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Lake Malawi Ecosystem Management Project

**Integrated environmental and social
analysis**

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The full version of the Integrated Environmental and Social Analysis is available on request. The table of contents of the report is shown below.

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Executive summary

The Lake Malawi basin

Lake Malawi, a deep rift valley lake and the third largest in Africa, has a surface area of 2.8 million ha, and a total catchment of 10.1 million ha, of which almost two-thirds (6.5 million ha) lies within Malawi. To the riparian populations the lake represents a vital source of fresh water, food and livelihoods. It is also a tourist destination, it forms the basis of a local transport network, and through its outflow into the Shire River it provides Malawi with its main source of hydroelectric power.

Lake Malawi is also home to the most diverse assemblage of freshwater fishes found anywhere on earth. Of an estimated 800 cichlid species, around 300 have been formally described and several hundred more have been given informal working names. 99% of the Lake's cichlids are believed to be endemic, while of 45 non-cichlid species only 13 (29%) are endemic. The reasons for such prodigious diversity are subject to ongoing scientific debate, but it is generally agreed that many if not most of the cichlids are relatively recent, and that speciation is rapid and possibly continuous. The Lake Malawi National Park, established at Cape Maclear in southern Malawi in order to protect a species-rich rocky shoreline, was declared a World Heritage Site by UNESCO in 1987.

Environmental conditions and the status of natural resources in the Lake Malawi basin are products of the area's intrinsic geophysical and ecological characteristics, long and short-term trends in climate, and, most importantly, the human influence on many of these. In the last respect, environmental conditions in the Lake and its catchments mirror those prevailing throughout Malawi, and are indicative of a poor and densely populated land in which: (a) most economic activity depends, initially at least, on the use of natural resources; (b) levels of education and technology are very low; (c) open access conditions prevail in most circumstances, and (d) the ability of the Government to intervene in the way natural resources are used is weak. In addition, there are special features that link the Lake with its multiple catchments.

Malawi's portion of the catchment comprises all of the Northern Region, most of the Central Region and a small part of the Southern Region. Of this total area, one quarter is cultivated and a similar area is under protection as National Parks, Wildlife Reserves and Forest Reserves. Most of the natural forest outside the protected areas has now been removed, and what remains is mainly confined to the Northern Region. Poor land use, soil erosion and soil degradation, deforestation and seasonal bush fires all give cause for serious concern, and combine to exacerbate rural poverty and threaten food security. They also generate substantial off-site impacts, including the siltation of watercourses, the lowering of water tables, with the consequent loss of base flows in streams and rivers and a reduction in the rate of groundwater recharge. In the years to come, the threat to water resources may overtake soil fertility as the prime concern for rural households. Further, an acceleration in the transport of soil-derived phosphorus into Lake Malawi has been identified as the cause of increasing phosphorus/nitrogen ratios in the Lake's surface waters. This favours the replacement of the existing diatom-dominated phytoplankton community by one dominated by nitrogen-fixing blue-green algae, a process likely to have profound and unpredictable impacts on commercial fisheries and strongly negative impacts on biological diversity.

Within the Lake itself, fish resources are also under pressure from intensive low-technology fishing, principally by artisanal fishers. Most fishing pressure is concentrated in the inshore margins of the Lake and in the sheltered shallows of its southern arms, the areas in which biodiversity and endemism are highest. The currently heavy reliance on small dugout canoes exacerbates this problem by confining the offshore extent of the fishery. Overall production continues slowly to increase, but a fall in catch per unit effort in most gears, and in annual catch per fishing enterprise, has resulted in declining incomes and a steady and unsustainable reduction in mesh sizes in an attempt to stem such decline. The effect of this is simply to accelerate the removal of the more valuable commercial species. Although not a problem in itself, it is remarkable that the kind of classic over-fishing decline seen in Lake Malawi exists alongside large and unexploited stocks of fish – both pelagic and demersal – in the Lake's offshore waters. The fishing industry is aware of these stocks, but does not have the technical or financial means to access them.

Environmental and social policies

Since the early 1990s the Government of Malawi has undertaken a comprehensive overhaul of its policy framework for management of the environment and natural resources. In 1994 Malawi published its first National Environmental Action Plan (NEAP), and the new 1995 Constitution contained explicit provisions to ensure the protection of the environment and the sustainable use of natural resources. These were followed in 1998 by an Environment Support Program and the first State of the Environment Report. A new awareness of the long-term economic implications of poor environmental management, together with the realization that the existing command-and-control policies for natural resources management had for all practical purposes become untenable, gave rise to an ambitious round of policy and legislative reform, led and unified by a National Environmental Policy and an Environment Management Act. The result has been a transformation of the policy and legislative framework for natural resources management, within which an over-riding priority is to close the *de facto* open access to resources by progressively transferring resource tenure and management responsibility from the state to the resource users within a framework of legally enforceable management agreements. The new generation of policies also explicitly recognizes the roles in environment/ natural resources management played by non-governmental organizations (NGOs) and the private sector, and encourages public/private partnerships. It is anticipated that in the long term the devolution of natural resources management functions (including law enforcement) to resource users will considerably lessen the burden on the state. The process will be slow, however, and in the meantime all communal resources not included in formal management agreements will remain the responsibility of the Government.

Malawi's broad development goals are to work towards macro-economic stability through tightening fiscal discipline and monetary policy, and to achieve sustained growth in ways and in sectors that will most benefit the poor. Agriculture remains the key to growth in the medium term, although emphasis will also be placed on other natural resources based industries, manufacturing, tourism and small-scale mining. Efforts to achieve rural growth will center on the reduction of inflation and interest rates, improved access to credit and improved rural infrastructure. The national budget was recently refocused to strengthen the social sectors and agriculture, and free primary education was introduced in 1994.

In December 2000, the International Monetary Fund (IMF) and the International Development Association (IDA) of the World Bank agreed to Malawi's participation in the Heavily Indebted Poor Countries (HIPC) debt relief initiative. The Initiative will provide significant support for Malawi's poverty reduction efforts by releasing resources for expenditures on health, education, rural development and other priority areas. Total debt service relief from all of Malawi's creditors will be worth around \$1 billion, equivalent to US\$643 million in NPV. Malawi will save an average of US\$50 million per year in debt service payments over the next 20 years, an amount equivalent to around 2.5% of annual GDP for the period 2001-09. Malawi has recently published a Poverty Reduction Strategy Paper (PRSP), which will form the basic framework for programming financial resources released through participation in HIPC.

The Lake Malawi Ecosystem Management project

The objective of the LMEMP is to contribute to Malawi's efforts to improve the economic livelihood of stakeholder communities living on the lakeshore and in the catchments of Lake Malawi/Nyasa. The project will identify and demonstrate practical, self-sustaining environmental management interventions in critical pilot zones, while simultaneously building the capacity of local institutions for ecosystem management. It will have as its central aim maximizing the benefits to riparian communities from fisheries and from the improved management of soils, forests, wetlands and other resources within the basin to generate food, employment and income, while sustaining the ecosystem from which these benefits arise. Specific project components include:

- (1) *Integrated Watershed Management* within the lake catchments, with sub-components:
 - (a) Develop National Capacity for Integrated Watershed Management Planning and Monitoring
 - (b) Decentralized Capacity-building for IWM

- (c) Community-Driven Investments in IWM
- (2) *Fisheries Resource Management and Productivity Enhancement*, including sub-components:
 - (a) Fisheries Management Strategy
 - (b) Pilot Technology and Production Methods Innovations
 - (c) Strengthen Producer and Community-based Management of Fisheries Resources
- (3) *Mobilization of Social and Institutional Capital*, with sub-components:
 - (a) Indigenous knowledge and Improved Resource Management
 - (b) Support for Government CBNRM and Decentralization Policy
 - (c) Capitalizing on Community Expertise
 - (d) Vertical Networks: Working up the Watershed
- (4) *Regional Programs*, with sub-components:
 - (a) African Centre for Aquatic Research and Education
 - (b) Ecosystem Monitoring Program
 - (c) Ecosystem Policy and Institutional Framework

LMEMP initiatives will be consistent with existing government programs and policies and will be implemented through existing structures at national, district and local levels while supporting the district development framework. For example, serious effort has been made to harmonize LMEMP planning and implementation modalities with those of other government and donor funded programs and projects such as Danida's CBNRM program, Malawi Social Action Fund (MASAF), and other successful micro-project development initiatives and land management programs in the country (MAFE and PROSCARP). Both the community-driven and the catchment-wide initiatives, the two main avenues for accessing LMEMP funds at district level, will be identified, designed and approved through the formal district development planning process. Technical assistance and training will be made available to the district technical services, through both their line ministries, by accessing HQ specialists, and the provision of technical experts in key cross-sectoral areas such as integrated watershed management.

The project focuses on a limited range of catchment scales and sites that represent high risk areas for contributing excessive sediment and nutrient loads to the Lake, rather than attempt to work in a large number of districts from the outset. The selection of sites is based on a procedure that takes full advantage of the data, analytic models, and other decision support tools formulated under the first GEF/SADC project and further developed as part of the capacity building investment of LMEMP. Candidate basins were classified according to their high, moderate and low levels of impact in recognition that the wisest investments initially might be in increased services to maintain favorable situations rather than spending an equivalent amount of investment on expensive restoration activities. The justification for the initial restriction to core catchments is based on the limited staffing and capacity of the key technical departments at field level and the need to demonstrate observable impact on watershed and water quality to enhance both the sustainability and the replicability (or diffusion) of project activities and accomplishments. This is consistent with the underlying philosophy of LMEMP that emphasizes the pairing of information with action to develop a model of sustainable ecosystem management in the Lake basin.

Although it would be unrealistic to make firm projections of project impact, it is possible to forecast the anticipated extent of LMEMP's field interventions in Integrated Watershed Management (IWM) and fisheries management, how these will develop over time and how they match up to current understanding of the scale of the problems addressed. Fisheries productivity enhancement cannot be discussed in quite the same way, because although the potential end-point is defined by the known sizes of new target stocks, the speed and route towards the end-point is highly dependent on technical and financial testing that has yet to be performed.

Field interventions in (IWM) and Fisheries Resource Management (project components 1(c) and 2(c)) will follow parallel tracks, both using localised pilot interventions (a) as a means of testing

approaches for the treatment of more widespread problems, and (b) as a strategy to ensure that the initial project scope is manageable within the existing institutional capacity at both central and district levels, and thereafter grows at a rate that is determined by the pace of capacity development.

In other ways the two components differ quite markedly. The IWM priority sites comprise limited parts of the various river catchments, and will be confined mainly to the steep escarpment zone. The critical sub-catchments will tend to be small (10-20,000 ha, or 2,500 households), their boundaries clearly defined, and they will form discrete and easily monitored management units. Fisheries management cannot however be conducted at the micro-scale, and the need for management interventions is not confined to isolated problem areas. It will be necessary to define ecological zones within the Lake within each of which a uniform management regime will apply. The pilot zones in the Fisheries component will therefore tend to be relatively large areas (100+ kms, or 5,000 fishing households) whose boundaries will be more arbitrarily defined.

Within the IWM component, a preliminary list of priority catchments includes: the Lisangadzi River, Nankhumba Peninsula; the Nankhokwe and Bwanje Rivers, Golomoti / Ntcheu escarpment (see Annex 3, case study 4); the Linthipe River, Salima escarpment (see Annex 3, case study 1); the afferent streams of Chia Lagoon; the Bua River, Nkhotakota (see Annex 3, case study 2); the Dwangwa River, Nkhotakota; the Dwambazi River; the North Rumphu River (currently forested); the North Rukuru River, escarpment zone and the Songwe River, escarpment zone.

The definition of fisheries management zones will require refinement during the course of the project. However, the following breakdown of management areas is anticipated for the purpose of indicating the scale of interventions that is required: the South East Arm (see Annex 3, case study 5); the South West Arm; Salima; Domira Bay; Nkhotakota / Nkhata Bay South (see Annex 3, case studies 1, 2); Likoma and Chisumulu Islands; Nkhata Bay North / Rumphu / Karonga South and Karonga.

In the first year of the project two IWM sites and two fisheries management areas would be actively developed. Assuming that no new sites would be added during the project's final two years, it is anticipated that by the eighth (and final) year of the project six of ten critical catchment areas and four of eight fisheries management areas would be under active community-based management regimes, as shown below.

		Sites of LMEMP activity, by year								
		total	1	2	3	4	5	6	7	8
IWM component	Critical sub-catchment	10	2	2	3	4	5	6	6	6
Fisheries component	Fishery management zone	8	2	2	3	3	4	4	4	4

Although final prioritisation for implementation of pilot areas will be completed during project appraisal, it should be noted that all of the field consultations detailed in Annex 3 of this analysis were held within the areas listed as sites of project intervention in components 1(c) and 2(c).

Integrated Environmental and Social Analysis

A substantial part of the LMEMP design comprises investments in social and institutional development to serve joint environmental and social ends. So closely interconnected are these two sets of development objectives in the project that it is not meaningful to analyze the project in purely environmental or purely social development terms. For this reason an Integrated Social and Environmental Analysis was performed, with the objectives of (a) assessing the environmental and social issues, opportunities, constraints, impacts, risks, and anticipated project's social development outcomes; (b) understanding social institutions (formal and informal) and their impact on social rules and behavior regarding the objectives of the project; (c) assessing characteristics, interests and concerns of key stakeholders, including women, and how they will be likely to engage and influence project implementation and outcomes; (d) describing consultations or collaboration with NGOs or

other civil society organizations during project preparation and mechanisms for their continued involvement in the project; (e) recommending institutional arrangements to ensure stakeholder participation, voice, and public accountability of the project's intended environmental and social development outcomes; (f) discussing other arrangements for monitoring project components performance; and (g) assessing the applicability of safeguard policies and the provisions made by the project to ensure compliance with them.

Environmental and social benefits, risks and costs

The anticipated environmental benefits around which the core project activities are grouped include: (a) a progressive reduction in the risk of profound modification to the Lake Malawi ecosystem that could result from eutrophication and excessive sediment discharge from catchments disturbed by agriculture and deforestation; (b) a progressive reduction in the risk of species extinctions or other loss of biological diversity from the riverine and shallow water fish communities of Lake Malawi resulting from increasing and un-managed fishing pressure and the degradation of essential biodiversity-rich habitats; (c) a modest increase in terrestrial biodiversity following the rehabilitation or re-establishment of indigenous woodlands on customary land in the areas of project field intervention; and (d) increased soil fertility, enhanced dry season, riverine water quantity and quality for domestic and agricultural use and improved crop yields in targeted districts.

The project's social development benefits will include: (a) improved and more secure livelihoods based on the sound management, development and increased productivity of primary natural resources in the Lake and in its catchments; (b) improved access to information and investment resources required for community-based natural resource management; (c) increased community self-determination resulting from the CBNRM empowerment process; and (d) at the national scale, an increased and more secure supply of fish to the domestic market in the longer term.

The Integrated Social and Environmental Analysis did not identify significant environmental risks for the project. The communities that are the project's primary stakeholders currently suffer the consequences of inefficient resource use resulting from lack of knowledge, lack of effective social institutions for natural resources management and from the open access to shared resources. The project will assist them, through building knowledge and stakeholder networks and the mobilization of community institutions, to take control over their natural resources and exchange open-access for managed-access systems. These activities carry a risk of failure in terms of their stated objectives, but they do not carry an inherent risk of net environmental harm.

Although the project is expected to yield strong social development benefits within the medium term, the introduction of a community based natural resources management regime, where before there was none, will in some circumstances result in the need for social re-adjustments in the short term. Bringing management systems to bear on situations of over-exploitation or resource mining is always bound to lead to the partial loss of short term, unsustainable livelihoods. This is not an issue that may be side-stepped or otherwise avoided in the context of seeking to improve the management of natural resources on which rural communities depend for their livelihood.

To minimize the social impacts associated with the introduction of improved natural resource management practices, LMEMP will make explicit the linkages between conservation and production activities in all components. The project will not support termination of undesirable but previously legitimate practices without ensuring the existence of viable exit mechanisms and livelihood alternatives agreed by the stakeholder communities. To this end, LMEMP emphasizes the strengthening of community-based natural resource management practices along with collaborative management regimes for resources in which the state has a management interest within the targeted catchment areas. This is consistent with the central project thrust in ensuring that communities and their local level institutions have a meaningful voice in resource management decisions and all co-management interventions supported by the project.

Environmental management plan

The project itself constitutes an environmental and social management plan for the Lake and its basin, and a parallel environmental management plan is therefore considered superfluous. All project field interventions will be made within the context of overall ecosystem management plan that will be progressively refined during implementation and introduced into Government economic development planning through established institutional mechanisms, including the national and district environmental action planning cycle. The project will support extensive monitoring efforts at the basin-wide level and intensive monitoring, both environmental and social, in pilot areas. The project will also assist community institutions to conduct their own monitoring of environmental impact as an essential element of the adaptive natural resources management approach. A monitoring and evaluation plan is appended to the IESA and is summarised in the table below:

Indicators / assessments	Purpose	Responsibility
Integrated Watershed Management component		
(1) Environmental monitoring across the entire watershed		
Basic hydrological indicators for all major afferent rivers	Input to Lake water quality / nutrient cycling model; control for assessment of pilot interventions	WRD
Status of vegetation and incidence of fires		LRCD / DoFo (to be determined)
Vegetation cover and land use		
(2) Process monitoring within critical sub-catchment pilot zones		
Numbers of of land use, forestry and catchment management plans completed; CBOs operational; forest management agreements concluded; compliance with management plans	Monitor the establishment of an integrated watershed management regime in each pilot sub-catchment	EDO (with inputs from sector agencies)
(3) Environmental monitoring within critical sub-catchment pilot zones		
Detailed hydrology at key monitoring points	Assess performance of watershed management interventions	WRD
Soil status in pilot sub-catchments		DLRCOs
Forest status in pilot sub-catchments		DFoOs
(4) Social and socio-economic monitoring in critical sub-catchment pilot zones		
Incomes, access to extension and financial services, membership of CBOs, school attendance and health indicators	Describe community characteristics prior to and during project intervention, including assessment of economic returns from farming, forest and wildlife enterprises, livelihood trends and public health characteristics	Appointed NGOs or STTA / FRIM / University of Malawi
Fisheries Resource Management and Productivity Enhancement component		
(1) Environmental monitoring throughout Malawi waters of Lake Malawi		
Catch and fishing effort, by area, species and fishing gear	Track the status of the artisanal fisheries.	FRU
Census of boats, fishers and gear	Basis of catch assessment sample frame; track trends in fishery capacity	FRU
(2) Process monitoring in pilot fishery management areas		
Numbers of CBOs operational, fisheries management plans developed, fisheries management agreements concluded and measures of compliance	Monitor the establishment of a participatory fisheries management regime in each pilot area	DFiOs
(3) Environmental monitoring in pilot fishery management areas		
Detailed catch and effort data, by species and fishing gear, special studies	Assess fishery status	FRU

Indicators / assessments	Purpose	Responsibility
Detailed census of boats, fishers and gear	Track trends in fishery capacity and compliance with management plans	FRU
Pilot area-specific indicators for special habitats and species	Assessment of status of critical habitats or threatened, vulnerable or specially important species	FRU
(4) Social and socio-economic monitoring in pilot fishery management areas		
Fish price at point of first sale	Provide basic economic information from pilot areas	FRU
Incomes, access to extension and financial services, membership of CBOs, school attendance and health indicators	Describe community characteristics prior to and during project intervention, including assessment of economic returns from fishery, livelihood trends and public health characteristics	FRU / University of Malawi
Regional Programs component		
A wide range of riverine, atmospheric, meteorological and limnological indicators at the lake / river basin level	Provide overview and analysis of ecosystem trends and project impacts	ACARE

Notes:

ACARE	=	African Centre for Aquatic Research and Education
DoFo	=	Department of Forestry (headquarters)
DLRCO	=	District Land Resources Conservation Officer
DfiO	=	District Fisheries Officer
DFoO	=	District Forestry Officer
EDO	=	District Environmental Officer
FRIM	=	Forestry Research Institute of Malawi
FRU	=	Fisheries Research Unit
LRCO	=	Land Resources Conservation Department (headquarters)
NGO	=	Non-Governmental Organization
STTA	=	Short-Term Technical Assistance, contracted by the PMO
WRD	=	Water Resources Department

Stakeholder consultations and participation in the project

The Lake ecosystem is subject to a wide range of demands from multiple beneficiary groups which generate a multitude of environmental and socio-economic concerns. Stakeholders range from fishers, fish processors and traders, farmers and wood producers to women's, youth and religious organizations, NGOs, CBOs, universities, the business community, local government authorities, traditional authorities, politicians, the press and national agencies and ministries. A common understanding of the Lake ecosystem shared among these actors is key to enable them to work together towards a healthy, sustainable and varied ecosystem that can support the many human activities that depend upon the Lake's resources. In LMEMP, this will be attempted by fostering a stronger linkage among knowledge, stakeholder participation, and co-management interventions. These three factors together are expected to open the way for developing innovative collaborative operational approaches and solutions among stakeholders to sustainably manage the biodiversity resources of the Lake.

During 2001 five Government Task Forces responsible for LMEMP preparation conducted extensive consultations with the intended primary beneficiaries, the farming and fishing communities of the lakeshore and escarpment zones. The means of consultation varied between Task Forces, for instance the Department of Fisheries convened a number of large public meetings in different lakeshore areas, while the Department of Forestry undertook a series of intensive participatory rural appraisals in selected villages. The project preparation team also convened a series of workshops with local government authorities in order to introduce project concepts and to seek feedback on the match

between priorities identified by the Task Forces and the priorities identified in the respective district development and environmental plans. Local consultants engaged by the Government in November 2001 to bring together the work of the Task Forces into coherent component designs conducted their own wide-ranging consultations with both primary and secondary stakeholders in the project, and in addition a series of village-level discussions was undertaken in April-May 2002 as a direct input to this IESA. In the course of these extensive consultations the key environmental and social issues, in particular those relating to the restriction of entry into the fishing industry and the social costs and benefits of intensified natural resources management, were openly and frankly discussed.

Stakeholder consultations performed during and as part of the generation of this project should be viewed not as a one-off activity, but rather as the start of an increasingly open dialogue between all parties that will become the core and the hallmark of LMEMP, an objective that forms the basis of the project's *Social and Institutional Capital Mobilization* component which will support participatory monitoring and evaluation of LMEMP activities. Through this component, LMEMP will enable stakeholders to advocate their interests, provide feedback to government, and monitor progress towards achieving LMEMP objectives. Such conditions of open dialogue for collective analysis are essential for stakeholders to collaboratively identify achievable priority actions, and more importantly, to create spaces for consultation and dialogue among themselves and with the implementing agencies and districts on ways to achieve and monitor progress towards meeting the project's objectives. LMEMP will include measures to build in-country capacity to identify and manage such issues as they emerge, to establish and support mechanisms for stakeholder participation in implementation, and to develop public accountability systems that enhance stakeholder voice and monitor project outcomes.

LMEMP will thus seek to facilitate an environment of multi-stakeholder consultation and networking that can be truly part of the broader social system by which generated information is translated into action. Such system is expected to empower a wide range of individuals, groups, and local organizations to work together and support decision-making change within a framework of collective information production and action. The strategies developed by stakeholders through this system are expected to draw on a larger base of information that is available to any one of the parties acting alone. The probability of commitment to, and adoption of, improved natural resource management practices is also likely to be higher because stakeholders have had a direct hand in designing them.

Safeguard issues

The Environmental Assessment safeguard (OP 4.01) is triggered not by the expectation of negative environmental impacts but by the project's focus on Lake Malawi, which contains a freshwater fish fauna of unparalleled diversity and global significance. An issue in the artisanal fisheries sector concerns the project's pilot initiatives to transfer fishing effort further offshore, the benefits of which would in the long run be undermined if a new cohort of small-scale fishermen were to enter the fishery to occupy the niches vacated by those upgrading their operations. This risk is anticipated in the project design, and from the outset negotiations would be initiated with community resource management institutions (Beach Village Committees, Fishermen's Associations) with a view to implementing some level of restriction to new entry into the fishing industry. The intention here is to stem the uncontrolled growth of fishing pressure in the inshore waters, not to encourage those who are already fishing to stop doing so.

The Projects in International Waters safeguard (OP 7.50) is triggered by the transboundary nature of the Lake ecosystem, which requires that in the long-term the three riparian countries find common strategies and institute compatible policies and programs for joint management of the resources in the basin. In this context it should be noted that the Governments of Malawi, Mozambique and Tanzania are each preparing essentially similar and compatible national projects for the management of the Lake basin ecosystem that together will comprise a regional program with mechanisms for networking, consultation and the treatment of transboundary issues. The three countries agreed upon this course of action in recognition of their differing priorities and impacts on the Lake ecosystem and differing constraints in their capacity to manage the Lake resources. LMEMP is the first of the

national projects going for appraisal, while preparation proceeds in Tanzania and Mozambique with GEF PDF-Block B financing, and appraisal in these countries expected in 2003.

LMEMP contributes to the collaborative nature of the regional program by supporting the emergence of a national monitoring and integrated, ecosystem-based planning capacity, the establishment of a national policy coordination and program oversight committee for the Lake, and the formation of a national Secretariat for an eventual regional commission composed of the three riparian states. By emphasizing the establishment of a regional ecosystem monitoring network and structured exchanges of information and experiences through a variety of mechanisms including study tours, workshops, regional conferences and collaborative research and training initiatives, LMEMP will lay the foundation for closer regional technical and policy level coordination. LMEMP will also assist the riparian governments to utilize the full range of technical, economic, financial, regulatory, and institutional measures needed to develop and operationalize a sustainable development strategy for the shared Lake basin.

In the long-term prospects for future development of the fisheries in the Lake would involve issues that will require international cooperation. There are two tasks here which LMEMP will support. The first is the clear identification of which species constitute true “shared stocks”, and should therefore be managed at the regional level, and the second is the establishment of the policy and institutional basis for achieving joint management by the three riparian states. The first is a research task, and would be undertaken within the project’s *Regional Programs* component. Groundwork towards the second task, the establishment of joint management, has already been completed by the FAO project “International Legal and Institutional Arrangements for the Management of Lake Malawi/Nyasa” (TCP/RAF/0065(A)). This initiative, itself an offshoot of the earlier GEF/SADC Project, is expected to result in (a) an international agreement covering the management of shared fish stocks, and (b) proposals for a permanent regional institution to guide natural resources management of the Lake and its basin. The *Regional Programs* component of the LMEMP would provide material and technical support to the establishment of such an institution.

The applicability of the Natural Habitats safeguard (OP 4.04) should also be discussed. The issue here concerns the long-term strategy to be investigated under LMEMP for relieving pressure on inshore fisheries resources by diverting fishing effort into non-traditional offshore fisheries that would, for the most part, target deeper water resources. Without some explanation this could appear simply to be transferring the problem from one resource to another. However, the offshore stocks in question have been extensively researched. They are less diverse, and more resilient to fishing pressure, than inshore stocks from which transferred fishing effort would be drawn, and for commercial reasons it is unlikely that they would be fished to maximum sustainable yield. It is considered therefore that this strategy would not only open the way to new sources of fish production (with positive implications for poverty reduction) but would also contribute to a reduction in the fishing industry’s impact on lakewide biodiversity.

Institutional arrangements

Primary responsibility for the execution of LMEMP will lie with targeted district assemblies in the Lake basin and the Malawi Ministry of Natural Resources and Environmental Affairs, with direct support provided to implementing line agencies in that ministry (the departments of Forestry and Fisheries) and to comparable agencies in the ministries of Agriculture and Irrigation (departments of Land Resources Conservation and Agricultural Extension Services), Water Development (Water Resources Department) and Tourism and Wildlife (Department of National Parks and Wildlife). In addition to this, there are several other institutional mechanisms through which the project will ensure the achievement of its environmental and social development objectives. These are: (a) the building and/or strengthening of community based organizations for CBNRM (Village Natural Resources Management Committees, Beach Village Committees, fishers’ associations) within the project pilot areas; (b) the creation of partnerships with NGOs and the private sector for the extension of CBNRM initiatives and the provision of associated services; (c) support to the decentralization process and the development of capacity for integrated multi-sectoral environmental planning in the district assemblies, principally through the District Environmental Officers of the Environmental Affairs

Department; (d) active involvement of the University of Malawi and other academic institutions in the project's *Social Capital Mobilization* component; (e) support at national level to build the emerging ecosystem management plan into the national environmental action plan and hence into district planning priorities; and (f) support for the enhancement of regional capacity, cooperation and institutional development for joint management of the resources of the Lake basin.

HIV/AIDS and sustainability of LMEMP's capacity-building efforts

HIV/AIDS is a national problem of such proportions that it cannot be overlooked in the design of LMEMP. Malawi has one of the highest HIV infection rates in the world, conservatively estimated at around 15 percent nationally in the 15-49 age group. There is a growing recognition that the effects of HIV/AIDS now require improved human resources planning and training, as well as well-designed workplace programs for AIDS prevention and the mainstreaming of HIV/AIDS as a factor of human resources management in all sectors. Government policies to address the HIV/AIDS problem are summarized in a National Strategic Framework coordinated by the National AIDS Commission. The Strategic Framework directs the national HIV/AIDS response in the period 2000-2004, providing the basis for formulating policies, operational programs, projects and activities. The Strategic Framework has three main objectives: to reduce the incidence of HIV/AIDS, to improve the quality of life of those infected, and to mitigate against the economic and social impacts. LMEMP will support the Strategic Framework in three ways: (a) by promoting the development of proactive strategies at central and district level to address recruitment, multi-tracked training, and succession issues arising from staff losses due to HIV/AIDS; (b) by strengthening horizontal linkages between resource user groups that will reduce dependency on the formal extension networks that have proved so vulnerable to HIV/AIDS; and (c) by strengthening the development of rural institutions and communication channels that could also serve as appropriate focal points and conduits for communicating health and HIV/AIDS messages.