



**PROJECT DESCRIPTION
AND
PRE-IMPLEMENTATION PLAN**

Prepared by

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INTRODUCTION

Background

The Government of Malawi is committed to developing technologies that provide agricultural sustainability, food security and adequate shelter to its population, with the simultaneous improvement of the natural resource base. However, there is considerable evidence today that population and land-use pressures in Malawi are leading to reduced agricultural productivity, and deteriorating natural resources. In this regard, agroforestry has demonstrated great potential for increased crop and animal productivity with substantial economic and social benefits to rural households on a sustained basis.

Given the potential of agroforestry to address many farm level and natural resource problems in the country, the Malawi Agroforestry Extension Project was established with funding from USAID under the Agricultural Sector Assistance Programme. This is a pilot project to develop and test an extension system for agroforestry based largely on research by the National Agroforestry Research Team. The project is being implemented through a cooperative grant agreement with Washington State University under Land Resources and Conservation in the Ministry of Agriculture and Forestry in the Ministry of Forestry and Natural Resources. The project extends from August 1992 to September 1996.

Agroforestry Perspectives to Improve Agricultural Sustainability

Achieving agricultural sustainability and food self-sufficiency, while preserving the integrity of the natural resource base, is a predominant goal of Malawi. There is ample evidence today that sustained and improved productivity is dependent on the level of soil organic matter, the type of vegetative cover, and the carrying capacity of the land. Agricultural intensification will therefore require greater rather than fewer efforts to maintain and manage the natural resource base. The issue is how to accomplish this in a manner that is ecologically and economically viable, as well as socially acceptable to farmers.

Agroforestry offers potential as a complementary approach to more conventional technologies to improve smallholder food security by alleviating many common constraints faced by farmers. These problems include declining crop yields and soil fertility, fodder and fuelwood deficiencies, increasing fertilizer and other input costs, and reduced biodiversity of both wild and domesticated plants of high food, economic, or cultural value. Many problems are exacerbated by reduced foreign exchange earnings, limited price incentives and credit opportunities for resource-poor farmers, lack of appropriate technologies, and inadequate linkages among researchers, extension agents, and farmers.

The universal appeal of agroforestry lies in the many service functions of trees including soil conservation, nutrient recycling, increased organic matter and biological activity in the topsoil, improved microclimate, and greater tolerance to drought. Trees also yield an extraordinary array of products including fuelwood, building material, food, fodder, gums, resins, dyes, and medicines that are essential to nutrition, health, and trade. Such systems can provide the ecological and socio-economic framework for the self-sufficiency of rural households. This is demonstrated in many parts of the world where agriculture consists of a complex, interactive mixture of crops, livestock, and trees. Examples of traditional agroforestry systems include cultivating crops in rotation with natural bush-fallows, and simultaneously with trees like *Faidherbia albida* to restore fertility and to provide a variety of useful tree products.

Highlights of Agroforestry Research in Malawi

Initial work in agroforestry research began in the early 1980s at Bunda College, the Forestry Research Institute of Malawi, and Chitedze Research Station (Edje, 1982; FRIM, 1987; Chiyenda and Materechera, 1987; Saka et al., 1990).

Research to date has identified promising agroforestry interventions and species to help improve the productivity of crops and livestock, reduce fertilizer inputs, and alleviate land degradation. For example, alley cropping with appropriate leguminous shrubs such as *Cassia spectabilis*, *Tephrosia vogelii* and *Leucaena leucocephala* can improve maize yields by 50%-200% with no fertilizer inputs. Similar results can be achieved by cultivating maize beneath soil-improving trees like *Faidherbia albida*.

Other agroforestry technologies such as contour strips of vetiver or napier grass with leguminous hedges or fruit trees substantially reduce erosion and runoff on steep slopes, while providing other useful products. Planting multi-purpose trees on boundaries and homesteads, as well as along rivers and roads, generate important sources of food, fuelwood, fodder, shelter, and income. These can include species such as *Acacia polyacantha*, *Azadirachta indica*, *Khaya nyasica*, *Trichelia emetica*, as well as exotic and indigenous fruit trees such as mangoes and *Ziziphus mauritiana*. Fodder banks of protein-rich tree legumes such as *Leucaena leucocephala* and *Gliricidia sepium* provide abundant, high-quality feed to livestock and a ready supply of fuelwood and building material. Where land permits, improved fallows with nitrogen-fixing plants such as *Sesbania sesban*, *Leucaena leucocephala* and *Gliricidia sepium* speed up the restoration of fertility, and provide wood and fodder at the same time.

These are among the interventions available but not yet adopted by small farmers, emphasising the urgency to develop an effective system for agroforestry extension.

In addition to contributing nitrogen and various tree products (building material, fuelwood, fodder, fruits), many agroforestry practices supply essential organic matter and other nutrients such as Mg, K, Ca, and S which can become limiting under continuous cultivation without inputs of these elements. This is important in the long-term because of Malawi's policy to limit fertilizer imports to urea (N) and diammonium phosphate (N & P). There is also mounting evidence indicating that certain agroforestry trees significantly reduce the incidence of *Striga* species, one of the most serious pests affecting crop yields in Africa, particularly cereals.

CONSTRAINTS TO SMALLHOLDER ADOPTION OF AGROFORESTRY TECHNOLOGIES

Although a number of agroforestry technologies show sufficient positive biological and economic benefits (Hayes, 1991) for dissemination to farmers, there are critical factors affecting adoption at the field level. These include the extension methodology used, differences in expectations and perceptions of farmers, extension agents, and researchers, and the lack of agroforestry training of extension staff. Policy and institutional issues also need to be addressed in relation to these constraints. These are outlined below.

Lack of agroforestry extension materials and tools

As new technologies are developed there is an urgent need for extension messages to be developed and made accessible to farmers and extension agents using a variety of

audio/visual aids. This need is currently being addressed (see above). These are to be distributed to all organizations working in agroforestry: the Ministry of Agriculture (MOA), Ministry of Forestry and Natural Resources (MFNR), non-governmental organisations (NGOs) and donor-funded projects.

Bridging the gap between researchers' expectations and farmer realities

Various studies have shown that farmer adoption of new or improved technologies depends on their perception of its benefits and costs, and their participation in the selection experimentation, and modification of available technologies. These factors need careful incorporation into the extension methodology used.

Extension and research policy

If agroforestry technologies are to be extended effectively and efficiently, policies are required to promote a strong system of implementation and coordination. Agroforestry in Malawi is still at a relatively early stage of development with some technologies not fully tested. There needs to be a thorough evaluation and adaptation of agroforestry interventions that address key farmer problems in terms of adoptability, impact and long-term viability. This necessitates the development of a greater socio-economic capability in the National Agroforestry Research Team, and the initiation of detailed studies of factors influencing adoption of the technologies, for example by professors/students at Bunda College or other research institutions.

Agroforestry information delivery systems to farmers are similarly undeveloped. Extension should therefore start on a pilot scale and be refined and modified as appropriate for subsequent implementation nationwide. Agroforestry research and extension activities and impacts should be monitored and evaluated so that needed changes and feedback to research can be undertaken to reflect farmer objectives, perceptions, and experimentation.

In determining an appropriate input strategy, an important issue is the capacity of MOA, MFNR and NGOs to provide seeds, seedlings and other inputs on a sustainable basis and on a large enough scale to meet projected demand. For the majority of smallholder farmers who live away from the main agricultural service centres, access to such inputs and services must also be considered. Community or individual self-sufficiency in planting material should be encouraged, with assistance from the Forestry Department, through the establishment of farm, group and individual nurseries and seed orchards. This issue will be addressed in a meeting with the Forestry Department on May 20, 1993.

Strengthening institutions and coordination

Lack of coordination between the various NGOs and Ministries has led to a multiplicity of approaches and sometimes conflicting extension messages on the ground. A National Steering Committee for agroforestry was established in 1984 with members from the MOA, MFNR, the University of Malawi and the National Herbarium and Botanic Gardens. Strengthening its role and leadership is needed, with increased recognition and resources. The inclusion of an NGO member could improve communication flows in that sector. Regular meetings (three per annum) and the circulation of minutes to all organisations working in agroforestry would strengthen necessary cross-institutional linkages.

Liaison between the institutionally separate but functionally inter-dependent research and extension organizations is essential in agroforestry to ensure consistency in messages

reaching the farmers, and to provide essential feedback from technology users to researchers. Linkages between the National Agroforestry Research Team and Land Husbandry, the branch responsible for agroforestry extension in the MOA, should be strengthened and formal meetings be increased. Special attention should be given to eliciting feedback on technologies from people on the ground.

Finally, it must be recognised that any developments in agroforestry research or extension should link with the existing infrastructure of MOA and MFNR rather than create parallel systems that cannot be sustained once the donor has left. Whilst individual projects might successfully develop additional components or make useful adaptations of technologies to specific target areas, interaction and dialogue is essential if ideas and resources are to be shared, problems solved, new opportunities identified and impact maximized.

PROJECT GOAL

The overall goal is to enhance the economic well-being of smallholder farmers by improving food production efficiency and sustainability with reduced degradation of natural resources.

Project Objectives

Promising agroforestry technologies have been developed in Malawi to address problems of low crop and animal productivity, declining soil fertility, wood and fodder shortages, increasing costs of inputs, and the degradation of natural resources (soils, water, and vegetation). Despite considerable efforts in this regard, little progress has been made in terms of encouraging adoption of agroforestry technologies by farmers. Primary constraints are the lack of an effective approach for agroforestry extension, inadequate coordination and management, and poorly trained extension staff.

Using the existing extension infrastructure of the MOA and MFNR, the fundamental approach of the project calls for a strategic focus that is flexible, practical, and responsive to carefully determined needs. Specific objectives are to:

1. develop and refine an agroforestry delivery system for implementation nationwide;
2. evaluate/adapt prototype AF interventions that address key farmer problems in terms of adoptability, impact and long-term viability;
3. encourage community/individual self-sufficiency in establishing and maintaining nurseries, seed orchards, and agroforestry interventions;
4. implement a training plan for extension staff and farmers on agroforestry practices and technologies, including the production of training material involving extension pamphlets, slide-sets, videos, posters, and other suitable A/V material;
5. design an effective system for monitoring/evaluating project activities and impacts;
6. develop and strengthen linkages with related Government and Non-government organisations to extend and broaden the scope for impact with (a) consistency in extension approaches and messages, and (b) research support to adapt technologies to local conditions, and to identify new ideas and opportunities.

OPERATIONAL STRATEGIES

The problems facing smallholder agriculture in Malawi are numerous, and resist swift and simple solutions. As indicated above, research on agroforestry in Malawi has produced promising interventions to help improve the sustainability and productivity of crops and livestock, while reducing land degradation.

With a rural population of over 7 million people, it is unrealistic to expect rapid and massive impacts from activities totally dependent on direct Government and/or Donor support. Thus, the basic concept of the project is to empower and motivate farmers to help themselves in a manner that is ecologically sound and economically attractive. Spontaneous adoption of agroforestry must spread rapidly through Malawi's farming communities for any significant impact. This approach offers a realistic mechanism to reverse the deteriorating situation that threatens to undermine the very fabric of the country's economy and society: its agriculture and the natural resource base.

The basic concept of the project is to empower and motivate farmers to help themselves in a manner that is ecologically sound and economically attractive. Spontaneous adoption of agroforestry must spread rapidly through Malawi's farming communities for any significant impact. We believe that this provides the most promising mechanism to reverse the deteriorating situation that threatens to undermine the country's agriculture and the natural resource base.

The fundamental strategy is to build the capacity of the MOA, MFNR and other related organisations to institute an agroforestry extension system, utilising and strengthening the existing infrastructure of staff, resources, skills, and extension communication methods and networks. Within this framework, pilot project efforts will be initiated in 5 selected sites representing a cross-section of the country's environment and farming systems, before undertaking an untested, full-scale programme of extension. The focus of the project is a community-based approach that is self-sufficient, sustainable, impact-oriented, and replicable.

Key Elements of Project Management

Several key elements are fundamental to the success of an agroforestry extension programme, especially in the initial phase of development. These include:

Programme Coordination. Efficient and timely coordination and implementation of extension-farmer activities, and of the required inputs is essential. A central coordinating unit will function in a technical and logistical support capacity to provide pilot sites with needed inputs, to help develop/transfer skills, and to produce practical workplans for executing field-related activities. In this regard, mobility of the coordinating unit and extension staff will dictate to a large extent the effectiveness of the project in preparing and delivering extension messages, organising the farming communities and inputs in a timely and proper manner, and providing continuous feedback to both farmers and researchers on problems, needs, and successes.

Training. Extension staff in Malawi have had little or no formal training in agroforestry, and therefore are not well-equipped to promote agroforestry interventions to farmers. This limitation must be overcome through a vigorous and well-planned training program that is directly relevant to the objectives and strategies of the project. The training programme will include the development of effective extension training strategies and techniques with quality production of training modules for both staff and farmers. This will be done through the use

of various audio-visual media. Farmer training will ultimately aim at establishing the self-reliance of the targeted communities and farmers for long-term continuity and sustainability. Expertise will be drawn from the Training Unit of the MOA with support from outside specialists to produce the best-possible training programme.

Extension Methods: Development of effective extension strategies, communications, and techniques are clearly important determinants of the ultimate success of the project. This will include quality production and presentation of clear extension messages with the use of various A/V media, as well as on and off-farm demonstrations. Lessons learned from other agroforestry extension projects in Africa will be carefully studied to take advantage of proven methods, while avoiding potential pitfalls. These activities will be done with assistance from the DAET and EAB, including specialised outside support if necessary.

Self-Sufficiency of Target Communities: Maximum self-reliance of the targeted communities and farmers is crucial for the continuity and sustainability of a large-scale extension effort. This means reducing dependencies on external agents and organisations for necessary inputs such as technical skills, seed, seedlings, etc. Initially, such inputs may need to be provided by the project, but village communities and individuals must be encouraged and shown how to establish and manage integrated agroforestry practices on their own.

Research Support. Close linkages with research will be needed to undertake demonstrations and site testing of specific interventions in the pilot areas, to solve unexpected problems, and to explore new opportunities and ideas. Since research in agroforestry is relatively young in Malawi, the potential for improvement is vast, and hence good liaison with research is essential. For example, there is recent evidence that new species and accessions of leucaena and gliricidia are far more productive and versatile than the germplasm currently in use. Given this scenario, research will specifically focus on (a) identifying better adapted, and faster-growing tree species or varieties, (b) improving management practices of various agroforestry technologies and trees with different crops and inter-crops, and (c) developing improved and cheaper techniques for propagating trees. In addition, tree species already recognized and used in various ways among different farming systems will be further investigated where necessary and incorporated into planned agroforestry interventions.

Monitoring and Evaluation: A practical management/feedback information system will be developed to assure proper use of invested resources and to assess what is being achieved by the project. This will generate information to determine which components are working and which need to be changed or abandoned, thus guiding activities toward established goals and targets. The type of data collected and the methods used will be identified during the project design phase (see implementation plan below). Whatever methods are employed, monitoring and evaluation will be most effective when carried out by the extension staff themselves. This enables them to see and assess the results of their efforts at first hand which encourages needed changes or modifications.

Agroforestry Initiatives: In general, adoptability of agroforestry will be improved by careful integration with existing practices in a manner that addresses real farmer needs and problems. This necessitates an open, participatory discussion and analysis of problems and potentials with the beneficiaries involved to create a positive attitude of participation and ownership. Selecting locations on farms for initiating extension efforts are also critical. In this regard, planting trees in home and dimba gardens, as well as on boundaries and around the homestead, provides a comparative advantage for successful agroforestry impacts which will encourage and motivate farmers to expand or broaden agroforestry practices. These areas

generate important sources of income, food, wood, fodder, and shelter, and they permit more intensive management and protection due to their small size and proximity to the household. Initial efforts here will diversify outputs, reduce risk, provide relatively high returns to labor, and improve soil structure and fertility. This process will facilitate the extension of agroforestry interventions to areas more difficult to manage or control.

Underlying Principles of Operation

Based on the above, the following principles will guide project strategies and plans:

- Will build upon, complement and support current successful programs of cooperating institutions and organizations, rather than replace or compete with them.
- Will be a *pilot* program, to test and put into place methodologies for agroforestry extension in Malawi which will pave the way for more comprehensive agroforestry extension programs in the future.
- Will strive for a *consistent approach*, including a shared monitoring and evaluation system, so that results can be compared, learned from and replicated/adapted to other areas.
- Will be *impact-oriented* and *community-centered*.
- Will be designed for *continuity* and *sustainability* for the MOA/MFNR.

INITIAL ACTION PLAN

In order to coordinate and streamline project communications and decision-making within and between the MOA and MFNR and their relevant departments, a Technical Sub-Committee was formed which reports to the National Steering Committee on Agroforestry. This committee has the following members or their representatives: the Chief Agricultural Extension and Training Officer (Chairman), Chief Land Resources and Conservation Officer, Deputy Chief Agricultural Research Officer for research, Chief Forestry Officer, Chief Veterinary Officer, and ADD Programme Managers. To facilitate the tasks of this committee, an action committee was formed to undertake specific activities during the planning phase of the project. The latter is composed of representatives from agroforestry research, land resources and conservation, and forestry.

With guidance from the Technical Sub-Committee, a project implementation plan was developed with several phases. Each of these is summarised below.

Phase 1: Cooperative Agreement with US University

- Develop and sign a cooperative agreement with a US based university to assist in implementing the project.

Phase 2: Programme Design and Planning

- Select pilot sites with targeted areas and farm families.
- Identify staffing and other support resources for project coordination and field implementation.
- Undertake needs assessment and characterisation of pilot sites and farming communities.
- Design best-bet agroforestry species and interventions.
- Negotiate and organise staff/farmer responsibilities.
- Develop training programme and strategy.
- Design monitoring and evaluation plan.

Phase 3: Project Commitment and Establishment

- Purchase and deliver field/nursery supplies and equipment to pilot sites.
- Procure off-shore vehicles and commodities.
- Select sites for tree and grass nurseries, and seed orchards.
- Collect germplasm and establish nursery operations.
- Initiate orientation courses, project launching workshop, and training programmes.
- Initiate production of agroforestry training materials and audio/visual aids.
- Implement agroforestry interventions.
- Initiate monitoring and evaluation activities.

Phase 4: Ongoing Project Management

Relevant activities from Phase 3 will continue throughout the life of the project in terms of training, nursery development and seedling production, establishing AF interventions, and various monitoring and evaluation activities. Other activities will be to:

- Evaluate farm community/individual attitude toward adoption of interventions.
- Assess technology performance and adjust as necessary.
- Assess potential for project expansion and replication.
- Evaluate potential for long-term sustainability of (a) the agroforestry extension systems, and (b) village-based AF initiatives.

Pilot Site Selection

Responsibilities and Timeframe

Given the pilot nature of this project coupled with its limited funds and resources, the project will be limited to 5 pilot sites. It was proposed by the Chairman of Technical Sub-Committee during the March meeting that the Action Committee will select suitable pilot sites based upon the agreed criteria below, with direct input and support from ADD Programme Managers and their staff. All proposed sites were visited during March and April 1992, and a report was submitted in May to the Technical Sub-Committee which then made the site selections.

Criteria for Selecting Sites

Based on the principles outlined above, suggested criteria for selecting pilot sites are:

- Probability of demonstrable, measurable success based on relevance/potential for successful adoption of available, Malawi-tested AF technologies to farming systems, agroecologic zones and known constraints/opportunities of site. i.e., based on what is currently known, what is the likelihood that this site will show convincing beneficial impacts within the time-frame of program.
- Agroforestry meets perceived farmer needs, solves problems important to and recognized by the farmers.
- Extent to which the socio-culturo-economic and agroecologic characteristics and constraints of the site are representative of significant target areas/populations of Malawi (i.e. for replication/spread).
- Logistic feasibility of site - "close enough" to support systems necessary for its success and for utilization for training/demonstration or other pilot program functions (including water, transportation, communication, access to infrastructural support, etc.)
- Community enthusiasm and commitment of resources to participate in program (communities near enough the area to participate, with ability/desire to do so).
- Presence/interest in participation of *community-centered* organizational infrastructure consistent with program objectives (community-based associations, etc.)
- Presence of potential "leaders and participants" in the community to facilitate oversight, adoption, feedback and spread.
- Presence/interest and potential commitment (available time, human and other resources) in participating or cooperating with GOM organizational infrastructure consistent with program objectives (DOA, DAR, ADD, RDP, and EPA, Forestry Department, Women's Programmes, etc.)
- Potential for buy-in and spread by other GOM, NGO, community-based associations, donors and/or other programs.

Pilot Sites Selected

Based on the above criteria, the Technical Sub-Committee selected 5 pilot sites for the project. These are Nsangwe in NADD, Makapa in LWADD, Kalitsiro in LADD, Chikwete in KADD, and Machecheta in MZADD. A brief summary of these is provided in Appendix 5.

Project Staffing Plan and Institutional Liaisons

Coordinating Unit: The coordinating unit (CU) will serve primarily in a support role to the pilot sites in terms of providing inputs, operating funds, and technical assistance such as help in developing action plans and strategies, work schedules, budgets, data processing, and training programmes, as well as designing and implementing monitoring/evaluation activities. The CU will report direct to the Chief Land Resources and Conservation Officer (CLRC) who in turn will report to the PS through CAS-NRDP. A senior officer in the Department of Land Resources and Conservation has been selected as primary counterpart to the CTA. A second counterpart will be assigned from the Forestry Department to work part-time on the project. In addition, WSU through USAID will hire a skilled secretary/accountant. Drivers will be recruited once the vehicles arrive.

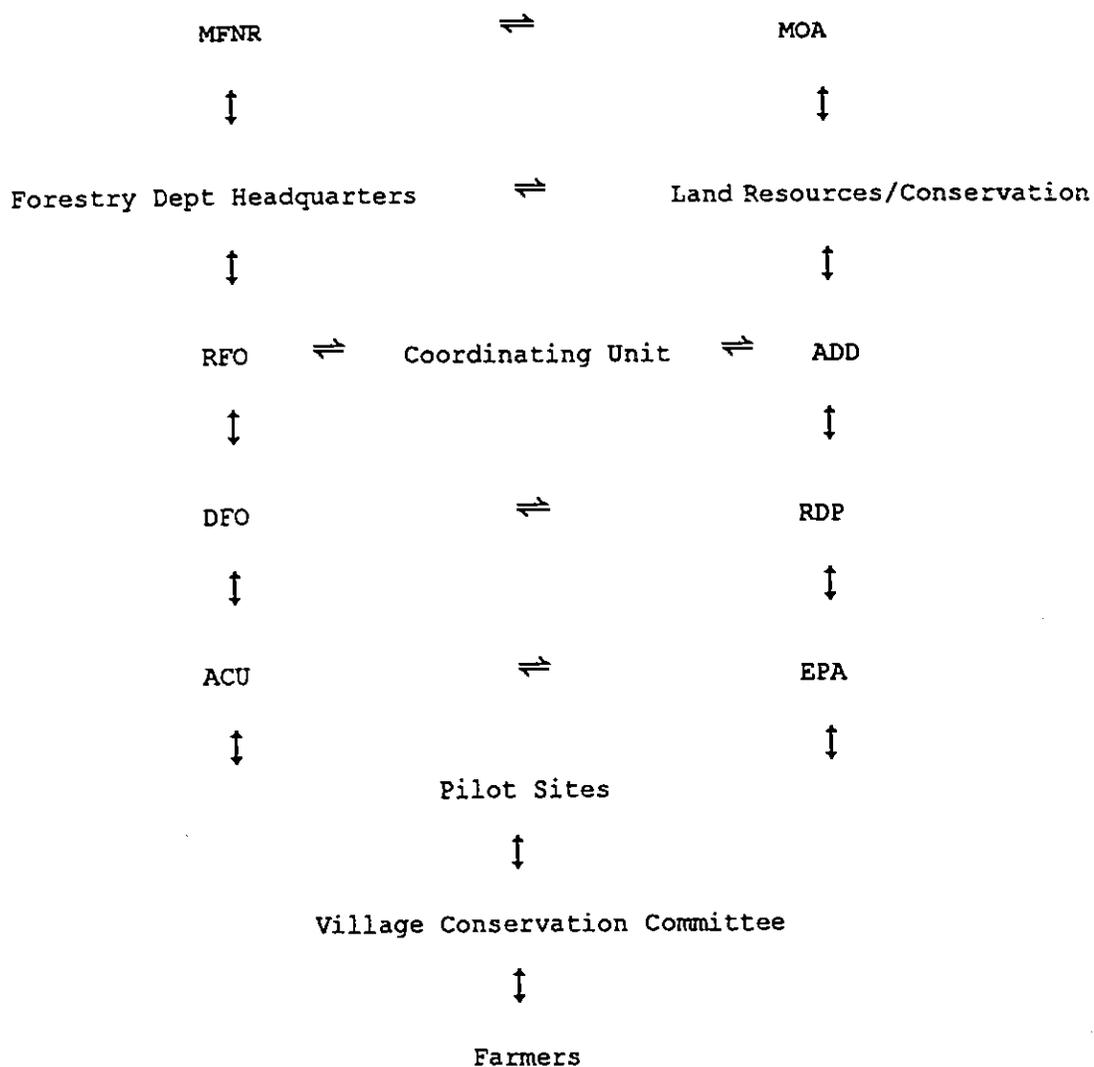
Staffing at Pilot Sites: Visits were made in June to all five pilot sites. The general staffing and management structure is as follows. Pilot site activities in terms of workplans, training, budgets, etc. are determined by the ADD through the Land Husbandry staff in consultation with the CU. This is coordinated through a designated Land Husbandry officer at ADD headquarters under supervision of the senior Land Husbandry officer who reports administratively to the PM and technically to the CLRC through the CU. The designated LH officer in turn coordinates and supports field activities with the Project Officer at the RDP level through a land husbandry technical officer, assisted by two technical field assistants at the EPA level, one in land husbandry and one in extension. Other extension staff will also receive training to enable them to integrate agroforestry with their extension programmes.

Liaisons with Forestry Department: The District Forestry Officer, operating under the Regional Forestry Officer, provides support and assistance to the project in terms of all nursery-related activities. He will also be responsible for developing and coordinating social forestry activities such as reforestation efforts, communal or individual woodlots, and others as determined by the D&D activities (see below). He is supported at the field level by a field assistant and a nursery-man. The DFO will liaise directly with the designated LH officer at the ADD, while the Forestry Field Assistant will liaise with the RDP LH officer.

All DFO's involved at the pilot sites have recruited a skilled nursery-man and 3-5 labourers (paid by the project) to help with the initial establishment of the village nurseries and seed orchards, and to provide on-the-job training to interested farmers. Thereafter, nursery activities will be conducted by the farm communities with technical assistance from Forestry when needed.

The project administrative/management structure is illustrated in Figure 1 below. The CU reports direct to the Chief Land Resources and Conservation Officer (CLRC) who in turn reports to the PS through CAS-NRDP. The CU coordinates field activities via the Program Managers at each site to designated extension officers from the ADD to the RDP and EPA levels. A parallel structure is followed with the Forestry Department, from the Regional Forestry Office to the District FO and the Area Coordinating Units (ACUs). Liaisons between Agriculture and Forestry occur at each of these levels.

Figure 1: Project Administrative/Management Structure



Project Offices: Offices used by the Land Resources Evaluation Project have been assigned for use by the coordinating unit. Existing support staff will be shared by the two projects. New furnishings and other office equipment will be purchased where needed as specified in the procurement orders to USAID.

Initial Procurement Plans and Specifications

Liaisons were initiated with USAID for specifications and procurement of vehicles, equipment, and supplies. These are shown in Appendix 1 for both off-shore and local purchases. Other inputs will await results of the pre-implementation plan below.

PRE-IMPLEMENTATION PLAN

Overall Objective

A detailed pre-implementation plan is proposed to enable the project to efficiently start the 1992/93 growing season with a well-planned and properly focused programme of activities. The pre-implementation plan will be prepared between May and January 31, 1993 by a design team, supported by short-term outside expertise and resources.

The design team will consist of specialists in socio-economics (team leader), agricultural extension (crops and livestock), land-use planning and conservation, and agroforestry. Short-term expertise is proposed for assistance in agroforestry D&D methodologies, and for developing comprehensive plans for (a) an extension training program in agroforestry, (b) an effective extension delivery system for agroforestry technologies, and (c) monitoring and evaluating project management, impacts and progress. Details on team qualifications and responsibilities are outlined in Appendices 2-4.

Proposed Funding

Funds for some outside assistance were obligated under MARE before the project ends later this year. There are also provisions by USAID for short-term consultancies under the Malawi Agroforestry Extension Project.

Specific Tasks of the Design Team:

- *Project Staffing Plan*

Develop a comprehensive staffing and management plan with associated liasons for the project that are practical and compatible with the structure and resources available to the MOA and MFNR. This should be done at all levels of project planning and implementation from the central coordinating roles of the MOA (primarily DOA, DAR and relevant sections) and MFNR (Forestry Department), to the de-centralized field-based roles (ADD, RDP, EPAs, etc. At each level, the following activities will be conducted:

- a. Describe staffing needs, support resources and roles/responsibilities.
- b. Identify key individuals and associated institutions.
- c. Establish and agree upon terms of commitment and involvement.
- d. Identify support staff, resources, and liasons with and between respective mother institutions.

- ***Community/Site Characteristics and Needs Assessment***

Using methods and lessons learned from other agroforestry extension efforts (notably the ADDFOOD program, the ICRAF D&D process, Malawi NGO activities, and others like the Kenya-CARE Project), develop a rapid rural appraisal methodology to:

- a. Describe the farming, socio-economic, and ecological characteristics of the each targeted community and site. Specifically include existing agroforestry trees and practices (both traditional and improved) used by farmers.
- b. Assess and diagnose priority farmer needs, problems and trends related to improved crop and animal productivity and sustainability, food security, income generation, diversification of food and cash crops, and the status of the natural resource base in terms of soils and vegetative cover.
- c. Pre-test the methodology developed in one pilot site, and refine as necessary.
- d. Provide training plan for enumerators to collect required data for each pilot site.

- ***Needs Assessment in Relation to Agroforestry Potentials***

- a. Develop and institute a systematic procedure to evaluate the potential and comparative advantages of agroforestry interventions and best-bet options for different problems and areas/populations based on the above results.
- b. Develop a plan to assess the willingness, ability, and organizational structure/leadership of farmers to undertake agroforestry interventions in a self-sufficient, community-based approach.

- ***Project Objectives and Expected Outputs***

Develop a hierarchy of project objectives and expected outputs during the life of the project, and identify the types of activities needed to meet these consistent with the strategy and approach of the project.

- ***Agroforestry Extension Methods and Communication Techniques***

Identify and develop an effective extension model for agroforestry that is appropriate and compatible with the existing government structure and resources, yet flexible to permit improvements and modifications. The model should:

- a. emphasize community involvement, participation and self-reliance;
- b. encourage interest and motivation among extension staff and farm communities;
- c. use a variety of communication techniques to increase the coverage, exposure, and spread of AF interventions (including inputs and benefits) to communities and farmers in a manner that is simple and visually effective.

- ***Production of Agroforestry Training Materials***

Develop a plan, with outside assistance and support if necessary, for producing training materials on agroforestry techniques. These will include videos, slide sets, extension pamphlets, posters, and other relevant audio-visual material. The primary purpose of these training materials will be to help train field extension workers and farmers on research-proven technologies. The materials produced will also be used to raise awareness of agriculture, natural resources, and environmental issues in Malawi which are relevant to agroforestry. All tasks involved with the production of the materials will be done in collaboration with the Land Resources and Conservation Branch, the Extension Aids Branch, the ADDs, and the Departments of Agricultural Research and Forestry. Planning, filming, editing, and most of the post production work will take place in Malawi.

- ***Human Resource Development and Training***

Assess the training needs of MOA and MFNR extension staff in agroforestry interventions, practices, and proposed extension methodologies. Based on this, organize a comprehensive training plan and timeframe to develop the knowledge base and practical skills of technical extension staff and farmers relevant to proposed agroforestry and related activities. The training plan will be developed in close collaboration with the training branch of the MOA, and will include the preparation of appropriate training manuals and modules. Training will begin at the ADD level and proceed through the RDP and EPA levels to farmers. Models based on successful adult-education methods will be used in both staff and farmer training activities. Farmer training will ultimately aim to establish the self-reliance of the targeted communities and farmers for continuity and sustainability. This means reducing external dependencies for necessary inputs such as seed and seedlings. Initially, such inputs need to be provided by the project, perhaps at a nominal cost, but farm communities should be encouraged and shown how to produce the required inputs over the long-term.

- ***Institutional Linkages and Collaboration***

Explore and define (as far as possible) potential linkages and support or complementary roles and responsibilities of other institutions, specifically but not limited to:

- a. Agroforestry Commodity Team for research/demonstrations at pilot sites, farmer visits to research plots, feedback on new problems and opportunities.
- b. University of Malawi for consultancies/research linkages/graduate study proposals for specific components, needs, or deficiencies of the project.
- c. Rockefeller Foundation for potential sponsorship of consultancies, surveys, training, and research support.
- d. Forestry Research Institute of Malawi for sources of planting materials, and additional/new information on potential agroforestry species.

- e. Tobacco Research Institute of Malawi for collaboration on integrating agroforestry with tobacco farming to address environmental concerns, and wood needs.
- f. Peace Corps and VSO for volunteer assistance in specified project activities.
- g. ICRAF and other IARCs for developing and updating information on agroforestry interventions.
- h. Related donor-funded projects and NGO activities (e.g. the ADDFOOD Programme; UNICEF, CSC, and Actionaid).
- i. Others as identified.

• ***Monitoring and Evaluation***

Design and institute a monitoring and evaluation plan as an integral feedback information system with the aim of (a) supporting the management, training, and extension system characteristics of the project, and (b) assessing project impacts and progress related to specified objectives and outputs. M and E activities must be effective, simple, and above all, realistic given the resources available. Indicators of impact and progress will be developed along with methods and tools for their measurement. These will focus on the effectiveness, sustainability, and replicability of the following components with built-in feedback mechanisms to permit adaptation and change:

- a. training program for both staff and farmers/communities
- b. project management structure and strategy
- c. technology establishment and management
- d. technology performance in relation to intended functions:
 - socio-economic welfare/status of households and community as a whole
 - crop and animal production
 - secondary tree products and services
 - food and fuelwood security
 - natural resources (soils, vegetation cover and composition, water)
- e. farmer/community attitudes and resources for technology adoption
- f. extension delivery models

Project Management Plan

Develop a detailed project management plan and timeframe for the following:

Pre-Implementation:

Initiate procurement orders for vehicles, equipment and supplies (local & offshore).
Determine staffing structure and management strategy.
Recruit staff.
Secure office space and support resources.
Identify collaborating institutions and roles/responsibilities.
Assess agroforestry needs and potentials of each pilot site and community.
Initiate germplasm collections/acquisitions.
Establish site-specific objectives and activities to meet these.
Organize and develop training plan and materials.
Initiate production/acquisition of extension materials and communication techniques.
Design preliminary monitoring and evaluation plans.

Project Establishment

Initiate staff training, and identify funding prospects for long-term training.
Design site-specific interventions with community/farmer participation.
Negotiate staff/farmer responsibilities.
Develop extension activity schedule.
Revise and confirm monitoring and evaluation plans.
Continue production of training and extension materials.

Agroforestry Initiatives

Identify sites for tree/grass nurseries, seed orchards and research plots/demos.
Continue germplasm collections.
Raise nursery plants.
Direct sow and/or transplant trees for intended interventions and demonstrations.
Initiate monitoring and evaluation activities.

Ongoing Management

Continue relevant activities above (planning, training, monitoring & evaluation, etc.).
Evaluate effectiveness/relevance of management strategy, training program, and extension model.
Coordinate/assist farm communities in establishing and managing AF interventions.
Evaluate community/individual attitude to adoption of interventions.
Assess technology performance and adjust as necessary with research feedback.
Assess potential for program expansion and replication.
Identify new ideas, opportunities, and problems with support from research.
Evaluate potential for long-term sustainability of (a) the extension model and (b) village-based AF initiatives.

WORKPLAN AND SCHEDULE FOR PRE-IMPLEMENTATION PLAN

<u>Activity</u>	<u>Timeframe</u>
Initial Meeting of Technical Steering Committee on Proposed Pre-Implementation Plan	March 18, 1992
Initiate field visits by In-House Technical Committee of proposed pilot sites by ADDs, and compile report.	April, 1992
Identify counterpart staff, office space and support resources for the central coordinating and management unit.	April, 1992
Develop detailed Project Staffing Plan and responsibilities from the MOA/MFNR and coordinating levels through the ADDs and Regional Forestry Offices to the field levels.	May -June, 1992
Liaise with USAID regarding (a) procurement of vehicles, equipment and supplies, (b) access to project funds, and (c) special waiver for prompt arrival of one or more vehicles.	April-May 1992
Submit reports to Technical Steering Committee on (a) site visits to determine final site selections for the project, (b) progress on procurement procedures/access to project funds, and (c) proposed composition, qualifications, and terms of reference of in-country design team and short-term consultants.	May, 1992
Select in-country design team and provide project documents and other information needed by design team.	May, 1992
Identify short-term consultants	May 1992-January 1993
Initiate workplan of tasks:	
• Orientation of In-Country Design Team	July, 1992
• Develop/Test RRA Methods and Strategies	August/October, 1992
• Extension Communications and Training Plan	August/October, 1992
• Production of Agroforestry Training Materials	March-December 1993
• Develop Initial Monitoring & Evaluation Plan	June-July, 1992
• Institutional Linkages; Project Objectives & Outputs; and Detailed Project Management Plan	August/October, 1992
• Deadline for Report by Design Team	January, 1993

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APPENDIX 1: OFF-SHORE AND LOCAL AGROFORESTRY EQUIPMENT/SUPPLIES UNDER ASAP

Item Description	Specifications	Quantity
OFFSHORE PURCHASES		
Vehicles		
Toyota Hi-lux Double Cab	4 x 4 Petrol 2200cc 4 cylinder, 5-speed, double cab; fibre-glass cover on pick-up bed power steering	7
Mitsubishi Pajero Station Wagon	4 x 4 Petrol, 2.4 litre 4 cylinder 9 seater (3 rows of seats)	1
Toyota 7-ton Truck	6500 cc 6 cylinder diesel; steel body; drop sides and tailgate	1
Field Supplies		
Salter Hanging Scale	50 kg x 200 g	5
Salter Hanging Scale	10 kg x 20 g	5
Tubular Hanging Scales	25 kg x 250 g	10
Tubular Hanging Scales	500 g x 5 g	10
Ohaus Electronic Balance	3000 g; readability 1 g	2
Ohaus Electronic Balance	1500 g; readability 0.1 g	1
Ohaus Electronic Bench Scale	50 kg; readability 0.1 kg	1
Keson 60 m Tape	Plastic with wheel/arm	5
Keson 100 m Tape	Plastic with wheel/arm	5
Steel Vernier Calipers	Steel to 120-150 mm capacity	5
Soil Auger Heavy Duty for Hard Clays	Cross handle; mud and sand augers 2.25" diam.; hammer attachment	2 sets
Whirl-pak soil/plant sample bags	8-12 oz plastic with twist-tie	2000
Tyvek soil/plant sample bags	5" x 7"	500
Tru-Check Rain Gauge	Plastic, direct-reading	10
Corona Hi-Tork Lopper	Pruning loppers	10
Sunto Clinometer	Pocket type with case	2
Sunto Compass	Pocket type with case	2
Tree Germplasm		
Various species for propagation and ADD & village seed orchards	Central/South America Tree Seed Tested Successfully but unavailable in Malawi	200 kg

APPENDIX 1: OFF-SHORE AND LOCAL AGROFORESTRY EQUIPMENT/SUPPLIES UNDER ASAP

Item Description	Specifications	Quantity
Computer Equipment/Supplies		
Desktop 486 Computer	220 v; 50 MHz; 30387 Co-Processor 200 MB Hard-disk with tape back-up 5.25" & 3.5" Drives; 8 MB RAM EGA Monitor, Mouse, pad, & covers	1
Desktop 386 Computer	220 v; 30 MHz; 100 MB Hardisk 5.25" & 3.5" Drives; 4 MB RAM EGA Monitor, Mouse, pad, & covers	2
386 Notebook Computer (e.g Everex, Dell, Zeos)	25 Mhz; Co-processor; 60 MB Hardisk 1.44 MB Drive; VGA Display; 4 MB RAM Dual Voltage; Rechargeable Battery, Carry Bag	1
HP Laser IV Printer	4MB memory + font cartridges 5 spare ink & toner cartridges; dust cover	1
Cannon Bubble-Jet BJ-10ex	Inkjet Portable Printer AC Dual Voltage NiCAD Battery; Sheet Feeder	2
UPS data saver	220 v; 500-1000 watt capacity un-interruptable power supply	2
Computer Software		
Wordperfect 5.1 for Windows	Wordprocessing	3
Microsoft Excel 4.0 for Windows	Spreadsheet	3
Harvard Graphics 3.0	Integrated graphics	3
Aldus Page Maker 4.0	Desktop publishing	1
Windows 3.1	Multiple-Tasking	3
Dos 5.0	Operating System	3
Norton Utilities for Windows	Problem solving & file management	3
Genstat (latest version)	Statistical analysis	1
Stacker	Disk Storage Optimizer	1
SPANS	Model for Soil Erosion Assessment	1
Office Equipment/Supplies		
Solar Calculators	Pocket Size for Field Use	6
Diskette Trays	50-80 capacity	2
Diskettes (10/box)	High density (3.5" & 5.24")	15
Computer & Disk Cleaning Kit		2
Paper Cutter	12"-15" blade	1

APPENDIX 1: OFF-SHORE AND LOCAL AGROFORESTRY EQUIPMENT/SUPPLIES UNDER ASAP

tity

Item Description	Specifications	Quantity
Audio-Visual Equipment/Supplies		
35 mm camera with 28-90 zoom lens	Fully automatic	1
Slide projector	Kodak Type, variable voltage	1
Overhead Projector	Portable, brief-case size/fold out	1
Cam-recorder and accessories	To be specified by EAB	8
VCRs and Monitors for the ADDs	To be specified by EAB	6
Desktop software	To be specified by EAB	
Computer Upgrades of EAB facilities	To be specified by EAB	
Graphic/Printing Supplies	To be specified by EAB	
Slide and print film	To be specified by EAB	
Video Tapes and other supplies	To be specified by EAB	
Erase Board/Easel		2
Dry-Erase Color Markers		2 sets
Expo Kit		2 sets
Scientific Instruments		
Constant Temp. Water Bath	25-30 liter, with temperature control & lid for tree seed scarification	2
Large Capacity Drying Oven	220 volts; drying of plant and soil samples	1
Li-Cor LAi-2000 Plant Canopy Analyser and associated accessories	Rapid, non-destructive measurement of plant canopies and leaf area indices of whole plants	1
Digi-Sense Type K Thermocouple Thermometer with Psychrometer Probe	Field measurement of leaf and air temperature and relative humidity.	1

APPENDIX 1: OFF-SHORE AND LOCAL AGROFORESTRY EQUIPMENT/SUPPLIES UNDER ASAP

Item Description	Specifications	Quantity
LOCAL PURCHASES		
Office Equipment/Supplies		
Office Furniture: desks, chairs, shelves, file cabinets	Standard GOM Specs	5 of each
Computer/stationary/photocopy supplies and services	Local businesses	various
Electric typewriter	Xerox or Olivetti	1
Tele-Fax Machine	Service capabilities available in Malawi Compatible with existing MOA systems	1
Photocopier	Gestetner/Nashua 8115 15 cpm; Zoom (50-200%) Variable paper size (A3 to A6)	1
Village Nurseries (1-3/pilot site)		
Community Seed/Grass Orchards		
Local Tree Seed	Various species/quantites	500 kg
Bicycles	Extension field staff use	15
Construction materials for shallow wells	Nursery/Orchard Water Supply	10 sets
Hoes, slashers, pangas	Nursery site preparation	50 each
Grass Thatching for cover and fencing	Nursery site preparation	200 bundles
Planting-tubes	Raising tree seedlings	1 million
Watering Cans	Watering tree seedlings	30
Hose pipes and fittings	Watering tree seedlings	20
Wheel Barrows	Transporting nursery soil/seedlings	20
Tree Seed	Species appropriate to identified interventions	200 kg
Steel Buckets	Water transport; yield measurements	30
Plastic containers	Seed collection/storage	100
Jumbo Bags	Plant samples	10,000
String	Various functions	50 rolls
Rope	Various functions	200 m
Pruning Knives	Pruning hedges/trees	1000
Hessian/Produ-sak Bags	Multiple functions	2000

APPENDIX 2: TERMS OF REFERENCE FOR DESIGN TEAM AND SHORT-TERM CONSULTANTS

The in-country design team will consist of specialists in socio-economics (team leader), agricultural extension (crops and livestock), land-use planning and conservation, forestry, and agroforestry. Short-term external consultants/resource people are proposed to assist in agroforestry D&D methodologies, and for developing comprehensive plans for (a) an extension training program in agroforestry, (b) an effective extension delivery system for agroforestry technologies with associated logistics/inputs, and (c) monitoring and evaluating project management, impacts and progress. Details on team qualifications and responsibilities are outlined in Appendices 3 and 4.

Specific Tasks to be Performed by Design Team and Consultants:

- **Task 1: Community/Site Characteristics and Needs Assessment (Design Team)**
- **Task 2: Needs Assessment in Relation to Agroforestry (Design Team)**
- **Task 3: Agroforestry Extension Methods and Communication Techniques (Consultants)**
- **Task 4: Human Resource Development and Training (Consultants)**
- **Task 5: Production of Agroforestry Training Materials (Consultants)**
- **Task 6: Monitoring and Evaluation (Consultants)**
- **Task 7: Institutional Linkages and Collaboration (Design Team)**
- **Task 8: Project Objectives and Expected Outputs (Design Team)**
- **Task 9: Develop Detailed Project Management Plan (Design Team)**

APPENDIX 3: COMPOSITION AND SCOPES OF WORK FOR IN-COUNTRY DESIGN TEAM

General Qualifications and Responsibilities of Team

All candidates for the team should have extensive working experience in agricultural or natural resource-related fields in Malawi with a thorough knowledge of (a) smallholder farming systems and major problems affecting sustained productivity of agriculture and the natural resource base, (b) the structure, organization, and function of the MOA and MFNR, and (c) rapid rural appraisal techniques and/or diagnosis and design (D&D) methodologies. In addition, candidates should possess good inter-personal and communication skills, along with demonstrated abilities to write clearly and concisely.

Each team member will participate in all the tasks specified, though leadership roles will vary according to the specialized skills involved. Qualifications and specialized responsibilities of each team member are detailed below. The team leader will ultimately be accountable for all tasks.

Team Leader and Socio-Economist

Qualifications: The candidate must have demonstrated leadership qualities and possess a Ph.D in rural sociology or agricultural economics, with extensive work experience in Malawi smallholder farming systems. A sound base is essential in the theory and practice of developing and conducting rapid rural appraisal and/or D&D techniques.

Specialized Responsibilities: The socio-economist will be responsible for coordinating Tasks 1 and 2 with input from other team members. As team leader, the person will also be accountable for Tasks 3, 4, 6, 7, 8, and 9. He/she will organize, coordinate, and guide all the team's activities according to the specified tasks and timeframe in a manner that encourages good team work and individual participation. The team leader will ultimately be responsible for submitting a complete final report to the Technical Steering Committee by the specified deadline.

Agricultural Extension Specialist

Qualifications: The candidate should hold at least a BS degree in an agricultural field with 5-10 years of work experience in agricultural extension in the Ministry of Agriculture. The candidate must have a sound understanding of (a) the government extension service system, and (b) crop and livestock farming activities and constraints under Malawi smallholder conditions.

Specialized Responsibilities: The extension specialist, in conjunction with short-term external assistance as available, will provide leadership in Tasks 3 and 4 to help integrate an effective delivery and training system for agroforestry technologies which builds upon the existing government framework. He/she will also assist in designing the RRA or D&D process related to smallholder crop and livestock activities and constraints.

Land-use Planner and Soil Conservationist

Qualifications: The candidate should hold at least a BS degree in a natural resource field with strong work experience in land-use planning and/or soil conservation under the Ministry of Agriculture. A good appreciation of natural resource degradation problems, causes, and potential solutions in relation to soils and vegetation is required on a country-wide basis.

Specialized Responsibilities: The land-use planner/soil conservationist will provide active input in the RRA or D&D process of Tasks 1 and 2 focusing on problems of natural resource degradation and potential solutions in relation to land-use practices. He/she should also have a thorough knowledge of the government structure for developing and extending resource conservation practices to farmers and/or village communities.

Agroforestry Specialist

Qualifications: The candidate should hold an MS degree in a field directly related to agroforestry. He/she should have extensive working experience in agroforestry practices and technologies under Malawi conditions.

Specialized Responsibilities: The agroforestry specialist will contribute actively to the D&D process of Task 1, and especially in Task 2 involving needs assessments in terms of agroforestry potentials. He/she will also provide necessary technical details regarding specific technologies, particularly as they relate to Tasks 3, 4, and 5 (the latter for next season). The agroforester and land-use planner will work particularly close together.

Forestry Specialist

Qualifications: The candidate should hold an MS degree in a relevant forestry discipline. He/she should have extensive working experience in forestry practices and activities under Malawi conditions.

Specialized Responsibilities: The forestry specialist will contribute actively to the D&D process of Task 1, and of Task 2 involving needs assessments in terms of forestry and agroforestry potentials, nursery planning and organization, tree germplasm acquisition and availability, and problems of deforestation and wood shortages for fuel and building needs. He/she will also provide necessary technical details regarding the structure, support services and related programmes of the Forestry Department which can be integrated as a complementary component of the Agroforestry Extension Project.

APPENDIX 4: SHORT-TERM CONSULTANTS WITH SCOPES OF WORK

Agroforestry Extension Training Specialist

Qualifications: Ph.D in extension, communication, adult education, or other relevant field. Extensive working experience with agriculture/forestry extension in developing countries is essential, along with skills in developing training materials, ability to work collaboratively with host-country colleagues, and understanding of gender-related roles of farmers in Malawi.

Scope of Work

The overall workplan of the extension training specialist will be to develop a comprehensive plan for training extension staff at all levels, as well as farmers/communities, in the use of research-based agroforestry technologies and appropriate extension methods for farmer support. In collaboration with the in-country design team and other external support personnel, specific tasks will be:

1. Meet with agroforestry researchers, DOA/ADD extension staff, EAB, and the Agricultural Training Branch (ATB) to determine expectations, needs, planning currently in progress, and AF training already being conducted.
2. Develop a plan for extension worker and farmer training consistent with the system/approaches used by the MOA/MFNR and seasonal factors. The plan should include:
 - (a) needs assessment/training objectives; (b) location/facilities; (c) scheduling; (d) budget/funding; (e) acquisition/development of training materials; (f) trainer identification and training; (g) target audience identification; (h) monitoring/evaluation criteria and procedures; (i) equipment and other support needs; (j) publicity and notification of training; (k) and implementation responsibilities.
3. Initiate work on acquiring/developing appropriate training materials on agroforestry, including a draft of an agroforestry extension brochure for nationwide distribution, and for use in training sessions.

Duration of Work: 5 weeks beginning June 1, 1992

Reporting: Preliminary report submitted with briefing to MOA before departure. Final report to be submitted 30 days after completing the assignment.

Logistical: The MOA will provide a counterpart from the DOA. The MARE Project will provide the consultant international travel, work costs, and per diem allowances. A vehicle will also be provided by the MARE project for the consultant and counterpart for local travel.

Diagnosis and Design (D & D) Specialist

Qualifications: Ph.D in rural sociology, agricultural economics, extension, or other relevant field. Candidate must have extensive knowledge in developing and conducting appropriate rapid rural appraisal or diagnosis/design methodologies, with a good understanding of how to incorporate gender-related differences among farmers in Malawi. Knowledge of methods used successfully in agroforestry projects is desirable. Extensive experience with agriculture or forestry extension in Africa is also essential, along with ability to work collaboratively with host-country colleagues.

Scope of Work

In collaboration with the in-country design team, particularly the Team Leader and agroforester, as well as other external support personnel, the D & D Specialist will assist in Tasks 1 and 2, namely assessing the community/site characteristics and needs/potentials related to agroforestry interventions. Specific tasks will be to:

- a. Describe the farming, socio-economic, and ecological characteristics of the each targeted community and site. Specifically include existing agroforestry trees and practices (both traditional and improved) used by farmers.
- b. Assess and diagnose priority farmer needs, problems and trends related to improved crop and animal productivity and sustainability, food security, income generation, diversification of food and cash crops, and the status of the natural resource base in terms of soils and vegetative cover.
- c. Pre-test the methodology developed in one pilot site, and refine as necessary.
- d. Provide a training plan for enumerators to collect data for each pilot site.
- e. Develop and institute a systematic procedure to evaluate the potential and comparative advantages of agroforestry interventions and best-bet options for different problems and areas/populations based on the above results.
- f. Develop a plan to assess the willingness, ability, and organizational structure and leadership of farmers to undertake agroforestry interventions in a self-sufficient, community-based approach.

Duration of Work: 2 weeks beginning June 1, 1992

Reporting: Preliminary report submitted with briefing to MOA before departure. Final report to be submitted 30 days after completing the assignment.

Logistical: The MARE Project will provide local travel costs, and allowances for subsistence and accomodation. A vehicle will be provided by the MARE project to be shared with other short-term consultants.

Monitoring and Evaluation Specialist

Qualifications: Ph.D in agricultural economics, or other relevant field. Candidate must have extensive experience in developing and conducting appropriate monitoring and evaluation plans for agricultural or forestry rural development projects in Africa. These plans must be simple and cost-efficient, yet useful and effective for monitoring/evaluating project management, progress, and impacts. The candidate must also have proven ability to work collaboratively with host-country colleagues.

Scope of Work

In collaboration with the in-country design team, particularly the Team Leader and other external personnel, the Monitoring and Evaluation (M & E) Specialist will take leadership responsibility for Task 6, namely the design of a monitoring and evaluation plan as an integral feedback information system with the aim of (a) supporting the management, training, and extension system components of the project, and (b) assessing project impacts and progress related to specified objectives and outputs.

M and E activities designed must be effective, simple, and above all, realistic given the resources available. Indicators of impact and progress will be developed along with methods and tools for their measurement, focusing on the effectiveness, sustainability, and replicability of the following components with built-in feedback mechanisms to permit adaptation and change:

- a. training programme for both staff and farmers/communities
- b. project management structure and strategy
- c. technology establishment and management
- d. technology performance in relation to intended functions:
 - socio-economic welfare/status of households and community as a whole
 - crop and animal production
 - secondary tree products and services
 - food and fuelwood security
 - natural resources (soils, vegetation cover and composition, water)
- e. farmer/community attitudes and resources for technology adoption
- f. extension delivery models

Duration of Work: 2 weeks beginning last week of June, 1992

Reporting: Preliminary report submitted with briefing to MOA before departure. Final report to be submitted 30 days after completing the assignment.

Logistical: The MARE Project will provide local travel costs, and accomodation allowances. A vehicle will be provided by the MARE project.

Extension Communication Specialist

Qualifications: The extension communication specialist should hold an MS or Ph.D degree in an agricultural field with strong emphasis on extension. He/she should have demonstrated skills in extension methodologies and communication techniques, including knowledge of audio-visual aids and computer-generated messages, pamphlets, etc.. Good inter-personal skills are essential and ability to participate positively in a team approach.

Scope of Work: Within the design team and in close cooperation with other team members, the extension communication specialist will perform the following tasks:

1. Design effective communications strategies for information flow between the project team and targeted pilot communities utilizing existing channels of MOA with modifications and/or improvements to emphasize more direct community-based communications and interchange of ideas/experiences. Tailor these strategies to address gender differences in communications.
2. Identify/design communication methods and strategies; coordinate with training specialist for training needs of extension workers and other potential users.
3. Identify existing internal communications channels among various collaborating ministry departments and relevant donor projects, and the Agroforestry Extension Project; design strategies to enhance these channels.
4. Participate in the design and development of community-centered rapid rural appraisal (RRA) methodologies appropriate for improved information flow patterns/processes within and between pilot sites.
5. Design strategies to identify effective communication systems and leaders in the targeted communities; determine the most effective methods to utilize this resource in stimulating lateral information flow/dissemination (farmer to farmer, farmer to small group, within and between vilages, etc.)
6. Identify potential communications products to help increase the knowledge of agroforestry innovations among potential users; identify communications products needed to raise awareness of these AF innovations and their potential application among PVOs, NGOs, IARCs, and other potential collaborators.
7. Assess present capability in terms of staff and equipment to produce identified communications products; liaise with training specialist and other team members to address apparent deficiencies.

Duration of Work: 2-3 weeks beginning September 1st, 1992

Reporting: Preliminary report to MOA with briefing to Technical Steering Committee prior to departure. Final report submitted 30 days after assignment.

Logistical: Funding for travel, per diem and work provided under cooperative agreement between USAID and Washington State University. Office space and counterpart to be provided by MOA.

Video Production Specialist

Qualifications: The Video Production Specialist should hold a graduate degree in extension, communication, adult education or other field relevant to technical communication. Candidates should have extensive experience with the production of technical training videos. Preference will be given to candidates with video production experience in developing countries. The desired specialist should also have experience in agriculture, forestry, agroforestry, or a closely related field. Flexibility, and well developed inter-personal skills are a must for success in this assignment as it will involve continuous collaboration with technical and extension media personnel.

Scope of Work

Research-based agroforestry technologies are being recommended to farmers in a pilot-based programme under the Malawi Agroforestry Extension Project. This means that a large number of extension staff must be trained in the use of these technologies with appropriate extension methods in order to train and support farmers. A key component of the required training of extension staff will be short training videos on each recommended agroforestry technology (about 5 minutes each). The primary purpose of these videos will be to train field extension workers on research-proven agroforestry technologies which will enable them to better communicate these messages to farmers. The secondary purpose of the videos will be to increase awareness of agriculture, natural resources, and environmental issues in Malawi, and the potential role of agroforestry.

The primary target audience will be extension staff in the Ministry of Agriculture, Ministry of Forestry and Natural Resources, and NGO staff engaged in extending agroforestry technologies to resource-poor farmers. The secondary target audience will be policy makers, teachers, researchers, administrators, and donors. The videos will be a major product of this project, paving the way for increased public awareness about agroforestry and the transfer of necessary skills to farmers. As such, video production must be timely and of high quality.

All tasks involved with the production of the agroforestry video will be done in collaboration with the Extension Aids Branch Videography staff of the Ministry of Agriculture, and the Project Management Team. All planning, filming, editing, and post-production work will take place in Malawi using the facilities of the Extension Aids Branch.

Specific tasks to be performed are detailed below:

- Review all documents related to agroforestry to become familiar with the context of agroforestry development in Malawi.
- Meet with key staff from the Extension Aids Branch (EAB), Department of Agricultural Extension and Training, Agroforestry Research, and the Project Management Team to plan the development of the video. Among other things, this will involve inventorying the existing technologies, determining key messages, scripting, scheduling, and site selection.
- Conduct field visits to specified Agricultural Development Divisions (ADDs) and research stations in order to film agroforestry technologies at their different stages of operation, and the current state of the natural resource base.

- Perform all editing and post-production work.
- Test-screen the draft videos for extension officials, agroforestry researchers, and front-line extension workers. Adjust and edit as necessary.
- Coordinate with the team producing the other training materials to ensure complementarity and consistency of messages.

Duration of Assignment: Two months beginning in mid-late February 1993.

Location of Assignment: Lilongwe, Malawi, with travel required to project sites in different locations throughout Malawi.

Reporting: Weekly verbal progress reports to Project Management Team along with review of products in draft stages. A brief preliminary completion report along with completed training materials submitted to the Project Management Team 4 working days prior to departure. Final report to be submitted 30 days after completing assignment.

Logistics: Funding for travel, subsistence/accommodation, and all work performed provided under a cooperative agreement between USAID/Malawi and Washington State University. Office space and counterpart to be provided by the Ministry of Agriculture. Working space and resources of the Project Management Team will be available as needed.

APPENDIX 5: SUMMARY OF PILOT SITE CHARACTERISTICS

MZUZU ADD

Central Mzimba RDP: Machecheta Catchment

- a) Background - steep slopes, sparsely populated, large farms (2 ha/ff) and the soils are stony and of low inherent fertility. Farmers own an average 10-20 head of cattle.
- b) Problems - Inherently infertile soils of poor structure with aggravated problems of soil erosion and declining soil fertility; increasing deforestation, especially due to visoso slash/bum bush-fallow cultivation and increasing sedentary population.
- c) Crops - maize (hybrid + local), groundnuts, beans, and finger millet. Visoso crops, mainly millet is sometimes followed by other crops.
- d) Farmers organisation - a conservation committee exists.
- e) Work programmes - some limited pegging and construction of marker ridges started.
- f) Logistics - 'M1' road runs through the area. Field staff are based at Mzimba about 25 km from catchment.

Pros

Representative of the increasing erosion and deforestation associated with change from shifting to more permanent cultivation.

Little or no research or extension has been done with this system; potential for developing practices to prevent a serious problem before it becomes a reality.

Conservation committee exists with well organized farmers owning farms of 2-3 ha. Individual/community interest high due to more permanent nature of this evolving system.

Considerable livestock numbers with potential to improve farm diversification and productivity through AF interventions.

Some dimba gardens which could be extended and improved.

Good access by Lilongwe-Mzuzu road.

Cons

Problems of area may not be as urgent as other areas in the ADD due to low population though this is increasing, and trees still reasonably abundant but declining.

AG/FOR field staff 25 km from site.

KASUNGU ADD

Dowa West RDP: Chikwete Catchment

- a) Background - the area is approximately 1,100 ha with 600 ff. Mpanda Hills run through the area.
- b) Problems - deforestation, soil erosion, continuous cropping, declining soil fertility and lack of fuelwood.
- c) Crops - maize, soya beans, groundnuts and tobacco.
- d) Farmers organisation - a catchment conservation committee was set up in 1990/91 season but needs to be revived for the 1992/92 programme.
- e) Work programmes - in 1990/91 people were mobilised to plant trees on Mpanda hills, but because of some administrative problems the exercise was not carried out. In 1991/92, attempts were made to peg marker ridges in the area but because of the same problems, the work was not successful. The Regional Development Committee also visited the site in 1991/92. Agricultural staff in the RDP are well aware of the problems of this catchment. It is their priority area.
- f) Logistics - the 'M1' road runs through the area. Dowa West Project headquarters is on the periphery of the catchment. An FA extension is based on the site and a Forestry Assistant is based at the RDP headquarters.

Pros

Fairly representative of Dowa West area with small-medium farms, moderate-severe erosion, declining soil fertility, increasing deforestation and wood shortages, and limited use/access to farm inputs.

Conservation committee formed in 1990/91 but participation/leadership among the communities in LH and tree planting activities have not been below expectations. Some LH work attempted but above problems need to be resolved.

Good access by M1 and near to the RDP HQ with AG/FOR field staff.

Cons

Area and number of farm families too large to tackle all at once.

Access to ADD staff/resources could be a little difficult and requires careful planning.

Problems of community organization, interest, and participation in the types of activities needed in this project need to be addressed.

LILONGWE ADD

Ntcheu RDP: Kalitsiro/Chikhamwadza Catchment

- a) Background - this is part of the Chilobwe Hills area. In Kalitsiro Catchment there are 15 ha and 50 farm families involved. Extension to Chikhamwadza village will increase the area as well as farm families.
- b) Problems - soil erosion (steep slopes + continuous intercropping with maize as the dominant crop), declining soil fertility, and lack of fuelwood and fodder.
- c) Crops - maize, groundnuts, beans and cassava. Some dimba crops are grown in a perennial river running through the catchment.
- d) Farmers organisation - a catchment conservation committee exists in the area.
- e) Work programme - Late last year the Deputy Minister and the programme Manager addressed the people in the area on land degradation. 63 marker ridges were pegged and constructed and 2.0 ha of Napier were planted. A stall feeding programme is also planned. The area is just below a Forestry plantation and Forest Reserve but tree cutting by villagers is not permitted since the forests are there for conservation purposes.
- f) Logistics - the 'M1' road runs on the western side of the catchment. A Forestry Assistant, Forestry Guard, Agriculture Field Assistant and Veterinary Assistant are based within the area.

Pros

Some land husbandry work initiated last season with participation from farming community.

Pressing problems of erosion, steep hillside cultivation, small farm sizes, continuous cropping, deforestation, limited farm resources.

Problems aggravated by refugee population.

Forestry activities already prevalent with potential for expansion, improvement, and better integration with farm communities.

Very accessible and AG/FOR field staff present; problems and solutions to solve them will be highly visible.

Dimbas present with potential for improvement.

Stall-feeding of livestock proposed, offering potential to introduce AF species for improved animal nutrition/production.

Cons

Refugee population could confuse efforts.

Problems could be insurmountable due to the steepness of the terrain - the land-use classification would limit the area to forestry activities and grazing.

Dambo grazing is limited which restricts options for livestock production improvements and AF seedlings will need protection.

LIWONDE ADD

Mangochi RDP: Makapa/Mwatakata/Ngatala Catchment

- a) Background - the area is approximately 3,100 ha within the catchment of Lake Malombe. It has approximately 2000 ff (10,000 people). It is mountainous with slopes over 30% in places.
- b) Problems - soil erosion (steep slopes and poor conservation practices) deforestation and declining soil fertility.
- c) Crops - maize (mainly local variety), cassava, pigeon peas, cow peas, sweet potatoes, some tobacco.
- d) Farmers organisation - the area has 14 farmer clubs mainly for credit.
- e) Work programmes - awareness campaigns on land degradation have been made. Training environment has been conducted (March, 1992) and conservation activities will start this coming dry season. Some work was done at Mwatakata but because of lack of funds, little was achieved. This work will continue this coming season. There is a vetiver grass multiplication nursery at Mwawa village.
- f) Logistics - a class 'D' road passes through the area. A new EPA centre Mthilamanja is being built close to the catchment. Agricultural FA is based within the area. A Forestry Guard is based at Nasenga Retail Nursery site close-by.

Pros

Some conservation awareness campaigns conducted this year; vetiver nursery established fairly close to catchment.

Pressing problems of erosion, steep hillside cultivation, small farm sizes, continuous and expanding cultivation, deforestation, and limited farm resources represent the most severe case for AF and conservation efforts in the ADD.

Area is representative of a large area in LWADD, LADD, and SLADD.

AG/FOR field staff present.

Dimbas have potential for improvement.

Cons

Area is large with partly a settler population - need to evaluate commitment for staying and improving farms.

Land husbandry work started last year in or nearby the area was discontinued.

Conservation committees not yet formed.

Farmer clubs exist mainly for credit - could be incompatible with project approach.

Accessibility difficult; about 1 hour from LWADD HQ and RDP HQ; logistics need careful planning.

Impacts could be constrained by above issues.

NGABU ADD

Chikwawa RDP: Nsangwi Catchment

- a) Background - the area is approximately 150 ha with 80 ff. Land holding size averages from 0.8 to 1.0 ha.
- b) Problems - Soil erosion (deep gullies in places), shortage of grazing land, shortage of fuelwood, deforestation, declining soil fertility (poor soil structure).
- c) Crops - cotton, sorghum, maize (local), brush millet, pulses.
- d) Farmers organisation - village conservation committee was set up in 1990/91
- e) Work programmes - awareness campaigns were made in 1990/91 and pegging work was started on an area opposite the catchment, but soils not conducive to ridging. Also within the catchment is a trial site for the Development of Conservation Measures and messages Project.
- f) Logistics - FA for extension based within the catchment. Forestry Assistant is based at Ngabu. Dolo, Magoti and Ngabu Forestry Nurseries surround the catchment.

Pros

Representative of flat, treeless vertisol plains of the Shire Valley under continuous cultivation with cotton, sorghum, and millet; crops are often damaged by livestock and there is lack of grazing. Because of these problems, MPT species should be attractive to farmers for fruit, live fencing, fodder, shade, fuelwood and poles, windbreaks, and soil improvement/conservation.

Conservation committee set up in 1990/91. Awareness campaigns in 1990/91 with some LH work; also, the area contains a trial under the Development of Conservation Measures and Messages Project.

Very accessible from Ngabu-Nsanje road, with AG/FOR staff and 3 forestry nurseries nearby the catchment and at NADD HQ;

Cons

Soils of inherently high fertility may not respond to soil improving trees

Area may be part of the planned irrigation scheme in the next 10-15 years, hence affecting impact, interest and continuity

Reports of apparent unwillingness of farmers to grow trees in their farms.

