1,030.0	5.0	51.5	
D. TECHNICAL ASSISTANCE	4,200.2	-	443.0	-	4,452.9	9,104.1	5.0	455.2	
LOCAL EXPERTS	-	-	55.3	-	55.3	55.3	5.0	2.8	
INTERNATIONAL ASSISTANCE	4,200.2	-	488.3	-	4,452.9	9,139.4	5.0	458.0	
E. OTHER INVESTMENT COSTS	4,200.2	-	-	-	-	4,200.2	-	-	
REPORT PRODUCTION	93.5	-	82.0	-	175.5	175.5	10.0	17.5	
OTHER HISTORICAL INVESTMENT COSTS	221.5	275.7	-	-	98.4	595.5	10.0	59.6	
F. MONITORING ENVIRONMENTAL NATIONAL PARK	315.0	275.7	82.0	-	98.4	771.0	10.0	77.1	
Total Investment Costs	6,420.3	2,022.7	580.3	-	7,775.1	15,551.3	7.0	1,645.1	
II. Recurrent Costs	2,401.2	88.1	-	-	640.3	3,041.5	2.7	81.1	
A. SALARIES & WAGES	307.6	88.1	-	-	395.7	395.7	5.0	19.8	
Subtotal SALARIES & WAGES	2,708.8	88.1	-	-	640.3	3,437.2	2.9	100.9	
B. TRAVEL	295.1	-	73.0	-	368.9	368.9	5.0	18.4	
LOCAL TRAVEL	332.2	-	16.4	-	16.4	16.4	5.0	0.8	
REGIONAL TRAVEL (MOZ., STANZ.)	110.7	-	110.7	-	147.7	590.6	5.0	29.5	
OVERSEAS TRAVEL	181.4	-	128.1	-	312.5	312.5	5.0	15.6	
Subtotal TRAVEL	811.7	-	329.0	-	147.7	1,288.4	5.0	64.4	
C. EQUIP./OPERATING/MAINT.	509.4	-	-	-	509.4	509.4	5.0	25.5	
D. VEHICLES/BOATS/OPERATING/MAINT.	1,001.0	-	-	-	1,001.0	1,001.0	5.0	69.4	
E. RESEARCH VESSEL/OPERATING/MAINT.	2,513.2	-	-	-	574.1	3,138.2	5.0	156.9	
F. OTHER INSTRUMENTAL OPERATING COSTS	9,144.2	-	329.0	-	1,362.1	11,365.1	4.1	497.2	
Total Recurrent Costs	17,564.5	2,550.5	909.2	-	7,775.1	25,913.4	6.2	2,142.2	
Physical Contingencies	1,017.0	177.1	49.6	-	597.1	300.6	2.1	142.2	
Inflation	-	-	-	-	-	-	-	-	
Local	1,101.0	311.5	15.7	-	81.6	424.5	1,934.4	-	
Foreign	629.7	51.5	8.5	-	265.8	181.7	1,439.1	-	
Subtotal Inflation	1,721.0	363.0	24.2	-	347.4	606.2	1,473.5	-	
Development	709.9	81.3	12.0	-	488.0	217.9	1,491.9	-	
Subtotal Price Contingencies	2,431.2	444.3	37.8	-	835.4	824.1	4,565.2	-	
Total PROJECT COSTS	21,014.0	3,134.8	996.5	-	9,287.6	21,048.0	81,420.1	5.9	2,427.0
Taxes	-	-	-	-	-	-	-	-	
Foreign Exchange	10,160.9	856.5	633.2	-	8,404.6	3,240.8	23,624.0	5.9	1,395.7

Tue Nov 01 11:53:57 1994

WALAMI
SADC LARK WALAMI/WASA BIODIVERSITY CONSERVATION PROJECT
Expenditure Accounts by Components - Base Costs
(US\$)

	STRENGTHENING				PROJECT AREA ADMINISTRATION	Total	Physical Contingency Fee	
	RESEARCH	NATIONAL CAPACITY	LEGISLATION	PROTECTED AREA ADMINISTRATION			\$	Amount
I. Investment Costs	407,916.7	15,520.3	-	-	-	503,637.0	10.0	50,363.7
A. CIVIL WORKS	5,170.0	-	-	-	-	5,170.0	10.0	517.0
B. EQUIPMENT	42,794.6	11,774.0	-	-	-	54,568.6	10.0	5,456.8
OFFICE EQUIPMENT	19,240.0	72,411.0	-	-	-	91,651.0	10.0	9,165.1
VEHICLES/BOATS	10,210.0	84,788.0	-	-	-	94,998.0	10.0	9,499.8
Subtotal Equipment	57,994.6	158,200.0	-	-	-	216,194.6	10.0	21,619.4
C. TRAINING AND STUDIES	-	144,363.6	-	-	-	144,363.6	5.0	7,218.2
D. TECHNICAL ASSISTANCE	509,300.0	-	42,040.0	-	-	551,340.0	5.0	27,567.0
INTERNATIONAL REPORTS/CONSULTANTS	-	-	7,749.3	-	-	7,749.3	5.0	387.5
LOCAL EXPERTS	509,300.0	-	99,789.3	-	-	609,089.3	5.0	30,454.6
Subtotal Technical Assistance	509,300.0	144,363.6	49,789.3	-	-	703,452.9	5.0	35,178.6
E. OTHER INVESTMENT COSTS	11,094.5	-	11,400.4	-	-	22,494.9	10.0	2,249.4
REPORT PRODUCTION	11,094.5	-	11,400.4	-	-	22,494.9	10.0	2,249.4
OTHER MISCELLANEOUS INVESTMENT COSTS	31,020.0	30,613.0	-	-	-	61,633.0	10.0	6,163.3
Subtotal Other Investment Costs	42,114.5	30,613.0	11,400.4	-	-	84,127.9	10.0	8,412.7
F. HUMANITARIAN PERISHABLES/WALAMI NATIONAL PARK	1,179,315	283,285.0	81,269.7	1,090,370	637,437.6	3,271,679	7.0	229,018.5
Total Investment Costs	337,420.3	12,336.0	-	-	-	349,756.3	2.7	11,384.0
A. SALARIES & WAGES	43,085.9	12,336.0	-	-	-	55,421.9	5.0	2,771.1
Subtotal Salaries & Wages	300,500.2	12,336.0	-	-	-	312,836.2	2.9	14,135.9
B. TRAVEL	41,329.4	-	10,332.4	-	-	51,661.8	5.0	2,583.1
LOCAL TRAVEL	41,329.4	-	2,296.4	-	-	43,625.8	5.0	2,181.3
REGIONAL TRAVEL (NO. 47/96-1)	-	-	15,510.0	-	-	15,510.0	5.0	775.5
OVERSEAS TRAVEL	25,000.0	-	17,025.0	-	-	42,025.0	5.0	2,101.2
TRAVEL ALLOWANCES	113,600.3	-	46,073.4	-	-	159,673.7	5.0	7,983.7
Subtotal Travel	179,929.7	-	73,407.8	-	-	253,337.5	5.0	12,666.5
C. RENT/OPERATING/MAINT.	140,000.0	54,408.3	-	-	-	194,408.3	5.0	9,726.3
D. RESEARCH VESSEL/OPERATING/MAINT.	224,233.2	-	-	-	-	224,233.2	5.0	11,211.7
E. OTHER INCIDENTAL OPERATING COSTS	351,000.0	7,139.3	46,073.4	-	-	404,212.7	4.1	20,210.6
Total Operating Costs	1,201,623.2	357,217.3	129,313.1	1,090,370	820,242.1	4,904,972	6.2	245,472.0
F. PHYSICAL CONTINGENCIES	2,401,159	26,007.0	6,501.2	83,632.3	42,099.9	2,559,399.4	-	-
Total Contingencies	182,553.7	26,007.0	6,501.2	83,632.3	42,099.9	260,834.1	-	-
Subtotal Contingencies	182,553.7	26,007.0	6,501.2	83,632.3	42,099.9	260,834.1	-	-
G. LOCAL	184,200.2	43,620.1	2,292.3	11,431.3	59,440.0	270,983.7	-	-
Foreign	60,937.4	7,211.0	1,320.0	17,220.2	29,841.7	106,529.3	-	-
Subtotal Local	245,137.6	50,831.1	3,612.3	28,651.5	89,281.7	277,058.1	-	-
Development	-31,520.9	-23,709.0	-1,000.5	-9,214.1	-30,009.9	-154,464.5	-	-
Subtotal Development	113,616.7	27,022.1	2,611.8	19,437.4	59,271.8	222,593.6	-	-
Total Project Costs	2,753,309	409,074.3	116,772.0	1,210,300	926,585.6	5,400,001	5.0	265,433.7
Taxes	-	-	-	-	-	-	-	-
Foreign Exchange	1,323,675	111,005.2	09,723.7	1,110,195	466,509.7	3,101,109	5.0	101,919.9

4-1 Expenditure Accounts by Components - Base Costs

Tue Nov 01 11:54:11 1994

MALAWI
SAND LAKE MALAWI/WINSA BIODIVERSITY CONSERVATION PROJECT
Expenditure Accounts by Components - Totals Including Contingencies
(in '000)

	STRENGTHENING		LEGISLATION	PROTECTED AREA	PROJECT ADMINISTRATION		Total
	RESEARCH	NATIONAL CAPACITY					
I. Investment Costs							
A. CIVIL WORKS	4,265.7	135.7	-	-	-	-	4,401.4
B. EQUIPMENT	42.0	-	-	-	-	-	42.0
RESEARCH EQUIPMENT	372.5	100.0	-	-	-	-	472.5
OFFICE EQUIPMENT	68.0	67.0	-	-	-	-	135.0
VEHICLES/BOATS	68.0	67.0	-	-	-	-	135.0
Subtotal EQUIPMENT	498.5	771.0	-	-	-	-	1,269.5
C. TRAINING AND STUDIES	-	1,247.3	-	-	-	-	1,247.3
D. TECHNICAL ASSISTANCE	-	-	481.3	-	-	-	481.3
INTERNATIONAL EXPERTS/CONSULTANTS	5,166.3	-	60.5	-	-	-	5,226.8
LOCAL EXPERTS	5,166.3	-	541.3	-	-	-	5,707.6
Subtotal TECHNICAL ASSISTANCE	10,332.6	-	601.8	-	-	-	10,934.4
E. OTHER INVESTMENT COSTS	131.2	-	94.0	-	-	-	225.2
REPORT PRODUCTION	283.2	351.6	-	-	-	-	634.8
OTHER HISTORICAL/ARCHIVAL INVESTMENT COSTS	488.4	351.6	94.0	-	-	-	934.0
Subtotal OTHER INVESTMENT COSTS	862.8	703.2	94.0	-	-	-	1,660.0
F. NATIONAL PENINSULA/LAKE MALAWI NATIONAL PARK	18,278.9	2,595.6	636.0	9,207.6	-	-	20,718.1
Total Investment Costs	26,947.2	3,470.3	1,111.3	9,207.6	-	-	30,736.4
II. Recurrent Costs							
A. SALARIES & WAGES							
MANAGES	2,618.2	-	-	-	-	-	2,618.2
Subtotal SALARIES & WAGES	2,618.2	100.2	-	-	-	-	2,718.4
B. TRAVEL	352.6	-	80.0	-	-	-	432.6
LOCAL TRAVEL	376.1	-	19.6	-	-	-	395.7
REGIONAL TRAVEL (NOT STATE.)	405.4	-	120.3	-	-	-	525.7
OVERSEAS TRAVEL	224.3	-	139.8	-	-	-	364.1
TRAVEL ALLOWANCES	982.4	-	360.6	-	-	-	1,343.0
Subtotal TRAVEL	1,942.2	477.6	539.3	-	-	-	2,959.1
C. EQUIP./OPERATING/MAINT.	1,200.2	-	-	-	-	-	1,200.2
D. VEHICLES/BOATS/OPERATING/MAINT.	3,013.5	-	-	-	-	-	3,013.5
E. RESEARCH VESSEL/OPERATING/MAINT.	10,719.1	648.3	360.6	-	-	-	11,728.0
F. OTHER INCIDENTAL OPERATING COSTS	21,018.0	3,151.0	996.5	9,207.6	-	-	24,373.1
Total Recurrent Costs	26,947.2	3,470.3	1,111.3	9,207.6	-	-	30,736.4
Total PROJECT COSTS	53,894.4	6,940.6	2,222.6	18,415.2	-	-	63,072.8
Taxes	10,160.9	856.5	653.2	8,404.6	-	-	11,675.2
Foreign Exchange	-	-	-	-	-	-	-

Tue Nov 01 11:54:26 1991

MALAWI
SNOG LAKE MALAWI/NYASA BIODIVERSITY CONSERVATION PROJECT
Expenditure Account by Component - Totals Including Contingencies
(US\$)

	STRENGTHENING				PROJECTED ADMINISTRATION	Total
	RESEARCH	NATIONAL CAPACITY	LEGISLATION	ANESA		
I. Investment Costs	553,266.4	17,599.1	-	-	-	570,867.5
A. CIVIL WORKS	5,772.3	-	-	-	-	5,772.3
B. EQUIPMENT	49,216.9	13,080.0	-	-	-	62,296.9
RESEARCH EQUIPMENT	11,546.8	8,915.7	-	-	-	20,462.5
VEHICLES/BOATS	11,546.8	8,915.7	-	-	-	20,462.5
C. TRAINING AND STUDIES	66,531.8	99,995.7	-	-	-	166,527.5
D. TECHNICAL ASSISTANCE	-	161,783.2	-	-	-	161,783.2
INTERNATIONAL EXPERTS/CONSULTANTS	664,134.7	-	66,119.1	-	-	730,253.8
LOCAL EXPERTS	664,134.7	-	8,323.4	-	-	672,458.1
E. OTHER INVESTMENT COSTS	664,134.7	-	74,442.5	-	-	738,577.2
REPORT PRODUCTION	15,940.1	-	12,918.2	-	-	28,858.3
OTHER MISCELLANEOUS INVESTMENT COSTS	36,728.2	45,605.1	12,918.2	-	-	95,251.5
F. NANKUNDA PENINSULA/LAKE MALAWI NATIONAL PARK	52,669.3	-	-	-	-	52,669.3
Total Investment Costs	1,336,601	324,983.2	87,360.7	1,214,340	713,165.4	3,666,453
II. Recurrent Costs	355,046.5	14,032.2	-	-	-	369,078.7
A. SALARIES & WAGES	48,524.8	14,032.2	-	-	-	62,557.0
WAGES	404,371.3	-	-	-	-	404,371.3
Subtotal SALARIES & WAGES	452,896.1	14,032.2	-	-	-	466,928.3
B. TRAVEL	46,354.5	-	11,097.9	-	-	57,452.4
LOCAL TRAVEL	52,589.6	-	2,575.3	-	-	55,164.9
REGIONAL TRAVEL (NOZ. ETANZ.)	29,091.6	-	16,529.8	-	-	45,621.4
OVERSEAS TRAVEL	128,035.8	-	19,208.4	-	-	147,244.2
TRAVEL ALLOWANCES	79,869.0	-	49,411.3	-	-	129,280.3
Subtotal TRAVEL	251,971.3	-	61,949.9	-	-	313,921.2
C. EQUIP./OPERATING/MAINT.	394,869.8	-	-	-	-	394,869.8
D. VEHICLES/BOATS/OPERATING/MAINT.	81,091.0	-	-	-	-	81,091.0
E. RESEARCH VESSELS/OPERATING/MAINT.	213,340.2	-	-	-	-	213,340.2
F. OTHER INCIDENTAL OPERATING COSTS	409,074.3	-	-	-	-	409,074.3
Total Recurrent Costs	1,333,675	111,085.2	89,723.7	1,110,195	466,509.7	3,101,169
Taxes	-	-	-	-	-	-
Foreign Exchange	-	-	-	-	-	-

Tue Nov 01 11:54:37 1994

MAUI
SADC LAKE MAUI/WAIA RIONIVERSITY CONSERVATION PROJECT
Project Components by Year

	Base Cost (M \$ '000)			Base Cost (US\$)							
	85/86	86/87	87/88	85/86	86/87	87/88					
1. RESEARCH	2,036.3	7,226.1	4,023.6	3,478.5	17,584.5	389,355.7	1,012,061	543,518.8	487,191.8	2,461,139	
2. STRENGTHENING NATIONAL CAPACITY	-	938.8	1,282.9	369.8	2,589.5	-	125,621.8	131,493.8	178,079.8	51,874.4	337,217.3
3. LEGISLATION	896.9	4.1	4.1	4.1	989.2	-	234,667.8	326,574.0	574.0	127,383.1	
4. PROTECTED AREA	1,803.7	5,971.3	1,478.2	7,775.1	-	-	207,059.5	207,059.5	207,059.5	429,282.1	
5. PROJECT ADMINISTRATION	1,478.2	1,478.2	1,478.2	5,913.4	-	-	207,059.5	207,059.5	207,059.5	429,282.1	
Total MAUI/MAUI COSTS	7,015.3	15,618.5	6,789.0	5,129.9	38,712.7	-	985,074.2	2,187,471	943,235.2	746,499.8	
Physical Contingencies	206.8	1,274.4	383.4	277.6	2,182.2	-	28,969.1	178,488.8	53,691.8	38,883.4	
Price Contingencies	-	-	-	-	-	-	-	-	-	-	
Inflation	-	-	-	-	-	-	-	-	-	-	
Local	79.7	835.6	472.6	546.5	1,934.4	-	11,136.0	117,827.5	66,191.3	76,544.9	
Foreign	32.2	432.2	339.5	344.3	1,139.1	-	4,588.2	69,525.4	48,215.9	159,539.4	
Subtotal Inflation	111.8	1,267.7	803.1	890.8	3,073.5	-	15,664.3	177,552.9	112,407.0	124,760.8	
Revaluation	42.7	793.6	372.3	883.2	1,491.7	-	-5,203.8	-85,115.3	-33,882.3	-30,561.1	
Subtotal Price Contingencies	154.6	2,061.3	1,175.4	1,173.9	4,565.2	-	10,460.5	32,437.6	38,598.8	34,199.7	
Total MAUI/MAUI COSTS	7,176.7	18,954.2	8,307.7	6,781.5	41,430.1	-	1,024,504	2,458,398	1,077,526	879,573.9	
Tenors	-	-	-	-	-	-	-	-	-	-	
Foreign Exchange	4,024.6	10,734.8	5,035.4	3,830.8	23,624.8	-	559,110.7	1,382,217	653,185.8	496,755.7	
Total	11,201.3	29,689.0	13,343.1	10,612.3	65,054.9	-	1,583,614.7	3,840,615.8	1,730,711.8	1,376,329.6	

Tue Nov 01 11:55:00 1994

HAJAH
SADC LARK HALLWAY/PRASA BIODIVERSITY UNIVERSITY CONSERVATION PROJECT
Project Components by Year

	Totals Including Contingencies (R\$ '000)				Totals Including Contingencies (US\$)					
	95/96	96/97	97/98	Total	95/96	96/97	97/98	Total		
1. RESEARCH	2,977.6	0,486.7	4,324.3	4,415.5	21,014.0	413,969.6	1,126,676	639,900.6	572,695.5	2,753,309
2. STRENGTHENING NATIONAL CAPACITY	-	1,117.3	1,537.8	478.0	3,134.0	-	164,915.1	202,053.9	62,105.3	409,074.3
3. LEGISLATION	981.4	7,403.9	4.8	5.3	996.5	134,813.3	-	621.3	652.4	685.0
4. PROTECTED AREA	1,803.9	7,403.9	5.0	-	9,207.6	254,047.0	966,292.9	-	-	1,214,340
5. PROJECT ADMINISTRATION	1,611.9	1,781.6	1,810.5	1,481.9	7,088.0	221,693.9	225,892.8	238,820.8	244,088.1	926,505.6
Total PROJECT COSTS	7,376.7	10,954.2	6,307.7	6,701.5	41,420.1	1,024,504	2,458,398	1,077,526	879,573.9	5,440,001

Tue Nov 01 11:35:08 1996

MALAMI
SNOG LARS MALAMI/WHYSA BIODIVERSITY CONSERVATION PROJECT
Project Components by Year -- Investment/Recurrent Costs

	Totals Including Contingencies (K '000)			Totals Including Contingencies (US\$)		
	95/96	96/97	Total	95/96	96/97	Total
A. RESEARCH						
Investment Costs	512.6	5,937.6	1,970.9	1,858.0	10,274.9	76,414.4
Recurrent Costs	2,464.9	2,754.1	2,963.4	2,556.6	10,739.1	343,535.2
Subtotal RESEARCH	2,977.6	8,691.7	4,934.3	4,414.6	21,014.0	413,949.6
B. STRENGTHENING NATIONAL CAPACITY						
Investment Costs	-	911.6	1,341.9	252.1	2,505.6	-
Recurrent Costs	-	205.7	215.9	478.8	3,154.0	-
Subtotal STRENGTHENING NATIONAL CAPACITY	-	1,117.3	1,557.8	730.9	5,659.6	-
C. LEGISLATION						
Investment Costs	636.0	-	-	636.0	87,360.7	-
Recurrent Costs	345.5	4.8	5.0	360.6	47,452.6	621.3
Subtotal LEGISLATION	981.5	4.8	5.0	996.6	134,813.3	621.3
D. PROTECTED AREA						
Investment Costs	1,003.7	7,403.9	-	9,207.6	254,047.0	860,292.9
Recurrent Costs	-	-	-	-	-	-
Subtotal PROTECTED AREA	1,003.7	7,403.9	-	9,207.6	254,047.0	860,292.9
E. PROJECT ADMINISTRATION						
Investment Costs	1,242.3	1,341.2	1,393.7	1,448.0	5,425.1	170,641.9
Recurrent Costs	1,471.7	1,400.4	1,416.2	1,433.9	1,622.9	51,937.6
Subtotal PROJECT ADMINISTRATION	2,714.0	2,741.6	2,810.0	2,881.9	7,048.0	222,579.5
Total PROJECT COSTS	4,194.6	15,389.3	4,706.5	3,558.9	28,049.3	502,464.0
Total Investment Costs	3,182.0	3,365.0	3,601.3	3,222.6	13,370.9	442,035.8
Total Recurrent Costs	1,012.6	12,024.3	1,105.2	336.3	14,678.4	60,428.2

Thu Nov 01 11:55:14 1991

MAINT
SAC LAST MAINT/MAINT AVAILABILITY CONSTRUCTION PROJECT
 Repertoire Accounts by Years

	Base Cost (R) '90		Total	Fiscal Package		Base Cost (R) '91		Total	Fiscal Package	
	9/78	9/79		9/78	9/79	9/78	9/79		9/78	9/79
I. Investment Costs										
A. CIVIL WORKS										
B. EQUIPMENT										
RESEARCH EQUIPMENT	36.9	3,590.5	3,627.4	100.0	36.9	5,170.0	5,206.9	100.0	5,170.0	
OFFICE EQUIPMENT	103.4	01.2	104.6	100.0	303.9	16,476.0	11,376.0	27,918.0	53,760.0	
VEHICLES/BOATS	73.0		73.0	100.0	590.0	20,340.0	72,414.0	83,754.0	100.0	
Subtotal Equipment	213.7	3,601.7	3,815.4	100.0	1,003.9	26,986.0	11,376.0	101,332.0	167,692.0	
C. TRAINING AND STUDIES										
TRAINING AND STUDIES	410.5	410.5	821.0	100.0	1,010.0	29,906.0	11,376.0	101,332.0	167,692.0	
D. TECHNICAL ASSISTANCE										
INTERNATIONAL EXPERTS/CONSULTANTS	1,777.7	2,442.1	4,219.8	77.4	7,050.2	240,975.3	342,035.3	342,035.3	1,275,001.0	
LOCAL EXPERTS	55.3		55.3	77.0	7,050.2	250,921.0	342,035.3	342,035.3	1,275,001.0	
Subtotal Technical Assistance	1,833.0	2,442.1	4,275.1	77.0	7,050.2	250,921.0	342,035.3	342,035.3	1,275,001.0	
E. OTHER INVESTMENT COSTS										
NETRONT PRODUCTION	106.6	222.6	329.2	88.9	175.5	14,924.5	21,170.7	27,267.8	9,650.4	
OTHER MISCELLANEOUS INVESTMENT COSTS	21.5	194.7	216.2	48.8	290.3	2,444.1	31,170.7	27,267.8	24,574.9	
Subtotal Other Investment Costs	128.1	417.3	545.4	37.7	785.8	17,368.6	52,341.4	54,532.6	34,225.3	
F. NATIONAL PRINISUL/LAKE MAINT NATIONAL PARK	1,023.7	5,971.3	6,995.0	91.6	2,119.2	18,000.0	31,170.7	27,267.8	31,170.7	
Total Investment Costs	3,982.0	12,758.3	16,740.3	60.3	15,470.7	559,126.2	1,706,078	533,173.5	392,500.5	
II. Maintenance Costs										
A. SALARIES & WAGES										
SALARIES	1,631.7	469.9	2,101.6	229,051.6	65,014.0	65,014.0	65,014.0	65,014.0	427,095.9	
WAGES	152.4	152.4	304.8	21,316.6	21,316.6	12,729.5	35,422.7	35,422.7	35,422.7	
Subtotal Salaries & Wages	1,784.1	622.3	2,406.4	229,051.6	87,161.4	77,743.5	100,436.7	100,436.7	100,436.7	
B. TRAVEL										
LOCAL TRAVEL	147.5	73.0	220.5	20,664.7	10,332.4	10,332.4	10,332.4	51,661.8	100.0	
REGIONAL TRAVEL (HOR. & VERT.)	4.1	4.1	8.2	574.0	574.0	574.0	574.0	2,296.1	100.0	
OVERSEAS TRAVEL	147.7	147.7	295.4	20,600.0	20,600.0	20,600.0	20,600.0	82,720.0	15.2	
TRAVEL ALLOWANCES	128.1	73.0	201.1	17,935.0	10,332.4	10,332.4	5,166.2	43,765.9	48.5	
Subtotal Travel	427.4	297.8	725.2	47.4	47.4	59,053.7	41,910.7	18,673.9	71,344.0	
C. EQUIP./OPERATING/MAINT.	121.4	129.3	250.7	133.3	509.4	17,556.7	19,115.3	18,673.9	71,344.0	
D. EQUIP./BOATS/OPERATING/MAINT.	229.5	399.1	628.6	400.1	1,308.9	32,145.1	89,693.3	44,866.6	224,233.2	
E. RESEARCH VESSEL/OPERATING/MAINT.	623.2	813.7	1,436.9	89,693.3	89,693.3	44,866.6	224,233.2	100.0	234,233.2	
F. OTHER INCIDENTAL OPERATING COSTS	3,033.3	2,800.2	5,833.5	37.5	1,601.0	87,299.6	113,962.6	119,132.6	439,527.3	
Total Maintenance Costs	7,018.5	6,749.0	13,767.5	56.9	19,764.0	400,592.9	412,061.7	353,900.3	1,502,539.0	
Physical Contingencies	206.0	1,274.4	1,480.4	277.6	2,142.2	2,187,471	945,235.7	746,490.8	4,864,272	
Price Contingencies										
Indirect										
Local	79.7	835.6	915.3	546.5	1,934.4	11,156.0	117,027.5	66,191.3	76,544.9	
Foreign	32.2	432.2	464.4	348.3	1,139.1	4,508.3	60,525.4	46,289.0	40,215.9	
Subtotal Indirect	111.9	1,267.8	1,379.7	894.8	3,073.5	15,664.3	177,552.9	112,480.3	116,761.8	
Devaluation	42.7	793.6	836.3	283.2	1,491.7	-5,203.8	-30,561.1	-154,762.5	37.1	
Subtotal Price Contingencies	154.6	2,061.3	2,215.9	1,173.9	4,585.2	10,460.5	84,437.6	78,590.8	34,199.7	
Total Project Costs	7,316.7	19,954.2	27,270.9	6,781.5	41,420.1	1,024,504	2,450,398	1,077,526	879,573.9	
Taxes										
Foreign Exchange	4,024.6	10,734.0	14,758.6	5,035.4	3,830.0	23,624.0	559,110.7	1,392,217	653,105.0	
Total	11,341.3	30,688.2	42,029.5	11,816.9	45,250.1	1,048,128.0	2,909,508.7	1,130,631.0	879,573.9	
Tue Nov 01 11:55:25 1991										

**MINNESOTA
SAND LAKE WILDLIFE/PRIMA BIODIVERSITY CONSERVATION PROJECT**

Expenditure Accounts by Years

	Totals Including Contingencies (FY 2000)			Totals Including Contingencies (US\$)		
	95/96	96/97	97/98	95/96	96/97	97/98
I. Investment Costs						
A. CIVIL WORKS						
RESEARCH EQUIPMENT	42.0	-	-	42.0	5,772.3	-
OFFICE EQUIPMENT	117.7	100.0	234.0	473.3	16,162.5	33,052.4
VEHICLES/BOATS	84.0	-	670.1	754.2	11,544.6	86,915.7
Subtotal INVESTMENT	243.7	100.0	925.0	1,269.5	33,679.4	119,968.1
C. TRAINING AND STUDIES						
TECHNICAL ASSISTANCE	-	521.9	540.0	177.5	1,247.3	-
INTERNATIONAL REPORTS/CONSULTANTS	1,936.1	2,006.3	2,903.7	3,003.5	10,089.6	265,945.2
LOCAL EXPENSES	60.6	-	-	60.6	8,323.4	-
Subtotal INVESTMENT	1,996.7	2,006.3	2,903.7	3,064.1	18,660.3	265,945.2
E. OTHER INVESTMENT COSTS						
REPORT PRODUCTION	122.3	-	-	93.0	215.3	16,793.6
OTHER MISCELLANEOUS INVESTMENT COSTS	20.2	275.0	319.8	205.0	757.9	35,666.6
Subtotal INVESTMENT	142.5	275.0	319.8	198.0	973.2	52,460.2
F. WILDLIFE PRESERVATION/LAKE WILDLIFE NATIONAL PARK						
Total Investment Costs	4,191.0	15,989.3	4,706.5	3,580.9	20,049.3	582,404.0
IX. Reinvestment Costs						
A. SALARIES & WAGES						
WAGES	1,651.9	549.2	576.7	605.5	3,383.3	231,060.4
Subtotal SALARIES & WAGES	1,651.9	549.2	576.7	605.5	3,383.3	231,060.4
B. TRAVEL						
LOCAL TRAVEL	161.6	86.2	90.5	95.1	433.4	22,195.7
REGIONAL TRAVEL (INC. STATE)	4.5	4.0	5.0	5.3	19.6	652.4
OVERSEAS TRAVEL	160.4	175.0	188.2	185.4	701.1	22,039.7
TRAVEL ALLOWANCES	139.0	88.2	90.5	47.5	304.1	19,208.4
Subtotal TRAVEL	465.5	353.4	364.7	333.3	1,510.2	64,099.6
C. EQUIP./OPERATING/MAINT.						
VEHICLES/BOATS/OPERATING/MAINT.	132.4	147.5	189.3	169.7	600.0	19,130.3
RESEARCH VESSEL/OPERATING/MAINT.	251.4	419.0	491.1	515.6	1,677.8	54,464.8
OTHER INCIDENTAL OPERATING COSTS	-	759.1	781.5	492.1	1,942.7	98,450.3
Subtotal INVESTMENT	483.8	1,325.6	1,461.9	1,177.4	3,780.6	124,045.4
F. OTHER INCIDENTAL OPERATING COSTS						
Total Reinvestment Costs	3,182.6	3,265.0	3,201.3	3,222.6	13,370.9	412,039.0
Total PROJECT COSTS	7,373.6	19,254.2	8,307.7	6,701.5	41,420.1	1,024,508

Tue Nov 01 11:55:45 1994

**NALMUT
SIOC LAKE NALMUT/NTSA BIODIVERSITY CONSERVATION PROJECT
Equipment Assets Breakdown
(FY 1991)**

	Base Cost			Physical Contingencies			Price Contingencies			Total Incl. Cont.			Base Cost + Price Cont.	Physical Cont. on Base Cost	
	For. (Incl. Taxes)	Duties & Taxes	Total	For. (Incl. Taxes)	Duties & Taxes	Total	For. (Incl. Taxes)	Duties & Taxes	Total	For. (Incl. Taxes)	Duties & Taxes	Total			
I. Investment Costs															
A. CIVIL WORKS															
B. BODILY WORK															
RESEARCH EQUIPMENT	36.9	-	36.9	3.7	-	3.7	1.4	-	1.4	42.0	-	42.0	39.2	3.8	
OFFICE EQUIPMENT	383.9	-	383.9	38.4	-	38.4	51.1	-	51.1	473.3	-	473.3	430.2	43.1	
VEHICLES/BOATS	398.0	-	398.0	59.0	-	59.0	96.4	-	96.4	754.2	-	754.2	695.6	58.6	
SUBTOTAL BODILY WORK	1,018.8	-	1,018.8	101.9	-	101.9	148.9	-	148.9	1,269.5	-	1,269.5	1,154.1	115.4	
C. TRAINING AND STUDIES															
TRAINING AND STUDIES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
D. TECHNICAL ASSISTANCE															
INTERNATIONAL EXPENSES/CONSULTANTS															
LOCAL EXPENSES	7,050.2	2,953.8	9,999.1	352.8	182.7	535.5	455.2	1,832.6	2,287.8	1,338.3	8,435.4	9,773.7	10,009.6	271.0	
OTHER TECHNICAL ASSISTANCE	55.3	-	55.3	2.8	-	2.8	2.8	-	2.8	60.6	-	60.6	57.7	2.9	
OTHER INVESTMENT COSTS	7,050.2	2,109.2	9,159.4	355.6	182.7	538.3	458.0	1,832.6	2,290.6	1,341.1	8,435.4	9,776.5	10,067.3	269.2	
E. OTHER INVESTMENT COSTS															
REPORT PRODUCTION															
OTHER MISCELLANEOUS INVESTMENT COSTS	290.3	305.2	595.5	17.5	-	17.5	17.5	-	17.5	22.3	-	22.3	215.3	19.7	
SUBTOTAL OTHER INVESTMENT COSTS	290.3	305.2	595.5	17.5	-	17.5	17.5	-	17.5	22.3	-	22.3	215.3	19.7	
F. NATIONAL TRINISUL/LAKE NALMUT NATIONAL PARK	7,119.3	655.8	7,775.1	290.6	48.1	338.7	49.3	53.3	102.6	388.7	389.3	778.0	889.0	88.9	
Total Investment Costs	15,478.7	7,870.9	23,349.6	1,013.8	630.1	1,643.9	1,981.5	1,070.1	3,051.6	10,478.2	9,571.1	20,049.3	26,191.3	673.1	
II. Recurrent Costs															
A. SALARIES & WAGES															
WAGES	3,041.5	-	3,041.5	81.1	-	81.1	81.1	-	81.1	260.8	-	260.8	3,302.3	93.5	
SUBTOTAL SALARIES & WAGES	3,041.5	-	3,041.5	81.1	-	81.1	81.1	-	81.1	260.8	-	260.8	3,302.3	93.5	
B. TRAVEL															
LOCAL TRAVEL	343.7	-	343.7	19.8	-	19.8	19.8	-	19.8	66.8	-	66.8	410.5	23.0	
REGIONAL TRAVEL (NO. 47MS.)	3,437.2	-	3,437.2	100.9	-	100.9	100.9	-	100.9	327.6	-	327.6	3,765.7	116.5	
OVERSEAS TRAVEL															
TRAVEL ALLOWANCES	590.6	-	590.6	0.0	-	0.0	0.0	-	0.0	2.4	-	2.4	18.7	0.9	
SUBTOTAL TRAVEL	4,371.5	-	4,371.5	120.7	-	120.7	120.7	-	120.7	397.6	-	397.6	4,769.8	120.7	
C. EQUIP./OPERATING/MAINT.															
VEHICLES/BOATS/OPERATING/MAINT.	241.4	268.0	509.4	12.1	32.5	44.6	33.6	82.8	116.4	287.0	765.6	1,052.6	1,415.9	35.9	
RESEARCH VESSEL/OPERATING/MAINT.	1,601.0	-	1,601.0	80.1	-	80.1	219.4	-	219.4	2,020.4	-	2,020.4	2,239.8	219.4	
F. OTHER INCIDENTAL OPERATING COSTS	1,404.8	1,333.4	2,738.2	90.2	66.7	156.9	261.6	195.0	456.6	1,942.7	1,595.1	3,537.8	4,135.2	70.3	
Total Recurrent Costs	5,418.0	1,601.4	7,019.4	211.1	99.2	310.3	402.7	290.8	693.5	2,610.6	2,150.5	4,761.1	5,275.8	148.3	
Total	19,764.0	14,948.0	34,712.0	1,229.2	913.0	2,142.2	2,384.3	1,360.9	3,745.2	17,198.1	17,198.1	34,396.2	38,993.1	2,427.0	

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MALAMI
SAND LAKES MALAMI/RYASA BIODIVERSITY CONSERVATION PROJECT
Expenditure Accounts Breakdown
(US\$)

	Base Cost			Physical Contingencies			Price Contingencies			Total Incl. Cont.		
	For. (Excl. Taxes)	Duties & Taxes	Total	For. (Excl. Taxes)	Duties & Taxes	Total	For. (Excl. Taxes)	Duties & Taxes	Total	For. (Excl. Taxes)	Duties & Taxes	Total
I. Investment Costs												
A. CIVIL WORKS												
B. EQUIPMENT												
RESEARCH EQUIPMENT	5,170.0	-	5,170.0	517.0	-	517.0	85.3	-	85.3	5,772.3	-	5,772.3
OFFICE EQUIPMENT	53,768.0	-	53,768.0	5,376.8	-	5,376.8	3,150.1	-	3,150.1	62,294.9	-	62,294.9
VEHICLES/BOATS	83,754.0	-	83,754.0	8,375.4	-	8,375.4	6,330.9	-	6,330.9	99,460.3	-	99,460.3
Subtotal EQUIPMENT	142,692.0	-	142,692.0	14,269.2	-	14,269.2	9,566.3	-	9,566.3	166,527.5	-	166,527.5
C. TRAINING AND STUDIES												
D. TECHNICAL ASSISTANCE												
INTERNATIONAL EXPERTS/CONSULTANTS	987,428.6	287,652.7	1,275,081.3	49,371.4	14,382.6	63,754.1	67,804.4	20,592.2	88,396.5	1,104,604.3	322,627.5	1,427,231.8
LOCAL EXPERTS	7,749.3	-	7,749.3	387.5	-	387.5	186.7	-	186.7	8,136.8	-	8,136.8
Subtotal TECHNICAL ASSISTANCE	987,428.6	287,652.7	1,275,081.3	49,758.9	14,382.6	64,141.5	67,991.1	20,778.9	88,583.2	1,104,604.3	330,950.9	1,427,231.8
E. OTHER INVESTMENT COSTS												
REPORT PRODUCTION	24,574.9	-	24,574.9	2,457.5	-	2,457.5	3,089.3	-	3,089.3	1,825.8	-	1,825.8
OTHER MISCELLANEOUS INVESTMENT COSTS	40,663.1	42,747.2	83,410.3	4,066.3	4,274.7	8,341.0	3,089.3	3,681.0	6,770.3	47,018.7	50,702.9	93,727.6
Subtotal OTHER INVESTMENT COSTS	40,663.1	42,747.2	83,410.3	4,066.3	4,274.7	8,341.0	3,089.3	3,681.0	6,770.3	47,018.7	50,702.9	93,727.6
F. NAMUNDA PENINSULA/LAKE MALAMI NATIONAL PARK	990,527.0	91,883.1	1,082,410.1	74,448.0	9,184.3	83,632.3	37,220.3	3,117.2	40,337.5	1,110,195.1	104,144.6	1,214,339.7
Total Investment Costs	2,169,311.1	1,102,368.6	3,271,679.7	142,154.9	80,248.5	220,403.5	117,680.3	56,691.1	174,371.4	2,429,146.1	1,247,308.8	3,676,454.9
II. Recurrent Costs												
A. SALARIES & WAGES												
WAGES												
Subtotal SALARIES & WAGES												
B. TRAVEL												
LOCAL TRAVEL												
REGIONAL TRAVEL (NOZ. 47RMZ.)												
INTERNATIONAL TRAVEL												
Subtotal TRAVEL												
C. EQUIP./OPERATINGMAINT.												
D. VEHICLES/BOATS/OPERATINGMAINT.												
E. RESEARCH VESSEL/OPERATINGMAINT.												
F. OTHER INCIDENTAL OPERATING COSTS												
Total Recurrent Costs												
Total	2,169,311.1	1,102,368.6	3,271,679.7	142,154.9	80,248.5	220,403.5	117,680.3	56,691.1	174,371.4	2,429,146.1	1,247,308.8	3,676,454.9

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	Base	Physical
	Costs +	Cont.
	Price	Plus
	Cont. on	Cont. on
	Base	Physical
Total	Costs	Cont.
570,067.5	510,970.5	51,097.0
5,772.3	5,247.5	524.8
62,290.9	56,631.8	5,659.2
90,460.3	89,509.3	9,950.9
106,527.3	101,300.7	15,138.9
161,703.2	154,079.3	7,704.0
1,427,232	1,359,369	67,863.4
8,323.4	7,927.1	396.4
1,435,555	1,367,196	68,359.8
20,050.3	20,231.0	2,623.3
80,521.7	89,385.2	8,863.5
127,379.9	115,799.9	11,580.0
1,214,300	1,127,041	87,259.4
3,676,453	3,434,476	241,979.0
456,425.5	440,214.0	12,210.7
62,557.0	59,570.1	2,970.9
510,902.5	503,792.9	15,109.6
57,452.4	54,716.6	2,735.8
2,575.3	2,452.6	122.6
92,159.2	87,770.6	4,388.5
40,300.1	46,000.1	2,300.0
200,406.9	196,939.9	9,547.0
79,069.0	76,065.0	3,003.3
219,537.0	209,083.6	10,454.2
251,971.3	239,972.7	11,998.6
492,700.2	469,238.3	23,461.9
1,763,548	1,689,093	74,454.7
5,440,001	5,123,568	316,433.7

INDIA
SAC LAMB NULAM/NTMA SUSTAINABILITY CONSTRUCTION PROJECT
Measurement Account by Fundsource
(US\$)

	Global Env.		Canadian		The Government		Total	For.	Local	
	Facility	Amount	Amount	Amount	Amount	Local			Dist.	Total
1. General	4,985,954	91.7	254,017.0	1.7	300,000.0	3.7	3,410,001	100.0	3,101,109	2,330,013
Total	4,985,954	91.7	254,017.0	1.7	300,000.0	3.7	3,410,001	100.0	3,101,109	2,330,013

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MALAWI
 SADC LARG MALAWI/NYASA BIODIVERSITY CONSERVATION PROJECT
 Disbursements by Sponsors and Government Cash Flow
 (US\$)

	Financing Available		Costs to be		The Government	
	Global Facility Amount	Canadian Amount	Financed Project Costs	Cash Flow	Cumulative Cash Flow	Cash Flow
1	285,228.4	127,023.5	412,251.9	512,251.9	-512,251.9	-512,251.9
2	285,228.4	127,023.5	412,251.9	512,251.9	-100,000.0	-612,251.9
3	1,229,199	-	1,229,199	1,229,199	-810,907.0	-1,429,190.9
4	1,229,199	-	1,229,199	1,229,199	-	-1,429,190.9
5	530,762.9	-	530,762.9	530,762.9	690,436.1	-730,762.9
6	530,762.9	-	530,762.9	530,762.9	90,975.9	-639,786.9
7	439,706.9	-	439,706.9	439,706.9	-	-639,786.9
8	439,706.9	-	439,706.9	439,706.9	-	-200,000.0
9	439,706.9	-	439,706.9	439,706.9	-	-639,786.9
Total	4,985,954	254,047.0	5,240,001	5,449,001		

Tue Nov 01 11:58:39 1994

MALAWI
SADC Lake Malawi/Nyasa Biodiversity Conservation Project
Disbursements by Semesters and Government Cash Flow
(US\$)

IBRD Fiscal Year	Semester	Cumulative		
		Amount	Amount	Percentage
FY95	Sep-94	0	0	0%
FY95	Mar-95	554101	554101	10%
FY96	Sep-95	1108205	554104	20%
FY96	Mar-96	2324210	1216005	43%
FY97	Sep-96	3540215	1216005	65%
FY97	Mar-97	4064673	524458	75%
FY98	Sep-97	4589131	524458	84%
FY98	Mar-98	5014566	425435	92%
FY99	Sep-98	5440001	425435	100%

