

MALAWI ENVIRONMENTAL MONITORING PROGRAM PHASE II
COOPERATIVE AGREEMENT NO. 690-0235-A-00-6060-00
WORKPLAN 1 JULY 1996 TO 30 JUNE 1997

**STRATEGIC OBJECTIVE 2.0: INCREASED SUSTAINABLE USE, CONSERVATION AND MANAGEMENT OF
RENEWABLE NATURAL RESOURCES**

Intermediate Result 2.2. NRM Institutions Strengthened and Operations Improved							
Life of Activity Results and Indicators	Tasks						Level of Effort in Person Days / Months (PDs/PMs) and local subcontracts/grants <i>Development Partners</i>
	ID	Description	Start Date	End Date	Output		
<p>1. Public sector agencies able to undertake environmental monitoring, analysis and presentation of findings to inform policy.</p> <p>Indicator:</p> <p>a.) line agency reports utilized by senior managers</p> <p>b.) environmental monitoring reports presented to and utilized by cross sectoral technical bodies e.g. TCE</p>	Component 1. Improve Catchment Monitoring						
	Sub-component A Refine quality of data collection and analysis						
	1.1	Streamline catchment data collection requirements and procedures	8/1/96	8/31/96	Catchment data collection methodology assessed, data requirements and collection procedures detailed in technical report	STTA -UA (Renard)	15 PD
			7/1/96	7/30/96		Procedures and explanations of methodology updated in Field Operations Guide	STTA - WRI:
						LTTA - MTA:	10 PD
	1.2	Specification of methods for data analysis for Met., Surveys, Water, Forestry and Agriculture	7/1/96	10/30/96	Report detailing methods with application for each technical area	STTA - CU: (DoF, LR&CB)	4 PM
						STTA - UA: (Water)	5 PD
Sub-component B. Improve reporting and communication of environmental information							
I.R. 2.2.2. NRM and Environmental Information Available							
1.3	Develop sectoral reporting format	7/1/96	8/31/96	Sectoral reports produced consistent with recommended format	STTA - WRI:	5 PD	
						<i>UNDP-ISEM / EFP</i>	
			12/31/96	Sectoral agencies able to produce useful reports that are used by senior management and policy makers	<i>UNDP-ISEM / EFP</i>		

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	1.4	Develop synthesis reporting format for integration of sectoral data and reports	9/1/96	10/31/96	Synthesis report on specific catchments or issues produced under EAD guidance	STTA - WRI: 5 PD
			10/31/96	12/25/96	Annual report on intensive monitoring programme produced and used by senior mgmt, policy makers	LTTA - MTA: 1 PM
	1.5	Establish performance contracts for catchment monitoring activities	7/1/96	9/30/96	Collaborators able to establish realistic work plans that link activities and products with budget	LTTA - MTA: 15 PD
			10/1/96	4/1/97	Collaborators fulfill performance requirements in terms of timeliness and quality of product	LTTA - MTA: 10 PD
2) Intensive catchment monitoring technologies documented and evaluated. Indicator: a) evaluation report produced	Sub-component C. Summarize lessons learned from catchment monitoring					
	2.1	Perform a critical review of monitoring methods across catchments	8/1/97	12/31/97	Cross-catchment comparison of procedures performed and described in the first section of a detailed report	STTA - UA: 10 PD
	2.2	Summarize what has been learned regarding the monitoring of impacts of land use change	8/1/97	12/31/97	Cross-catchment comparison of findings regarding the relationships of land use changes and related environmental impacts summarized in the second section of a detailed report	STTA - UA: 1PM
	2.3	Develop recommendations for the use of these methods in monitoring other catchments	8/1/97	12/31/97	Based on the findings of the first two tasks, develop a set of recommendations for the use of specific techniques in specific situations to assess environmental impacts of land use change, contained in the final section of a detailed report	STTA - UA: 10 PD

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<p>3) The creation of an effective and efficient environmental data management system that will have national level implications.</p> <p>Indicator: a) national level data archiving standards established and adopted b) mechanism established and utilized for data retrieval</p>	Component 2. Develop an Environmental Information System					
	IR 2.2.2. NRM and Environmental Information Available					
	Sub-component A Strengthen systems for bibliographic data archiving, distribution, and communication					
	3.1	Assess and document current status of information centers	11/1/96	12/1/96	Report detailing existing accomplishments, capacity, and constraints of key information centers	STTA - UA: 1 PM
	3.2	Conduct workshop to discuss and define strategies for resource coordination, information sharing, and compatibility of information systems		11/25/96	Compilation of discussion summaries and outlines of action strategies as inputs for long-range plan development	STTA - UA: 5 PD
	Sub-component B. Develop Digital Map Data Standards for a National EIS					
	3.3	Develop prototype digital map data georeferencing standard	4/1/97	4/15/97	Establish geodetic parameters to be used for all data recording for a unified national level georeferencing system.	STTA - CU: (Eastman) 10 PD
	3.4	Develop prototype digital map data production and distribution formats.	5/1/97	5/15/97	Develop a unified national EIS data model standard including digital map metadata standards and map data accuracy standards.	STTA - CU: (Eastman) 10 PD
	3.5	Develop a digital map data distribution medium and capability.	5/16/97	5/31/97	Develop import/export software modules between the EIS storage format and usable information technologies.	STTA - CU: (Eastman) 10 PD
			6/1/97	6/8/97	Develop a prototype standard for the distribution medium of digital map data.	STTA - CU: (Eastman) 5 PD

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4) Development of a prototype EIS with application that addresses a national environmental problem. Indicator: a) Shire River Catchment environmental situation assessment report produced and disseminated b) other analyses produced and distributed using institutional mechanisms and data from prototype EIS	Sub-component C. Apply prototype EIS in response to national environmental priorities					
	4.1	Develop proposal for Shire River Pilot EIS	6/30/96	7/31/96	Proposal reviewed and approved by internal and external stakeholders	LTTA - MTA: 10 PD World Bank CIS: 5 PD
	4.2	Identify existing data sources, quality of data and status of analysis	7/31/96	9/30/96	Detailed description and catalogue of existing data sources	
			7/31/96	10/31/96	Establish network for maintaining access to data sources	STTA - UA: 1 PM
	4.3	Perform technical design of EIS for Shire River Catchment	11/1/96	12/1/96	Design paper with key indicators, data standards, data requirements, collection strategy, framework of analysis (define), reporting format and implementation plan	STTA - CU: 10 PD (Eastman) STTA - WRI: 5 PD
	4.4	Initiate contracts for additional data requirements	1/1/97	12/98	Technical reports produced, reviewed and distributed	LTTA - MTA: 1 PM IUCN Zambezi River Wetlands Programme 3 PM
	4.5	Develop situation analysis report based on existing data	12/1/96	4/1/97	Situation analysis report produced for the Shire River	STTA - WRI: 5 PD

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Component 3. Expand environmental monitoring technologies						
I.R. 2.2.2. NRM and Environmental Information Available						
Sub-component A. Set-up pilot Area Sample Frame in one ADD						
5) GOM line agencies and environmental researchers have applied and evaluated intensive and extensive EM technologies	5.1	Effective construction of the pilot area sample frame	6/6/96	6/30/96	A report detailing the purposes and procedures of development of the ASF, satellite imagery and maps used, stratification criteria, and maps used to identify the location of sampling units	STTA - AAIC: 1 PM
a) area sample frame implemented in one ADD and evaluated b) evaluation reports of EM technology utility and effectiveness	5.2	Development of sampling units, survey strategy and data collection instrument	9/1/96	10/1/96	A report detailing the criteria for sample selection, indicators used, survey instrument and strategy, and the training syllabus for interviewers	STTA - AAIC: 1 PM
	5.3	Statistical analysis of data, review of results, and evaluation of ASF		12/31/97	A final report presenting both a quantitative and qualitative analysis of data generated and an evaluation of the ASF methodology, procedures, and applicability	STTA - AAIC: 1 PM
Sub-component B. Undertake comprehensive characterization of environmental status and optional use scenarios for publicly-held lands in Malawi (PLUS)						
6) Policy makers use information provided by EM/EIS activities	6.1	Produce set of spatially referenced maps and associated data for physical characterization of public lands (Level 1)	6/1/96	4/1/97	"Atlas" of public lands in both digital format and hard copy the includes: base mapping, summary data extraction, application of physical models, and rationale for creation of protected areas.	LTTA - PFC STTA - UA (Eainsworth) 1 PM
Indicator: a) information produced by ASF, PLUS and other EM/EIS activities presented as policy options. Options deliberated by policy makers in sectoral agencies and national bodies e.g. Land Commission, NCE and TCE.	6.2	Conduct field intensive study of land use and resource use patterns of selected areas in and adjacent to public lands (Level 2)	9/1/96	4/1/97	A final report linking analysis from Level 1 and Level 2.studies.	LTTA - PFC STTA - UA (T. Finnan) 1 PM

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Component 4. Strengthen Environmental Training and Research						
I.R. 2.2.2. NRM and Environmental Information Available						
Sub-component A. Strengthen GIS technical capacity						
7) In-service training provided in geographic technologies and other analytic methods, and capacity to continue training present in Malawian institutions Indicator: a) 18 technicians from public agencies and UNIMA system trained and capable of conducting research relevant to environmental monitoring issues using geographic technologies and other methods b) UNIMA personnel involved in providing in-service training sessions	7.1	Support in-service GIS training within the participating agencies and UNIMA	9/1/96	11/31/98	Two sequences of a three tiered fundamental GIS training courses will be conducted. The first sequence will be conducted with the UNIMA staff as trainees, the second sequence will utilize their talents as trainers.	STTA - CU: 6 PM
			9/1/96	11/31/98	Strategies to strengthen and broaden support for GIS activities and to ensure that the technology meets the needs of agencies.	STTA - CU: 2 PM
	7.2	Establish teaching curriculum in GIS coordinated across UNIMA system	5/1/97	11/31/98	Trained UNIMA staff will assist in the development of a GIS curriculum and the training of additional staff.	STTA - CU: 1 PM
	7.3	Develop applications research and environmental monitoring products	10/1/96	11/31/97	Specific GIS training, application development and analysis that focuses on delivering products for MEMP activities	STTA - CU: 8 PM
Sub-component B. Strengthen national environmental research and teaching capacity						
8) Articulation of needs and constraints for long-term technology adoption within each of the agencies and UNIMA.	8.1	Support in-service environmental science training program within participating agencies.	11/1/97	12/31/97	A set of in-service programs developed for environmental science, including those in which environmental science is a significant subtopic such as GIS and those that deal with a single significant topic that meets specific agency needs such as soil erosion monitoring	LTTA - ES: STTA - CU: 2 PM STTA - UA:

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<p>Indicator:</p> <p>a) detailed system design and strategy for technology adoption for each agency</p> <p>b) local procurement of technology</p> <p>c) training capacity and environmental curriculum created that includes geographic technology training</p>	8.2	Establish teaching curriculum in environmental sciences coordinated across UNIMA system.	6/1/97	ongoing	A set of consistent and complementary curricula are developed with each participating UNIMA campus which have the most direct disciplinary links with participating agencies.	<p>LTTA - ES:</p> <p>STTA - CU: 10 PD</p> <p>STTA - UA:</p>
<p>9) Environmental sciences training and research capacity strengthened in UNIMA and other research institutions.</p> <p>Indicator:</p> <p>a) curricula developed and in use for environmental science courses</p> <p>b) GIS training sessions offered by at least one UNIMA campus on a regular basis</p> <p>c) local environmental research grants awarded</p> <p>d) publications and presentations of environmental research results by UNIMA researchers</p>	9.1	Reinvigorate research grant program to meet participating agency needs	1/1/97	ongoing	Awards made to university researchers to perform research tasks to meet agency needs. Detailed summary report submitted by the researcher and presented at a seminar to agency personnel.	<p>LTTA - ES:</p>

Intermediate Result 2.1. Comprehensive Policy/Legislative Framework Governing NRM Established						
Intermediate Result 2.3. Improved Field-Level Performance in NRM						
Life of Activity Results and Indicators	Tasks					
	ID	Description	Start Date	End Date	Output	Level of Effort in Person Days / Months (PDs/PMs) and local subcontracts/grants <i>Development Partners</i>
Component 5. Strengthen national environmental policy development and institutional capacity						
Sub-component A. Establish Comprehensive Policy, Legislative and Institutional Framework						
10) Legal framework in place, policies revised, and public sector agencies able to interpret in programs and activities. Indicator: a) Reports from sectoral policy and legislation review b) sectoral policies and legislation approved c) programs reflecting policy changes evident in each line agency	10.1	Assist with interpretation of National Environmental Policy and National Environmental Framework Bill	8/1/96	10/1/96	Background paper produced highlighting any inconsistencies between NEP and NEF and existing sectoral policies and legislation	LTTA - SPA:
			9/1/96	ongoing	Technical guidance provided to sectoral agencies on implications of policies, laws and institutional roles.	LTTA - SPA: STTA: 1 PM
Sub-component B. Support agencies in revision of sectoral policies, legislation and institutional roles						
I.R. 2.1.1. Sectoral Policies and Legislation Updated						
	10.2	Assist line agencies in preparing action plans, including review of institutional roles	6/17/96	7/15/96	Technical review provided for each sectoral policy action plan and master action plan developed	LTTA - SPA: Local STTA 3 PM <i>UNDP</i>
	10.3	Assist line agencies in implementing action plans	9/1/96	ongoing	Implementation progress monitored	LTTA - SPA:
			9/1/96	9/1/97	Review of sectoral policies, legislation and institutions completed	LTTA - SPA: STTA: 5 PM
				12/98	Revised sectoral policies and legislation approved	
				12/98	Institutional roles and responsibilities clarified	LTTA - SPA:

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11) Information base for land use and tenure policy options for publicly-held lands utilized by resource planners and policy-makers. Indicator: a) Working papers and other policy and technical documents produced using data and findings from PLUS activity	Sub-component C. Inform policy makers on status of public lands (PLUS)					
	I.R. 2.1.1.1.c. Mechanisms for Information Flow to Policy Makers Function					
	11.1	Insure broad availability and distribution of data, information products, and findings from PLUS activity	4/1/97	5/1/97	PLUS report, digital and hardcopy atlas, and associated datasets accessible through NDC and Ministry of Lands	LTTA - SPA:
		5/1/97	6/1/97	Presentation of findings made to key GOM agencies and technical specialists	LTTA - SPA: STTA - UA: ?	
12) Donor representatives and GOM officials are informed of existing and planned activities in CBNRM and E/NRM sectors Indicator: a) minutes of coordination meetings b) survey of donor representatives and GOM officials c) report detailing CBNRM options	Sub-component D. Improve donor and implementing partner coordination					
	I.R. 2.3.5. Donor and Implementing Partner Coordination					
	12.1	Support the establishment and effective operation of fora for coordination	6/1/96	12/98	Environmental policy advisor will serve as secretary, prepare draft agenda, and distribute minutes of monthly GOM-Donor Environmental Program meetings, chaired PS/MoREA	LTTA - SPA:
	12.2	Develop programming options for Community Based Natural Resource Management	9/1/96	10/31/96	Recommendations for programming CBNRM to address multi-community NRM strategies	STTA- 2 PM
13) E/NRM line agencies able to produce and implement programs with clear performance criteria and linked budgets. Indicator: a) programs presented and approved by Ministry of Finance b) monitoring reports demonstrate ability to meet targets in majority of	Sub-component E. Introduce performance based management procedures					
	I.R. 2.3.1. Improved Performance Based Management Procedures Piloted in Priority NRM Programs					
	13.1	Assist with refinement of proposal guidelines and review criteria of NRM project activities under PBBS	7/1/96	8/15/96	EP&D releases comprehensive guidelines for proposals and has developed effective and transparent criteria for proposal review	LTTA - SPA:
	13.2	Support line ministries and departments in formulation of NRM programs for consideration for PBBS support	9/1/96	8/31/97	Program proposals approved by Treasury	STTA - UA: 1 PM

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				9/1/98	Satisfactory level of attainment of performance targets met; constraints to attainment identified	LTTA - SPA: STTA - UA: 2 PM
	Sub-component F. Explore options for long-term financial sustainability of E/NRM programs and functions					
14) Strategies developed to support long-term technical and financial sustainability of E/NRM activities Indicator: a) strategy papers produced for key E/NRM activities b) Endowment Working Group has reached decision on feasibility of endowment c) action plan for establishment of endowment	14.1	Explore options for technical and financial sustainability for EM activities			Guided consultations with institutions on options for sustainability	LTTA - SPA: STTA - UA:
					Strategies for enhancing technical and financial sustainable options developed	LTTA - SPA:
	14.2	Assess legal, financial, organizational dimensions of establishing a national endowment for E/NRM activities	1/1/97	3/31/97	Working Papers prepared on key technical dimensions	STTA - UA: 1 PM
	14.3	Provide technical support to Endowment Trust Working Group	4/1/97	8/31/97	Working Group has defined practicality and steps for establishing endowment	STTA - UA: 1 PM
	14.4	Prepare action plan for Environmental Endowment, if warranted	8/1/97	8/31/97	Action plan with clear steps and time lines established	LTTA - SPA: STTA - UA: