

MALAWI ENVIRONMENTAL MONITORING PROGRAMME

August 19, 1998

A. BACKGROUND

Since its inception, the goal of the Malawi Environmental Monitoring Programme (MEMP) has been to develop and deliver environmental information for decision making in Malawi with support from the U.S. Agency for International Development (USAID). The two possible approaches for achieving this goal were: (1) to assemble an expatriate team to gather and analyze data, and report results; or (2) to build capacity within appropriate Malawian institutions to perform these same functions within their existing mandates. MEMP has pursued the second option and capacity-building has been a continuing theme in all aspects of the programme and has been pursued in all participating agencies.

The anticipated outcome of the programme is an entity/infrastructure capable of providing (1) environmental impact assessments to evaluate outcomes of proposed policies, and (2) environmental monitoring and assessments of changing conditions that can be used to target and shape mitigation efforts.

In this strategy, MEMP first was located in the Department of Research and Environmental Affairs (DREA), in the Office of the President and Cabinet. DREA (and its successors) has served as the coordinating agency for participating ministries and departments, as well as the center for management, analysis, reporting, and information flow.

The initial and exclusive focus of MEMP was to assess the environmental impact of the liberalization of specific agricultural policies in five watersheds selected by the Government of Malawi (GOM) with assistance from USAID. In this case, study focused on the USAID-supported policy that permitted smallholders to engage in the production and sale of burley tobacco, the most important cash crop in Malawi. Previously, smallholders had been prohibited from marketing burley tobacco.

Agency participation with MEMP was *ad hoc*, secured through agreements to perform data gathering, analysis, and reporting in specific areas (i.e., agriculture, forestry, meteorology, soil, water) in exchange for technical training and support (i.e., salaries, operational costs, and equipment). Ultimately, this structure was not effective due to (1) management and analytical capacity within MEMP, (2) technical capacity within participating agencies, and (3) the expectations that a generalized monitoring design methodology could answer a specific question.

DREA was transformed into the Ministry of Research and Environmental Affairs (MoREA). This institutional change, with a coincidental shift in USAID priorities, brought broader national-level responsibilities to MEMP that would focus more on general environmental monitoring than on agricultural policy. MEMP staff was increased in size and diversity of skills to accommodate its larger mandate. An environmental policy advisor was added to assist MoREA to coordinate NRM policy reforms in six ministries. An environmental scientist was also added to develop a research program and environmental curriculum within the University of Malawi system (UNIMA) to address technical and analytical capacity needs in Malawi.

Given the scarcity of resources to perform national-level monitoring and the compelling need to link monitoring outputs with action, MEMP concentrated on meeting immediate GOM needs for environmental information. One of these involved GOM consideration of policy related to the status and possible disposition of public lands. The Public Lands Utilization Study (PLUS) developed information describing the location, environmental status, and community utilization of public lands that was used by the GOM and a Presidential Commission of Inquiry in their deliberation about the future of these land parcels. Another was an assessment of environmental deterioration in the Shire River Valley. The Shire had been identified by a GOM task force as the area of highest environmental concern. Here, rapid intensification and expansion of agriculture has resulted in severe erosion and subsequent siltation endangering irrigation and hydroelectric works. Hence, the goal of this assessment has been to link environmental monitoring with current development efforts within the larger watershed and provide guidance in targeting and tailoring interventions. The Shire is also intended to serve as a prototype for a National Environmental Information System (NEIS).

Most recently, MoREA became the Environmental Affairs Department (EAD) of the Ministry of Forestry, Fisheries and Environmental Affairs. In addition to this change, USAID is encouraging MEMP to consolidate and synthesize completed and on-going activities in the agricultural and environmental arenas within MEMP, and to coordinate them with other USAID-sponsored activities that deal with development and environmental mitigation. From this, there is a desire to see MEMP information products developed that might serve a wider audience.

B. OBJECTIVES

The goal of MEMP will remain unchanged, to develop and deliver environmental information for decision making in Malawi. The anticipated outcome also remains unchanged, development of a unit/entity capable of providing to the GoM (1) environmental assessments to evaluate outcomes of proposed policy change, and (2) environmental monitoring and assessments of changing conditions that can be used to target and shape mitigation efforts.

The primary thrust of the Third Workplan will be to clearly link MEMP activities with the two diverse audiences it has sought to serve at different times in the project. Linkages will be made through the preparation of specific products. The first will address policy makers and will involve a synthesis of previous work on burley tobacco coupled with a new study of farmer behaviors. The second will address the needs of groups that conduct mitigation/development activities. This will involve (1) expanding the on-going Shire activity to encompass work areas of other groups and (2) linking with them to determine their information needs. The intent is to create broader demand for MEMP information and decision support by familiarizing users with the range of potential products and their uses.

The institutional setting of MEMP after this workplan may need to change to better support government. Based on experience to-date, it is clear that MEMP cannot function effectively in providing EAD information in a timely manner. As noted above, management and analytical capacity is difficult – if not impossible – to harness within the existing GOM line agency setting. Thus, the third workplan of the project

will seek to lay the foundation for appropriate institutional arrangements for the next phase in the following manner:

1. Cultivate demand for environmental information products by addressing specific issues.
 - *Environmental impact assessment* Synthesize previous field-based physical studies and couple them with current field-studies of farmer adoptions of burley tobacco and modeled results of observed soil and water conservation practices. The goal is to *inform* decision makers of policy outcome.
 - *Environmental monitoring and assessment* Complete remote sensing assessment of land use change within selected sub-watersheds of the Shire Valley. Assess physical impacts of changes through modeling and field observation. Establish causes of change through socioeconomic field surveys. These will be coordinated to provide support to other development-related projects supported USAID (i.e., WSU and ACIDI). The goal will be to *link* environmental monitoring and assessment with mitigation that will have direct benefits for major economic interests in the Shire (i.e., SUCOMA; ESCOM) that might sustain mitigation efforts in the long run.
2. Conduct an institutional assessment to assist in the development of a decision support infrastructure that will coordinate environmental monitoring and analysis, policy research, and information exchange. This assessment will include:
 - Presentation to particularly senior staff (e.g. CCHE and NCE) on institutional capacity and roles in environmental monitoring, research, and information exchange towards supporting the development of a NEIS. This activity will result in a report on a sustainable strategy to coordinate environmental monitoring and analysis, policy research, and information exchange.
 - Assist in the development of an integrated Agriculture and Environmental Monitoring Unit to do credible policy research and analysis which will effectively integrate research results into policy design and implementation.

Three institutional options exist to address this need: 1) continue with the *status quo*, 2) revitalize an existing institution, or 3) create a new institution. In line with the effort to more clearly integrate activities supported by USAID and in consideration of the limited time remaining under the extension, the second option is favored and will focus on the revamping of the former Agriculture Policy Research Unit under its new title the Agriculture and Environment Policy Research Institute (AEPRI).

Integration of activities within AEPRI Critical to this will be improving access to sources of agriculture and environmental information for

research and formulation of policy. The goal of this activity is to identify sustainable homes for FEWS and the EIS.

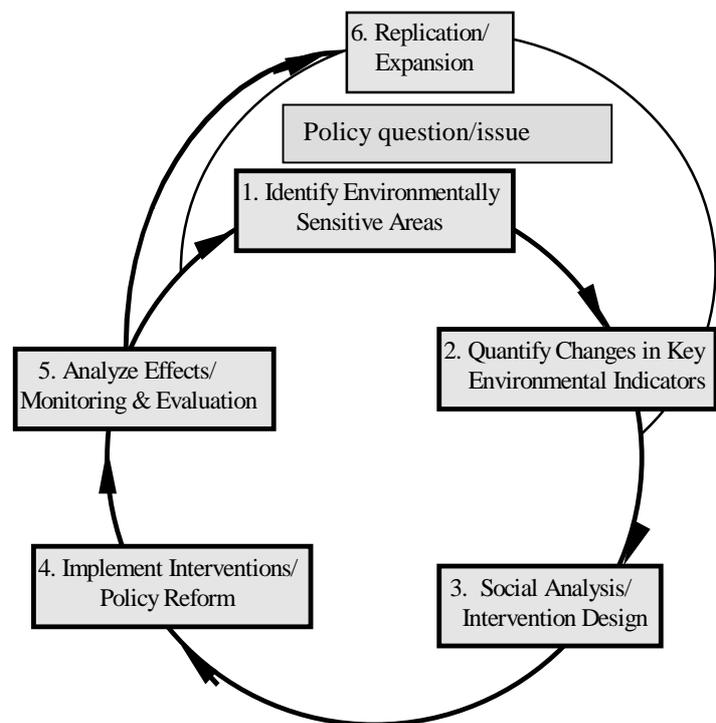
Clarification of roles for applied environmental and policy research, financial management and information systems within AEPRI This will identify the need for follow-on support for an environmental policy advisor, environmental science advisor and a information systems specialist.

The direction of the two other streams of MEMP activity – Environmental Policy will begin a transition to policy implementation and Environmental Science – will begin to implement methodologies developed over the past three years.

C. THE FUTURE

As this workplan will complete the funding cycle under the current cooperative agreement, it should lay the foundation for a possible way forward for policy implementation, research to support monitoring, and information to provide products on the status of environmental change.

How this might be done has been proposed in a logical flow of steps that ideally, but not necessarily, leads from investigation to mitigation as illustrated at the right. The process identifies environmentally critical areas, quantifies the changes, and provides cursory socio-economic explanations to inform mitigation strategies. One advantage of this cycle is that it provides the opportunity for the environmental investigation to be *problem driven*.



The proposed framework to link complex analysis with accessibility to decision makers is a combination of a “pressure-state-response” framework linked with a “categories of explanation” both developed through research in environmental analysis. This combination strives to understand both the proximate causes and driving forces to environmental problems by dividing the analysis into seven categories of explanation: physical changes, site specific economic symptoms, land-use practices, land users resources/assets/time horizons/technology, nature of society, nature of the state, and international political economy. For each of these categories the pressures for a given environmental problem are identified as well as the current state or condition of that pressure, which can inform decisions on the most appropriate responses for mitigation. The most appropriate mitigation strategies will most likely

be different for different scales of influence (i.e. nation-state, district, or community) thus the need to explain environmental problems at multiple scales.

While the current geographic range of the proto-type environmental information system is necessarily limited to a specific region, the future points to the development of national coverage with application to national level problems. A future national environmental information system will employ the methodologies developed under the combined efforts of MEMP and the GoM. The ability of a body of analytical knowledge located in AEPRI coupled with a method to inform national decision-makers of possible outcomes or results of policy decisions is a clear goal of the future. Meeting this goal depends upon success now in organizing environmental information on the district and regional levels, and upon success in employing that knowledge to inform decision makers today which results in improved policy to *increase sustainable use of natural resources*.

In pointing to the future, many of approaches proposed in this section are contained in this third workplan which has been organized in four thematic areas.

1. Environmental Information to Monitor the Impact of Policy Reform: Market Liberalization
2. Environmental Information to Inform Policy Making: Shire River Assessment
3. Develop Institutional Capacity to Respond to Environmental Issues and Assess Policy Impact
4. Establishment of a Comprehensive Policy and Legislative Framework for Management of the Environment and Natural Resources

Environmental Information to Monitor the Impact of Policy Reform: Market Liberalization

Goal: To assess policy impact using information gathered in response to an environmental question.

The ongoing process of liberalization in the agriculture sector has had a profound influence on cropping patterns and provides new opportunities - possibly even new incentives - for diversification, intensification and better land management, particularly in land-constrained areas. While, the Agriculture Sector Assistance Project (ASAP) used the sector's main foreign exchange generator to drive policy reform to increase rural incomes, it has always been accepted that a diversification into other cash crops was essential for long term sustainability. Monitoring of policy impact in the agriculture sector must therefore consider broad impact on the environment relating to degradation of water and land resources, while also addressing the specific impact of the initial liberalization of tobacco production.

Implementation of policy reform to liberalize agriculture markets which began in earnest in 1994 accompanied many other sweeping changes in Malawi including; fiscal reform resulting in the devaluation of the kwacha and the institution of a cash budgeting system which affected implementation of field programs, pricing reform resulting in the removal of fertilizer subsidies which affected farming practices, institutional reform associated with political change often resulting in institutional instability, and possibly most significantly, the beginning of political reform resulting in new beginnings with the democratic process which has been associated with the breakdown of past regulatory and natural resource management practices.

The impact of market liberalization in the agriculture sector is therefore intertwined in a complex web of change, all of which likely have contributed to or accelerated an ongoing process of environmental change. The questions that will be addressed during this workplan are:

What is the effect of market liberalization on the environment?

Key to answering this question will be to target social and biophysical assessments to those areas clearly associated with increased agriculture production, specifically focusing on cash crops in the smallholder sector from 1994 onward. Databases from FEWS and SADP with information on crop production can be used to select those EPAs where there has been an increase in smallholder burley tobacco production. Inferences toward the impact of liberalization relating to change since 1994 can be assessed in the areas identified as it relates to the following questions:

Is there contamination of groundwater and surface water including Lake Malawi due to increased use of fertilizers and agro-chemicals?

Contamination of groundwater can be assessed through monitoring of small streams draining from areas with a prevalence of cash crops using a control of areas with a prevalence of subsistence crops. Analysis of water quality parameters for Lake Malawi may be available from the GEF Fisheries Project at Senga Bay.

Field surveys can be conducted through agri-business clubs to assess use of agro-chemicals by farmer clubs.

Water samples from streams can be compared with samples from soil erosion plots where agro-chemicals are applied using recommended practices as a control.

Indicators of Achievement: Input into a report summarizing analytical findings for water quality parameters, fertilizers and agro-chemicals. (This component is proposed to be completed as part of research work for a PhD by a member of Environmental Affairs staff, Mr. Aloysius Kamperewera.)

Is there agriculture expansion onto marginal and unsuitable areas?

Landsat TM data from 1991 (date of policy change) and/or 1994 (date of policy implementation) can be classified to show a land cover baseline for those year(s) of agriculture and non-agriculture. Baseline landuse can be overlaid on coarse 1:250K slope maps to indicate cultivation in unsuitable areas. Similar Landsat imagery can be acquired for 1997 to assess landcover change. The impact of market liberalization on agriculture expansion can be assessed from FEWS or SADP crop production data; Selected EPAs showing an increase in cash crop production and evidence of cultivation in unsuitable areas can be selected for field surveys to assess whether expansion is due to market liberalization or other causes.

In addition, land suitability assessments can be completed using digital techniques in two ADDs in Southern Malawi (strategies for completing national coverage are being developed). Using the data from the landcover change analysis, increases in agriculture production in unsuitable areas can be assessed by EPA.

Verification of the cause of change and possible linkages to tobacco production can be made through community level social assessments conducted by technical staff from MEMP and/or MAFE. (A report on initial work in developing a methodology for this procedure is being completed for the Neno EPA in the Blantyre ADD. However, the EPA was selected due to decreases in vegetation cover, not increases in tobacco production.)

All of the above will be at a coarse scale of 1:250K. An evaluation of results with an improvement in scale can be undertaken by producing similar analysis using a higher resolution, 1:50K topographic sheet in an EPA where MAFE, MEMP and SADP are working together such as Nsipe EPA in Ntcheu RDP.

Indicators of Achievement: Input into a summary report including land cover change and land cover by suitability statistics, landcover, landcover change and land suitability maps (1:250K scale).

Is there a reduction in fallow periods or increases in continuous cultivation?

This question is not possible to answer with existing crop production records. It was included as a component of the questionnaire developed for the area sample frame which is to begin implementation this year (field implementation most likely will not begin until 1999). Social explanations for continuous cultivation and/or changes in rotation could be assessed as part of the social economic component proposed as part of the integration of the MEMP and MAFE monitoring and evaluation of the impact of soil and water conservation practices.

Indicator of Achievement: Input into a summary report showing summary analysis from transects and/or other participatory appraisal techniques using similar questions to those from the ASF questionnaire.

Does deforestation and continuous cultivation lead to increased soil erosion and loss of soil fertility?

Any attempt to monitor the amount of soil and nutrient loss from farmers fields should take into account the differences in farmers' land management practices. Therefore, while measuring the amount of nutrient and soil loss from farmers' fields, it is important to understand the differences between management practices among farmers and to develop ways to identify the erosion damage that is associated with each management practice.

To avoid past problems of overloading laboratories with quantitative data to analyze, this assessment will produce qualitative data collected from selected sites in sub-catchments (as part of targeted research grants work) to evaluate the effectiveness of current cropping management and control practices, and to link monitoring activities to mitigation measures by identifying best management practices and making recommendations for widespread adoption of selected practices.

The results from research conducted during the 1997/98 growing season on control plots will provide information on relative erosion rates under different conservation practices. This will be correlated with information on sediment delivery ratios from sub-catchments and catchments from the instrumented catchments at Kamundi and Chilindamaji. By using the control plots in these catchments with land management practices that are similar to those used by the majority of farmers, the amount of erosion and soil loss that is associated with particular types of management practices can be evaluated. In contrast with on-site assessments from individual farmers fields, it is more important to understand the amount of nutrient and sediment load coming from sub-catchments where several farmers' fields are located that estimating sediment from individual farmers' fields.

This is an ongoing research and monitoring activity from the 1997/98 growing season to evaluate differences in land management practices which will be reported on prior to the beginning of the next growing season as part of a seminar. To evaluate the difference in crop cover i.e. tobacco and maize, the three control plots can be planted with maize, tobacco and fallow for the upcoming 1998/99 growing season.

Indicator of Achievement: Input into a summary report on the impact of market liberalization and research results from large and small catchment monitoring for the 1997/98 growing season presented as a seminar for decision makers.

Do increased rural incomes resulting from market liberalization lead to increased adoption of soil and water conservation practices?

While the correlation between farmers with sufficient income to enter in cash crop farming systems and the adoption of soil and water conservation practices to maintain a constant flow of farm income should be high, data to support this has not been gathered or reported on in a systematic manner. Data collection to assess this question is proposed for the area sample frame.

MAFE is proposing as a "menu" of agroforestry recommendations for tobacco farmers to select from to tailor to their individual farming systems. In lieu of the ASF, as part of MAFE's M & E system a correlation will be made between socio-economic status, including sources of income, and factors leading to adoption of soil and water conservation practices. Through the linkages proposed between MEMP and MAFE, an evaluation of rates of adoption will be made and correlated to potential conservation impact based on data from control or field sites. The assessment will be conducted by as part of the socio-economic component of a linkage coordinator for the MARE/MEMP/SADP projects.

Indicators of achievement: Data characterizing farmers adoption rates related to field observations of impact of rainfall events on fields with SWC practice.

TECHNICAL ASSISTANCE/ PARTICIPANT TRAINING	APPROXIMATE DATES	LENGTH	INVOLVEMENT
Landuse/cover change map for market liberalization analysis	10/10-10/24	2 weeks	Forestry; Bunda; Haan; Gumbo
Crop Production change analysis	10/5-10/10	1 week	Bunda; MEMP; Haan; Gumbo
Social Analysis of market lib. effects	10/15-10/30; 12/5-12/20; 3/15-4/15	8 weeks	Forestry; Bunda; MEMP; Gumbo; Haan
Report Write-up	4/1-4/15	2 weeks	Forestry; Bunda; MEMP; Gumbo; Haan

Environmental Information To Inform Policy Making: Shire River Assessment

Goal: To demonstrate through the Shire investigation the use of information to inform environmental decision makers and target appropriate intervention while building capacity for environmental information management.

Background: A general model to support sustainable environmental management is to: 1) identify strategies that address environmental issues; 2) implement such environmental management strategies; and 3) to routinely report on progress of environmental trends. The development of a National Environmental Information System – a collaborative and coordinated institutional and technical infrastructure that routinely and systematically provides information to affect decisions on the environment – is a fundamental building block towards supporting sustainable environmental management. A NEIS informs environmental management by supporting: 1) a functioning data infrastructure from which environmental data may be easily retrieved by decision makers; 2) a cross sectoral environmental information analysis that links biophysical to social explanations to identify mitigation strategies to decision makers; and 3) a decision support infrastructure that addresses information needs and disseminates information to the broad constituency of national to local decision makers.

The Shire investigation is meant to be a prototype for a more extensive national level system and has become a focal activity of MEMP. This investigation is intended to supply information demanded by environmental decision makers while building capacities that could support a more extensive system. Many of the activities that will be completed during this workplan are a continuation of an on going capacity building component from the previous work plan. New activities will emphasize the use of the information products developed during the previous year to identify environmental management strategies and to disseminate environmental information on the Shire to inform local to national decision makers on potential intervention strategies that may ultimately help mitigate siltation and improve environmental conditions in the Shire.

Questions to be answered: What is the process for information collection, analysis, and dissemination that can be useful for decision makers in order to plan mitigation strategies to: 1) specifically address siltation problems in the Shire river and 2) address more general long-term national or local environmental concerns.

Support the development of a functioning data infrastructure on environmental information in the Shire that may be easily retrieved and used by decision makers.

As environmental issues arise, information users need access to retrievable, interoperable, and usable data that may be subsequently analyzed in order to recommend mitigation strategies in a timely manner. In an effort to develop a functioning data infrastructure from the Shire investigation, various MEMP institutions have been involved in extensive data acquisition of core environmental data sets in the Shire watershed including land cover, rainfall, soils, and slope. Technical assistance will continue to support data acquisition activities to, for example, continue to acquire Advanced Very High Radiometer (AVHRR) data for land cover monitoring.

New activities in this workplan will particularly focus on providing technical assistance to improve information management on data compiled to date in the Shire investigation: this will include building capacity in data archiving, naming conventions, metadata, and data cataloguing. Technical assistance in information management will be emphasized at the

Department of Surveys (DOS) and will result in: 1) the creation of 1:50K and 1:250K digital data samples according to spatial data standards for select areas in the Shire watershed and 2) a final report on proposed spatial data standards. A national mapping/EIS workshop will be conducted as a forum to build capacity in information management, raise awareness on the importance of a functioning data infrastructure, and initiate discussions on formalizing a national spatial data standard. Further technical assistance will be given towards developing the GIS professional society that may be instrumental in advising on data acquisition and information management issues.

Indicators of Achievement: 1) development of an archive of core data sets on the Shire watershed; 2) report on proposed spatial data standards; 3) 1:50K and 1:250K digital data samples prepared according to standard; 4) national mapping workshop to build awareness and capacity in information management and spatial data standards; and 5) development of a GIS professional society instrumental in helping advise on data acquisition and information management.

Support cross sectoral environmental information analysis that links biophysical to social explanations in the Shire investigation to recommend mitigation and intervention strategies.

Biophysical information analysis seminars have been conducted for three watersheds in the Shire and preliminary social analysis has been completed in one watershed. Further community-based social analysis will be conducted in sites linked to the market liberalization assessment that will provide a more complete explanation of the driving forces of change in the Shire. Upon completion of both the biophysical and social assessments in the Shire, an interdisciplinary team will analyze and link various explanations of environmental change which will be presented in a report as part of a seminar.

Technical training in the use of GIS and remote sensing will continue in two forms: 1) training of trainers to ensure sustainable technology transfer, and 2) intermediate and advanced training in IDRISI and introductory training in ArcView.

Indicators of achievement: 1) seminar and report providing a situation analysis for selected watersheds and/or EPAs in the Shire for which selected products can be incorporated into NRM applications and district or national state of the environment reports as case studies. 2) two to three GIS trainings in IDRISI and ArcView.

Support the development of a decision support infrastructure that will assist in environmental analysis, policy, and information dissemination in the Shire investigation to the broad constituency of national to local decision makers.

To render more visible and make information generated in the Shire investigation more accessible to decision makers, a decision support infrastructure needs to be developed. Such a decision support infrastructure may function to, for example: 1) coordinate information needs assessment and disseminate information on environmental conditions and mitigation strategies; 2) coordinate cross sectoral research to link analysis and policy; (e.g., as proposed in the previous “information analysis” section); and 3) advise on funding mechanisms for information usage to mitigate siltation in the Shire (e.g., through an Environmental Support or Investment Fund). The Shire investigation will be used as a forum to explore decision support options through which information gathered in the Shire investigation may be disseminated to potential decision makers. A National EIS workshop will be conducted as a forum for particularly senior staff (e.g. CCHE and NCE) to: 1) disseminate environmental information and mitigation strategies as compiled to date in the Shire investigation and 2) to discuss institutional capacity and roles in environmental monitoring, research, and information exchange towards supporting the further development of a NEIS. The workshop will result in a report on recommendations to further strengthen NEIS activities (see next section on “To

Develop Institutional Capacity to Respond to Environmental Issues and Assess Policy Impact” under “Identification of institutional decision support infrastructure for effective decision making”).

Indicator of Achievement: Information dissemination seminar on results of the Shire investigation to decision makers, report on recommendations to continue developing a NEIS.

TECHNICAL ASSISTANCE/ PARTICIPANT TRAINING	APPROXIMATE DATES	LENGTH	INVOLVEMENT
“Hot-Spot” Case Study/Methodology Development	10/15-10/30	2 weeks	Forestry; Bunda; Haan; Gumbo
Integrative Shire Analysis Workshop	3/10-3/15	1 week	Forestry; Bunda; MEMP; Haan; Gumbo
Report and presentation of results on the Shire investigation to potential decision makers (MEMP, PROSCARP, MAFE, SUCOMA, ESCOM, extension workers, and others in conservation and reforestation related efforts - possibly coordinated through the Division of Environmental Information)	3/98; 4/98	2-3 days workshop 1 week prep	MEMP, Division of Environmental Information, MS, Haan, Gumbo, WKB
Shire Report Write-up	4/1-4/15	2 weeks	Forestry; Bunda; MEMP; Haan; Gumbo; MS
Intermediate/Advanced GIS Training	12/5-12/23	2 weeks	UNIMA; selected ministries; MS; Gumbo
GIS Professional Society Development	12/10-12/15; 3/20-3/25	2 weeks	UNIMA; selected ministries; Haan; MS
Provide technical assistance to participating MEMP agencies – particularly the DOS – to archive Shire Watershed data/ technical assistance in information management.	11/98	2 weeks	DOS, MEMP, MS
Provide technical assistance to DOS to complete the 1:50K and 1:250K digital map samples according to spatial data standard.	11/98-12/98	2 weeks	DOS, MS
Finalize digital mapping standards with DOS	10/99 or 3/99	1 week	DOS, Ron, MS
Conduct a national mapping workshop with technical and senior staff from participating MEMP agencies that compile spatial data.	3/99; 4/99	3-5 days (wrkshop) 1 week (prep)	DOS, MEMP, MS, Ron
Assess the potential for using 1 Km AVHRR data for landuse/landcover change analysis (DOF).	3/10-3/15	5 days	DOF, Eastman, Leo
Support the development of an institutional network for the provision of 1 km AVHRR data for environmental monitoring to MEMP agencies.	11/98 or 3/99	1 week	DOF, other GOM Agencies, MS, D., Ron

To Develop Institutional Capacity to Respond to Environmental Issues and Assess Policy Impact

Goal: Strengthen skills and knowledge of National and District level NRM institutions for systematic monitoring, analysis and reporting of environment/NRM issues and policy impacts, and for the formulation and implementation of appropriate responses.

Actions required: In addition to the capacity-building elements of the environmental information, research and policy programs outlined in this workplan, there are a number of discrete initiatives at national and district level which attempt to address perceived capacity deficiencies both within and outside of Government. Some of these are ongoing activities already delineated within the NATURE Program Agreement and defined as program conditions, and some are new to this workplan. Ongoing activities include:

Improve donor and implementing partner coordination

As an adjunct to the Environment Support Program (ESP), the MEMP has developed a database of ongoing E/NRM initiatives undertaken by Government, donors, NGOs and private sector actors throughout Malawi. The project's principal input during the current workplan will be to disseminate this information captured as widely as possible, and to establish the maintenance and periodic updating of the database as a routine function, initially within EAD.

Indicator of Achievement: One senior professional within EAD trained in the use and updating of the E/NRM database and a routine for information dissemination designed and implemented.

Improve the effectiveness of legal enforcement in the forestry, fisheries and wildlife sectors

The development of action plans to ensure better enforcement of laws relating to forest, fishery and wildlife resources remains a high priority if efforts at co-management or community management are to succeed. The finalization of action plans already under development (and in one instance under implementation) will be a task scheduled for completion within 1998.

Indicator of Achievement: The environmental policy advisor will liaise with the respective departments in the development of an action plan to overhaul the existing enforcement services.

Introduce performance based management procedures

The introduction of a performance-based budget system (PBBS) as originally conceived in the NATURE Program Agreement has been made difficult by Government's adoption of the cash approach, in which budgetary control is achieved at the expense of stability. Also, PBBS has to an extent become obsolete by the extension of the Medium Term Expenditure Framework (MTEF) to all Government ministries. The MTEF embodies a results-based logical planning and prioritization exercise as the core of the budget process, and is substantially similar to the PBBS approach. The Framework cannot yet be said to be fully operational, and a notable deficiency is the absence of a credible performance monitoring system to inform the budget allocation process. Using short-term technical assistance, MEMP will report on the adoption of the MTEF in selected partner agencies, and assist in the development of key monitoring functions to form the basis of future budget planning.

Indicators of Achievement: Report detailing the MTEF process in selected partner agencies and demonstrating the extent of its fulfillment of PBBS conditions. Monitoring procedures designed and adopted by selected partner agencies to complete fulfillment of PBBS conditions

Support the creation of an Endowment Trust Fund for E/NRM programs and functions

Work with the Endowment Trust Working Group will continue at an accelerated pace, with the production of a document describing the functions and operations of the Trust, together with a Constitution or Trust Deed, scheduled for production by the end of 1998. The Environmental Policy Advisor will attend meetings of the Working Group, will chair a sub-committee on financial issues and will explore the requirements for future support until such time as a sufficient endowment makes the Fund fully self-supporting. Short-term technical assistance will be provided to support the necessary changes to tax legislation to attract private and corporate donations to the Fund.

Indicators of Achievement: 1) Working Group meets regularly, identifies need for technical assistance or voluntary support from local experts and prepares Trust Deed in preparation for registration, 2) Working Group has defined practicality of establishing endowment, and has prepared an Action plan with clear steps and time lines, 3) Working Paper prepared on financial management issues, and 4) Outline proposal for Fund support and activity prior to endowment.

The following activities are each new to this workplan. The first derives from an initiative from the traditional authorities already involved in USAID's regional NRM Program; the following two have been developed from experience gained in the implementation of MEMP as a Government-based enterprise over the past five years.

Support the role of traditional leadership in E/NRM

Traditional Authority systems are largely intact in Malawi, and they are expected to play an important role in the transfer of natural resource management authority from the State to the resource users. In collaboration with USAID's Democracy and Governance SO, MEMP will support a series of meetings for all traditional leaders to discuss and define their roles in NRM, possibly laying the foundation for a regular forum for traditional leaders.

Indicator of Achievement: Traditional leadership is made fully aware of the new policy framework for NRM, has defined future roles and requirements for budget support.

Identification of an institutional decision support infrastructure for effective decision-making

Since the inception of MEMP I in 1993, technical training and capacity-building has been undertaken in ten Government and academic institutions in support of the development of a NEIS, with the achievement of a very considerable body of primary data, both digital and analog, and a substantial analytical capacity. As discussed in the previous section on "Environmental Information to Inform Policy Making: Shire River Assessment" the development of a functioning NEIS requires not only capacity in developing a data infrastructure and information analysis, but additionally requires developing a decision support infrastructure. Such a decision support infrastructure is instrumental in identifying and coordinating support for environmental monitoring and analysis, policy research, and information exchange related activities. An important task for this workplan will be to render this NEIS capacity more visible by focusing on supporting the development of a decision support infrastructure to make information generated more accessible to decision-makers. Initially, technical assistance is proposed to: build

awareness in information management by, for example, conducting a national mapping workshop (refer to the previous section on “Environmental Information to Inform Policy Making: Shire River Assessment”) and facilitating the production and reporting of environmental information products (e.g through the Division of Environmental Information (EID)).

Finally, technical assistance will be deployed to conduct an institutional assesment to support the development of a decision support infrastructure in environmental monitoring, research, and information exchange. A National EIS workshop – in which particularly senior staff will participate (e.g. CCHE and NCE) – will be conducted on institutional capacity and roles in environmental monitoring and analysis, policy research, and information dissemination. This workshop will result in a report on recommendations on a sustainable strategy to further develop a NEIS particularly with regard to strengthening decision support and coordination of EIS related activities. Furthremore, an assesment will be made to explore the options for bringing together the functions of analysis and policy research in a single institution, most likely the renamed Agriculture, Environment Policy Research Institute. Various proposals made in the past, will be investigated including the formation of an NRM centre in Chancellor College, the expansion of APRU into the environmental policy field, linkages with FEWS and the further strengthening of EAD, and assistance in clarifying the roles for future staffing and possible options for sustainable financing will be given.

Indicators of Achievement: Paper recommending a sustainable strategy for the continued development to coordiante environmental monitoring and analysis, policy research, and information exchange in support of the development of a NEIS.

3. to support the development of decision support infrastructure in environmental monitoring, research, and information exchange. This assessment will include:
 - Presentation to senior staff (e.g. CCHE and NCE) on institutional capacity and roles in environmental monitoring, research, and information exchange towards supporting the development of a NEIS.

Assist in the development of an integrated Agriculture and Environmental Monitoring Unit to do credible policy research and analysis which will effectively integrate research results into policy design and implementation.

Identification of effective information exchange mechanisms

An improved information exchange mechanism is required to ensure the dissemination of new environmental information to field level and to national decision-making bodies, and the reception and collation of information generated through the District Environmental Action Planning process. The Outreach Unit of EAD will be central to this operation, and will be closely linked to the resource centre proposed above. The E/NRM database and the EIS metadatabase, together with computer based training routines, will be distributed to environmental focal points, and direct linkages established through the provision of products to the three environmental committees (TCE, NCE and CCHE), donors and existing CBNRM programs. During this process an attempt will be made to identify institutional requirements and partner capacity at district level.

Indicator of Achievement: Relational E/NRM database used to produce directories of environmental projects, focal points, NGO activity as well as build linkages between explanations of environmental change and subsequent response to address change.

TECHNICAL ASSISTANCE/ PARTICIPANT TRAINING	APPROXIMATE DATES	LENGTH	INVOLVEMENT
Conduct institutional assessment for a NEIS in Malawi (Prevost-Like-Person).	10/98-11/98	2-3 weeks	PLP, MS, Ron, WKB
Facilitate National Environmental Information System Workshop	4/5	1 day	all
Develop report on recommendations for strengthening a NEIS.	3/98; 4/98	2 weeks	PLP, MS, Ron, WKB

Establishment of a Comprehensive Policy and Legislative Framework for Management of the Environment and Natural Resources

Goal: Complete the review and reform of policies and laws providing for the management of land and natural resources in Malawi. The two central themes of this process are (a) the devolution of rights and responsibilities from the State to the primary resource users, and (b), as a strategy to achieve such devolution as quickly and effectively as possible, the promotion of partnerships and joint ventures between Government, NGOs and the private sector. A key element in methodology is consultation, with overall guidance and coordination provided by the environmental framework policy and legislation.

Actions required: The policy and legal reform program is now well advanced, but there remains a need to provide continuing guidance, technical assistance and targeted financial support to the process. With the exception of land policy and the passage of new legislation through Parliament, the reforms will be substantially complete by the close of 1998. The next step will be the detailed drafting of subsidiary legislation (which is more easily altered but is otherwise no less important than the principal statutes), after which attention will be focused on implementation.

Although policy implementation will remain beyond the scope of this workplan, advantage should now be taken of the high degree of cross-sectoral interaction generated by the policy review process to identify specific opportunities for rapid advance in policy implementation. Such opportunities may result from accidents of geography or history, generating local circumstances in which new policies could find immediate expression, or they may be the products of active planning. The task of the Environmental Policy Advisor will be to investigate and maintain lists on potential E/NRM interventions with a high probability of positive impact, and report findings to USAID. It is expected that this task will both contribute to, and be informed by, the ongoing refinement of a geographical focus for the NATURE Program.

Establish Comprehensive Policy, Legislative and Institutional Framework

Assist with interpretation of National Environmental Policy and Environment Management Act (1996). Support the EAD in the monitoring of sectoral policy and legal reforms to ensure compatibility with the National Environmental Policy and the Environment Management Act (1996)

Indicators of Achievement: 1) Technical guidance provided to sectoral agencies on implications of policies, laws and institutional roles, 2) Guidance provided to the Environmental Affairs Department on issues arising in sectoral reform programs which may require interventions to ensure cross-sectoral coordination and compatibility with framework policies and legislation

Support agencies in revision of sectoral policies, legislation and institutional roles

Assist line agencies in implementing action plans

Indicators of Achievement: 1) Implementation progress monitored and reported, both in terms of physical progress and quality of output, 2) Review of sectoral policies, legislation and institutions completed, 3) Institutional roles and responsibilities clarified, 4) Revised sectoral policies, and 5) Legislation prepared.

Identify opportunities for policy implementation

Undertake a reconnaissance of opportunities for E/NRM interventions with a high probability of positive impact.

Indicators of Achievement: 1) Report recommending E/NRM interventions with maximum expected impact. 2) Lists of interventions linked to the E/NRM database.

Scheduled Technical Assistance