PD-AAR 669
ISN-41076

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MALAWI AGRICULTURAL RESEARCH AND EXTENSION

(612-0215)

PROJECT PAPER

USAID/MALAWI

1 PD-AAR-669

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

FROM: AFR/PD, Norman Cohen

SUBJECT: Malawi Agricultural Research and Extension Project (612-0215)

Problem: Your approval is required (i) to authorize $14 million in FY85 ARDN funds for the subject project, and (ii) to approve related procurement waivers.

Background: Malawi has a clear comparative advantage in agriculture as a result of its favorable endowment of fertile land, diverse topography, reliable rainfall, and stable work force. Agriculture, therefore, plays a central role in the country's development. Besides its importance in production of basic foods, it provides raw materials which fuel processing industries for export and import substitution. It also holds the greatest promise for employing the country's fast-growing labor force.

Within the agricultural sector, the smallholder subsector is the largest single group, accounting for the vast majority of domestic food production and 25% of total exports, and providing income for 85% of Malawian households. While this group has performed well in recent years in response to price incentives, it faces serious constraints in further increasing its production and incomes.

The most critical of these constraints is the smallholders' lack of access to improved farming technologies, which is in turn due to shortcomings in the Government's support services in agricultural research and extension. These include inadequate linkages between research and extension; excessive costs of agricultural support services as currently performed; shortage of skilled agricultural personnel; and an overburdened extension staff.

Project Description: The proposed project is designed to address the shortcomings identified above. It builds on the on-going AID Agricultural Research Project, which is funding improved research facilities, additional equipment, training, and streamlined research techniques in Malawi's traditional crops, including the establishment of an adaptive research approach. This follow-on project will extend these accomplishments by institutionalizing a mechanism for setting and implementing research priorities, developing multidisciplinary research capability for on-station and adaptive research teams, and provide additional funds for long-term training. The latter, in particular, has had a significant impact in improving Malawi's research capability under the earlier project.

This follow-on project is complemented by two World Bank (IDA) projects, which will be financing related activities in agricultural research and extension. All three projects were designed collaboratively so as to assure consistency in approach and to avoid duplication of efforts.

The purpose of the AID project is to improve the Ministry of Agriculture's (MOA) institutional capacity to increase the productivity of traditional crops and to identify the most viable crops for diversifying smallholder production. To accomplish this purpose, the project will finance three components:

Agricultural Training: This component will establish an institutional training system to enable MOA staff to develop new skills and to upgrade their present ones. Central to this system will be the development of a Training Unit within the MOA to be guided by a Training Advisory Committee.

Agricultural Research: This component will provide assistance to the MOA in: (i)developing a capability within the Department of Agricultural Research to undertake an economic, financial, and statistical analysis of crop production technology alternatives; (ii) strengthening five National Commodity Research Coordinating Units in horticulture, cereals, grains and legumes, livestock, and agricultural engineering and land husbandry; and (iii) establishing eight adaptive research teams to carry out on-farm research on priority crops and a national coordinating unit to provide administrative and management support to these teams.

Agricultural Extension: This component will strengthen the MOA's extension service by: (i) developing, testing and promoting the use of cost-effective mass communications approaches in technology transfer; (ii) establishing links with both applied and adaptive research programs; and (iii) responding to information needs of women smallholders. This component will support the research component by providing feedback from farmers to the research teams and will also support the training component by providing training personnel and assisting in development of training materials.

Total AID costs for the project are $14 million, broken down as follows: technical assistance, $4.9 million; training, $4.6 million; commodities, $0.5 million; other costs (administrative support, studies), $0.8 million; and contingencies, $3.1 million. These costs will be financed over a five-year life of project.

IDA contributions, which amount to $35.7 million, will finance assistance to strengthen agricultural research and extension planning, management, and budgeting systems, as well as facilities improvement and supplementary training activities. The total GOM contribution to both these projects is $33.1 million, which will finance on-going and incremental staff salaries and benefits, training support costs, equipment and vehicle operating and maintenance costs, and office space and other administrative support.

This project will be carried out by the MOA, under the policy and administrative guidance of a GOM Steering Committee which will be chaired by the MOA Permanent Secretary and will include a representative from the Ministry of Finance. The Steering Committee will oversee the AID project and both IDA projects, thereby assuring coordination of activities. Project monitoring will be

carried out jointly by USAID and IDA project officers.

The bulk of the project-funded technical assistance will be provided under a Title XII institutional contract. Contracting of technical advisors for the training component will, however, be carried out separately, through host country PSCs. Since these advisors will be playing a key role in coordinating the IDA-funded training activities, which are due to begin very shortly, they must be brought on board as soon as possible. Provision will be made in the Title XII contract, however, to fold these positions into that contract if that should prove expedient in the course of project implementation and if it can be done without relieving the contractor of responsibility for their performance.

In addition, the RFP for the T.A. contract will encourage joint enterprise arrangements which include the participation of Gray Amendment entities (i.e., minority and/or women-owned firms and minority universities).

Project-funded training activities in the U.S. will be carried out by S&T/IT, in collaboration with the GOM and the Mission who will identify and approve candidates. Third-country and in-country training will be coordinated and carried out by the MOA Training Unit.

With the exception of vehicles, all project-funded commodity procurement will be carried out by the Title XII contractor as part of its contract. Vehicles will be procured directly by the MOA.

The Project Committee has concluded from its review of the Project Paper that:

(1) the project approach is technically and economically sound, socially acceptable, and administratively feasible;

(2) the timing and funding of project activities are appropriate and the implementation plan is realistic; and

(3) sufficient provision has been made to ensure adequate monitoring and evaluation of the project.

ECPR Discussion: The ECPR of this project was held on June 3, 1985, chaired by DAA Larry Saiers. Key issues raised and discussed at the review concerned the statement of the project purpose, the proposed crop mix, and the contracting arrangments. There were no unresolved issues.

In addition, the ECPR reviewed whether the project--in particular its inclusion of horticulture--was consistent with the Bureau's regional research plan. Since the region's plan grew out of a strategic concern for increased food production, however, it was considered that this plan may not be suited to Malawi and other

surplus grain producers in southern Africa. In fact, given the difficulties Malawi and other producers have had in marketing their surplus grain, the research focus in these countries should reflect the growing need for diversification, especially into crops with export potential. The ECPR concluded that the inclusion of horticulture in this project was justified on these grounds.

It was also agreed at the ECPR that the proposed 11% allowance for price contingencies could not be justified on the basis of past inflation rates in the US. The allowance has been reduced to 7%, bringing the total AID costs down by approximately $1 million, to the new $14 million level.

Status of Pre-Authorization Actions: The Bureau's Environmental Officer has reviewed the project to ensure that the measures recommended in the IEE have been incorporated in the project. These measures included the preparation of pest management guidelines and an appropriate training program for local staff. These measures have been taken, and a covenant will be included in the grant agreement requiring GOM adherence to the agreed pest management guidelines. The Environmental Officer has accordingly approved the IEE, with GC/AFR concurrence.

Two procurement waivers are requested for this project. They include: (1) a waiver of competition and US source and origin requirements to permit single-source procurement from a Malawian supplier of reproduction equipment valued at $40,500 (Tab B); and (2) a waiver of US source and origin to permit Code 899 procurement of audio-visual equipment valued at $113,000 (Tab C). These waivers have been reviewed and approved by SER/COM.

Conditions precedent to disbursement for this project include: (1) the establishment of the Project Steering Committee as a condition of initial disbursement and; (2) the establishment and staffing of a Training Unit in the MOA as a condition of disbursement for training activities. In addition, as cited above, a covenant has been included to assure the GOM's adherence to agreed pest management guidelines.

The authorization incorporates these waivers and conditions, is attached for your signature at Tab A.

An Advice of Program Change was forwarded to Congress on June 14, 1985, with an expiration date of June 28, 1985.

There are no human rights issues in Malawi.

In all other respects, this project is ready for authorization.

The Mission project officer is Mr. Murl Baker. The AID/W backstop officer is Ms. Karen Nurick.

Recommendation: That you sign the attached project authorization (Tab A), approving the proposed $14 million Agricultural Research and Extension Project in Malawi and the procurement waivers described above.

Clearances: DAA, LSaiers
AFR/PD, LHausman
AFR/TR, CMartin
AFR/TR, GSteele(draft)
AFR/SA, LPompa 7/17/85
GC/AFR, MAKleinjan
AFR/DP, HJohnson

Draft:WStickel:ds:AFR/PD/SAP:07-9-85:wd#2179L

PROJECT AUTHORIZATION

Name of Country: Malawi

Name of Project: Agricultural Research and Extensic

Number of Project: 612-0215

1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Agricultural Research and Extension Project (the "Project") for Malawi (the "Cooperating Country"), involving planned obligations of not to exceed fourteen million United States dollars ($14,000,000) in grant funds over a three year period from date of authorization subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the Project. The planned life of the Project is five years and three months from the date of initial obligation, except as A.I.D. otherwise agrees in writing.

2. The Project consists of assistance to improve the Ministry of Agriculture's capacity to increase productivity of traditional crops and to identify the most viable crops for diversifying smallholder production.

3. The Project Agreement which may be negotiated and executed by the officer(s) to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate:

4a. Source and Origin of Commodities, Nationality of Services.

Commodities financed by A.I.D. under the Project shall have their source and origin in Malawi or in countries included in A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services shall have Malawi or countries included in A.I.D. Geographic Code 941 as their place of nationality, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the Project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of Malawi or countries included in A.I.D. Geographic Code 941.

4b. Conditions Precedent

(i) Condition Precedent to First Disbursement. Prior to the first disbursement under the Grant, or to the issuance by A.I.D. of documentation pursuant to which such disbursement will be made, the Grantee shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., evidence that a Project Steering Committee has been established, which will be used to guide and coordinate the activities of the Project and the two related IDA projects. This Steering Committee is essential to the successful implementation of the Project.

(ii) Condition Precedent to Disbursement for Training. Prior to disbursement under the Grant for training, or to the issuance by A.I.D. of documentation pursuant to which such disbursement will be made, the Grantee shall, except as A.I.D. may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., evidence that a Ministry of Agriculture Training Unit under the supervision of the Controller for Agricultural Services (NRDP) has been established and staffed.

4c. Covenants. The Grantee shall, except as A.I.D. may otherwise agree in writing, covenant that:

(i) It will provide on a timely basis all personnel required for implementation of the Project.

(ii) It will assure that all vehicles and equipment procured for the Project will be used exclusively for the Project and that usage will be carefully monitored and controlled under a Plan to be agreed upon with A.I.D.

(iii) It will ensure that all Malawians who receive long term training under the Project return to work directly in Project activities for at least two years for every year of training provided.

(iv) It will provide the required Government of Malawi contribution for the local currency costs of the Project in a timely manner, as outlined in the Budget Table of the Project Paper.

(v) It will provide the recurrent costs for continuation of the activities of the Project after the Project Assistance Completion Date (PACD).

(vi) It will adhere to the Government of Malawi's Pest Management Guidelines, as concurred in by A.I.D.

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4d. Waivers.

(i) I hereby approve a source/origin waiver to A.I.D. Geographic Code 935 in an amount of approximately $113,000, for the procurement of equipment for multi-media audio-visual production, based on the justification contained in Section 8.0 of the project paper.

(ii) I hereby approve a source/origin waiver to A.I.D. Geographic Code 935, and approve sole source negotiation with the Gestetner dealer in Malawi, for the procurement of mimeograph machines and electronic scanners, in an amount of approximately $40,000, based on the justification contained in Section 8.0 of the project paper.

Mark L. Edelman
Assistant Administrator
Bureau for Africa

7-18-85
Date

Clearances:

DAA/AFR:ELSaiers		Date
AFR/DP:HJohnson		Date 7/16/85
AFR/PD:NCohen		Date 7/17/85
AFR/PD/SAP:WStickel		Date 7/17/85
AFR/SAP:RCarlson		Date 7/17/85
AFR/TR/ARD:CMartin/GSteele		Date 7/16/85
AFR/CONT:DFBrown		Date

GC/AFR:MAKleinjan:06/10/85:632-3808:aft:1100H

PROJECT PAPER FACESHEET

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete)

Amendment Number

DOCUMENT CODE: 3

COUNTRY/ENTITY: Malawi

3. PROJECT NUMBER: 612-0215

4. BUREAU/OFFICE: USAID/MALAWI 06

5. PROJECT TITLE (maximum 40 characters): MALAWI AG. RESEARCH AND EXTENSION

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 09 DD 30 YY 91

7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4)

A. Initial FY 85 B. Quarter 4 C. Final FY 87

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY 84 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total	1217	428	1645	10568	3432	14000
(Grant)	( )	( )	( )	(–)	(–)	(
(Loan)	( )	( )	( )	(–)	(–)	(
Other U.S. 1. Private Sector (U.S.)				–	–	
Other U.S. 2.				–	–	
Host Country	–	2154	2154	–	33057	33057
Other Donors: FRG	408	192	600	24379	11321	35700
TOTALS	1625	2774	4399	35532	48225	82757

9. SCHEDULE OF AID FUNDING ($000)

A. APPRO PRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
(1) 103	140	241		-0-		14000		14000	
(2)									
(3)									
(4)									
TOTALS				-0-		14000			

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

968 | 740 | 630 | 251

11. SECONDARY PURPOSE CODE: 250

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code	BSW	RIAG	NUTR	PART	TECH	TNG	XII
B. Amount	15,000	2,838	2,500	1,250	14000	2,000	4,000

13. PROJECT PURPOSE (maximum 480 characters)

To improve the MOA's institutional capacity to increase productivity of traditional crops and to identify the most viable crops for diversifying small holder production.

14. SCHEDULED EVALUATIONS

Interim MM 06 YY 88 | MM YY | Final MM 06 YY 90

15. SOURCE/ORIGIN OF GOODS AND SERVICES

☒ 000 ☒ 941 ☒ Local ☐ Other (Specify) 899

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a ____ page PP Amendment.)

17. APPROVED BY: Sheldon W. Cole

Title: AID Representative to Malawi

Date Signed: MM DD YY

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

0.0 SUMMARY AND RECOMMENDATIONS

0.1 Responsibilities

A. Grantee

The Grantee for the Project will be the Government of Mala

B Implementing Agency

The primary implementing agency will be the Ministry of Agriculture.

0.2 Recommendations and Sources and Uses of Funds

Authorization of a grant in the amount of $14,000,000 over a five-year period commencing July 1985 to the Government of Malawi for the Malawi Agricultural Research and Extension (MARE) Project. This Project will provide parallel financing to complement the IDA's National Agricultural Research Project and Agricultural Extension and Planning Support Project which, together, represent an investment of $35,700,000. The GOM contribution to the combined AID/IDA program is $33,057,000, representing 43% of the total Project costs. The table detailing the sources and uses of funds is presented in Section 4.0 of this Project Paper.

0.3 Purpose of the Project

The purpose of the Project is to improve the MOA's institutional capacity to increase the productivity of traditional crops and to identify the most viable crops for diversifying smallholder production.

0.4 Background to the Project

The Malawi Agricultural Research and Extension Project is part of a comprehensive policy reform effort and an integrated agricultural program assistance initiative supported by the IMF, the World Bank, AID, ODA, EEC and other donors. It aims to assist GOM institutions perform key agricultural functions more efficiently and effectively to promote smallholder development.

The MARE Project will be implemented as a cooperative effort with two IDA financed projects - the National Agricultural Research Project and the Agricultural Extension and Planning Support Project. Taken together, these three projects represent a comprehensive development effort aimed at improving the services and cost-effectiveness of the Ministry of Agriculture.

Finally, the activities selected for the Project build upon previous USAID investments in Malawi's agricultural sector, namely, the on-going Agricultural Research Project and the Bunda Agricultural College Project.

0.5 Description of the Project

The MARE Project will: (1) establish an institutionalized staff training program within the MOA; (2) provide support for both applied research and

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adaptive research activities which, together, can produce appropriate technologies for smallholders; and, (3) strengthen the extension system both in terms of its linkages with research and its ability to disseminate information.

Accordingly, the Project is structured into three separate, but mutually supportive components which correspond to these aims: a Training Component, a Research Component, and an Extension Component. The Training Component is the center of the Project activities and will provide the technical skills for improving: (1) the activities of the two other components; (2) the management expertise to keep the operations of the MOA running in an efficient, coordinated, and cost-effective manner; and, (3) the long-term institutional development which will enable the GOM to independently guide its agricultural sector. The Research Component is critical in terms of improving existing agricultural technologies and developing new ones which will improve the productivity, and ultimately the incomes, of smallholders. The Extension Component is expected to help the Extension Service to transfer improved agricultural technologies more effectively to a greater number of farmers. Through each of these components, the Project will encourage more focused attention on measures to improve agricultural services to women smallholders. Linkages between the three components are extremely important and these are highlighted in the Project Description.

At the end of the Project, the following results are expected:

- Fully operational research and extension staff training program established
- Agricultural Research Council specifying priorities for research and allocating funds according to these priorities
- Eight Adaptive Research Teams established and capable of using technologies from the Commodity Research Teams
- Five National Commodity Research Coordinating Units (NCRCUs) undertaking research on priority traditional and non-traditional crops
- Extension institutions modified to be more effective in transferring technologies to a greater number of smallholders
- Women's Program Section strengthened to increase participation of women in agricultural research, extension, and training activities

Project inputs include:

- 27 person-years of long-term technical assistance
- 99 person-months of short-term technical assistance
- 102 person-years of long-term off-shore training
- 89 person-months of short-term off-shore training
- 4000 person-months of short-term in-country training
- $532,000 of commodity support

0.6 Summary Findings

The Design Team has examined the technical, financial, and economic implications of the Project's activities and each one has been found to be technically, economically, and financially sound.

The technical analyses demonstrate that the respective training, research, and extension strategies supported by the Project are inherently sound and that the individual activities proposed have sufficient technical assistance, commodities, and training support to achieve the objectives set for the Project.

The economic analysis has examined the incremental costs and expected benefits of both the MARE Project and the two IDA-financed projects. Various combinations of increases in the productivity of smallholder crops, increases in adoption rates for improved technologies, and estimated efficiency savings in the MOA operations were tested to determine the level of incremental benefits needed to justify project-related investments. From among the scenarios tested, the most realistic and easily achievable involved: (1) a 15% adoption rate of technology which would increase maize yields by an average of 1 MT per hectare by 1995; (2) generation of savings of MK 545,000 per annum by 1989 through the consolidation of DAR's research stations; and, (3) generation of savings amounting to almost 1% of DOA's 1984/85 budget by 1990. These targets are achievable, and assuming they are sustained, the MARE and IDA-funded Projects will have paid for themselves by the year 2001.

The financial analysis has concluded that: (1) the proposed Project financing plan is realistic; (2) the GOM financial management system is capable of administering the large levels of both AID and IDA resources; and, (3) the likelihood that the GOM will be able to meet the recurrent costs generated by AID/IDA activities is high.

0.7 Project Issues

Joint financing arrangements with the IDA expose the MARE Project to limited risk in achieving its targets especially with respect to the agricultural research activities. How can these risks be minimized?

The Project design has incorporated activities which are solely financed by the MARE Project. For instance, all the training activities proposed by the Project could go forward independently of IDA financing. The same is true of both the agricultural communications and the womens' activities. In research however, the objectives of the Project are exposed to two obvious risks: (1) if IDA financing is delayed, the re-organization of the DAR, including the movements of staff, will fall behind schedule and disrupt proposed MARE activities to start new research units and assist the on-going programs; and, (2) the training and technical assistance provided to the Adaptive Research Teams are dependent upon IDA financing the operating costs of the ARTs.

Are the types and levels of training proposed by the Project appropriate?

Training offers the greatest opportunities for enabling Malawi to adequately address the long-term problems associated with developing improved smallholder technologies, and to establish working links between research and extension services. Two types of training are emphasized in the Project: long-term graduate training in the US and in-country, in-service training. With respect to the first category, training funds are primarily used to provide graduate US training to senior DAR research staff. This approach has proven extremely

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successful in the on-going research project, and is included in the MARE Project as part of a planned DAR manpower development program extending out through the remainder of the century. The second type of training-- in-country, in-service training-- addresses the need to orient MOA training more towards using in-country resources for local training. This type of training is critical in terms of: (1) sustainability; (2) its ability to serve the needs of the large numbers of MOA staff whose skills must be maintained; and, (3) integrating research and extension staff at all levels of the MOA organization in a way that focuses their attention on the problems of smallholders.

0.8 Consideration of Small, Disadvantaged, and Women-Owned Firms

Given the size and institutional nature (particularly the research activities) of the MARE Project, it is not feasible to contract solely with small and disadvantaged businesses or those targeted for special consideration under the Gray Amendment. Moreover, to be effective the number of management units for the Project must be kept to a minimum. The overall implementation of the Project will be best served by using Host Country contracting for the Training Component (except for the US-based training) and a Title XII Institution for the Research and Extension Components. Bidders for the institutional contract will be encouraged to consider sub-contracting arrangements with small and disadvantaged businesses, or those targeted for special consideration under the Gray Amendment for selected project activities.

0.9 Waivers and Approvals

The following waivers and approvals are required:

A. Procurement source and origin waiver from AID Geographic Code 941 (Selected Free World) and the Cooperating Country to Geographic Code 935 (Special Free World) for procurement of audio-visual equipment estimated to cost $113,000.

B. Procurement source/origin waiver and approval to negotiate with a single source for the procurement of nine mimeograph machines and nine electronic scanners (stencil maker) estimated to cost $40,500.

0.10 Major Conditions Precedent

The conditions precedent to disbursement in this Project are detailed in the Draft Project Authorization. The most important of these are:

A. The GOM will establish a Project Steering Committee prior to the first disbursement of funds which will be used to guide and coordinate the activities of the USAID/MARE Project and the two IDA Projects. This Steering Committee is essential to the successful implementation of the Project.

B. The GOM will establish and staff a MOA Training Unit under the supervision of the Controller for Agricultural Services (NRDP), prior to any disbursement of training funds.

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0.11 Covenants

The major covenants, which are included in the Draft Project Authorization, are as follows:

A. The Cooperating Country shall provide on a timely basis all personnel required for the implementation of the Project.

B. The Cooperating Country shall assure that all vehicles and equipment procured for the Project will be used exclusively for the Project and that usage shall be carefully monitored and controlled under a Plan to be agreed with AID.

C. The GOM will furnish, in writing, an agreement that all Malawians who are provided long-term training under the Project will return to work directly in the Project activities for a period of not less than two years for every year of training provided, unless AID otherwise agrees in writing.

D. The Cooperating Country shall provide the required Government of Malawi contribution for the local currency costs of the Project in a timely manner, as outlined in the Budget Table of this Project Paper.

E. The Cooperating Country will undertake to provide the recurrent costs for the continuation of the activities of the Project after the Project Assistance Completion Date (PACD).

F. The Cooperating Country will adhere to the Pest Management Guidelines established for the Project.

0.12 Government of Malawi Contributors

Mr. Lyson Muwila, Controller of Agricultural Services, MOA
Mr. Francis Kangaude, Chief Agricultural Officer, DOA/MOA
Dr. Henry Mwandemere, Chief Agricultural Research Officer, DAR/MOA
Mr. Njolwa, Chief Planning Officer, Planning Division, MOA
Mr. Chimponda, Extension Aids Divisions, DOA, MOA
Mr. Mitawa, Crop Specialist, DOA, MOA
Mrs. Chibwana, Women's Program Officer, DOA/MOA

0.13 Project Design Team

Bill Jeffers, Project Officer, REDSO/ESA, Team Leader
Keith Byergo, Agricultural Research Specialist, Consultant
Howard Ray, Agricultural Communications Specialist, Consultant
George Hull, Extension and Training Specialist, Consultant
Gloria Steele, Agricultural Economist, AID/Washington
Carolyn Barnes, Social Scientist, REDSO/ESA
Nancy Zahedi, Women's Specialist, Consultant
Jim Seyler, Forester, REDSO/ESA
Jamilla Osman, Pat Nicholls and Vicky Simons, Typing and Editing

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CHART 1: MALAWI AGRICULTURAL RESEARCH AND EXTENSION PROJECT

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GLOSSARY

ACAO	-	Assistant Chief Agricultural Officer
ADD	-	Agricultural Development Division
ADMARC	-	Agricultural Development and Marketing Corporation
AGREDAT	-	Agricultural Economics and Data Unit
AR	-	Adaptive Research
ART	-	Adaptive Research Team
BES	-	Block Extension System
BIFAD	-	Board for International Food & Agricultural Development
CAO	-	Chief Agricultural Officer (Extension)
CARO	-	Chief Agricultural Research Officer
CAS	-	Controller of Agricultural Services
CTO	-	Chief Technical Officer
DAR	-	Department of Agricultural Research
DCAO	-	Deputy Chief Agricultural Officer
DOA	-	Department of Agriculture
DTC	-	Day Training Center
EAB	-	Extension Aids Branch
EARSA	-	Regional Mission for Eastern and Southern Africa (IBRD)
EAU	-	Extension Aids Unit
EPA	-	Extension Planning Unit
FHA	-	Farm House Assistant
GDP	-	Gross Domestic Presentation
GOM	-	Government of Malawi
HC	-	Host Country
IDA	-	International Development Association
MOA	-	Ministry of Agriculture
NRC	-	Natural Resources College
NRDP	-	National Rural Development Program
NSCM	-	National Seed Company of Malawi
ODA	-	Overseas Development Administration (UK)
OPC	-	Office of President and Cabinet
PACD	-	Project Assistance Completion Date
PD	-	Planning Department
PIL	-	Project Implementation Letter
PM	-	Person-Months
PO	-	Professional Officer
PS	-	Principal Secretary
PSC	-	Public Service Commission
PW	-	Person-Weeks
PY	-	Person-Years
RDP	-	Rural Development Project
RTC	-	Residential Training Center
SAL	-	Structural Adjustment Loan
SAO	-	Senior Administrative Officer
SMS	-	Subject Matter Specialist (Extension)
STA	-	Senior Technical Assistant
STO	-	Senior Technical Officer
TA	-	Technical Assistant
TO	-	Technical Officer
TOT	-	Training of Trainers
T&V	-	Training and Visit System
USAID	-	United States Agency for International Development

1.0 MALAWI -- THE COUNTRY

1.1 Project Setting

Malawi is a land-locked country located in Southern Africa. The total land area of the country is 45,750 square miles, which is considerably smaller than most of its nearest neighbors (Zambia, Tanzania, and Mozambique). The area includes 36,325 square miles of land and 9,425 square miles of water, the latter consisting of Lake Malawi (Africa's third largest lake) and several smaller lakes. The country's diverse topography is dominated by rolling plateaus and eroded escarpments. Rainfall is fairly reliable, ranging from 30 to 60 inches annually in most areas. There are distinct wet (Nov.-April) and dry (March - October) seasons and three major climatic zones (temperate - like plateaus, lakeshore areas, and tropical valley in south) which permit a variety of crops to be grown.

Demographically, Malawi resembles many other countries in Southern Africa. Its current population is 6.7 million, and growth is estimated to be increasing at a natural rate of 3.2%. Forty-eight percent of the population is under the age of fifteen. Life expectancy at birth for both sexes is 47 years. Only 8% of the population resides in urban areas.

1.2 The Economy of Malawi

To date, Malawi has turned in one of the best economic performances in Sub-Saharan Africa. Real GDP grew at an average rate of 5.5 percent per annum between 1967 and 1979. However, declines of 0.1 percent in 1980 and 0.3 percent in 1981 were recorded, although in 1982, it recovered by 3.0 percent. The principal characteristic of the Malawian economy is the predominance of the agricultural sector which provides 40% of the GDP, 85% of the country's foreign exchange earnings and employs 85% of the national labor force. While agriculture provides the strength of the Malawian economy, it is also a cause for some of its weaknesses. For instance, the country's foreign exchange earnings are heavily dependent on just three agricultural commodities (tea, sugar, and tobacco). As the market forces turn against (or in favor) of these products, the effects are felt throughout the economy.

Recently, there have been major economic distortions that are threatening the continued prosperity of the national economy, including: a continued downturn in Malawi's terms of trade due to the second round of oil price increases; the world recession; the United States imposition of sugar quotas (which have recently been relaxed); major regional transport difficulties; and, the continuing high real rates of interest on commercial loans. The problems caused by these factors have been exascerbated by a severe shortage of foreign exchange, government revenues, and overall savings for investment. While both the IMF and the World Bank are providing assistance to overcome the immediate foreign exchange problems, these arrangements are at risk of being stalemated, at least in the short-term, by both the drain of foreign exchange for transport costs and the rapidly deteriorating terms of trade. Even during the best of times, Government revenues were insufficient to cover both recurrent and capital expenditures. Under the present circumstances, overall government spending is being curtailed through an expenditure monitoring system initiated by the GOM in fiscal year 1983/84.

1.3 The Agricultural Sector

Agricultural production comes from two sub-sectors: smallholders and estates. Out of the country's total arable land area of about 3,387,000 hectares, smallholders cultivate nearly 70% under customary land tenure arrangements. The estates utilize another 5% on land with leasehold tenure. There are approximately 1.2 million smallholder families, with an average of 4.45 persons in each family cultivating between 0.5 and 2.0 hectares of land. As a group, these smallholders account for nearly 80% of the total agricultural production of Malawi. Their principal crops are maize, groundnuts, fire-cured tobacco, cotton, beans, cassava, rice, sorghum, and millet. Over the past few years, smallholder agriculture has been characterized by a steady swing from a more diversified cropping pattern to maize monocropping.

The estate sub-sector is divided into 1277 units: tea estates (28); sugar estates (2); flue-cured tobacco estates (377); and burley tobacco estates (804). In addition to the principal crops of these estates, the Government has recently allowed the estates to diversify into wheat, maize, macadamia nuts, cotton, and groundnuts. The estate subsector is a major earner of foreign exchange and provides 45% of all the wage employment in the country.

Recent statistical data indicate that annual real growth in smallholder and estate agriculture rose by 3.5 percent between 1982 and 1983. In the smallholder sub-sector, maize production exhibited the most rapid growth, reflecting relative price shifts largely at the expense of groundnuts, cotton, and fire and sun-air cured tobacco. Estate production of all major commodities increased markedly between 1972 and 1982. During this period, the annual growth rates for flue-cured tobacco, burley tobacco, tea, and sugar were 10, 17, 6, and 18 percent, respectively. However, international price factors over the past five years and high transport costs have had a depressing effect on the recent performance of the estate subsector, which also has had some managerial problems. Productivity of the smallholder sub-sector is also well below its potential.

The GOM allocates a substantial share of its resources to support the agricultural sector. In 1983/84, it budgeted MK25.32 million, or about 12.7 percent of its total recurrent budget (excluding statutory expenditure) for the agricultural and natural resources sectors. Agriculture received the second largest allocation in the recurrent budget after education (17 percent). Of the total amount budgeted for the recurrent account for agriculture, agricultural extension, agricultural research, veterinary services, and fisheries and forestry received 48.8 percent, 12.7 percent, 3.3 percent, and 15.3 percent respectively. The remaining portion was allocated for the central administration of the MOA.

1.4 The Role of Agriculture in Economic Development

The central role of agriculture in the scheme of economic development of Malawi has not changed -- the agricultural sector continues to be the best foundation upon which to build the national economy. Malawi has a clear comparative advantage in agriculture as a result of its favorable endowment of

fertile land, diverse topography, reliable rainfall and stable workforce. Likewise, the agricultural sector is already providing the raw materials which fuel processing industries for export and import substitution, and more can be produced. Finally, the agricultural sector holds the most promise for employing the large number of people who are just entering the labor force and who are unable to find a livelihood elsewhere.

Within the agricultural sector, the smallholder subsector is especially important with regard to Malawi's economic development. This sub-sector meets the country's demand for food staples (maize, beans, groundnuts, sweet potatoes, and rice), provides agricultural raw materials for domestic industries (cotton and fire-cured tobacco), sells agricultural surpluses which represent 25% of the total national exports, and, provides the major source of income for 85% of all Malawians. Because of this major role (and due to the limited potential for increasing the estate sub-sector), the performance of smallholder agriculture must be improved if corresponding levels of economic growth at the national level are to be expected. Specifically, the smallholder subsector will need to: (1) provide higher incomes and levels of employment; (2) maintain national food staple self-sufficiency; (3) generate additional foreign exchange earnings; and, (4) diversify the export base.

2.0 PROJECT RATIONALE

2.1 Background

The proposed Malawi Agricultural Research and Extension (MARE) Project has been under consideration for the past six years. The seeds for a USAID agricultural research/extension activities were planted in 1979 in the Project Paper of the existing Research Project (612-0202) which, recognizing the long-term nature of research, called for a follow-on project in 1984. In 1981, USAID/Malawi proposed a complementary agricultural manpower development activity, which emphasized agricultural extension. This project was envisioned to be implemented alongside the on-going Agricultural Research Project and the proposed Phase II Research Project. In 1982, a REDSO/ESA Team headed by the Deputy Director recommended, and USAID/Malawi agreed, that it was preferable to combine both the agricultural research activities and agricultural manpower activities into a single project in an effort to fully integrate research and extension activities and to reduce USAID/Malawi's administrative burden.

Discussions concerning the joint participation of USAID/Malawi with IDA on this project began in 1983. A decision was made that USAID/Malawi and IDA would parallel-finance research and extension activities. To date, IDA has designed two projects: the National Agricultural Research Project is entering the implementation phase, and the Agricultural Extension and Planning Support Project will be negotiated in the near future.

2.2 Government of Malawi Policies and Priorities

The Government of Malawi recognizes the importance of the smallholder subsector to the national economy and has consistently given it a high priority in terms of national investment plans. Over the past decade, the

Government has directed twenty percent of its total public investment program into rural development projects (second only to the transportation sector) to improve infrastructure and basic agricultural services.

Since 1978, the National Rural Development Program (NRDP), administered by the Ministry of Agriculture, has been the principal vehicle for financing and implementing rural and agricultural development programs throughout the country. The NRDP is designed specifically to improve smallholder productivity by increasing the efficiency and scope of extension, adaptive research, input supply, marketing and credit services. The NRDP has divided the country into eight Agricultural Development Divisions(ADDs) and further subdivided these into twenty-eight Rural Development Projects. The implementation of the NRDP is characterized by: emphasis on increasing the productivity of land currently being cultivated; utilization of farmer groups to deliver extension and credit services; complementary land management programs such as aforestation and soil conservation integrated into agricultural production packages; and special attention to providing women with extension services. Currently, 80 percent of all smallholders are covered by NRDP.

While the NRDP has developed an impressive organizational structure and has significantly improved the stock and distribution of rural infrastructure, it has not yet demonstrated any measurable impact on smallholder production and incomes. At the same time, it is an expensive program for the GOM, representing 15 percent of total development expenditures and 77 percent of expenditures in agriculture in 1984/85.

In addition to its efforts to improve rural infrastructure and agricultural services, the GOM has actively intervened in the smallholder subsector through its agricultural pricing and marketing policies. Until only recently, inadequate producer prices and regulations prohibiting or restricting smallholder production of certain cash crops have adversely affected the output of smallholders. In 1983 and 1984, the GOM significantly increased producer prices for maize, cotton, and groundnuts. As a result, smallholder production of these crops is increasing. Malawi exported nearly 200,000 metric tons of maize to drought stricken countries within the region during the period from May 1984 to April 1985. There are, however, limits to the GOM's smallholder assistance programs. The current fiscal crisis necessitates that every Government program, including those that affect smallholders, implement austerity measures and improve program cost-effectiveness.

2.3 Constraints to Developing the Smallholder Subsector

A number of interrelated constraints affecting the development of the smallholder subsector have been identified. These include:

a) poor price incentives until 1984;
b) the lack of technologies that are suitable for smallholders particularly the 90% who have limited cash incomes;
c) untimely and limited availability of fertilizer;
d) lack of an effective research-extension linkage;
e) excessive cost of agricultural service delivery;

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f) shortage of skilled agricultural personnel; and
g) an extension cadre which has too many functions.

Both USAID and IDA will directly address most of these constraints. The proposed USAID Agricultural Research and Extension Project would specifically address constraints (b), (d), (e), and (f). The two IDA projects will place special emphasis on (a), (c), (e), and (g).

2.4 Relation to CDSS and to USAID Projects

A. Relation to the CDSS - In accordance with the Mission's approved FY 1986 CDSS, AID's strategy in Malawi has made the development of smallholder agriculture the centerpiece of its program. Specifically, the goal of AID's assistance is to increase the incomes of smallholders by increasing agricultural productivity and increasing off-farm employment. This Project is one of a combination of measures, outlined in the CDSS, which are necessary to implement this strategy. It is designed to improve the efficiency of agricultural research and extension, make adaptive research central in the development of technological packages, and improve the linkages between extension and research.

B. Relation to Other Projects - The MARE Project will build upon two earlier USAID investments in Malawi's Agricultural Sector - the Bunda College of Agriculture Project (612-0054) and the on-going Agricultural Research Project (612-0202).

The Bunda College of Agriculture Project (612-0054), which was initiated in 1976, provided six years of funding to increase the capacity of the College to undertake diploma and degree training in agriculture. This Project sent the College's instructors to the United States for graduate level training, provided technical assistance to develop the College's curriculum, and constructed and equipped the Agricultural Engineering wing. This institution will continue to provide critical training support for the proposed Project. Furthermore, it has already established a sound foundation of agricultural skills in Malawi and is expected to become a key agricultural training institution for SADCC member countries.

The Agricultural Research Project (612-0202), initiated in 1979, provided five years of funding to improve the agricultural research capability of the MOA's Department of Agricultural Research. Significant strides were made under the current project, including: expanding and improving research facilities and supporting infrastructure (48 houses, 6 greenhouses, 2 coldrooms, 5 storehouses, and 3 offices); procurement of technical equipment for implementing research programs; training of 33 researchers at the Master's and doctorate level in US universities; streamlining the research process in maize (Malawi's major crop) and in oilseeds; introducing micro-computers and providing training to allow researchers to analyze their own data; and initiating the establishment of an Adaptive Research program. Moreover, the emphasis which the proposed Project places on farming systems research is an outgrowth of the Adaptive Research Team approach which commenced two years ago under the on-going project. Likewise the proposed Project will continue the efforts made by the earlier project to streamline and to establish mechanisms

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for establishing research priorities and institutional procedures for allocating program resources. The earlier work to establish multi-disciplinary crop research groups to support the Adaptive Research Teams will also be continued under the new Project. Finally, based upon the experience of the present project, two general lessons have been learned: first, long-term training has been a very effective tool in improving agricultural research services in Malawi; and, second, efforts must be made to keep research findings applicable to smallholders.

2.5 Other Donors

The proposed Project is a parallel financed activity with the IDA designed to implement a comprehensive institutional development program within the GOM's Ministry of Agriculture. The aims of this program are to improve technical and managerial skills of MOA personnel, streamline the MOA's organizational structure, and improve its cost-effectiveness in order to reach the ultimate goal of improving the incomes of smallholders. The USAID Agricultural Research and Extension Project is intended to span the two separate IDA Project projects - the National Agricultural Research Project, and the Agricultural Extension and Planning Support Project.

Malawi has the continuing support of several major donors in terms of the area specific projects which make up the National Rural Development Program. These projects are building rural infrastructure and assisting area specific production activities geared to smallholders. Major financiers of these area specific projects include IBRD, EDF, ODA, ADF and IFAD. Furthermore, IFAD, IBRD and the GOM are providing a National Fertilizer revolving fund for meeting smallholder needs. It is also worth noting that the agricultural services of the GOM have benefitted from improved staff training with the recent opening of the Natural Resources College, to which CIDA was a major donor.

3.0 PROJECT DESCRIPTION

3.1. Project Overview and Structure

A. MOA Development Program - The USAID/Malawi Agricultural Research and Extension Project (MARE), in conjunction with the IDA National Research Project and the Agricultural Extension and Planning Support Project, will finance a series of complementary interventions. Taken together, they represent a comprehensive development program for the Ministry of Agriculture, aimed at improving its services and cost-effectiveness so as to increase the agricultural production and incomes of smallholders in Malawi.

The interventions, proposed both by USAID and IDA, are summarized in Chart 1. Attention is focused on three existing MOA Departments: Agricultural Research; Agricultural Planning; and, Agricultural Extension, which includes the eight Agricultural Development Divisions (ADD). The impact of both the MARE Project and the two IDA Projects on these departments is presented in the Institutional Analysis in Annex 9.55.

CHART 1

MALAWI AGRICULTURAL RESEARCH AND EXTENSION PROJECT

	USAID FINANCED INTERVENTIONS	IDA FINANCED INTERVENTIONS
AGRICULTURAL RESEARCH	TRAINING: 65% of total training including: technical training for cereal crops, grain legumes, oil seeds and horticulture crops, agro-forestry, management training and joint extension workshops. AGRICULTURAL RESEARCH COUNCIL: Financing and participation of technical review. NATIONAL RESEARCH COORDINATING UNITS: Financing long-term technical assistance in the areas of horticulture, agro-forestry and production economics and short-term technical assistance and training for other commodity teams. ADAPTIVE RESEARCH TEAM: Financing long-term and short-term technical assistance in the areas of agronomy and agricultural economics and training ART staff.	TRAINING: 35% of total training including cotton, tobacco, tea, other tropical crops and livestock. AGRICULTURAL RESEARCH COUNCIL: Financing technical assistance to do a master plan. NATIONAL RESEARCH COORDINATING UNITS: Financing civil work, equipment, vehicles and operating expenses to consolidate research infrastructure and operations. ADAPTIVE RESEARCH TEAMS: Financing civil works, equipment, vehicles, and operating expenses. OTHER: Financing contract research, publications, data management systems, networking with international research center and short-term technical assistance to improve program management budgeting and personnel systems.
AGRICULTURAL EXTENSION	TRAINING: 80% of all off-shore long-term training, 60% of all off-shore and domestic short-term training including technical training, and training of trainers. AGRICULTURAL COMMUNICATIONS: Financing long-term technical assistance in agricultural communications to coordinate the mass-communications pilot project in Mzuzu. Short-term technical assistance and training in agricultural communications, commodity support for national and ADD communications offices. WOMEN'S PROGRAMS: Financing long-term technical assistance for the women's programs section of DOA; agricultural training for FHA's, and programs officers, and publication of training materials emphasising women's participation in agriculture.	TRAINING: 20% of all off-shore long-term training, 40% of all off-shore and domestic short-term training. Management Training Short-term technical assistance and training to improve management and personnel systems. EXTENSION PROGRAMMING: Financing long-term technical assistance to develop an extension strategy plan and extension programming. FINANCIAL BUDGETING: Providing long-term technical assistance in the area of financial planning and budgeting. PILOT PROJECT IN MZUZU: Financing civil works, equipment vehicles, credit, and operating expenses for pilot production project which will test improved technologies and the ADD extension structure, programing and budget planning.
AGRICULTURAL PLANNING		PLANNING: Financing long and short-term technical assistance and training to improve the planning division's capabilities to undertake analytical and planning tasks.

This Chart shows only the Research and Extension Components with training included in each one.

B. USAID Project Considerations - Within the larger above-mentioned GOM Program, the USAID MARE Project is specifically concerned with: continuing to develop Malawi's agricultural research capability, especially developing an adaptive research system which can produce appropriate technologies for smallholders; establishing an institutionalized staff training program within the MOA; and, improving the linkages between research and extension programs.

Special attention was given during the Project design to integrating the four themes which provide the foundation of AID's assistance programs: Policy Dialogue; Institutional Development; Technology Transfer; and, Private Sector Development. The Project addresses these themes in the following manner:

1) Policy Dialogue: The MARE Project is specifically linked to two out of the four reforms targeted for policy dialogue in the CDSS, including: making adaptive research the mechanism through which new technologies are developed for smallholders; and, improving linkages between research and extension. Due to the fact that the MARE and IDA Projects are so closely linked, and given that USAID has agreed to work closely on all policy reform issues being addressed under both the USAID and IDA Projects, policy dialogue in the agriculture sector is expected to be quite comprehensive and effective.

2) Institutional Development: In keeping with AID's principles of building domestic institutional capabilities, the MARE Project is designed primarily to increase the institutional capacity of the GOM's Ministry of Agriculture, especially in terms of its technical expertise. Relatively low-cost training of local staff, in-country, by local trainers has been given special attention during the Project design as the most important contribution to long-term institutional development.

3) Technology Transfer: Research activities sponsored by the Project are directly related to technology transfer. Initially, these activities will improve existing technologies used by smallholders. However, during the life of project, the Research teams will test and introduce improved technologies which are responsive to the constraints of smallholders as well as examine the opportunities for diversifying their production.

4) Private Sector Development: The FY 86 USAID/Malawi CDSS indicated the Mission's intention of encouraging private sector opportunities for delivering agricultural services. The Project design does not immediately assist the private sector largely because of the difficulty of identifying substantive areas and the time constraints associated with the design of the Project. The Mission will continue to pursue with the MOA ways of using Project resources to involve the private sector in agricultural technology transfer and privatization of inputs. Special attention will be given to the areas of agroforestry (nursery development), horticulture (marketing and training), and marketing of inputs.

In addition to these four themes, the MARE project design also addressed donor coordination - an important concern of the Africa Bureau. As a parallel financed activity with IDA, the design reflects the continuing cooperation between the two donors through management mechanisms established to share information and to undertake joint project supervision and monitoring.

C. MARE Project Structure - The Project is structured into three separate, yet mutually supportive, components: Agricultural Training, Agricultural Research, and Agricultural Extension. The Training Component is the center of the Project activities because it provides: (1) the technical skills which will improve the activities of the two other components; (2) the management expertise to keep the operations of the MOA running in an efficient, coordinated, and cost effective manner; and (3) the long-term institutional development which will enable the GOM to independently guide its agricultural sector. The Research Component is critical in terms of improving existing agricultural technologies and developing new ones which will improve the productivity, and ultimately the incomes, of smallholders. The Extension Component is expected to help the Extension Service to transfer improved agricultural technologies to a greater number of farmers more effectively. Under each of these components, the Project will focus increased attention on measures to improve agricultural services to women smallholders. Linkages between the three components are extremely important and these are highlighted in the Project Description.

Budgetary allocations for the Project should be viewed as a flexible tool for accomplishing the objectives of the Project. The total budget level for the Project is well established, but the exact requirements for any given component may vary over the life of the Project. Therefore, flexibility in moving budget line items among components is essential to insure the most timely and effective use of Project funds and to accommodate changing circumstances and requirements such as in levels and types of technical expertise and training.

3.2 Project Objectives

A. Project Goal - In conformity with the Mission's approved CDSS, the goal of the MARE Project is to increase the incomes of smallholders.

The sub-goal of the Project, which will contribute to achieving the primary goal, is to strengthen domestic institutions to support smallholder production.

B. Project Purpose - The purpose of the Project is to improve the MOA's institutional capacity to increase the productivity of traditional crops and to identify the most viable crops for diversifying smallholder production.

The principal institutions targeted for assistance by this Project are: the Department of Agricultural Research; the Department of Agriculture, including the Extension Aids Branch and the Women's Program Section; the eight Agricultural Development Divisions; and the MOA Training Unit. Bunda College and the Natural Resources College are also expected to participate. The traditional crops which are included in this Project are maize, rice, sorghum/millet, cassava/potatoes, and grain legumes.

C. End of Project Status - At the end of the five-year life of this Project, the following will have been achieved: (1) A fully operational research and extension staff training program is established; (2) The Agricultural Research Council is specifying priorities for research and allocating funds according to these priorities; (3) Eight Adaptive Research

Teams are established and capable of locally adapting technologies developed by the Commodity Research Teams; (4) Five NCRCUs are undertaking research on priority traditional and non-traditional crops; (5) Extension operations are modified to be more effective in transferring technologies to a greater number of smallholders; and, (6) The Women's Program Section is strengthened to increase women's participation in agricultural research, extension, and training programs.

D. Project Outputs - The following outputs will be achieved by the MARE Project:

1) MOA Staff Training System Established;
2) ARC System for Evaluating and Setting Research Priorities Developed
3) Expanded Adaptive Research Teams;
4) Strenghtened National Commodity Research Coordinating Units;
5) Improved Agricultural Communications Services; and,
6) Strenthened Women's Program Section.

E. Project Inputs - The following is a summary of inputs for the MARE Project:

1) AID Contribution (Total $14,000,000)

a) Technical Assistance ($4,913,000) - Long-term technical assistance is provided for the Training, Research, and Extension Components (27 PY). A total of 99 PM of short-term technical assistance is provided and distributed to the Training Component (35 PM), Research Component (28 PM), and Extension Component (36 PM).

b) Training ($4,606,000) - The Project provides 102 PY of long-term training which includes 70 PY for Agricultural Research, 28 PY for Agricultural Extension, and 4 PY for other types of long-term training. Short-term training includes 89 PM off-shore and 4000 PM in-country.

c) Commodities ($532,000) - The distribution of commodity expenses between the different components includes: Training ($63,000), Research ($65,000), and Extension ($404,000). A complete commodity procurement schedule is located in Annex 9.7.

d) Other Costs ($812,000) - Included in this category are: Administrative Support Costs, Evaluation, Financial Reviews and Studies.

e) Contingencies and Inflation ($3,137,000) - Funds for contingencies and inflation have been calculated at 10% and 7% respectively.

2) GOM Contribution (Total $33,057,000)

The GOM contribution includes staff salaries and benefits, training support, equipment and vehicle operations and maintenance, office and building space, and utilities and supplies (40% of total project costs).

3) IDA Contribution (Total $35,700,000)

The IDA contribution to activities which either directly support USAID funded project activities or are complementary are computed from the two Project documents: a) National Agricultural Research Project ($23,800,000); b) Agricultural Extension and Planning Support ($11,900,000).

3.3 PROJECT COMPONENTS

3.3.1. Agricultural Training Component

A. Component Description - The Agricultural Training Component will improve the technical, training, and management skills of agricultural personnel as a means of enhancing the performance of the MOA in meeting the needs of smallholder families. Trained personnel are critical to improving the services provided by Ministry of Agriculture to smallholders. The decentralization and specialization of MOA services has created a critical need for greater numbers of staff with higher levels of technical and management skills. A situation has developed where large numbers of staff with general qualifications in agriculture are in jobs requiring specialized skills and management experience. Moreover, new emphasis on farming systems concepts and on reaching farmers unable to adopt high input practices require that staff learn new skills and approaches in both research and extension services.

The Training Component will establish an institutional training system which will provide the opportunity for MOA staff to develop new skills and to upgrade their present ones. Central to this system is the development of a Training Unit within the Ministry of Agriculture which will be guided by a Training Advisory Committee,. The Training Unit will utilize a variety of long - and short-term training to: (1) upgrade the technical skills of researchers and extensionists; (2) transfer adult education training methods to trainers; (3) improve DOA and DAR skills in planning, administration, management, and implementation; (4) strengthen the linkages required for effective technology transfer between the DOA and DAR at all levels; and (5) continue to ensure that the mix of staff skills is appropriate for the MOA's smallholder development program, institutional structure and development priorities.

The Training Component will provide research personnel with enhanced skills required for developing smallholder technologies and will provide the extension staff with improved abilities for disseminating appropriate agricultural technologies. In addition, the Training Component will serve as the mechanism for sharing information and expertise between and among the DAR, DOA, PD and the smallholder farmer.

B. Component Inputs - The following is a summary of USAID and GOM and IDA contributions to this component:

1) AID Contribution ($8,449,000)

(a) Technical Assistance ($1,681,000) - up to nine person-years of long-term technical assistance is provided for:

Position	Person Years	Months	Location
Training Advisor	5	0	MOA Training Unit
Training Specialist	4	0	MOA Training Unit

Job Descriptions are included in Annex 9.11.

Thirty-five person months of short term Technical Assistance are planned for developing curriculum for technical agricultural training, preparing training materials, and undertaking special studies.

(b) Training ($4,606,000) - Forty-nine MOA staff will be provided with graduate degrees for a total of 102 person-years of long-term off-shore training.

Long-term	2,255,000
Short-term (US and Third Country)	393,000
Short-term (In-country)	1,958,000

(c) Commodities ($63,000) - Commodities will be purchased for the Training Component, including vehicles, microcomputers, typewriter, a duplicating machine, and textbooks.

(d) Administrative Support ($119,000) - Included in this category are: operating funds for two project vehicles, training materials, office supplies, and program funds for the technical assistance.

(e) Contingencies and Inflation ($1,980,000)

2) GOM Contributions ($1,116,000 equivalent in local currency)

The GOM Contributions to the Training Component include: salaries of GOM personnel in the unit, salaries of two counterparts for the EPA level study, office space, secretarial support, office supplies, household furnishings, training facilities, and operation and maintenance for equipment and vehicles.

3) IDA Contributions ($3,305,000)

The IDA contributions estimated for both Projects for the Training component include: long-term off-shore training ($1,118,000); short-term off-shore training ($689,000); and, in-country training ($1,084,000).

C. Component Outputs

1) MOA Staff Training System Established

a) MOA Training Unit Staffed and Functional

The Training Unit will provide the mechanism for establishing an institutional training program for the MOA. This Unit will be headed by a qualified, senior Malawian Training Officer at least at the P5 grade. The Officer will be assisted by two other national training officers, and two project-funded advisors.

The principal functions of the Training Unit will be to:

- prepare a Manpower Development Plan for the MOA;
- provide regular training needs analysis as part of the annual staff performance review;
- draft selection criteria for training candidates;
- identify trainers, and assist them with training techniques and materials;
- contact appropriate sources of training;
- process candidates for off-shore training;
- maintain records on trainees; and,
- serve as the secretariat to the Training Advisory Committee.

The Training Unit will be guided by a Training Unit Advisory Committee, which will be composed of representives from the DOA, DAR, and PD. The Committee, which will meet on a regular basis, will interpret MOA policy as regards to training, recommend training policy, determine priority training needs within the MOA, approve candidates proposed for overseas long-term training, approve the workplans of the Training Unit, and review training evaluation reports. The Training Unit will service other departments of the MOA as well as provide assistance to domestic training institutions such as Bunda College and the Natural Resources College. The Training Unit will also develop an in-service training system aimed at three different levels, including: training of trainers, technical agricultural training, and management training.

b) A Cadre of Trainers of Trainers Established

A cadre of trainers, capable of training other trainers, is essential to the mobilization of effective training programs. Trainers of trainers transfer techniques and methods for involving adults in their own learning process. This approach has been successfully used in other agricultural projects to increase the impact of training.

A long-term, project-funded Training Specialist will, together with a Malawian counterpart, identify and train 30 persons as Trainers of Trainers (TOT). It is expected that 15-20 will emerge as the core cadre. These trainers will be drawn both from within the MOA and from other selected training institutions in Malawi. In addition, the Training Specialist will be involved in Team Teaching with TOTs, and will periodically follow-up on the progress being made by trainers who have participated in TOT courses.

TOTs will train personnel who have training responsibilities as well as a selected group of other individuals who will provide technical training for the MOA staff. These may include: ADD Training Officers, some Subject Matters Specialists, Women's Program Officers, and staff from Bunda College and the Natural Resources College.

c) Trained Personnel-Increased Technical Training

Upgrading the technical skills of the MOA staff on an on-going basis is the foundation upon which the MOA's performance can be improved. Such skills are essential for the identification, development, and dissemination of improved technologies which are vital to increasing the agricultural productivity of smallholders. The Project proposes to establish a technical training system for upgrading skills at all levels of the MOA structure. This system will be developed by the Training Unit and will provide greatest emphasis on the in-country technical training program where it ultimately must be maintained.

i) The Technical Training System will also be supported by off-shore training with the intent of importing new skill levels into the MOA organization. Long-term, off-shore training will be provided by the MARE Project to upgrade the skills of the DAR's research staff and senior technical staff in the DOA who are filling critical management posts. The Project will fund 14 MScs for DOA and 6 PhDs, plus 29 MSc trainee posts for DAR. Fifteen of the 29 MSc training slots have been allocated to the Adaptive Research program with the aim of having all 8 ARTs operational prior by the end of the Project. MARE's long-term training plans are based on a thorough analysis of both the DAR's and DOA's training requirements. In the case of DAR, manpower development needs were identified in the Reorganization Plan which was developed in 1983. A similar exercise is now underway for the extension services of the DOA and will be available by July of this year. All long-term training requests presented for financing in the annual training plans will be evaluated against these two studies.

ii) Short-term off-shore training will be used to provide specialized and/or practical work-based training to MOA staff, especially those who may show outstanding potential but are unable, due to the lack of formal qualifications, to receive other types of training. Such training will also include workshops available through international organizations and short-term study in non-degree programs. The Project plans to support 42 persons for short-term training, distributed among the three components.

iii) In-country, in-service technical agricultural training is planned for the purpose of: integrating the DOA (extension) and DAR (research) components in a comprehensive and complementary training program; and, initiating training that is relevant to addressing the problems and constraints faced by low-resource smallholder farmers.

Three major pairings of DAR/DOA staff have been targeted for technical training:

- DAR Senior researchers and Senior DOA (including ADD) Subject Matter Specialists: Following joint DOA/DAR annually-scheduled seminars on technical topics of mutual concern, the researchers and SMSs will work with the Training Unit and groups of TOTs to develop technical training modules in the areas of general crop production, horticulture, livestock and pastures, land husbandry, extension, agro-forestry and adaptive research. These modules will form the basic materials which will be used to train other MOA staff. Short-term technical assistance will be available to assist in the preparation of these modules.

- Research Technical Officers (TOs) and Mid-level SMSs: In addition to the technical training modules, other training methodologies will be utilized, including: practical exercises involving specialized crops; training on conducting field trials; practical skills testing; statistics; selection of extension messages; and, communications skills.

- EPA Development Officers, FAs and FHAs: This group is a critical target because it is directly responsible for passing technical information on to the farmer, and because it has the lowest technical base. These staff will be exposed to adapted training modules directed at training in: farming systems; conducting and analyzing field trials; technical skills related to crop planting and cultivating; and selection of extension messages. In addition, Development Officers will receive supplemental agriculture training in courses developed by Bunda College. FAs and FHAs will also receive additional agricultural training in courses at the NRC.

The Training Unit will have the responsibility for planning and coordinating technical agricultural training, while the major teaching responsibilities will fall on the cadre of trainers trained by the Project. In addition, DAR scientists, DOA staff, and ADD SMSs will serve as instructors.

d) Trained Personnel- Increased Management Training

Better management skills will enable the resources of the MOA to be more effectively used. Especially important are planning, budgeting, organizational skills, and team building for better cooperation between the various sections of the MOA. Management training will be focused on an in-country program directed at MOA managers and financial and accounting staff, and is aimed at increasing the cost-effectiveness of the MOA. This approach is complementary to IDA's support for the consolidation of DAR infrastructure, the introduction of new budgeting systems within the DOA, and the mandate of the World Bank Structural Adjustment Loan. The proposed management training will cover all levels of the DOA and DAR and help foster cooperation between the two departments. While IDA will be primarily responsible for financing the management training associated with the DOA, DAR, and Planning Departments, the MARE Project, through its Training Advisor, will participate in the development of management training courses.

D. Beneficiaries - The direct beneficiaries of the Training Component are the estimated 4456 individuals who will either be the trainers or trainees under this Project activity. This total figure includes: 49 persons who receive long-term off-shore training; 42 persons who receive short-term off-shore training; 4100 persons who receive in-country technical training; and, 265 persons who participate in the in-country management training program. It is anticipated that approximately twenty-five percent of the off-shore trainees and thirty-five percent of the in-country trainees will be women.

E. Relation to the IDA Projects - The design of the MARE Project and both IDA Projects emphasizes the need for a single institutional staff training capacity within the MOA. Likewise, the two sources of funding are complementary in that they provide the GOM with additional flexibility in selecting institutions for training. While funds have been separated for the purpose of accountability in all three projects, there is a genuine interest by all parties to ensure that the higher objective is not lost. For this purpose, the MOA Training Program, and its financing, will be reviewed by each of the joint IDA/USAID supervision visits.

IDA's National Agricultural Research Project allocated 65% of overall DAR training, both off-shore and in-country, to USAID. This guideline has been incorporated into the development of the MARE Project Training Plan for Agricultural Research. A more intricate system has been used to coordinate the MARE Project with the IDA Agricultural Extension and Planning Support Project. In terms of off-shore training, USAID will finance 80% of all long-term training and 60% of all short-term training. It should be noted that the GOM has been informed that USAID will not finance training specifically for cotton or tobacco crops, even though these are the most important cash crops for Malawi's smallholders.

Because both IDA and USAID recognize the importance of developing strong in-country training systems to ensure that long-term institutional development is achieved, different arrangements have been established for in-country training. Here, financing will be selected according to the type of training provided. IDA will finance in-country management training in keeping withits aim to improve the overall cost-effectiveness of the MOA. Concurrently, USAID will focus its financing on in-country technical training which complements its emphasis on technical agriculture skills.

While indicative figures have been developed for both the number of trainees and the corresponding costs, in practice these estimates and the distribution of costs between IDA and USAID will be determined on the basis of annual training plans, using the above cost shares and areas of emphasis as guidelines.

3.3.2. Agricultural Research Component

A. Component Description - The Agricultural Research Component will assist the MOA agricultural research institution to be more responsive to the constraints of smallholders. Specifically, this Component will assist the DAR

generate technologies which will improve the productivity of traditional crops and identify new crops for diversifying smallholder production. The existing technical capability in the Department of Research has had limited impact on smallholders because, to date, research findings have been more applicable to high resource farmers. A growing recognition of the major contribution of the smallholder to Malawi's total agricultural production and the potential for increasing their productivity, has highlighted the need to conduct more agricultural research directly aimed at the smallholder farmers.

The Agricultural Research Component will assist the Department of Agricultural Research (DAR) to develop technologies that will improve the productivity of smallholders. This task has two aspects: first, to increase the returns to land and labor employed on traditional crops (especially maize); and, second, to identify crops for diversifying smallholder production which can provide higher incomes, employment levels, and increased foreign exchange. Project assistance will include: (1) development of an Agricultural Economics and Data Processing Unit (AGREDAT) which will conduct economic, financial, and statistical analyses of research results and proposals to be used by the Agricultural Research Council in setting Malawi's research priorities; (2) support for commodity research programs through the strengthening of five National Commodity Research Coordinating Units (Horticulture, Cereals, Grain Legumes, Livestock and Pastures, and Agricultural Engineering/Land Husbandry); and, (3)support for the development of the Adaptive Research Program which, once fully established, will consist of a National Coordination Unit and eight Adaptive Research Teams located at the ADD level. The design of the Component explicitly recognizes that agricultural research is a long-term process and a complementary buildup of both on-station and on-farm research capabilities is required. This Project should be viewed as the second five-year activity in what is likely to be a twenty-five year process.

The Research Component supports extension by providing relevant localized technology for dissemination to smallholder farmers. Linkages with training will be forged through the provision of technical and scientific information, and by the participation of research personnel in the training program. Also, joint planning sessions to set research priorities will be conducted between the research and extension institutions.

B. Component Inputs - The following is a summary of USAID, GOM and IDA contributions to this component:

1) AID Contribution ($2,988,000)

(a) Technical Assistance ($2,113,000): Thirteen person-years of long-term technical assistance is provided for:

Position	Person Yrs	Person Mos	Duty Location
Production Economist	3	0	Ag Economics Unit, Chitedze ARS
Agronomist	2	6	AR Headquarters, Chitedze ARS

Agricultural Economist	2	6	AR Headquarters, Chitedze ARS
Horticultural Specialist	2	0	Bvumbwe ARS
Agro-Forester	3	0	Chitedze ARS

Job descriptions for all long-term technical assistance appear in Annex 9.11

Twenty-eight months of short-term technical assistance have been budgeted to support both the applied and adaptive research programs.

(b) Training (Budget included in Training Component)

Thirty-three persons will be provided with graduate level training Doctorate (4), and Masters (29), for a total of 70 person-years of long-term off-shore training.

Short-term off-shore (US and Third Country) training will be provided to 13 persons.

(c) Commodities ($65,000) - A total of 5 vehicles, and other equipment will be purchased for this component.

(d) Administrative Support ($184,000) - Support is provided for vehicle operations and technical support costs for technical assistance.

(e) Contingencies and Inflation ($626,000)

2) Government of Malawi Contribution ($16,811,000)

The GOM contribution will include the salaries and benefits of support staff, the operations and maintenance expenses of equipment and vehicles, office space, research support, housing and basic household furnishings.

3) IDA Contribution ($22,031,000)

The IDA will provide financing for the consolidation of the DAR infrastructure, support for the ARTs, and technical assistance to improve DAR financial and program planning programs.

C. Component Outputs

1) ARC System for Evaluating and Setting Research Priorities

An important aspect of the combined IDA/USAID efforts in supporting agricultural research in Malawi is the creation of an instituional capacity to establish clear research priorities which can be used to make the most effective use of Malawi's limited resources. The Agricultural Research Council(ARC), which is fully described in the Annex 9.55, is the center for this institutional capacity. The ARC requires information and advice from several technical sources in order to carry out its functions. The Project supports several of the most important of these technical sources, namely: the

Agricultural Economics and Data Analysis (AGREDAT) Unit, the National Research Coordinating Units, the Adaptive Research Teams, and the Department of Agriculture.

The AGREDAT represents an important source of new information which will be used by the Agricultural Research Council to establish research priorities. The Project will assist in establishing the Agricultural Economics and Data Processing Unit in the DAR, which will service the Commodity Research Program by ensuring that research programs and recommendations are economically and financially sound, especially in terms of the limited resources of smallholder families. This economic and financial information will enable the ARC to make informed judgements about the effectiveness of various research efforts, the various research choices which are available, and the respective payoff potential for each of these choices.

Specifically, the AGREDAT Unit will provide economic input into the National Coordinating Units and perform specialized statistical analyses as needed by the research system. During the life of the Project, the Unit is expected to establish a data bank for research results and, by the end of Project, be able to undertake analyses for all of the NCRCUs. The Project will support a Production Economist for three years to advise the Unit. Two persons assigned to this Unit will receive Masters Training in agricultural economics and biometrics. In addition, four person-months of short-term staff training will be provided as general support to the Unit.

The National Commodity Research Coordinating Units will provide the results and findings of research to the ARC concerning the priorities between the different crops covered by the Coordinating Unit and specific research priorities within a commodity area.

The Adaptive Research Teams will be responsible for providing the ARC with research findings which will keep the priorities of agricultural research closely aligned with the day-to-day constraints of the smallholder.

2) Strengthened Commodity Research Programs

At the core of Malawi's applied agricultural research system are five National Commodity Research Coordinating Units which include: cereals, horticulture, grain legumes and oilseeds, livestock and pastures, and agricultural engineering/land husbandry. These Units are based at the three main research stations. They are responsible for integrating various research disciplines according to major commodity types, and for providing technology support to the Adaptive Research Unit and to the Extension Subject Matter Specialists. The Commodity Research Units provide the basic source of technical knowledge pertaining to the major crops grown by smallholders. Further, they are responsible for conducting applied research on promising new crops that can be used to diversify smallholders production systems.

The MARE Project will strengthen the capabilities of Commodity Research Units through technical assistance and training. Project resources will promote: multi-disciplinary and intercropping approaches to develop the low resource

technologies which can improve the productivity of traditional crops; the identification of non-traditional crops which can be used to diversify smallholder production; and the strengthening of linkages with the ARTs.

The following is indicative of the main emphasis of the various Commodity Research Units and the Project assistance that will be provided. The principal focus for assistance will be on the new units to be supported by the Project and the four research priorities of the DAR: maize, grain legumes, horticulture and tree crops.

(a) Cereals - The MARE Project will assist the Cereals Unit to test improved maize varieties on-station and to introduce tested varieties to the ARTs for on-farm testing. This assistance will highlight the development of improved varieties and cultural practices of maize that have low input requirements and intercropping systems which involve maize, grain legumes, vegetables, and oilseed crops. The principal input of the Project will be on training. One person will be provided Doctorate level training in maize agronomy. Masters level training will be given to three persons in the fields of maize breeding, maize pathology, maize entomology. Three person-months of short-term technical assistance will also be provided.

(b) Grain Legumes - The Project will assist this NCRCU in providing improved crop varieties and in developing smallholder production practices which will increase soil and water management, supplies of protein, and which are appropriate for intercropping and crop rotation strategies aimed at improving soil fertility. Specifically, the Project will assist in testing improved bean varieties and cultural practices on-station and introduce the proven technologies to the ARTs for on-farm testing. Increased grain legume production is especially important to improving the nutrition of low resource farm families. One person in the Grain Legumes Unit will be trained at the Masters level in entomology. Three months of technical assistance will also be provided to support this Unit.

(c) Livestock - The Project will assist the Livestock and Pasture Unit to develop forage crops and production practices for use by smallholders. On-station research will be used to select improved forage crops and on-farm testing will be undertaken on the selected varieties. Specific attention will be given to: use of leguminous forage crops which can serve as rotational crops to increase soil fertility; and, selection of tree crops which provide forage and improve fertility. The Project may provide limited short-term US training. Two person-months of short-term technical assistance has been budgeted for the Unit.

(d) Agricultural Engineering and Land Husbandry - The Project will assist the Agricultural Engineering/Land Husbandry Unit to establish an Agro-Forestry Commodity Research Team-- a major new area of research in Malawi. The staffing and organization of the Team will be the first priority. Thereafter, the focus will be on research that emphasizes incorporation of tree production in smallholder production systems. The Unit will undertake on-station screening of tree varieties and develop on-farm trials of selected varieties in cooperation with the ARTs. The Project will finance an expatriate Agro-Forestry Scientist for three years to help establish the Team

and its research program. One staff member will receive Masters level training in Forestry Agronomy and another will be given Masters Degree training in Silviculture. General support to the Unit will include eighteen person-months of training at regional and international centers (e.g.,ICRAF) involved in agro-forestry, and seven months of short-term technical assistance over the life of the Project.

(e) Horticulture - The Project will increase the capacity of the Horticulture NCRCU to identify and undertake research on crops and production practices appropriate for diversifying smallholder production. The Project recognizes that this is a relatively new effort in Malawi's agricultural research program, and that follow-on work will be necessary. Specifically, through the MARE Project, this NCRCU will continue on-station research aimed at the selection of annual vegetable crops. In addition, on-farm testing through ARTs will be conducted on the selected varieties. Likewise, the NCRCU will undertake on-station research to select adaptable fruit and nut trees. The Project will finance two years of long-term technical assistance for a Horticultural Specialist to continue the work initiated under the on-going Agricultural Research Project. Three persons from the Unit will be trained at the Doctorate level in the areas of horticulture entomology, temperate fruits, and vegetable production. Another person will receive Masters level training for Vegetable Production. Short-term horticultural training of 12 months will be provided in the US.

3) Expanded Adaptive Research Program

The Adaptive Research Program provides the link between smallholders, research stations, and MOA extension staff. This link has three parts: first, via surveys and field contacts, smallholder problems are brought to the attention of applied research staff; second, through ART-supervised and farmer-implemented field trials, locally adapted technologies are developed; and, third, verified practices are provided to the extension staff for transfer to smallholders.

Central to this effort are the Adaptive Research Teams which perform the multiple functions of: (a) identifying smallholder constraints and feedback of these constraints to the researchers; (b) locating the appropriate resources and/or techniques from both applied research and ADD staff to overcome these constraints; (c) conducting on-farm testing to verify site specific applications of new technology; and, (d) transferring this information to the Extension staff. Three Adaptive Research Teams have been established under the on-going Agricultural Research Project (612-0202) in cooperation with CIMMYT and IDA. Adaptive Research Teams are assigned to an ADD and staffed by an agronomist and an agricultural economist from the DAR and a senior extensionist from the ADD. Although it is essential that the ARTs be funded and guided on technical matters by the DAR, the importance of securing the participation of the ADD Program Manager is acknowledged. Towards this end, the ADD Program Manager will provide administrative and local program guidance and approve the annual workplans of the ADD-based ART.

The MARE Project will finance technical assistance and training to upgrade the three existing teams and to establish five more ARTs. The members of operational ARTs located in Lilongwe, Kasungu, and Blantyre ADDs will be given long-term off-shore training at the Masters level, which continues a process started under the existing USAID Agricultural Research Project. The establishement of new ARTs will be phased so that two more Teams will be established in 1987, one in 1988, and two in 1989. The DAR has already identified the sixteen staff who will fill the agronomist and economist positions on the ARTs, and has begun a one-year process of in-country training and orientation. The DOA/ADD will identify eight senior extensionists to serve as the ADD member and assign the WPO in each ADD to participate on the Team.

During the first year of operation, each new ART will train: (1) ten people, including Subject Matter Specialists and Women's Program staff at the ADD and Development Officer level, in adaptive research concepts and survey methodology; and, (2) five FAs and/or FHAs at the EPA level in survey techniques and on-farm supervision and monitoring. Over the life of project, the cumulative effect of this training will result in 80 people trained at the ADD level, and 170 people trained at the EPA level to serve as a support group for the ARTs.

During the second year of operations, each new ART will initiate five on-farm trials to test technologies which will address identified problems. Also in the second year, the diagnostic phase will begin in a new EPA. These trials will continue at the same rate (5 trials representing a new EPA each year) leading to 550 trials over the life of project. To ensure continued farmer support, compensation measures will be taken where there is a crop loss as per existing DAR procedures.

The National Coordinating Unit for the Adaptive Research Program (which is already operational) will be supported by the MARE Project. The functions of the Coordinating Unit are to: (1) supervise and coordinate the ARTs' activities; (2) act as the link between the ARTs and the Commodity Research Teams through the National Research Coordinators; (3) orient and develop support at the DOA for the ARTs; (4) collect and maintain information gathered by the ARTs; (5) disseminate relevant information gathered by ARTs to MOA planners through the CARO; and, (6) represent the interest of the ARTs to the National Agricultural Research Council. The two National AR Coordinators will be sent for Masters level training with Project funds in 1986. During their absence, long-term technical assistance will be used to fill their positions. The Project will fund an Agronomist and Agricultural Economist for two and one-half years each. Scheduling will be such that there will be a three-month overlap with the TAs before the officers depart for training and upon their return from the U.S.

D. Beneficiaries - The direct beneficiaries of the Agricultural Research Component are the estimated 250 staff members of the Department of Agricultural Research who will receive training, the 250 individuals who are working with the ARTs at the ADD level, and the 170 farmers who participate in on-farm trials. As a result of the Project, an estimated 3400 farming families will benefit from improved agricultural technologies demonstrated by the ARTs.

E. Relation to the IDA Project - The MARE Project and IDA National Research Project are cooperating to provide the financial resources necessary to develop and implement a MOA Master Plan for Agricultural Research. The IDA Project is largely aimed at establishing the ARC, the consolidation and upgrading of research facilities and improved research management, programming, and budgeting operations. The MARE Project is focused on the further development of the adaptive research capability within the DAR and the improvment of the technical skills of Malawian staff working in the Commodity Research programs. Both the MARE Project and the IDA Extension Project are focused on enhancing extension staff capability to disseminate technologies developed by the Commodity and Adaptive Research Teams.

The two projects will interface on several of the planned research activities. As mentioned above, the IDA Project and the MARE Project will distribute the costs of training for research on a share basis. In the area of adaptive research, the IDA Project will finance most of the operating costs of the ARTs, except for the USAID technical assistance which will provide its own project resources to cover travel, vehicles, vehicle operations, and limited program expenses. In terms of applied research, the MARE Project will provide technical assistance and training, and the IDA project will finance infrastructure, equipment, operating costs, and training.

3.3.3. Agricultural Extension Component

A. Component Description - The sub-purpose of the Agricultural Extension Component is to strengthen agricultural extension, both in terms of its institutional links with agricultural research and in its ability to disseminate research recommendations to smallholders.

Within this frame

- Utilize communication support to more effectively extend coverage of the smallholder population;
- Respond to the needs of women smallholders; and
- Link extension with the applied and adaptive research systems

The design of the MARE Project highlights the need to strengthen and coordinate all of the critical links in the technology transfer chain. A continuing supply of appropriate improved technologies, tested and adapted to local needs and situations is the first requirement. Such technologies are without value, however, until they are utilized beneficially by smallholders. Responsibility for disseminating information about these technologies and for assisting smallholders to use them lies with the Department of Agriculture. Therefore, investments in the development and testing of new technologies will yield only very limited returns unless accompanied by viable extension programs that serve all male and female smallholders.

Based on a thorough assessment of the Malawi's extension system in 1982, the MARE Project earmarks substantial resources to support the Department of Agriculture and the eight Agricultural Development Divisions. The general conclusion of these studies is that the existing extension organizational

structure is functional and basically sound. However, the DOA's management, operating procedures, and technical skills need to be improved to make the extension system more effective.

The Project will address these issues from different angles. First, through the Training Component, the Project will provide off-shore and in-country training to improve the management and technical skills of the extension staff. Second, the establishment of the Adaptive Research Teams and the participation of extension personnel in these teams will upgrade the agricultural technical knowledge of the extension staff and improve their capability to transfer agricultural technologies. Third, the Project will develop more effective mass communications extension techniques. Finally, the Project will support activities which increase the participation of women in MOA extension programs. Both the mass communications and women's program activities offer the potential for significantly expanding the range of people contacted by the DOA and for improving the effectiveness of the extension staff in transferring agricultural technologies.

In terms of its links with other Project activities, the Extension Component will support research by actively participating in AR programs and by serving as the mechanism for the feedback of information from the farmer to the researcher. In the area of training, this Component will provide training personnel and facilities and develop training materials through the EAB.

B. Extension Component Inputs - The following is a summary of USAID, GOM and IDA contributions to this Component.

1) AID Contribution ($2,161,000)

(a) Technical Assistance ($1,119,000): Long-term technical assistance will be provided as follows:

Position	Person Yrs	Mo
Agricultural Communication Specialist	2	6
Women's Program Specialist	2	6

Short term technical assistance of 36 person-months will be provided.

(b) Training (Budget included in Training Component). This Component provides for 28 PY of long-term offshore training and 33 PM of short-term training.

(c) Commodities ($404,000): The principal commodities for this Component are agricultural communications equipment and vehicles for the long-term technical assistance in the EAB and Women's Program.

(d) Administrative Support ($184,000): This includes vehicle support, funds for the Mzuzu mass communications activity, training materials, and miscellaneous program funds for technical assistance.

(e) Contingencies and Inflation ($454,000)

2) GOM Contribution ($6,073,000)

The GOM will provide the salaries of counterpart personnel, office space, secretarial support, allowances for trainees sent on off-shore training and the operation and maintenance of project-funded equipment.

3) IDA Contribution ($10,364,000)

The IDA Agricultural Extension and Planning Support Project will provide financial and management services for the Department of Agriculture, operations and credit financing for the Mzuzu Pilot Project, logistical and operations support for the overall DOA structure, and technical and financial assistance to the Planning Division.

C. Extension Component Outputs

1) Improved Agricultural Communications Services

Strong communication support, integrated into the extension programs, can significantly increase the overall impact of extension messages aimed at smallholders. Generally, communication support includes both informational materials and teaching aids as well as multi-media interventions which are used to reinforce the work of extension agents or in reaching smallholders who cannot be served directly by field personnel. Another aspect of communication support is operational research services which can be useful in evaluating the impact of extension programs and recommending ways in which they can be improved.

The present lack of effective communication support to the MOA's extension programs and the need for stronger information sharing arrangements between researchers and extension staff underscore the importance of strengthening Malawi's communication activities. Likewise, mass communications techniques provide an important supplement to an extension system that wants to reach more smallholders. Towards this end, the MARE Project will provide resources to the MOA's Extension Aids Branch (EAB) at the national headquarters and the Extension Aid Units (EAUs) at the ADD level which, together, are charged with providing communication support services in the MOA.

Specifically, a long-term agricultural communications specialist will be provided by the Project to collaborate with the Head of the EAB in establishing a system for developing communication strategies. Such strategies would be part of an on-going process whereby various methodologies and media (interpersonal contacts, meetings, demonstrations, printed material, radio, etc.) would be examined to determine their effectiveness in presenting and explaining any given technology with respect to different locations and smallholder groups. Such strategies are also expected to assist the MOA in determining how its field staff can be used more effectively and how the existing production materials and facilities can be used most advantageously. The EAB and the EAUs would be responsible for developing and implementing communication strategies. By the end of the Project, an overall national communication strategy will be developed annually based on District level strategies in each ADD and on inputs from MOA and DAR headquarters.

Within the EAB, the Evaluation and Action Research Section will be a major contributor to the development of communication strategies and will also be expected to deliver critical information to the Adaptive Research Program as well as to the DOA and ADD extension staff. This Section is charged with collecting information about smallholders, pre-testing various combinations of extension methodologies and media support, and evaluating how well the smallholder has received the extension message. This is critically important in the development of research and extension activities. The Project will provide a behavioral scientist who will train the EAB's Evaluation/Action Research Staff and the EAU Evaluation Assistants in design and analysis techniques that can be used to measure the impact of extension outputs. By the end of the Project, the output of this section will be increased to four major studies and sixteen evaluation/pre-test studies per annum.

The Project will also improve the EAB's and EAUs' capabilities to develop and produce extension materials. An efficient media production system is comprised of five major elements: message development; planning and scheduling; production; delivery; and feedback. Of these, only the actual production is an independent function of the EAB, while the others require the close collaboration of researchers, extension staff, and smallholders. The Project will assist the EAB improve its production system in two areas: first, through the establishment of an information network that will facilitate the participation of the DAR and DOA in the development of extension materials; and, second, by improving the skills and tools used by the EAB to physically produce these materials. Short-term project-funded, media production specialists will assess the present elements of the production system, offer recommendations for improving the system, and where appropriate, train staff in the use of a wider variety of media techniques. In addition, the Project will finance production equipment for both the EAB headquarters and the EAUs. By the end of the Project, the EAB and EAUs will have a combined annual output of over 200 radio programs, 20 bulletins, 25 handbook sheets, 6 bi-monthly issues of farmers' magazines, and six audio visual presentations, at least twenty percent of which will be aimed at women farmers.

A special focus of project support will be placed on a mass communications pilot activity. The Project will sponsor a three-year mass communications activity in the Mzuzu ADD to test communication support methods, demonstrate different techniques, and train MOA staff. This activity will support the IDA extension effort in Mzuzu and involve 40% of the time of the long-term technical assistant assigned to the EAB. By the end of the Project, a mass communications strategy relevant to Malawi will be in place and replicated in at least one Rural Development Project in each of the eight ADDs for the purpose of further testing and for adaptation to local conditions.

2) Increased Participation of Women in MOA Programs

Women play a major role in Malawi's agricultural production system. Over thirty percent of smallholders is female-headed households and at least half of all agricultural labor is provided by women. As a group, women farmers are most heavily represented in the category of low resource farmers and, like their male counterparts, this situation sets limits on their ability to

increase their production. In addition to these already formidable constraints, women who either farm on their own or who are involved in male-headed operations, are often by-passed by MOA's agricultural programs. MARE Project-financed activities have been designed to focus attention on the problems of women smallholders and to examine, with the MOA, ways in which its programs can be more effective in assisting female farmers. As outlined in the Training Component above, a major means for assisting women smallholders is to improve the skills of the FHAs and WPOs who are directly responsible for delivering assistance. Likewise, under the Research Component, the WPOs will participate on the Adaptive Research Teams to ensure that the problems of women smallholders are addressed. Within the agricultural communications activities mentioned above, it is expected that approximately twenty-five percent of extension materials will directly address the technology needs of women smallholders. Other Project-financed activities which will increase opportunities for women's participation in MOA programs are mentioned below.

First, the Project will support the Ministry of Agriculture, through its Women's Program Section, in further developing and clarifying its strategies for increasing the participation of women in MOA programs. Technical assistance will be provided to the WPS, including one long-term position to fill the HQ slot for two years while the WPO is away for training. In addition, limited short-term expertise will be available to provide assistance in addressing specific problems affecting women smallholders. The Project will support the target of an agricultural production demonstration, aimed at women smallholders in every RDP by the PACD.

Second, the Project will finance a demonstration fund, aimed at increasing women smallholder's participation in using improved technologies, which involves: (1) teaching skills associated with improved agricultural practices and technologies; 2) demonstrating the benefits from improved food production practices and technologies which are within the economic means of most group members; and, 3) providing a measure of technical achievement which may help participants to qualify for credit at a later stage. (See Annex 9.10 for details).

D. Beneficiaries - The direct beneficiaries are all 119 staff members of the EAB and EAUs who will benefit from inputs provided for agricultural communications. The same is true of the 9 WPOs, 29 female Technical Assistants, and 200 FAs and FHAs who support the Women's Program Section. The indirect beneficiaries of Extension Component inputs will be the DOA and ADD extension program staff who will benefit from stronger support services. The ultimate beneficiaries will be increased numbers of men and women smallholder farmers who are being assisted effectively by the DOA to increase their production and incomes.

E. Relation to IDA Projects - The Extension Component will both complement and benefit from the IDA National Agricultural Research Project and the Agricultural Extension and Planning Support Project. In terms of the first, both the agricultural communications and women's activities will benefit from activities of the Adaptive Research Teams whose operational costs will be financed by the IDA Project. The activities of the Agricultural Extension Planning Support Project will directly affect both the EAB/EAUs and

the WPS through its structural adjustments to the DOA organization and as a result of its extension programming and financial budgeting inputs. At the same time, the IDA Project is expecting the agricultural communications inputs of the MARE Project to play an important role in both the Mzuzu mass communications and overall efforts of the IDA to make extension services more cost-effective. In addition, the Agricultural Extension and Planning Support Project will directly support the MARE financed women's activities by providing funds for FHA motor scooters.

4.0 COST ESTIMATES AND FINANCIAL PLAN

4.1 Project Costs

A. Overall Project Costs - The Project cost is $82,757,000 over the five-year project period. This sum reflects the following contributions: AID - $14,000,000; GOM - $33,057,000; IDA - $35,700,000. Total Project costs by funding categories are found in Budget Table 1.

B. AID Contributions - The AID grant contribution to the Project will provide $14,000,000 or 17% of the total costs. Budget Table 5 provides a summary of AID's contribution as follows: Agricultural Training $8,449,000, Agricultural Research $2,988,000, Agricultural Extension $2,161,000 and Management/Evaluation $402,000.

Budget details for each component are contained in Budget Tables 6 - 9 in Annex 9.52

AID percentage contributions by funding categories are summarized as follows:

TABLE 1
USES OF AID FINANCING

Funding Categories	Percentages
Technical Assistance	35%
Training	33%
Commodities	4%
Administrative Support	4%
Other Costs	2%
Contingencies	22%

C. GOM Contribution - The Government of Malawi contribution to the Project is $33,057,000 which represents 43% of total costs. A summary of the GOM contribution is contained in Budget Table 4. The GOM contribution to the three components (in Kwacha equivalents) are: Agricultural Training, $1,116,000; Agricultural Research, $16,811,000; Agricultural Extension, $6,073,000, and other Costs, $9,057,000. Budget details of the GOM contribution for each component are contained in Budget Tables 10 - 14 in Annex 9.52.

The GOM contribution includes the salaries of counterpart MOA staff and those whose posts will be upgraded as a result of this Project. Likewise, the value of new GOM equipment and facilities used by the Project, as well as the

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BUDGET TABLE I
SUMMARY FINANCIAL PLAN
MARE PROJECT
(US $ 000'S)

ACTIVITY	AID FX	AID LC	IDA FX	IDA LC	GOM LC	TOTAL
AGRICULTURAL TRAINING	5620	2829	2068	1237	1116	12870
AGRICULTURAL RESEARCH	2759	229	14998	7033	16810	41829
AGRICULTURAL EXTENSION	1895	266	7313	3051	6073	18598
EVALUATION/STUDIES	294	108			9058	9460
TOTAL	10568	3432	24379	11321	33057	82757

BUDGET TABLE 2
SOURCES AND USES OF FUNDS
HARE PROJECT
(US $ 000'S)

PROJECT COMPONENT	AGRICULTURAL TRAINING			AGRICULTURAL RESEARCH			AGRICULTURAL EXTENSION			OTHER COSTS OF PROJECT			TOTAL
	AID	IDA	GOM	AID	IDA	GOM	AID	IDA	GOM	AID	IDA	GOM	
LT TECHNICAL ASSISTANCE	1215	0	0	1738	3028	0	658	1162	0	0	0	0	8601
ST TECHNICAL ASSISTANCE	466	0	0	375	8	0	461	498	0	0	0	0	1808
LT OFFSHORE TRAINING	2255	1118	0	0	0	0	0	0	0	0	0	0	3373
ST OFFSHORE TRAINING	393	689	0	0	0	0	0	0	0	0	0	0	1082
ST IN-COUNTRY TRAINING	1958	1084	0	0	0	0	0	0	0	0	0	0	3042
COMMODITIES	63	0	0	65	2953	0	404	808	0	0	0	0	4293
ADMINISTRATIVE SUPPORT	119	0	1116	184	928	16811	184	864	6073	125	0	9057	35461
INFORMATION/EVALUATION	0	0	0	0	0	0	0	0	0	200	0	0	200
CONTINGENCIES	647	79	0	236	1305	0	171	784	0	33	0	0	3255
INFLATION	1333	335	0	390	5259	0	283	2919	0	44	0	0	10563
CONSTRUCTION (IDA)	0	0	0	0	7750	0	0	1429	0	0	0	0	9179
CREDIT (IDA)	0	0	0	0	0	0	0	1900	0	0	0	0	1900
TOTAL	8449	3305	1116	2988	22031	16811	2161	10364	6073	402	0	9057	82757

BUDGET TABLE 3
SUMMARY OF ALL CONTRIBUTIONS
MARE PROJECT
(US $ 000'S)

ACTIVITY	1985	1986	1987	1988	1989	1990	TOTAL
AID CONTRIBUTIONS							
AGRICUTLURAL TRAINING	346	1540	2228	2040	1446	848	8448
AGRICULTURAL RESEARCH	0	967	1056	705	116	145	2989
AGRICULTURAL EXTENSION	0	792	630	457	161	121	2161
OTHER COSTS	83	104	24	147	0	44	402
TOTAL AID	429	3403	3938	3349	1723	1158	14000
IDA CONTRIBUTION							
AGRICULTURAL TRAINING	349	534	819	826	777	0	3305
AGRICULTURAL RESEARCH	251	2769	6909	7433	2969	1700	22031
AGRICULTURAL EXTENSION	0	497	2772	2741	2154	2200	10364
OTHER COSTS	0	0	0	0	0	0	0
TOTAL IDA	600	3800	10500	11000	5900	3900	35700
GOM CONTRIBUTION							
AGRICULTURAL TRAINING	0	176	196	221	246	275	1116
AGRICULTURAL RESEARCH	2154	2571	2597	2844	3244	3600	16810
AGRICULTURAL EXTENSION	0	911	1036	1163	1375	1566	6073
OTHER COSTS	0	294	794	2302	2631	3037	9058
TOTAL GOM	2154	3752	4627	6550	7496	8478	33057
TOTAL PROJECT	3183	10955	19065	20899	15119	13536	82757

BUDGET TABLE 4
SUMMARY OF GOM CONTRIBUTIONS
HARE PROJECT
(US $ 000'S)

ACTIVITY	1985	1986	1987	1988	1989	1990	TOTAL
1. ON-GOING PROGRAMS							
AGRICULTURAL TRAINING	0	175872	197780	219536	243679	270495	1107362
AGRICULTURAL RESEARCH	2154376	2371169	2514100	2583654	2736375	3037393	15397067
AGRICULTURAL EXTENSION	0	910893	1024365	1144796	1300181	1459271	5839506
OTHER	0	293750	793955	2231950	2465876	2724436	8509967
TOTAL ON-GOING PROGRAMS	2154376	3751684	4530200	6179936	6746111	7491595	30853902
2. INCREMENTAL COSTS							
AGRICULTURAL TRAINING	0	0	0	1196	2655	4419	8270
AGRICULTURAL RESEARCH	0	0	82893	260103	507428	563248	1413672
AGRICULTURAL EXTENSION	0	0	13287	37976	75293	106958	233514
OTHER	0	0	0	69553	165241	312483	547277
TOTAL INCREMENTAL COSTS	0	0	96180	368828	750617	987108	2202733
3. OVERALL CONTRIBUTION							
AGRICULTURAL TRAINING	0	175872	197780	229732	246334	274914	1115632
AGRICULTURAL RESEARCH	2154376	2371169	2596993	2843757	3243803	3600641	16810739
AGRICULTURAL EXTENSION	0	910893	1037652	1182772	1375474	1566229	6073020
OTHER	0	293750	793955	2301503	2631117	3036919	9057244
TOTAL GOM	2154376	3751684	4626380	6548764	7496728	8478703	33056635

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BUDGET TABLE 5
SUMMARY - USAID CONTRIBUTION
ALL COMPONENTS - MARE PROJECT

	1985 FX	1985 LC	1986 FX	1986 LC	1987 FX	1987 LC	1988 FX	1988 LC	1989 FX	1989 LC	1990 FX	1990 LC	TOTAL FX	TOTAL LC	
1. TRAINING COMPONENT															
-LT TA	70000	0	270000	0	270000	0	270000	0	235000	0	100000	0	1215000	0	
-ST TA	0	0	40500	0	108000	0	236000	0	81000	0	0	0	465500	0	
-LT Training (US)	198000	0	638000	0	792000	0	451000	0	176000	0	0	0	2255000	0	
-ST Training (US-Others)	18000	0	129000	0	108000	0	66000	0	42000	0	30000	0	393000	0	
-In-Country Training	0	0	0	171000	0	469000	0	469000	0	449000	0	400000	0	1958000	
-Commodities	24000	0	36000	3000	0	0	0	0	0	0	0	0	60000	3000	
-Administrative Support	2000	3000	30003	21000	3000	21000	3000	21000	1500	19500	1500	19500	14000	105000	
Component Base Cost	312000	3000	1116500	195000	1281000	490000	1026000	490000	535500	468500	131500	419500	4402500	2066000	
Physical Contingency 10%	31200	300	111650	19500	128100	49000	102600	49000	53550	46850	13150	41950	440250	206600	
Price Contingency 7%	0	0	82785	14453	202379	77401	252235	120475	182083	159291	57786	184356	777268	555976	
TOTAL COMPONENT COST	343200	3300	1310935	228953	1611479	616401	1380835	659475	771133	674641	202436	645806	5620018	2828576	8448594
2. RESEARCH COMPONENT															
-LT TA	0	0	675000	0	675000	0	388000	0	0	0	0	0	1738000	0	
-ST TA	0	0	13500	0	94500	0	92000	0	81000	0	94500	0	375500	0	
-Commodities	0	0	65000	0	0	0	0	0	0	0	0	0	65000	0	
-Administrative Support	0	0	0	70000	0	70000	0	43800	0	0	0	0	0	183800	
Component Base Cost	0	0	753500	70000	769500	70000	480000	43800	81000	0	94500	0	2178500	183800	
Physical Contingency 10%	0	0	75350	7000	76950	7000	48000	4380	8100	0	9450	0	217850	18380	
Price Contingency 7%	0	0	56296	5240	121501	11057	117650	10741	26755	0	40913	0	363115	27038	
TOTAL COMPONENT COST	0	0	885146	82240	967951	88057	645650	58921	115855	0	144863	0	2759465	229218	2988683

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	1985 FX	1985 LC	1986 FX	1986 LC	1987 FX	1987 LC	1988 FX	1988 LC	1989 FX	1989 LC	1990 FX	1990 LC	TOTAL FX	TOTAL LC	
3. EXTENSION COMPONENT															
-LT TA	0	0	270000	0	270000	0	118000	0	0	0	0	0	658000	0	
-ST TA	0	0	24500	0	171000	0	160000	0	67500	0	38000	0	461000	0	
-Commodities	0	0	350000	1000	15000	6000	10000	6000	6000	6000	0	4000	381000	23000	
-Administrative Support	0	0	2000	27000	3000	36000	3000	43000	2000	31000	1000	36000	11000	173000	
Component Base Cost	0	0	646500	28000	459000	42000	291000	49000	75500	37000	39000	40000	1511000	196000	
Physical Contingency 10%	0	0	64650	2800	45900	4200	29100	4900	7550	3700	3900	4000	151100	19600	
Price Contingency 7%	0	0	47982	2081	72010	6594	70948	11953	25184	12341	16813	17236	232937	50205	
TOTAL COMPONENT COST	0	0	759132	32881	576910	52794	391048	65853	108234	53041	59713	61236	1895037	265805	2160842
4. MANAGEMENT/EVALUATION															
-Project Support Services	50000	25000	25000	25000	0	0	0	0	0	0	0	0	75000	50000	
-Studies	0	0	30000	10000	10000	10000	0	0	0	0	0	0	40000	20000	
-Evaluations	0	0	0	0	0	0	100000	10000	0	0	20000	10000	120000	20000	
Component Base Cost	50000	25000	55000	35000	10000	10000	100000	10000	0	0	20000	10000	235000	90000	
Physical Contingency 10%	5000	2500	5500	3500	1000	1000	10000	1000	0	0	2000	1000	23500	9000	
Price Contingency 7%	0	0	3092	1964	969	969	23625	2350	0	0	7601	3811	35287	9094	
TOTAL COMPONENT COST	55000	27500	63592	40464	11969	11969	133625	13350	0	0	29601	14811	293787	108094	401881
TOTAL USAID PROJECT COST	398200	30800	3018805	384538	3168309	769221	2551158	797599	995222	727682	436613	721853	10568307	3431693	14000000

operating and maintenance costs of existing buildings and equipment used by the Project, are included in the above figures. Attributable costs of GOM secretarial and administrative services, and the allowances provided to Malawians sent for long-term overseas training are also calculated as GOM contribution to the Project.

D. Recurrent Costs - New GOM recurrent costs have been minimized in the design of the MARE Project by utilizing, to the extent possible, existing GOM resources to support Project activities. A summary of the recurrent cost analysis is located in Section 6.2 of this Paper and fully detailed in Annex 9.52.

4.2. Financial Plan

A. The proposed obligating schedule for this Project is as follows

Table 2: AID Obligation Schedule
(U.S.$ Thousands)

	FY1985	FY1986	FY1987	FY1988	FY1989	FY1990	TOTAL
Tech Asst	560	3,000	1,354				4,914
Training	845	2,500	1,261				4,606
Commodities	90	420	22				532
Admin Support	10	324	280				614
Other Costs	30	140	30				200
Contingencies	110	816	2,208				3,134
TOTAL	1,645	7,200	5,155				14,000

During the review of the Project Paper, the price contingency was considerabl reduced on the basis of stable prices both in the US and in Malawi during the life of Project. If this assumption proves incorrect the Mission will request additional funds to meet the additional project costs.

B. Methods of Implementation and Financing - A review of alternative methods of implementation and financing from the standpoint of funds accountability and project needs has been conducted during the course of the PP design. The preferred methods of implementation are: (1) Host Country contracting using direct reimbursement; and, (2) Direct AID contracting, using direct pay under LCTFS or direct reimbursement procedures. These two methods of implementation conform to USAID/Malawi's current policies on program financing and implementation.

Table 3 outlines the preferred methods of implementation and financing for Project activities. These are discussed in the next section.

TABLE 3: METHODS OF IMPLEMENTATION AND FINANCING

CATEGORY	METHOD OF IMPLEMENTATION	METHOD OF FINANCING	AMOUNT (000s)*
Training LT/PSC	Host Country Contract	Direct Reimbursement (Advance)	1,336
Training ST/TA	Host Country Contract	Direct Reimbursement (Advance)	466
Res/Ext LT TA	Direct AID Contract (TA, Admin Support)	LC-TFCS (FRLC)	3,601
ST TA Pre-Impl	Direct AID Contract	Direct Payment	125
ST TA Evaluation	Direct AID Contract	Direct Payment	140
ST TA Studies	Direct AID Contract	Direct Re-imbursement	60
LT US Trg	Placed Through IT	Direct Payment (MDA)	2,255
ST US Trg	Placed Through IT	Direct Payment (MDA)	300
ST Offshore Outside US	Direct Placement	Direct Payment	93
ST In-Country	PIL -Placement By GOM Training Unit	Direct Re-imbursement (Advance)	1,958
Procmnt Commod	Direct AID Contract Contractor Procurement	LC-TFCS (FRLC)	360
Procmnt USAID	Direct AID Contract	Direct Payment	20
Local Procment HC	Host Country Contract Direct GOM Procurement	Direct Reimbursement	152

USAID will assign a Project Officer who will be responsible for review and administrative approval or disapproval of all contractor requests for reimbursement. Project funds have been budgeted for independent financial reviews.

* Excludes contingencies and inflation

Periodically, during the project life, Regional Financial Management (RFMC), Nairobi, will arrange to issue work orders to a certified public accounting (CPA) firm (to be selected through indefinite quantity contract (IQC) and approval of IG) to carry out a non-federal review of the dollar and local currency accounts under the project for all contracts and the implementation agencies. The scope of work and work order for the local accounting firm is limited to financial and compliance matters and will be approved by the AID's Inspector General Office in Nairobi. The audit fundings, work papers and report will be reviewed by the same office. The Inspector General's Office will also ensure that the audit firm's qualifications and performance standards for non-federal auditors are met.

The Contractor will audit for compliance with project criteria and requirements and the performance of project entities viz-a-viz these criteria and requirements. The terms of reference will include semi-annual auditing of activities with resulting reports submitted to USAID's Project Manager. These reports will be shared with the MAF Project Manager and other project entities, as appropriate. Solicitation and award of the work order is expected to be handled by the RFMC and REDSO/ESA Contracting Office, since proposals are expected from firms with their representatives primarily present in Kenya and elsewhere in East Africa.

Budget Tables 1 and 3 on the preceding pages are the summaries, respectively, of the total USAID, IDA and GOM contributions to MARE. A summary of USAID financing by Component is also included. Full details of Project financing by component are described in Budget Tables 1 - 14 in Annex 9.52.

5.0 PROJECT IMPLEMENTATION

5.1 Overall Project Management Structures

The Ministry of Agriculture is responsible for the successful implementation of the overall program which will be supported by the USAID/MARE Project, the IDA National Agricultural Research Project, and the IDA Agricultural Extension and Planning Support Project. At this level, the principal concern is to maintain clear direction for the program and the close coordination of all the participating organizations, both within the GOM and between the donor agencies. Two mechanisms have been established in the design of the MARE Project (with the support of the IDA) which are intended to address these points - a Program Steering Committee and joint USAID-IDA monitoring and supervision.

A. MOA Program Steering Committee - The MOA Program Steering Committee will provide the mechanism for guiding and coordinating the USAID/MARE Project and the two IDA Projects. It will be chaired by the Principal Secretary, MOA, and include the two Controllers of Agricultural Services, Chief Agricultural Research Officer, Chief Planning Officer, Chief Agricultural Officer, and a representative from the Ministry of Finance as full-time members. USAID/Malawi will be represented by the AID Representative and the USAID Agricultural Economist. IDA will be represented by its Project Officers for the two respective projects. The Office of the Controller (NRDP) will function as the Secretariat for this committee to schedule meetings and set agendas.

The Steering Committee will have the following responsibilities:

1) Set benchmarks for determining program progress and then monitor program progress in accordance with benchmarks;

2) Review and recommend approval of major implementation processes and procedures, and thereafter monitor performance;

3) Review, discuss and make recommendations concerning any policy level issues or concerns which substantially impact on the combined goals and major objectives shared by the three projects;

4) Monitor and ensure coordination of program implementation; and,

5) Review, discuss and recommend actions required to resolve issues submitted for review by Supervision Missions, Evaluation Missions, the GOM or others, by mutual consent.

Illustrative tasks of the Steering Committee include:

- overseeing of major contracting activities;
- reviewing commodity procurement plans;
- approving annual training plans and sources of financing;
- reviewing project personnel levels;
- tracking planned program investment levels and recurrent cost financing; and,
- monitoring performance of contracted institutions or individuals.

B. Joint USAID-IDA Monitoring - Two benefits will be achieved by convening joint USAID-IDA monitoring missions: first, the disruption of on-going MOA businesses can be kept to a minimum; and, second, it will facilitate the continued and common understanding between all parties on the overall direction of the MOA Program. The details of the proposed system for joint monitoring are specified in Section 7.0 Evaluation and Monitoring and Annex 9.8.

5.2 Contracting Technical Assistance

A. Overview - Several factors were taken into consideration in determining the manner in which to contract the technical assistance for the MARE Project. First is the need to coordinate USAID inputs with the two other IDA projects which are already entering into their implementation phase. Second is the issue of locating qualified and experienced technicians who are able to make a long-term commitment to the institutional development process proposed in this Project document. Third is the need to minimize administrative duties and requirements created by the Project for both the GOM and USAID/Malawi.

The Project will divide the contracting for technical assistance into two parts: Personal Service Contracts for the two long-term positions in the MOA Training Unit; and, a contract with a Title XII institution for the technical assistance requirements proposed for the Research and Extension components.

The GOM will negotiate the two PSCs and the REDSO/ESA Contracting Officer will negotiate a four-year direct AID contract with a Title XII institution using the Agency's guidelines for limited competition and contracts with Educational Institutions.

The Training Advisors will be hired under Host Country PSCs because of the need to have them on board immediately after Project obligation. Any additional management burden that may result from the lack of an institutional affiliation is acceptable to USAID/Malawi. However, to decrease this burden and provide greater coordination among all project advisors, it may be possible to fold the training advisors positions into the Title XII Contract after it is signed. To enhance the possibility of accomplishing this, the Title XII RFP and the contract should be carefully drafted to provide an opportunity to add the training positions to the contract without the need for new competition. Additionally, if this option is exercised, it should be done in a manner that does not relieve the Title XII contractor of liability for the training work, which could result if AID required the contractor to employ specific individuals. The RLA will be fully consulted on these points.

A Request for Technical Proposals (RFTP) will be prepared by the REDSO/ESA Contracting Officer for the institutional contract. The Contracting Officer will be assisted, as much as possible, by the advance work of the USAID/Malawi. The RFTP will be sent to a list of qualified institutions provided by BIFAD, and will include a statement of the qualifications and areas of expertise considered essential for implementing the Project. In order to minimize the start-up time of the Project, both the CBD Notice and the RFTP will be issued as soon as: (1) the Project Agreement is signed; (2) the initial Conditions Precedent are met; and, (3) funds are available.

USAID/Malawi will form an RFTP Evaluation Committee which will consist of two or more direct hire USAID employees and two or more GOM representatives. The Regional Legal Advisor and the REDSO/ESA Contracting Officer will serve as advisors to the Evaluation Committee but neither will be voting members. The USAID/Project Officer will serve as the Chairman of the Committee, and in cooperation with the other members, will prepare a selection memorandum which identifies the preferred Title XII Institution. Following the initial review of the proposals, selected members of the Committee could make site visits to those organizations being considered. The REDSO/ESA Contracting Officer will negotiate the final contract with the assistance of the RLA in Lilongwe.

B. Agricultural Training Component - The contracting for the technical assistance proposed for the Agricultural Training Component has required the greatest attention. Two long-term posts are proposed: a Training Advisor to head the MOA Training Unit and a Trainer Specialist to develop a cadre of people for implementing the in-country training programs. These people are critical for directing and implementing the sizeable training program, which will involve the MARE Project and both IDA Projects. At the same time, the principal project concern is to institutionalize a training system in the MOA and to do that requires maximum participation by the GOM right from the start. For this reason, Host Country Personal Services Contracts will be used to hire the Training Advisor and the Training Specialist. Short-term technical assistance, which will be required for the Training Component, will

also be procured through Host Country Contracting. This arrangement will require that the GOM obtain the approval of USAID/Malawi for: (1) the scopes of work for the technicians prior to advertising the positions; and, (2) the endorsement of the final candidates prior to contracting. USAID/Malawi may contract directly for U.S. short-term technical assistance which will be needed to support the long-term Training Advisor and Specialist.

C. Agricultural Research and Extension Component - For the Agricultural Research and Agricultural Extension Components, the most important considerations have been to identify contracting arrangements which will: (1) keep the management units to a minimum; (2) identify and place the most experienced and qualified people in the technical assistance positions; (3) provide the broadest access to a wide variety of technical agricultural disciplines which can support the technical assistance in the field (especially for the Agricultural Research activities); and, (4) develop long-term institutional links which the Ministry of Agriculture can continue to use after the MARE Project is over.

These considerations led to the conclusion that a Title XII institution would best be able to provide the inputs required for successful implementation of this Project. Therefore, it is recommended that the procurement of technical assistance for the Research and Extension Components be restricted to Title XII institutions only. At the same time, the Mission requests that the selected Title XII institution fully utilize sub-contracting arrangements for obtaining the services of specialized skills and experience which are required to implement the Project.

The selected Title XII Institution will supply personnel for seven long-term technical assistance positions and 64 person-months of short-term work. The long-term positions will be filled in accordance with the job descriptions which appear in Annex 9.11. Annual workplans will be submitted by the Contractor through the MOA Controller for Agricultural Services (NRDP) for USAID/Malawi approval. Short-term assistance requirements will be identified by the GOM, which will prepare scopes of work for AID's approval before the Title XII institution, in cooperation with the MOA, makes arrangements to select a technician(s).

Small disadvantaged business firms, including women-owned and Gray Amendment firms, have not been considered appropriate for implementing the overall Research and Extension Components because these firms do not have the institutional resources which are required to readily supply and technically support the variety of special agricultural skills proposed in the Project Paper. Another factor which was considered in reaching this decision is that with two other IDA Projects, in addition to the MARE Project, management resources are stretched to the limit. However, sub-contracting arrangements with these firms for selected activities will be encouraged.

D. Other Technical Assistance - USAID/Malawi will use direct contracting methods for providing technical assistance which is required: (1) prior to the award of the institutional contract; and, (2) for the Project evaluations and special studies.

5.3 Project Training

Training which is proposed under the MARE Project can be categorized, for the purposes of implementation, into three separate types: Long - and short-term training in the United States; Short-term off-shore training in countries other than the United States; and, in-country training. The implementation arrangements for each of these are discussed below.

A. Long-and Short-Term Training in the United States - Qualified candidates for training in the United States will be identified by selection procedures which have been established by the MOA Training Unit, confirmed by the Training Advisory Committee, and submitted by the GOM to USAID/Malawi for approval and processing. When the Project Agreement has been signed and the Conditions Precedent for the Training Component met, USAID/Malawi will utilize AID/W, S&T/IT to provide placement services and other participant support that are required in the United States. The decision to use the USAID/Malawi Participant Training Officer for this Project was based on the GOM's favorable view of the Unit's past performance and the recognition of the nearly four years of investment which has been made in developing procedures for US training. This arrangement will be used for both long- and short-term training in the United States.

B. Off-shore Training in Countries Outside the U.S. - Candidates proposed for off-shore training in countries other than the United States (but within the Geographic Codes approved in the Project Authorization) will be identified, selected and approved in the same manner as those who go to the United States. These candidates will be directly placed by the MOA Training Unit and financed on a cost-reimbursement basis by USAID/Malawi.

C. In-Country Training - A major portion of Project support will finance in-country training. The principal aim for providing this support is to institutionalize staff training in the Ministry of Agriculture. With the support of the two project-funded advisors, the MOA Training Unit will develop a comprehensive in-country training plan. Costs for instructors, travel and per diem have been included in the Project budget for USAID support.

The implementation arrangements for this activity will begin with the development of an annual in-country training plan which will be compiled by the MOA Training Unit, considered by the Program Steering Committee, and approved for financing by USAID and IDA. A 90-day advance will be established in a special account to be used by the MOA to finance the USAID-funded in-country courses. The Quarterly Financial Reports submitted to USAID by the GOM will indicate the current balances in the special account, and additional funds will be provided on the basis of estimated cash needs (and remaining balances) for the coming quarter.

5.4. Commodity Procurement Plan

A list of commodities to be procured under the Project appears in Annex 9.7.

A. Responsible Agency - The major portion of procurement to be financed by AID will be the responsibility of the Title XII Contractor

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selected to implement this Project. Procurement and development of technical specifications shall be made a part of the Contractor's scope of work, and shall be included as a part of their fixed fee for implementing the contract. Procurement fees will, therefore, be negotiated separately with the contractor in conjunction with all other services cited in the PIO/T. The procurement fee will cover payment for all services normally performed by Procurement Service Agents, as described in AID Handbook 15. Sufficient funding to cover the total value of commodities to be purchased and all commodity related services will either be made a part of the contract, or made a part of the Title XII Contractor's Federal Reserve Letter of Credit (FRLC). Reimbursement to the Contractor for commodity purchases and commodity related services will be made at actual cost to the Contractor against standard payment documentation as required by AID.

All other procurement, consisting primarily of project vehicles, will be the responsibility of the Ministry of Agriculture. Reimbursement for these commodities shall either be made directly to the supplier with whom the GOMhas contracted, or to the Ministry itself for eligible goods which the Ministry has purchased and paid under its own account. In either case, payment shall be made against presentation of standard payment documents as required by AID.

All procurement and earmarking of funds will be initiated by the preparation of a PIL, executed by the USAID Project Officer and provided to the Ministry of Agriculture.

5.5. Disbursement

USAID/Malawi will be responsible for disbursing funds for the Title XII contract vehicles for technical assistance personnel, evaluations and studies, and limited technical assistance, commodity, and training costs prior to the arrival of the Contractor. The Contractor will disburse funds for long- and short-term technical assistance, including: salaries, travel, per diem, and other direct support costs. The GOM will disburse directly for the Training Unit and advisors all in-country training and vehicles.

5.6. Logistic Support

The GOM will provide housing, basic furniture, office space, secretarial support, use of office equipment and basic office supplies for all long-term technical assistance, except for the two positions in the Training Unit. In addition, an annual allocation of program funds have been built into the technical assistance budget which is intended to provide greater flexibility in the day-to-day operations of the technical assistance personnel.

5.7 Pre-Contractor Implementation Phase

An essential element for the success of the MARE Project is ensuring that its activities are coordinated, in a timely manner, with the two IDA Projects. Because the IDA National Agricultural Research Project will enter its implementation phase in May, and the IDA Agricultural Extension and Planning Support Project soon thereafter, the MARE Project should start as soon as possible. The design of the MARE Project incorporates Host Country

contracting mechanisms which will facilitate a quick start on the Training Component, but the Title XII Contract personnel may not, realistically, be in Malawi until one year after the signing of the Project Agreement. For this reason, a Pre-Contractor Implementation Phase is required.

Basically, this Phase will require that USAID/Malawi and the GOM be responsible for limited procurement of short-term technical assistance and commodities for the purpose of providing early-on support to key activities. These will include:

- A short-term consultancy to assist the GOM to establish, equip and develop contracting procedures for the Training Unit;

- Assistance to USAID/Malawi and the GOM to develop details to prepare the RFP; and

- Assistance to USAID/Malawi and the GOM to process training candidates for the Agro-Forestry study tour, ICRAF fellowship, and undertaking the USDA Research Management Course.

5.8. Component Implementation

The Training, Research and Extension Project Components are related to three separate management units within the Ministry of Agriculture, including the MOA Training Unit, the Department of Agricultural Research, and the Department of Agriculture. All of these units fall under the guidance and supervision of the Controller for Agricultural Services (NRDP), who will be the GOM contact person for the MARE Project.

A. Training Component Implementation Plan

1) Management - The management of this component will be the responsibility of the Chief Training Officer, under the direct guidance and supervision of the Controller of Agricultural Services. The Chief Training Officer will be assisted by the project-funded Training Advisor.

2) Technical Assistance - The two long-term technical assistance positions to be funded for the Training Unit are listed in the Project Description and their respective job responsibilities appear in Annex 9.11. Short-term technical assistance will be provided through the process outlined above.

3) Training - In order to develop the technical, management and training skills of the personnel of the MOA Training Unit, a staff training plan will be developed. The Project budget includes provisions for Masters level training for the Chief Training Officer and the Training Officer. In addition, short-term courses will be supplied for the Unit's trainers.

4) Procurement - The commodity requirements of the Training Component will be the responsibility of the GOM. It will locally procure: two sedan vehicles,(one for each of the expatriate advisors for official use), two microcomputers and software, two typewriters, fuel and maintenance for the

vehicles, and a variety of office and training supplies. The Title XII Contractor will procure reference books and training manuals based on the specifications developed by the Training Advisor.

5) GOM Logistic Support - The GOM will arrange for adequate logistic support for the technical assistance team, including: basic furniture, office space, office equipment and other basic supplies, and secretarial support. The GOM will also cover the salaries for its staff (including the Chief Training Officer at the P5 level and the Training Officer at the P8 level). The GOM will disburse program funds for the Project-funded technical assistance.

B. Research Component Implementation Plan

1) Management - The management of the Research Component will be the responsibility of the Chief Agricultural Research Officer.

2) Technical Assistance - The long-term technical assistance which will be provided by the Project is identified in the Project Description. Job descriptions and responsibilities appear in Annex 9.11. Short-term technical assistance will be provided by the Title XII Contractor in accordance with the process outlined in Section 5.2.C.

3) Training - The DAR has requested long-term training for 33 persons. The individuals have been identified by name, commodity unit and discipline (See Annex 9.51), and corresponding areas and levels of training have been assigned. The CARO will submit these names to the MOA Training Unit which will present them to the Training Advisory Committee for their endorsement. Short-term training outside of Malawi will require the same procedures to be followed.

Short-term training will include technical training, on-the-job training and informal training. The technical training will be developed by the Training Unit in conjunction with both DOA and DAR. On-the-job training will be handled internally within the DAR. The Training Unit, in cooperation with the DAR, will arrange informal workshops and training courses.

4) Procurement - The commodity procurement planned for the Research Component includes five vehicles for official use by each of the 5 specialists. The Title XII Contractor will provide for the operating and maintenance costs.

5) GOM Logistic Support - The GOM will provide housing, basic furniture, office space, secretarial support, use of the office equipment, and basic office supplies for all long-term technical assistance. In addition, annual program funds have been provided in the budget, which will be disbursed by the Contractor, for use by the technical assistance personnel. The Contractor will also have secretarial and administrative support which will be included in their overall contract.

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C. Implementation Plan for the Extension Component

1) Management - The management of the Extension Component will be the responsibility of the Chief Agricultural Officer, with assistance from the Heads of the Communication Division and the Women's Program Section.

2) Technical Assistance - Two long-term technical assistance positions, which will be funded by the Project, are identified in the Project Description. Job description appears in Annex 9.11. Short-term technical assistance will be provided by the Title XII Contractor in accordance with the process outlined in Section 5.2.3.

3) Training - The Extension Component will provide long-term training for the Women's Program Officer and one person from the EAB. In addition, 12 other long-term training positions have been budgeted and will be used as determined by the evaluation of DOA/ADD training needs.. The CAO will present names of long-term training candidates to the MOA Training Unit which will present them to the Training Advisory Committee for endorsement. The same procedures will be required for short-term, out-of-country training.

In-country short-term training for the extension staff will be the responsibility of the Training Unit in conjunction with the DOA. On-the-job training will be handled internally within the Communication Division and the Women's Program Section of the DOA. In addition, the Training Unit, in cooperation with the CAO, the Communication Division, and the Women's Program Section will arrange formal and informal training courses and workshop.

4) Procurement - Commodity procurement for the Extension Component will be the responsibility of the Title XII Contractor (with the exception that USAID/Malawi will be responsible for providing a short-term communication hardware specialist to develop detailed specification for all commodities prior to the beginning of project implementation) The Project will procure two vehicles for official use by the 2 specialists. Operating and maintenance costs will be borne by the Title XII Contractor. An indicative list of Project equipment to be procured appears in Annex 9.5.1.B; The GOM will be responsible for the operating and maintenance costs of the equipment.

5) GOM Logistic Support - The GOM will provide housing and basic furniture for long-term technical assistance, furnished office space, secretarial support, use of office equipment and basic office supplies for all long- and short-term technical assistance. In addition, annual program funds to be disbursed by the Title XII Contractor have been provided for the technical assistance personnel. The Contractor will also have secretarial and administrative support which will be included in its overall contract.

6.0 SUMMARIES OF ANALYSES

6.1 Technical Analyses

6.1.1 Summary of Technical Analysis - Training

The shortage of technical and management skills represents a major constraint to improving the effectiveness of MOA's research and extension services. While this is clearly reflected by staff vacancies at the middle and upper levels of the MOA organization, it is no less of a problem for the staff working directly with farmer groups. It is essential that a comprehensive training program that joins the research and extension departments from top to bottom form the core of the GOM's efforts to improve the effectiveness of its Ministry of Agriculture.

The USAID/MARE Project, with the cooperation of both IDA Projects, will take a lead role in assisting the GOM to develop a comprehensive staff training program for the Ministry of Agriculture. The strategy, which is reflected in the Training Component of this Project, is as follows:

a) Establish a Training Unit in the Ministry of Agriculture which can provide a single focal point for the development of a MOA Staff Training Program.

b) Organize a Training Advisory Committee which will provide both policy guidance for the Training Unit and a forum for discussing training issues.

c) Utilize short-term off-shore training to upgrade the skills of DAR's research staff and senior technical staff in the DOA who are filling critical MOA management posts to levels which are commensurate with their responsibilities.

d) Use long-term off-shore training to upgrade the technical skills and practical work experience of mid-level MOA technicians and to provide specialized training to senior MOA staff.

e) Place special emphasis on developing in-country capabilities for training staff at all levels, both in terms of technical agricultural skills and management expertise. It is planned to fully integrate staff training between departments and between headquarters and field staff at all levels so as to improve information exchange and to foster working relationship.

f) Establish a core of trainers which will be able to develop and accelerate in-country training programs.

This approach is consistent with the priorities expressed by MOA personnel and represents the most cost-effective solution in addressing the priority training needs of agricultural personnel at all levels.

The inputs provided by the MARE Project for training include: (1) six to nine person-years of long-term technical assistance and twenty-five person-months of short-term technical assistance to be used in establishing the MOA Training Unit; (2) funds for long-term undergraduate and graduate level training in the Unites States; (3) financing for short courses in the United States or in third countries; and, (4) funding for preparing and initiating country training activities especially in terms of technical training.

The most important output will be an institutional system represented by a staffed and fully functional MOA Training Unit which is able to develop and implement effective training programs.

6.1.2 Summary of Technical Analysis - Research

The smallholder sub-sector currently contributes nearly 80% of the total agricultural GDP. Data indicate the smallholders, even those engaged in cash crop production, give priority to production of food for household consumption. Increases in productivity of basic food crops appear to be a requisite for greater involvement in semi-commercial farming. Attention also is warranted on diversification of crops for domestic consumption to improve diets and which also have a good market potential. Currently, recommendations on improved agricultural technologies for the smallholder sub-sector are given without regard to agro-ecological variations, to different resource levels within the smallholder sub-sector, and to varying labor patterns across different crops.

The DAR applied research program has become out of balance with current crop production and potential. Furthermore, research activities on basic crops have primarily centered on improved technologies requiring a relative high level of investment, most of which are applicable only to an extremely small portion of smallholders.

The success of the extension service to reach a wider strata of smallholders depends heavily on the availability of improved technologies suitable to smallholder production systems. Increasing the site specificity of recommended practices and developing technologies applicable to the social and economic conditions of smallholder production systems are expected to result in increased productivity and profitability. To this end, the Project provides assistance to strengthen the applied and adaptive research programs of the DAR and to enhance its staff technical capacity. These are considered the most viable means of increasing institutional performance and effectiveness, taking into account the complementary assistance to be given under the IDA National Agricultural Research Project.

A. Applied Research Program - The MARE Project will help strengthen the technical capabilities within the commodity research program through in-service training and the provision of long-term advisory services in horticulture and agroforestry as well as short-term technical assistance. With the assistance of a Production Economist Advisor, an Agricultural Economics and Data Processing Unit will be established in the DAR which will provide services for the commodity research activities. Of the DAR's 85 professional research officers, only 56 percent hold advanced degrees or are

currently enrolled in advanced degree programs. Specialized technical training, primarily at the master's level, will be provided by the Project. This is considered essential to increasing the capacity of researchers to carry out their work. An indicative list of off-shore long- and short-term training has been drawn up.

Special assistance will be provided in horticulture through provision of two years of technical assistance to continue the work initiated under the on-going Agricultural Research Project. Horticulture research conducted under the MARE Project will be expected to include a focus on fruit and vegetable production for domestic consumption by low resource male and female farmers.

The capacity to carry out agroforestry research will be facilitated by establishment of an Agroforestry Commodity Team. The Project will finance an Agro-Forestry Specialist for three years to help establish the Team and its research program. Collaboration with other commodity research teams will be crucial to the agroforestry research program. In addition, the agroforestry commodity team will work closely with the ARTs to: (1) identify and diagnose smallholder problems; (2) design and monitor trials based on recommendations proven technically feasible under similar agro-ecological conditions in other countries; and (3) improve the current agroforestry practices of farmers.

Because the allocation of research funds often does not reflect the actual priorities and production constraints of smallholders, and because findings from research investigations often are not adequately analyzed, the DAR intends to establish an Agricultural Economics and Data Processing Unit to redress these weaknesses. The Unit will be established with the assistance of a Production Economist Advisor. Three staff members will be sent for MSc degree training. It is anticipated that after three years, the Unit will be able to operate adequately, with occasional assistance from short-term consultants.

B. Adaptive Research Program - Adaptive research is considered pivotal to linking applied research recommendations and applied research investigations to the realities of smallholder production systems. Thus, the Project will assist in the further development of the Adaptive Research Program.

The National Adaptive Research Coordinating Unit (NARCU) and eight ARTs will be operational by the end of Project. While two staff members of the NARCU are involved in MSc degree training, two technical advisors- an agronomist and an agricultural economist- will fill their positions. The role of NARCU is to provide support to the existing and newly formed ARTs, and to link the adaptive research program with the National Commodity Research Coordinating Units.

Currently, three ARTs have been established and new ones will be formed upon return of staff from advanced degree training. Each ART will consist of an agronomist and socio-economist from the DAR, and a senior extension officer from the DOA. In regard to the latter position, the appointment of one senior Extension Officer to work 50-60 percent of the time as a team member is considered important to the success of the adaptive research program as it expands within each ADD.

A role is planned for the Women's Program Officers in the adaptive research program to help ensure that women farmers are included in the research program. Also, because agroforestry is a new initiative, its activities are not covered in current Adaptive Research work. Therefore, special training and assistance will be provided, on a phased basis, to integrate agro-forestry concerns into the AR program.

The Adaptive Research Program is heavily dependent on the cooperation and involvement of DOA staff. A number of DOA staff is required to assist ARTs in informal and formal surveys as well as on-farm trial operations and monitoring. Only with the full cooperation of DOA can ARTs cover a wider number of sites and commence several trials at one time. In addition, the involvement of the DOA in the Adaptive Research Program will develop an important linkage between the research and extension systems. This linkage is important to the DAR because it will help ensure that its findings are relevant to the needs of the smallholders, with whom the extension agents have constant contact. It is important to the DOA because it provides a mechanism for upgrading the technical knowledge of extension agents on the improved packages of technologies which they are responsible for disseminating to the farmers. Thus far, cooperation of the DOA in regard to the surveys has been good and is expected to continue.

The ARTs will need continued support from applied research teams in: (1) identifying potential recommendations to address the problems and constraints faced by the smallholders; (2) design of trials; (3) monitoring of selected trials; and, (4) undertaking research work on problems for which no recommendations are ready for on-farm testing. The cooperative arrangements within the DAR, and between the DAR and the DOA are regarded as essential, based on experience to date in the Adaptive Research Program.

6.1.3 Summary of Technical Analysis - Extension

Agricultural extension is well established in Malawi and functions with varying degrees of success throughout the country. The concepts and organizational structure of the DOA are basically sound, but performance is inadequate if measured in terms of assisting significant numbers of smallholders to increase their production and incomes through beneficial use of improved agricultural technologies.

The reasons for such unsatisfactory performance are not difficult to identify. Four, any one of which would effectively restrict major improvement in the DOA's performance, are pre-eminent: (1) lack of appropriate, localized technological information to disseminate; (2) inadequately trained staff; (3) ineffective communication support; and, (4) inadequate research-extension agrosupport sector linkages.

The Extension Component will adopt a strategy to significantly improve the DOA's performance through a multi-pronged, coordinated action to remove or substantially alleviate all of the above cited constraints. To carry out this strategy, the Extension Component will draw heavily upon and function in close collaboration with the research and training components. The MARE Project will strengthen the DOA through interventions in the Communications Section and in the Women's Program Section.

Extension communications activities are carried out by the Extension Aids Branch (EAB) to provide information support to MOA programs at the national level. The EAB has a large, relatively well-trained staff and good facilities. It has adequate equipment, although some are antiquated and/or in poor condition. EAB is isolated from the DAR, is not closely linked with extension programming, and, is only considered to be a service unit to produce materials requested by others. It has virtually no role in program planning and development, nor in the two-way information flow and development of linkages between and among the research, extension, and other entities involved in the technology development and transfer process.

Extension Aids Units (EAUs) have been established in the ADDs as part of a decentralized process. The concept is sound, but implementation has been weak. The typical EAU is headed by a diploma-holder Extension Aids Officer with no specialized training in communication other than two or three months in-service training at the EAB. The Units are poorly equpped and supplies are erratic and inadequate. There is virtually no linkage between the EAB and the EAUs. The EAB provides little technical back-stopping other than national level publications, and little in-service training in communication (either organized or ad hoc).

Inputs of technical assistance, training and commodities will be provided by the MARE Extension Component to improve the services of the EAB within the MOA: (1) to strengthen the communications capacity of the ADDs; and, (2) to implement a mass communication pilot program for testing delivery strategies and acceptance levels of extension messages.

In addition, the Extension Component will assist in strengthening the WPS through the provision of: (1) long-term MSc training for the Women's Program Officer; (2) long-term technical assistance; (3) short-term, in-country training for women (and men) at all levels of the extension system; (4) short-term, off-shore training for Women's Program Officers serving at the ADD level; and, (5) funding for demonstration activities aimed at enhancing the incomes and production methods of women involved in agriculture.

6.2 Summary of Financial Analysis

The principal issues with respect to AID's investment in the MARE Project are:

A. Is the overall Project financing plan realistic? - The overall Project cost is US$ 82,757,000 over a six-year period. This sum is comprised of the following contributions: GOM will contribute $33,057,000; IDA will finance $35,700,000 and, AID will provide $14,000,000 in grant funding. The shares of Project financing are: 40%, 43%, and, 17% respectively. In terms of total Project costs, foreign exchange represents 42% of the overall budget.

Project costs are distributed as follows: Technical Assistance 13%, Training (without Technical Assistance included) 9%, Commodities 5%, Administrative Support 42%, Construction 11%, Credit 3%, and Contingencies 17%.

Financing is phased so that in 1985 only 4% of total project funds is available. Over the next five years, this figure grows to 13% in 1986, 23% in 1987, 25% in 1988, 19% in 1989, and ends with 16% of the funds being used in 1990. The GOM contribution to total Project financing begins slowly and by the last year of the Project will support 58% of total Project costs.

The AID grant contribution to the Project will provide $14,000,000 or 17% of total Project costs. Budget Table 5 provides a summary of AID contributions as follows: Agricultural Training ($8,449,000); Agricultural Research ($2,988,000); Agricultural Extension ($2,161,000) and Evaluation/Studies ($402,000).

The IDA contribution of US$35,700,000 is provided through two separate loan projects: the National Agricultural Research Project ($23,800,000) and the Agricultural Extension and Planning Support Project ($11,900,000). The financing for the Research Project is phased so as to provide the bulk of the funds in years three and four (60%). The Extension Project will distribute funding evenly over the last four years of the Project.

The Government of Malawi contribution of US$33,056,635 is calculated on the basis of the value of GOM resources which will be used for the Project ($30,853,902) and the incremental costs created by Project activities ($2,202,733). Complete GOM costs are summarized in Budget Table 4 which is taken from Budget Tables 10-14.

The Financing Plan for the Project is reasonably phased and realistically funded. A large portion of the GOM contribution is already earmarked for the MOA budget. In terms of donor financing, overall levels are realistic (donor funding will increase the financial resources in the MOA from between 20 and 45%). Phasing of both AID and IDA resources accelerate quickly at the start of the Project, and while this is necessary for funds to be available to start the procurement and contracting processes, it underscores the need to undertake as much advance work on these activities as possible beforehand in order for the scheduled disbursements to be maintained.

The considerable levels of financing assigned for administrative support should be adequate to cover all the implementing and operating expenses required by Project activities. Likewise, contingencies have been calculated at realistic levels so as to maintain a reasonable margin of safety during project implementation.

B. <u>Is the GOM financial management system capable of administering the large levels of project funding?</u> - While GOM financial management systems are generally sound, there is an overall consensus that these must be strengthened to fully utilize and administer the levels of funding proposed by the Project. Both IDA Projects have included long-term technical assistance to support the accounting and financial management systems of the Department of Agricultural Research and the Department of Agriculture. With the addition of these supplementary resources, financial management personnel in the Ministry of Agriculture will be capable of managing the levels of financing proposed by the Project.

C. Will the GOM be able to maintain project investments beyond PACD? - The Government budgetary support provided to the MOA stagnated between 1978-1981. Although some improvements have been registered since then, additional measures need to be taken to narrow the gap between government resources and MOA expenditures. In light of this, the USAID and IDA-financed Projects are designed to utilize existing MOA program resources where this is possible. In addition, every effort will be taken to minimize the level of incremental recurrent costs. To further reduce the recurrent cost burden on the GOM, measures will be taken to identify and generate savings from the MOA's on-going programs in order to cover at least part of the incremental costs associated with the three Projects.

To determine the potential impact of Project-related incremental recurrent costs on the MOA's budget, three scenarios were constructed.

In Scenario 1, the MOA recurrent budget will have to be increased by almost 7%, starting in 1995, in order to cover the incremental recurrent costs of the USAID and IDA-financed Projects. This scenario does not include the possibility of any cost savings being realized. However, this assumption is unrealistic because there should be cost savings as per the following: (1) approval at the highest levels has already been obtained to implement DAR infrastructure consolidation measures; and, (2) the IDA-financed research and extension projects will concentrate almost entirely on improving efficiencies in the DAR and the DOA to reduce their current operating cost levels.

Scenario 2 presents the impact of incremental recurrent costs on the MOA budget, with the assumption that cost savings will be generated to cover a portion of the costs of the new activities of the Projects. Potential cost savings that have already been identified include: (1) approximately MK545,000 that will be saved in the DAR by 1988, as a result of the consolidation of its research station network; and, (2) approximately MK40,000 that will be saved when the Extension Aids Branch's (EAB) operations are made more effective and efficient. In addition to these savings, an assumption was made that through the activities to be financed by IDA to improve operations in the DOA, savings amounting to about 1% of the DOA's 1984/85 budget would be realized by 1989. If these levels of estimated savings are sustained from the time they are generated through the year 2005, the MOA's budget will only have to be increased by about 4% to cover the additional recurrent costs associated with the three projects.

Scenario 3 was constructed for illustrative purposes to show the recurrent cost impact of the activities in which only the MARE Project will be directly involved. The recurrent costs do not include savings that are expected to be generated in the DAR and the EAB. This scenario shows that the MARE Project and the IDA-financed research activities related to the MARE Project will increase the MOA's recurrent budget by no more than 2%.

Whether the GOM will be able to provide the necessary funding support to cover the incremental recurrent costs of the USAID and IDA-financed projects will ultimately depend upon: (1) the impact of the three projects on improving the performance of the smallholder sub-sector; and, (2) the budgetary performance of the central government.

6.3. Summary of Economic Analysis

The economic analysis aggregates the incremental costs and expected benefits from the MARE Project and the two IDA-financed projects. In order to provide a basis for judging the economic worth of the three projects, an indicative break-even analysis was undertaken. In addition, measures to ensure the cost-effectiveness of project design, as well as other less easily quantified benefits, are discussed.

Various combinations of increases in the productivity of major smallholder crops in Malawi, increases in adoption rates for improved technologies, and estimated efficiency savings in the DAR's and the DOA's operations were tested to determine the level of incremental benefits needed to justify project-related investments. From among the combinations tested, the scenario which proved to be the most realistic and easily achievable involved: (1) a 15% adoption rate of technology which would increase maize yields by an average of 1 MT per hectare by 1995; (2) generation of savings amounting to MK545,000 per year by 1989 through the consolidation of DAR's Research Station network; and, (3) generation of savings amounting to almost 1% of the DOA's 1984/85 budget by 1990. If these levels of benefits are achieved and sustained, the MARE and IDA funded Projects will have paid for themselves by the year 2001.

The estimated increases in the productivity of maize are realistic and are, in fact, below the proven yield potential of improved maize varieties and production practices. When research is successful in developing local-specific improved technologies for maize, the estimated 15% adoption rate may well be conservative. In terms of cost savings, the plans for consolidating DAR's research station network have already been approved at highest levels in the GOM. The level of benefits used in this analysis are based on actual estimates made by the IDA on the extent of cost reductions that can be realized through infrastructure consolidation. Firm estimates of cost savings that could result from improved efficiencies in the DOA are not yet available. Consequently, the assumptions used in estimating savings in the DOA operations were very conservative but ultimately achievable given the inefficiencies within the DOA at this time. It is highly unlikely that no savings will be generated in the DOA because IDA's extension project is almost entirely focused on making the DOA's operations more cost-effective.

Specific measures to ensure the cost-effectiveness of the USAID and IDA-financed projects include: (1) support for applied and adaptive research programs as a means of maximizing the impact of research and extension on smallholder production; (2) provision of managerial and technical training to enable the DAR and the DOA to perform their respective functions more efficiently and effectively within the limits of their budgetary resources; (3) emphasis on local training to maximize utilization of project training funds and to ensure that local capacity exists to sustain the training activities initiated under the three projects; (4) strengthening of the DAR's linkages with international and regional research centers, rather than developing local capacity for undertaking basic research; and, (5) support for testing more cost-effective extension approaches, such as the use of mass communications and the block extension system, to supplement personal extension contact.

Other less easily quantified benefits could be generated by the three projects. These include: (1) improved income distribution between producers and consumers (particularly those belonging to low-income groups); (2) positive economic effects from employment generation; and, (3) additional farm incomes and foreign exchange earnings through agricultural diversification.

6.4. Summary of Social Soundness Analysis

The MARE Project, which will support on-going programs and initiate several new activities, aims at improvements within the MOA which will lead to increased agricultural production by male and female smallscale farmers. To be more effective, plans and operations must be based on recognition of social and cultural diversity within the smallholder sub-sector.

Training is a keystone of the MARE Project. Criteria for selection of persons for off-shore, long-and short-term training should place emphasis on past performance as well as reflect priorities across MOA departments. The proposed experience-based teaching approach for the in-country management, extension methods, and technical training courses is considered a requisite for achievement of project purposes. The training should be of high quality and content on development of skills through participatory techniques. This approach has already been used to a limited degree in Malawi, and officials have requested that it be extended.

Because Farmer Assistants (FAs) and Farm Home Assistants (FHAs) are the main link between the MOA and farmers, the Project places special attention on upgrading their technical skills and ability to work with male and female farmer groups. The technical training should focus on basic agriculture and how to extend improved technologies to low resource smallholders. Of equal importance, skills should be developed for working with groups.

The extension aids activities of the Project will provide direct support to extension staff. This support will reduce extension's work burden because information will be available to farmers through other channels. Additional lines of communication will result in increased farmer awareness of appropriate technologies, which have been adapted to his/her particular agroecological and socioeconomic conditions, and increased rates of adoption.

The MOA recognizes that there is a critical need to reach a wider strata of rural women. One of the means identified for accomplishing this is through the formation of women's agricultural groups. The MARE Project will promote the use of improved practices and technologies by women farmers by emphasizing agricultural production as opposed to home economics, and by establishing a demonstration fund for women's groups.

The work of the ARTs is expected to result in the identification of improved technologies which are socially and economically appropriate for smallholder farming systems. The MARE Project and IDA will provide support to strengthen this program. The ARTs have recognized the need for the participation of female staff in their activities. The mutual benefits which can be derived from this involvement are obvious and are in concert with the aim of integrating women in agricultural programs.

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The Project will assist MOA in establishing an agroforestry research capability for the purpose of disseminating improved agroforestry technologies to smallholder farmers. The MOA and Ministry of Forestry (MOF) will have to assure the availability of a sufficient amount of requisite seeds as well as farmer access to seedlings of the appropriate species.

The DAR's Annual Review system for assessing all research activities and for setting priorities should result in research that is focused on identified smallholder production constraints. The analyses of research trials on food crops should include information on calorific value in order for comparisons to be made between technologies.

The primary, direct beneficiaries will be MOA personnel trained and provided with commodities and materials to facilitate their work. Approximately twenty-five percent of the off-shore trainees and thirty-five percent of the in-country trainees are expected to be women. The ultimate beneficiaries will be male and female farmers in Malawi, whose production and income levels should increase. A small number will directly benefit from being cooperating farmers in the AR program. Some women farmers, organized in groups, will acquire enhanced skills by participating in activities financed by the demonstration fund.

6.5. Summary of Institutional Analysis

With the severe fiscal constraints faced by the Government of Malawi, it is unlikely that its budgetary support for the Ministry of Agriculture will show significant real increases over the medium-term. In light of this, the proposed MARE Project and the two IDA-financed projects will assist the MOA in addressing key institutional problems which affect its performance in the critical areas of agricultural planning, research, and extension. The objective is to enable the MOA to promote smallholder development more efficiently and effectively.

A. The Planning Division (PD) - The PD is currently constrained by lack of staff to effectively perform assigned functions and by a lack of efficient management. Consequently, the PD has had to operate on an *ad hoc* and emergency basis. Further, management has been unable to focus on long-range work programming. To assist the PD to address these problems, the IDA-financed Agricultural Extension and Planning Support Project will provide operating funds to enable the PD to establish additional posts to handle its increased workload and to recruit qualified persons to fill vacant positions. Technical assistance and training will also be provided to improve the PD's management and technical capabilities.

B. The Department of Agricultural Research (DAR) - The DAR has national responsibility for conducting research on all smallholder crops, except tobacco, tea, and sugar. Institutional and technical problems have affected its ability to utilize its resources effectively in developing technologies for smallholders. Research investments have often not reflected the crop production patterns of smallholders, and technological findings have not been adapted to the local needs, priorities, and resources of the farmers. The DAR's linkage with the extension system has been minimal, which

has further affected its ability to focus research programs on farmers' specific technological needs. The department's exessive overhead and administrative costs have limited the amount of funding it could allocate for implementing research programs. Personnel management procedures have precluded proper identification of areas where staff performance could be improved. The absence of a career stream for DAR's researchers has made it difficult for the department to retain highly qualified personnel. Finally, adequate training opportunities have not been made available to DAR's staff, and training programs have not been properly based on actual training needs.

In order to address the institutional and technical problems affecting DAR's performance, USAID and IDA will provide technical assistance, training and operating funds to enable the DAR to undertake the following: (1) further reorganization of DAR researchers into multi-disciplinary commodity teams which will be responsible for conducting applied research on-station, and into adaptive research teams which will be responsible for identifying farmers' technology needs and for testing and verifying the commodity teams' findings in farmers' fields; (2) development of linkages among researchers and between research and extension, to ensure that research programs and technological recommendations appropriately reflect, and are relevant to, farmers' technology needs; (3) creation of an Agricultural Research Council and initiation of a task-oriented budgeting system, to ensure that DAR's resources are allocated to priority research needs as laid out in a master plan for agricultural research; (4) rationalization of DAR's costs, so that expenditures on overheads and administration are reduced and allocations for implementing research programs are increased; (5) improvement of the staff evaluation process and provision of opportunities for career growth; and, (6) provision of an adequate amount of technical and management training, based on a training plan that reflects the DAR's priority training needs.

C. <u>The Department of Agriculture (DOA)</u> - The DOA has primary responsibility for providing agricultural extension services for smallholders. An analysis of the DOA's performance has surfaced several problems which have affected its effectiveness. The extension service has had minimal access to improved technologies relevant to farmers' needs. Extension programming and budgeting systems have not been based on a careful evaluation of priorities in the field. The extension staff has not received adequate training in technical areas and in effective extension methodologies. The size of the extension staff has limited the number of farmers who have access to technical advice. Finally, the extension service has suffered from the absence of career development opportunities and from insufficient incentives for high achievement.

To address these problems, USAID and IDA will provide technical assistance, training, and operating funds to enable the DOA to undertake the following measures: (1) initiation of an extension planning system to ensure that budgetary and personnel resources are appropriately allocated and utilized according to priorities identified in the field; (2) development of closer linkages with the DAR to ensure that researchers are adequately informed of technological needs in the field and to improve the extension staff's understanding of the technical ramifications of recommendations they make to farmers; (3) provision of a substantial amount of training, based on a needs

assessment, in technical and management areas, as well as in extension methodologies; (4) testing of effective mass communication approaches and implementation of the block extension system to increase the number of farmers reached by the extension service; (5) strengthening of the Women's Program Section to enable it to perform its function of integrating female farmers agricultural programs more effectively; and, (6) implementation of changes in personnel management and promotion systems, in order to increase career development opportunities for the DOA staff and to provide incentives for high performance.

6.6. Summary of Environmental Analysis

The Initial Environmental Examination (IIE), included in the PID has been reviewed by the Bureau Environmental Officer (BEO) who has concurred in a negative determination for project activities, but recommended a threshold decision be deffered on research programs (STATE 024074). The Regional Environmental Officer (REO) was requested in this same cable to review the IIE during the Project Paper design stage and to advise the BEO with regard to the best course of action. The REO, assisted by the Regional Pesticide Advisor, has re-examined the IIE and has recommended to the BEO that a negative threshold decision be made on the MARE Project's research activities.

6.7. Summary of Women's Activities in Agriculture

In 1981, the Department of Agriculture (DOA) established a Women's Program Section (WPS) for the purpose of focusing more sharply on the needs and problems of women involved in agricultural production in Malawi. The WPS is a complementary women-oriented program to the Food and Nutrition Section, which functions primarily in the area of home economics. To date, a clear break from a general home economics orientation has not taken place within the WPS. Part of the problem for this reorientation failure has been the lack of an overall development and institutional plan for the WPS. To assist in the development of the WPS, the MARE Project will fund a Women's Program Specialist for a period of 2 1/2 years.

The MARE Project aims at institutionalizing a system more responsive to women's involvement in agriculture and the special constraints women encounter in fulfilling their responsibilities for provision of food for domestic consumption. To accomplish this, various types of training for all personnel involved is essential. Furthermore, it is necessary that the DAR and DOA support the integration of women to overall agricultural development planning.

Two WPOs will attend the Training of Trainers Course and thereafter be expected to perform a major role in the WPS's specific training program.

The WPO from Headquarters and the two WPO trainers, with guidance from the Technical Advisor will develop an intensive two-week technical course, structured on participatory methods. The FHA agricultural course will focus primarily on agricultural practices and technologies particularly relevant to women farmers' concern with food production. For the course, WP will draw heavily on the assistance and advise of agricultural specialists.

A demonstration fund will be established to provide commodities and hands-on training for women's groups. The purposes of the fund are: (1) to teach skills associated with improved agricultural practices and technologies and provide limited resources (including tools and equipment) necessary for adoption; (2) to demonstrate the benefits from improved food production practices which are within the economic means of most of the group members; and, (3) to demonstrate the credit worthiness of the group so as to provide women farmers the opportunity to gain greater access to the agricultural credit program. The fund is expected to be used primarily for food production activities. The activities and training should lay the foundation for a stronger women's group program based on agricultural production and dry season income-generation activities. The Project aims at increasing the provision of services to rural women in the lower two-thirds of rural society. It regards increased food production as a requisite for improved diets.

One of the main objectives of the WPS is to help ensure that women are integrated into other agricultural programs. Under the MARE Project, women will be included in the training programs. Extension aid materials will be developed specifically for the WPS in order to reflect more properly women's roles in agriculture. Some of the applied research is expected to directly address women's labor patterns on crops, their involvement in the production of vegetables and other food crops, and their constraints as low resource farmers. Moreover, the ARTs will involve women in their surveys and as cooperating farmers. It is anticipated that WPOs will join the ARTs at critical stages to help ensure that women farmers are integrated into the ART program. FHAs will be involved in ART activities in their respective EPAs.

7.0 MONITORING AND EVALUATION PLAN

In order to track and assess the progress of the MARE Project, a monitoring and evaluation system has been developed which incorporates four separate approaches: (1) the collection of baseline information; (2) joint USAID/IDA/GOM monitoring and reviews; (3) a special evaluation of agricultural research; and, (4) mid-term and end-of-Project evaluations. Special efforts have been made to design this system so as to maximize the coordination between AID and IDA efforts and to minimize the time requirements on the GOM. Details of the Projects Monitoring and Evaluation system are explained in greater detail in Annex 9.10.

An important first step in making this monitoring and evaluation system operational is the collection of baseline data against which the progress of the Project can be measured. Existing information is expected to provide most of the baseline data requirements of the Project. Supplemental data will be provided through two studies to be financed by the MARE Project and through activities proposed in both IDA Projects.

In terms of external monitoring, the MARE Project will coordinate with the bi-annual system established by IDA. The National Agricultural Research Project is the most inflexible with regard to time, because it has scheduled its bi-annual supervision missions in September and March to coincide with the planting and harvesting cycle in Malawi. While both IDA and USAID/Malawi will field independent missions, their representatives will be in Malawi at the

same time, will share information, and will receive guidance from the same GOM Steering Committee. Given the interrelated nature of all three activities (MARE and both IDA Projects), it is essential that this type of cooperation be maintained.

Internal review operations have been incorporated into the design of Project activities. Training activities, for example, will include course evaluations which will monitor the contents of the course, teaching methods, and skills learned. On a different level, the National Agricultural Research Project intends to establish a monitoring system which will use annual reviews to assess the problems in research programs and the development of linkages between research and extension.

A special Triennial Review is scheduled for Agricultural Research. This Review, which was proposed under the IDA National Agricultural Research Project, is planned for early 1988 and will cover program and institutional issues related to scientific work. The Agricultural Research Council will develop the terms of reference for the Review and both IDA and USAID will provide scientists to serve on the Review committee. Two evaluations are planned during the life of the MARE Project - a mid-term evaluation and an end-of-Project evaluation. Both these evaluations are in keeping with standard practice for the evaluation of other USAID projects in the region. These evaluations will be scheduled for January 1988 and January 1990 respectively (See Project Implementation Schedule), and IDA will be invited to participate with USAID/Malawi and the GOM.

8.0 WAIVERS AND APPROVALS

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR

FROM: The Project Review Committee

PROBLEM:

Your approval is requested for (1) a source/origin waiver to Code 935 and (2) authority to negotiate with a single source, the local Gestetner Dealer in Malawi, for the procurement of nine mimeograph machines and nine electronic scanners (stencil maker) under host country contracting procedures.

A. Cooperating Country : Malawi
B. Authorizing Document : Project Authorization
C. Project : Malawi Agriculture Research (612-0215)
D. Nature of Funding : Grant
E. Description of Goods : 9 mimeograph machine and 9 electronic scanners
F. Approximate Value : $40,500
G. Probable Source: : Malawi or West Germany
H. Probable Origin : West Germany

DISCUSSION:

The primary method for producing printed materials at the Agricultural Development Division (ADD) level will be by mimeograph because: 1) it is the least expensive, most rapid process for printing materials of acceptable quality in the quantities likely to be required; 2) operation of the equipment is not difficult, and operators can be trained easily and quickly; and, 3) maintenance problems are fewer than with other printing processes. The electronic scanner is needed because it permits reproduction of illustrations quickly with no deterioration of quality, and increases the capacity of the system. Because the EAB is responsible for training and backstopping the ADD EAU staff, one mimeograph-scanner unit will be provided to the EAB and one to each of the eight EAU's.

Gestetner mimeographs and electronic scanners are of high quality and durability, and will completely satisfy the project's specifications for this equipment. Although some U.S.or Code 941 manufactured equipment would also meet the specifications, none provide service and spare parts in Malawi. Only Gestetner has an agent in Malawi who provides prompt and effective service, and maintains a reasonable stock of spare parts. Because the mimeograph and scanner system will be the only process available at the ADD level for reproducing printed materials, such service is essential for maintaining communication support momentum. In Malawi, Gestetner is represented by a single exclusive distributor, and to assure service products must be purchased from this source rather than from any other, such as -the manufacturer directly.. Hence, the authority to enter into negotiation with a single source is requested.

JUSTIFICATION:

According to Handbook One, Supplement B, Chapter 5, Section B4(a), the authorized source/origin (in this case A.I.D. Geographic Code 941) may be waived when the commodity is not available from countries or areas included in the authorized Geographic Code. This is the case with the required mimeograph machine and electronic scanner (stencil maker) which must have adequate servicing representation and spare parts-availability in country. Under Handbook One, Supplement B, Chapter 5, Section 5B4c(2) you have the authority to grant this waiver since the amount included is less than $ 5 million

Under HB 11, Ch3,Section 2-2.5 b(1) proprietary procurement (procurement by brand name, i.e. Gestetner) is justified where " Substantial benefits, such as eeconomies in maintenance of spare parts, inventories,(or) better repair facilities will result" Here, only Gestetner will provide adequate spare parts and repair services. Under HB1B, Ch12, C4a(2)(c) a waiver for procurement of project goods under a host country contract from a single source (the local Gestetner Dealer) may be approved where proprietary procurement is justified, as here, and the necessary equipment is available from only one source. Under HB 1B,CH12,Section C4a(1) you have authority to approve this waiver, with the clearances shown below since the amount included is below $1 million..

RECOMMENDATION:

That, for the reasons stated above, you 1)waive the eligible source and origin for these commodities in favor of procurement from a Code 935 source, and that you certify that exclusion of procurement from Free World countries other than the cooperating country and countries included in Code 941 would seriously impede attainment of U.S. Foreign Policy objectives and objectives of the Foreign Assistance Program. Further, that you approve negotiation with a single source, namely, the local Gestetner representative in Malawi.

Clearances:

P. Hagan: M/SER/COM 6/ WT

J. Owens:M/AAA/SER

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR

FROM: The Project Review Committee

PROBLEM:

A source/origin waiver is required for the procurement of equipment for multi-media audio visual production studios from AID Geographic Code 941 (Selected Free World) and Malawi to Code 899 (Free World), under host country contracting procedures.

A. Cooperating Country	:	Malawi
B. Authorizing Document	:	Project Authorization
C. Project	:	Malawi Agriculture Research (612-0215)
D. Nature of Funding	:	Grant
E. Description of Goods	:	Equipment for Multi-Media (see attached list) Audio visual production studies.
F. Approximate Value	:	$113,000
G. Probable Source:	:	Japan and West Europe
H. Probable Origin	:	Japan and West Europe

DISCUSSION

Ineffective communication support is one of four major factors currently limiting the EAB's performance, all of which are addressed in the context of this project paper. Among the reasons for ineffective communication support is lack of audio visual (A/V) and support (i.e. photocopiers electric typewriters and refrigerator for storing heat sensitive paper, tape and film) equipment at both the National and Agricultural Development Division levels. Removal of the A/V equipment constraint is essential to significant improvement in communication support and, consequently, to achievement of the project purpose to strengthen extension's institutional capacity and effectiveness in serving smallholder farmers. A/V and support equipment to be procured will 1) supplement presently existing equipment to increase capacity and quality for multi-media A/V production; 2) provide equipment for introducing a new media (video) and a low technology reproduction process (silkscreen); 3) provide equipment at the ADD (regional) level to produce locally adapted A/V materials targetted to the specific needs and conditions of smallholders in the Division; and, 4) provide audio equipment for use with smallholders in at the local level.

Currently, there are no U.S. or Code 941 manufacturers of much of the audio visual and support equipment required by this project. In addition, no U.S. or Code 941 manufacturers of any of the required equipment have servicing, maintenance, and spare parts available in Malawi. However, service and spare parts are available in Malawi for this equipment from manufacturers in other free world countries such as Japan.

JUSTIFICATION

According to Handbook One, Supplement B, Chapter 5, Section B4(a)(2), the authorized source/origin (in this case A.I.D. Geographic Code 941) may be waived when the commodity is not available from countries or areas included in the authorized Geographic Code. This is the case with the required audio visual and support equipment which must have adequate servicing representation and spare parts availability in country. Under Handbook One, Supplement B, Chapter 5, Section 5B4c(2) you have the authority to grant waivers of the authorized Geographic Code, where as here, the amount included is less than $5 million.

RECOMMENDATION:

That, for the reasons above, you waive the eligible source and origin for these commodities in favor of procurement from a Code 899 source, and that you certify that exclusion of procurement from Free World countries other than the cooperating country and countries included in Code 941 would seriously impede attainment of U.S. Foreign Policy objectives and objectives of the Foreign Assistance Program.

Clearances:

P. Hagan: M/SER/COM (DRAFT)
6/13/85

WD#2154L

ATTACHMENT 1

List of Audio Visual Equipment of be Procurred

Description of Items	Estimated Costs
1 Cassette Tape Recorder	700
2 4-Band Radio/Cassette/Amplifier	1,000
2 Auto Video Editing Control	3,300
2 U-Matic Video Editing Recorder	3,600
1 Edit Bay	2,200
1 Professional Video Monitor	2,000
1 Color Video Camera	2,500
1 Portable Video Camera	1,500
1 Carrying Case	130
3 Battery Packs	150
1 A/C Adapter	170
1 Video Tape Recorder	1,800
1 Studio Monitor	850
1 Portable VTR	1,100
1 Set Spare Parts for photocopier	3,700
1 Commercial Photocopier	10,000
8 Photo Enlargers	3,200
2 High Speed Cassette Copier	1,200
2 Professional Turntables	300
8 Electronic Typewriters	8,000
8 Photocopiers	32,000
8 4-Band Cassette/Radio/Amplifier	4,000
8 Reel tc Reel Tape Decks	3,200
16 Portable Tape Recorders	3,200
10 Video Cassette Players	12,000
10 TV Color Monitors	8,000
8 Flash Units	400
8 Zoom Lenses(35-70mm)	800
8 Refrigerators(5 Cubic ft)	2,000

ANNEXES TO THE

MALAWI AGRICULTURAL RESEARCH AND EXTENSION PROJECT

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ANNEX 9.1

PID APPROVAL CABLE

ACTION: AID-3 INFO: [illegible]

XFRANVZCZCLGC723
PP RUEHLG
DE RUIHC #4074/01 0251124
ZNR UUUUU ZZH
P 251102Z JAN 85
FM SECSTATE WASHDC
TO RUFFLG/AMEMBASSY LILONGWE PRIORITY 6280
INFO RUFHNR/AMEMBASSY NAIROBI PRIORITY 8776
ET
UNCLAS STATE 024074

AIDAC , NAIROBI FOR REDSO

ECO: 17, 627
25 JAN 85 2133
CN: 23440
CHRG: AID
DIST: AID

RESPONSE BY:

DATE OF ACTION:

FILE: PRM-6215-1

E.O. 12356:
TAGS:
SUBJECT: MALAWI AGRICULTURAL RESEARCH AND EXTENSION (612-0215): PID ECPR GUIDANCE CABLE

1. ECPR FOR SUBJECT PID MET ON MONDAY, DEC. 17, 1984. MEETING WAS CHAIRED BY DAA/AFR/ESA PHILIP FIRNBAUM.

2. WHILE GENERALLY SUPPORTIVE OF THE BASIC CONCEPT OF AN AGRICULTURAL RESEARCH AND EXTENSION PROJECT IN MALAWI, BOTH THE PROJECT COMMITTEE AND THE ECPR EXPRESSED DISSATISFACTION WITH THE PID, PARTICULARLY ITS POOR ORGANIZATION OF MATERIAL AND ITS LACK OF CLARITY IN DESCRIBING AND JUSTIFYING THE COMPONENTS OF THE PROJECT. IT WAS ONLY AFTER A THOROUGH REVIEW AND DISCUSSION WITH THE AILREP THAT THE PROJECT COMMITTEE AND THE ECPR DETERMINED THAT DESPITE THE DEFICIENCIES OF THE PID, BOTH PROGRAMMATIC AND SUBSTANTIVE REASONS EXIST FOR PROCEEDING WITH FURTHER DEVELOPMENT OF THIS PROJECT. SINCE THIS PROJECT IS PROPOSED FOR PARALLEL FINANCING WITH THE WORLD BANK (IDA), IT SHOULD MOVE AHEAD INTO ITS FINAL DESIGN STAGE IN CONCERT WITH PLANNING FOR THE BANK'S RESEARCH/EXTENSION ACTIVITIES AND UTILIZE, TO THE MAXIMUM EXTENT FEASIBLE, MATERIAL

AND ANALYSIS DEVELOPED FOR THE BANK'S PROJECTS.

3. ECPR STRONGLY RECOMMENDED THAT A JOINT WORLD BANK/AID TEAM BE FIELDED FOR THE PP DESIGN EFFORT, RECOGNIZING THAT AID AND THE WORLD BANK HAVE DIFFERENT DOCUMENTATION REQUIREMENTS. ECPR CONCLUDED THAT SINCE OUR ACTIVITIES ARE PARALLEL AND COMPLEMENTARY, THERE ARE SEVERAL COMMON AREAS OF DOCUMENTATION SUCH AS THE PROJECT DESCRIPTION, TECHNICAL ANALYSIS, IMPLEMENTATION PLANNING, AND PROCUREMENT ACTIVITIES WHICH EACH ORGANIZATION NEEDS TO DISCUSS IN ITS RESPECTIVE DOCUMENTS. SINCE THE BANK HAS COMPLETED ITS STAFF APPRAISAL REPORT ON ITS PROPOSED RESEARCH PROJECT, THE ECPR RECOMMENDED THAT PROJECT PAPER SHOULD DRAW HEAVILY ON THE ANALYSIS AND INFORMATION CONTAINED IN THIS DOCUMENT, AND THE JOINT TEAM SHOULD CONCENTRATE ITS EFFORTS ON DEVELOPING THE SAME TYPE OF INFORMATION FOR

THE ALTERNATIVE [illegible] ACTIVITY
COMPONENT, AND PROVIDE APPROPRIATE [illegible]
SUPPORT THE ALTERNATIVE RECOMMENDED.

(E) RELATIONSHIP BETWEEN THE IDA PROJECTS AND THE PROPOSED ACTIVITY: THE PID DOES NOT ADEQUATELY DISCUSS THE ASSISTANCE IDA IS PLANNING TO PROVIDE UNDER ITS TWO SEPARATE PROJECTS AND HOW AID'S ASSISTANCE IS DIRECTLY LINKED TO THESE TWO PROJECTS. ALTHOUGH THE PROJECT COMMITTEE WAS SATISFIED WITH THE DESCRIPTION OF AID PROJECT COMPONENTS CONTAINED IN APPENDIX I OF THE PID, THE ECPR AGREED WITH THE RECOMMENDATION OF THE PROJECT COMMITTEE THAT THE PP MUST CONTAIN A FULL DESCRIPTION OF THE ASSISTANCE (INPUTS) BEING PROVIDED BY IDA AND AID AND HOW THIS PARALLEL-FINANCED PROJECT WILL BE JOINTLY IMPLEMENTED.

(F) IMPLEMENTATION CONTRACTING: THE PIL INDICATES THAT AID/MALAWI AND THE GOM FAVOR A UNIVERSITY CONSORTIUM WHICH MAY INCLUDE SPECIALIZED PRIVATE FIRMS. IT WAS NOT CLEAR FROM THIS STATEMENT IF THE MISSION AND THE GOM ARE ADVOCATING UTILIZATION OF TITLE XII INSTITUTIONS THROUGH A CONSORTIUM, OR IF OPEN COMPETITION (WHICH WOULD INCLUDE UNIVERSITIES AND PRIVATE FIRMS) WAS BEING PROPOSED. THE AID/REP INDICATED TO THE ECPR THAT THE GOM AND THE MISSION DID NOT WANT TO GO TITLE XII FOR THE PP DESIGN OR WITH A SINGLE, TITLE XII INSTITUTION TO IMPLEMENT THE PROJECT. THE ECPR RECOMMENDED THAT THE PP TEAM CAREFULLY REVIEW THE AVAILABLE ALTERNATIVES (TAKING INTO CONSIDERATION THE BANK'S PLANS FOR HANDLING TA AND COMMODITY PROCUREMENT, AID/MALAWI AND GOM MANAGEMENT RESPONSIBILITIES AND CAPABILITIES, ETC.) AND SPECIFY THE PREFERRED IMPLEMENTATION CONTRACTING MODE AND THE RATIONALE FOR ITS SELECTION IN THE PP.

5. IEE FOR SUBJECT ACTIVITY REVIEWED BY BUREAU ENVIRONMENTAL OFFICER (BEO). BEO CONCURRED IN NEGATIVE DETERMINATION BUT RECOMMENDED THAT A THRESHOLD DECISION BE DEFERRED ON THE RESEARCH PROGRAMS PROBLEM AREA DEFINING THE TECHNOLOGY PACKAGES OFFERED TO SMALLHOLDERS UNTIL IT IS DETERMINED WHAT THESE PACKAGES WILL CONTAIN. REGIONAL ENVIRONMENTAL ADVISOR IS REQUESTED TO REVIEW IEE AT THAT TIME AND ADVISE BEO. COPY OF SIGNED IEE BEING FORWARDED TO AID/MALAWI.

6. DISCUSSIONS WITH THE WORLD BANK RE JOINT TEAM COMPOSITION WERE HELD 17 JANUARY. WILL ADVISE OUTCOME OF THESE DISCUSSIONS VIA SEPTEL. JOINT DESIGN EFFORT IS NOW TENTATIVELY SCHEDULED TO COMMENCE 18 FEBRUARY ACCORDING TO BANK OFFICIALS. PLEASE CONFIRM.
SHULTZ
BT
#4274

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PROJECT PAPER

ANNEX 9.2

LOGICAL FRAMEWORK

LOGICAL FRAMEWORK
AGRICULTURAL RESEARCH AND EXTENSION

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
GOAL To increase incomes of smallholders.	Production levels of food crops, and other agricultural products. are higher resulting in improved incomes for small holders.	GOM statistics	Economic incentives for farmers are favorable
SUB-GOAL To strengthen domestic institutions to support smallholders.	Better quality support services are available to more smallholders.	GOM records Project evaluation	1) Agricultural institutions will provide technologies acceptable to farmers and a means for transferring them.
PURPOSE To improve the MOA's institutional capacity to increase productivity of traditional crops and to identify the most viable crops for diversifying smallholder production.	End of Project Status 1) Training Unit fully operational and undertaking training programs for research and extension staff	GOM records Project evaluation	GOM recurrent finances and personnel levels are maintained at least at the current levels in real terms during life of Project.
	2)Agricultural Research Council is specifying priorities for research and allocating funding according to these priorities.		Policy makers continue to support organizational changes in the MOA. IDA provides timely financing for its research extension activity planned.
	3)Five Commodity Research NRCUs are undertaking research on priority traditional and non-traditional crops	GOM records Project evaluation Project records	Adequate numbers of qualified Malawians are available for training.
	4)Eight Adaptive Research Teams are established and capable of using technologies of the Commodity Teams	GOM records	The GOM is able to retain trained staff in position, for which they receive their training
	5)Extension institutions are modified to be more effective in transfering technologies to greater numbers of smallholders.	Project records Project evaluation	Continued MOA policy support for integrating research and extension activities. Requisite production inputs to support agricultural technologies are available on a timely basis.
	6)Womens Program is strengthened to increase womens participation in agricultural research, extension and training activities.	GOM records Project records Project Evaluation	IDA financing is provided as scheduled

OUTPUTS	MAGNITUDE OF OUTPUTS	EXPECTED LEVELS OF EFFORT	MEANS OF VERIFICATIONS	ASSUMPTIONS
1. MOA Staff Training Established	1 Training Unit staffed and functional	2 Staff trained to MSc level Annual Workplans developed Organizing the training of trainers	GOM records, Project Records Project Evaluation.	MOA provides counterpart personnel for the Training Unit
	1 Training Unit Advisory Committee established	2 meetings held per year	"	
	1 Cadre of trainers established	100 trainers trained to deliver in-service training program		
	Trained Personnel	49 staff trained to MSc and PhD levels, 49 staff receiving short term specialized training, 4,291 persons given in-service technical/management training from DAR, DOA, PD and other agricultural institutions	"	Qualified MOA staff are available for training
2. ARC system for evaluating and setting research priorities is developed	1 National Agricultural Economic and Data Processing Unit established	1 data bank established; economic/financial analyses conducted for each NRCU to determine feasibility of proposed research and to verify economic viability of results	"	ARC requires an economic analysis of research proposals before providing funding
3. Strengthened Commodity Research NRCUs conducting research on economically viable technologies for smallholders	1 Cereals NRCU research capability increased for maize	Improved maize varieties tested on station and adapted varieties passed on to ARTs for on-farm testing		

OUTPUTS	MAGNITUDE OF OUTPUTS	EXPECTED LEVELS OF EFFORT	MEANS OF VERIFICATIONS	ASSUMPTIONS
	1 Grain Legumes NRCU be n research upgraded	Improved bean varieties tested on station and adapted varieties passed on to the ARTs for on farm testing		
	1 Livestock NRCU research upgraded in pastures work	On station researchs to select improved forage varieties On farm testing of adapted forage varieties		
	1 Agroforestry CRT establishec under the Engineering and Lanc Husbandry NRCU	On station screening of tree varieties. On farm testing of adaptive varieties by the ARTs		
	1 Horticultural NRCU expanded	On station research to continue selection of annual vegetable crops and on-farm testing of adaptible varieties by ARTs On station research to select adaptible fruit and nut trees		
	6 National Research Coordinating Units cooperating together on joint research projects	On farm testing of adapted technologies generated by ARTs		ARC continues to provide effective coordination of NRCU's
4. Expanded Adaptive Research Teams identifying technologieswhich are socially and economically appropriate for smallholder farming systems	5 new AR teams established and 3 AR teams upgraded	15 AR staff trained to the MSc level		ART operations funds are provided by IDA
	8 ADDs supporting the ARTs to agroecologically test and adapt specific technical packages and practices	550 trials over the life of the project leading to 18 agroecological specific technical packages tested and verified by the ARTs by PACD		
	8 ADDs assign a senior extension member and a WPO to work part-time with ART members	50% of Senior Extension member's time allocated to AR activities; 40-50% of WPO's time allocated to AR activities		DOA/ADD's provide counterpart personnel to the ARTs

OUTPUTS	MAGNITUDE OF OUTPUTS	EXPECTED LEVELS OF EFFORT	MEANS OF VERIFICATIONS	ASSUMPTIONS
5. Improved Agricultural communications services delivering extension services to greater numbers of smallholders	1 MOA strategy developed for Agricultural communications	1 National communication-support plan produced per annum; 8 ADD level communication-support produced plans per annum	GOM Record, Contractor Records, Project Evaluation	
	1 Evaluation and Action Research Section upgraded	4 major evaluation studies and 16 smaller-studies	"	
	1 material production system for translating research, prices, input and information into extension messages and scheduling, producing and disseminating educational materials in various media	By PACD, production of a combined annual output of 200 radios programs, 20 bulletins, 25 handbook sheets, 6 bi-monthly magazine issues, 25 leaflets, 2 flip charts, 10 posters, 2 slide sets with scripts 6 audio presentations, and audio visual tapes	"	
	1 Agricultural Communications System supporting women's activities	20% of educational materials developed for smallholders will reflect women's involvement in agricultural production.		
	1 Mass Communications Pilot project in one ADD	1 Strategy tested and replicated in 8 RDPs	"	
6. Strengthened Women's Program Section for increasing women's participation in agricultural programs	1 Strengthened Women's Program Section	1 Women's activities policy modified to increase the participation of women in agricultural production	"	MOA continues to support increased women participation in its programs
	Staff skills improved to promote women's activities and women's involvement in agriculture	9 women program officers training in program planning and technical agricultural skills (also included in Training Component); 200 female extension staff trained to teach agricultural skills and topics to women farmers		
	Greater numbers of women smallholders are assisted by women specific activities through	1 agricultural production demonstration activity targeted towards women in every RDP by PACD		

INPUT	MAGNITUDE			VERIFICATION	ASSUMPTIONS
USAID					
Technical Assistance					
Long Term	27 py	-	(3611)	GOM Records	
Short Term	114 pm	-	(1302)	USAID Records	
Training					
LT Offshore	102 py	-	(2255) (see Budget Tables 5-9)	Contractor Records	
ST Offshore	89 pm	-	(393)	Project Evaluation	
In country	16,000 pw		(1958)		
Commodities		-	(532)		
Administrative Costs		-	(812)		
Contingencies		-	(3137)		
			14000		
IDA					
Technical Assistance		-	(5496)	GOM Records	
Training					
LT		-	(118)	IDA Records	
ST		-	(689) (see Budget Table 1-3)	Project Evaluation	
In-country		-	(1084)		
Administrative Support		-	(1792)		
Construction		-	(9179)		
Credit		-	(1900)		
Contingencies		-	(10681)		
			35700		
GOM					
Administrative Support		-	(33057) (see Budget Tables 4 and 10-14)		
	GOM Records				
	TOTAL	-	82757		

PROJECT PAPER

ANNEX 9.3

STATUTORY CHECKLIST

ANNEX 9.3

STATUTORY CHECKLIST
(Malawi FY 85)

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 481; FY 1985 Continuing Resolution Sec. 528. Has it been determined or certified to the Congress by the President that government of the recipient country has failed to take adequate measures or steps to prevent narcotic and psychotropic drugs or other controlled substances (as listed in the schedules in section 202 of the Comprehensive Drug Abuse and Prevention Control Act of 1971) which are cultivated, produced or processed illicitly, in whole or in part, in such country or transported through such country, from being sold illegally within the jurisdiction of such country to United States Government personnel or their dependents or from entering the United States unlawfully?

   Such a determination or certification has not been made.

2. FAA Sec. 620(c). If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) the debt is not denied or contested by such government?

   The government of Malawi is not in such a position of liability to the U.S. citizen.

3. FAA Sec. 620(e) (1). If asssistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?

   Neither Governemnt of Malawi nor its agencies and subdivisions has taken such actions.

4. FAA Sec. 620(a), 620(f), 620(D); FY 1985 Continuing Resolution Sec.. 512 and 513. Is recipient country a Communist country? Will assistance be provided to Angola, Cambodia, Cuba, Laos, Syria, Vietnam, Libya, or South Yemen? Will assistance be provided to Afghanistan or Mozambique without a waiver?

   No.
   No.
   No.

5. FAA Sec 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction by mob action of U.S. property?

No.

6. FAA Sec. 620(l). Has the country failed to enter into an agreement with OPIC?

No.

7. FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5. (a) Has the country seized, or imposed any penalty or sanction against any U.S., fishing activities in international waters?

(b) If so, has any deduction required by the Fishermen's Protective Act been made?

No.

8. FAA Sec. 620(q); FY 1985 Continuing Resolution Sec. 518. (a) Has the government of the recipient country been in default for more than six months on interest or principal of any AID loan to the country? (b) Has the country been in default for more than one year on interest under a program for which the appropriation bill (or continuing resolution) appropriates funds?

No.
No.

9. FAA Sec 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the amount of foreign exchange or other resources which the country has spent on military equipment? (Reference may be made to the annual "Taking into Consideration" memo: "Yes, taken into account by the Administrator at time of approval of Agency OYB." This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)

N/A.

10. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?

No.

11. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget? (Reference may be made to the Taking into Consideration memo.).

Government of Malawi was slightly in areas in payment to the U.N. as of June 30,1984 this was taken into consideration. Malawi was not delinquent within the meaning of Article 19 of the UN Charter.

12. FAA Sec. 620A; FY 1985 Continuing Resolution Sec 521. Has the country aided or abetted, by granting sanctuary from prosecution to, any individual group which has committed an act of international terrorism? Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed a war crime?

No.

13. FAA Sec. 666. Does the country object, on the basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. who is present in such country to carry out economic development programs under the FAA?

No.

14. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards? Has it transferred a nuclear explosive device to a non-nuclear weapon state, or if such a state, either received or detonated a nuclear explosive device? (FAA Se. 620E permits a special waiver of Sec. 669 for Pakistan.)

No.

15. ISDCA of 1981 Sec. 720. Was the country represented at the Meeting of Ministers of Foreign Affairs and Heads of Delegations of the Non-Aligned Countries to the 36th General Session of the General Assembly of the U.N. of Sept. 25 and 28, 1981, and failed to disassociate itself from the communique issued? If so, has the President taken it into account? (Reference may be made to the Taking into Consideration memo.)

Malawi was not represented at the meeting and so was not associated with the communique

16. FY 1985 Continuing Resolution. If assistance is from the population functional account, does the country (or organization) include as part of its population planning programs involuntary abortion?

N/A.

17. FY 1985 Continuing Resolution Sec. 530. Has the recipient country been determined by the President to have engaged in a consistent pattern of opposition to the foreign policy of the United States?

Such a determination has not been made.

B. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria.

FAA Sec. 116. Has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, can it be demonstrated that contemplated assistance will directly benefit the needy?

No.

2. Economic Support Fund Country Criteria

FAA Sec.502B. Has it been determined that the country has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, has the country made such significant improvements in its human rights record that furnishing such assistance is in the national interest?

N/A.

5C(2) PROJECT CHECKLIST

Listed below are statutory criteria applicable to projects. This section is divided into two parts. Part A includes criteria applicable to all projects. Part B. applies to projects funded from specific sources only: B.1 applies to all projects funded from ESP.

CROSS REFERENCES:	IS COUNTRY CHECKLIST UP TO DATE?	Yes
	HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?	Yes

A GENERAL CRITERIA FOR PROJECT

1. FY 1985 Continuing Resolution Act Sec. 525; FAA Sec. 634A, Sec. 653(b))

(a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project;

(b) Is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than $I million over that amount)?

(c) Congress advised of this proposed assistance in FY 85 CP (See Annex 1, p.516).

(b) Yes

2. FAA Sec. 611(a)(1). Prior to obligation in excess of $100,000, will there be (a) engineering, financial or other plans necessary to

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carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

Plans for project assistance have been reviewed by project, financial management and legal staff of AID and cost estimate and plans have been deemed adequate.

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is the basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

No legislative action required.

4. FAA Sec. 611(b); FY 1985 Continuing Resolution Sec. 501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973,or the Water Resources Planning Act (42 U.S.C. 1962, et seq.)?

N/A.

5. FAA Sec. 611(e). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?

This is not a Capital Assistance Project.

FAA Sec. 209. Is project susceptible to execution as part of regional or multilateral project? If so, why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.

No, project not susceptible as regional project. Objectives are to develop national capability. Project links with several regional programs (SADCC, CIMMYT, etc.) and is expected to impact favorability on the food balance of the Southern Africa Region.

FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; and (c) encourage development and use of cooperatives, and credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

a) Yes; increase regional trade of cereals.

b) Neutral.

c) Yes; by increasing rural income and savings.

d) Yes; by encouraging private sector suppliers of agricultural inputs and information.

e) Yes; thru agricultural research.

f) No.

8. FAA Sec. 601(b) Information and conclusions on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

An estimated $ 3 million of goods and service will be procured from private sector sources in the U.S.

9. FAA Sec. 612(b), 636(h); FY 1985 Continuing Resolution Sec.507. Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized in lieu of dollars.

The Government of Malalwi is expected to contribute an estimated US $ 33,057,000 to the project on both cash and in-land basis. The U.S. does not own any foreign currencies that may be used in the project.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

No.

11. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

Yes.

12. FY 1985 Continuing Resolution Sec. 522. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar competing commodity?

Project assistance is not for the promotion of any specific commodity for export by Malawi.

13. FAA 118(c) and (d). Does the project comply with the environmental procedures set forth in AID Regulation 16 . Does the project or program take into consideration the problem of the destruction of tropical forests?

Yes; see IEE approved (DATE).

Yes; see Agro-Forestry Component.

14. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditure of project funds (dollars or local currency generated therefrom)?

This is not a Sahel project.

15. FY 1985 Continuing Resolution Sec. 536. Is disbursement of the assistance conditioned solely on the basis of the policies of any multilateral institution?

No.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

a. FAA Sec. 102(b), 111, 113, 281(a). Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

a) Project focuses on improving capacity of Malawians' agricultural institututions to transfer appropriate technologies to smallholders, and includes better understanding of smallholder constraints.

b) Project goals is to improve smallholder well being.

c) Supports intitutional building more self reliant on National resources.

d) Promoted the role of women in agricultural production.

e) Promotes links between MOA and regional research and training facilities.

b. FAA Sec. 103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used?

Section 103; yes.

c. FAA Sec. 107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?

Yes; emphasis specifically targets smallholders.

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?

Recipient country will provide at least 25% of program costs.

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to congress been made, and efforts for other financing, or is the recipient country "relatively least developed"? (M.O. 1232.1 defined a capital project as "the construction, expansion, equipping or alteration of a physical facility or facilities financed by AID dollar assistance of not less than $100,000, including related advisory, managerial and training services, and not undertaken as part of a project of a predominantly technical assistance character."

This is not a capital assistance project.

f. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to increase of productive capacities and self-sustaining economic growth?

Yes.

g. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental processes essential to self-government.

Project assistance has been requested by Malawi on the basis of its analysis of its institutional deficiencies. A central objective of the project is to strengthen technology transfer system. About 65% of AID project resources will be devoted to training in skills required for effective participation in development processes.

2. Development Assistance Project Criteria (Loans Only).

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, at a reasonable rate of interest.

N/A.

b. FAA Sec 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S of more than 20% of the enterprise's annual production during the life of the loan?

N/A.

3. Economic Support Fund Project Criteria

a. FAA Sec. 531(a). Will this assistance promote economic or political stability? To the extent possible , does it reflect the policy directions of FAA Section 102?

N/A.

b. FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities?

N/A.

c. FAA Sec. 534. Will ESF funds be used to finance the construction of the operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to nonproliferation objectives?

N/A.

d. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?

N/A.

5C(3) - STANDARD ITEM CHECKLIST

Listed below are the statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds.

These items are arranged under the general headings of (A) Procurement, (B) Construction, and (C) Other Restrictions.

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed?

Project financed contracts will follow AID contracting procedures with contain provisions for promoting small business participation.

2. FAA Sec. 604(a). Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him?

Yes.

3. FAA Sec. 604(d). If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company?

Malawi does not discriminate against U.S. Marine insurance companies.

4. FAA Sec. 604(e); ISDCA of 1980 Sec. 705(a). If offshore procurement of agricultural commodity or product is to be financed , is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be procured in the U.S.)

No offshore procurement of agricultural commodities or product will be financed.

5. FAA Sec. 604(g). Will construction or engineering services be procured from firms of countries which are direct aid recipients and which are otherwise eligible under Code 941, but which have attained a competitive capability in international markets in one of these areas? Do these countries permit United States firms to compete for construction or engineering services financed from assistance programs of these countries?

No construction or engineering sources to be procured under this project.

6. FAA Sec.603. Is the shipping excluded from compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at fair and reasonable rates?

Shipping not excluded from compliance with said requirements.

7. FAA Sec. 621. If technical assistance is financed , will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? If the facilities of other Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

Where appropriate private enterprises will be used. The project will aquire most technical assistance from Title XII institutions. Yes.

8. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?

Yes.

9. FY 1982 Appropriation Act Sec. 504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?

Yes.

B. Construction

1. FAA Sec. 601(d). If capital (e.g., construction) project, are engineering and professional services of U.S. firms and their affiliates to be used to the maximum extent consistent with the national interests?

Not capital project.

2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable?

Construction contracts not financed by project.

3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed $100 million? (except for Egypt that were described in the CP)?

Assistance not provided for construction of productive enterprises.

C. Other Restrictions

1. FAA Sec. 122(b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter?

N/A. Grant financed.

2. FAA Sec.301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights?

N/A.

3 FAA Sec. 620(h). Do arrangements exist to ensure that United States foreign aid is not used in manner which, contrary to the best

interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries?

Such arrangements exist.

4. Will arrangements preclude use of financing:

a. FAA Sec. 104(f); FY 1985 Continuing Resolution Sec. 527. (1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for performance of involuntary sterilization as method of family planning, or to coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or in part, to methods or the performance of abortions or involuntary sterilizations as a means of family planning; (4) to lobby for abortion?

1. Yes, arrangements will preclude such use.

2. Yes, arrangements will preclude such use.

3. Yes, arrangements will preclude such use.

4. Yes, arrangements will preclude such use.

b. FAA Sec.620(g). To compensate owners for expropriated nationalized property?

Yes, arrangements will peclude such use.

c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs?

Yes, arrangements will preclude such use.

d. FAA Sec. 662. For CIA activities?

Yes, arrangements will preclude such use.

e. FAA Sec. 636(i). For purchase, sale, long-term lease, exchange or guaranty or the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained?

Yes, arrangements will preclude such use.

f. FY 1985 Continuing Resolution, Sec. 503. To pay pensions, annuities, retirement pay, or adjusted service compensation for military personnel?

Yes, arrangements will preclude such use.

g. FY 1985 Continuing Resolution, Sec. 505. To pay U.N. assessments, arrearages or dues?

Yes, arrangements will preclude such use.

h. FY 1985 Continuing Resolution, Sec. 506. To carry out provisions of FAA section 209(d) (Transfer of FAA funds to multilateral organizations for lending)?

Yes, arrangements will preclude such use.

i. FY 1985 Continuing Resolution, Sec. 510. To finance the export of nuclear equipment, fuel, or technology or to train foreign nationals in nuclear fields?

Yes. arrangements will preclude such use.

j. FY 1985 Continuing Resolution, Sec. 511. Will assistance be provided for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?

Project management arrangements exist to preclude the use of project financing for such purposes.

k. FY 1985 Continuing Resolution, Sec. 516. To be used for publicity or propaganda purposes within U.S. not authorized by Congress?

Yes, arrangements will preclude such uses.

PROJECT PAPER

ANNEX 9.4

GOM REQUEST FOR ASSISTANCE

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Telegrams: Finance, Lilongwe
Telephone: Lilongwe 731 311

Communications should be addressed to
The Secretary to the Treasury

In reply please quote No. USA/96/IV/31

MINISTRY OF FINANCE
P.O. BOX 30049
LILONGWE 3
MALAWI

REC... Baker

DATE OF ACTION:

FILE

29th April, 1985

MAY 7 1985 RECEIVED

The USAID Representative,
P.O. Box 30455,
LILONGWE 3.

(ATTENTION : MR. M. BAKER)

Core file - 0215 - copy to AID/W

Dear Sir,

REQUEST FOR USAID TO FINANCE COMPONENTS OF THE NATIONAL AGRICULTURAL RESEARCH AND THE NATIONAL EXTENSION PROJECTS

The preparation of the National Rural Development Programme, Phase V Project was finalized last year. In this project, one of the sub-projects is the National Smallholder Extension, Training and Technical Services Project. This project was appraised by the World Bank. The National Agricultural Research Project was appraised early last year also by the World Bank.

These two projects have components in which USAID expressed interest to participate, and in June, 1984, USAID sent a project identification team which looked at areas where USAID may be involved in these projects.

The National Extension Project, which is, as already said, part of the NRDP V Project, has the following components:-

(i) Strengthening of the Department of Agriculture (DOA) to increase its effectiveness in delivering agricultural extension service to smallholders and improving the linkage between research and extension.

(ii) Developing and implementing a long-term manpower training programme for extension staff at all levels.

(iii) Strengthening of the Extension Aids Branch, especially the Audio Visual Aids Unit at Headquarters and ADD level to support field extension mainly through mobile training facilities.

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(iv) Strengthening the credit system and providing additional credit funds for some project areas.

(v) Strengthening the technical capacity of the Planning Division of the Ministry of Agriculture (MOA) to enable it to formulate and implement agricultural policies and programmes and provide support to other departments in MOA.

(vi) Technical Assistance to assist in the implementation of the above programmes, especially in the fields of manpower development and training, extension aids and extension for women farmers.

We would like to request for your assistance in the following components -

(a) Advanced training of extension staff (to Ph.D., M.Sc. and Post-Graduate Diploma level) in order to improve the technical capacity. This would involve extension staff at all levels.

(b) Organization and strengthening of Extension Aids Branch.

(c) Strengthening of the linkage with Research especially in the implementation of an adaptive Research Programme.

(d) Technical Assistance personnel for manpower development and long-term staff training, including short-term consultancy inputs in implementing in-service training programmes. Technical Assistance would also be required in developing a strategy for improving extension to women and organizing the Extension Aids Branch.

Similarly, the Ministry of Agriculture has also prepared a National Agricultural Research Project which is aimed at improving the effectiveness of the Department of Agricultural Research (DAR). This project has the following main features

(i) Creation of an Agricultural Research Council to recommend and advise on research priorities.

(ii) Reduction in DARs station network and improve in physical facilities at stations to be retained.

(iii) Reorganizing of DAR into multi-disciplinary research teams, including task planning and budgeting to improve cost effectiveness.

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(iv) Improvement of DAR technical capacity through training, technical assistance and improved career stream.

(v) Improved linkages with extension through generation of relevant extension messages by establishing Adaptive Research Teams which would be linked with extension systems.

(vi) Increased collaboration with International Research Centres, Regional Research Institutes and introduction of contract research programme with non-governmental organizations in Malawi, in particular the University of Malawi Colleges.

We would also like to request you to consider financing the training component consisting of 6 Ph.D. and 26 M.Sc. degrees and technical assistance amounting to 273 person months as follows -

(1) Adaptive Research Team

1 Agronomist (24 person months)

1 Agricultural Economist (36 person months)

(2) Production Economist (48 person months)

(3) Horticulturist (48 person months)

(4) Agro-forestry (48 person months)

(5) Short-Term (57 person months)

We should be grateful for your kind consideration to our requests.

Yours faithfully,

M. Makalande
for: SECRETARY TO THE TREASURY
(EXTERNAL AID SECTION)

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PROJECT PAPER

ANNEX 9.5

PROJECT ANALYSIS

PROJECT PAPER

ANNEX 9.51 A

TECHNICAL ANALYSIS - TRAINING

ANNEX 9.51 A

TECHNICAL ANALYSIS- TRAINING COMPONENT

A. Overview - Given the fact that MOA personnel levels are likely to remain fixed for some time because of the GOM's budget inflexibilities, the improvement of MOA services will be dependent upon increasing the productivity of the existing staff. Moreover, training activities will provide the opportunity to re-direct the skills of MOA personnel along lines which will benefit the smallholder. For these reasons, the MARE Project design emphasizes staff training as the principal mechanism for improving the effectiveness of the Ministry of Agriculture for increasing its institutional capabilities, and for focussing more attention on smallholders.

To date, the MOA has not developed a comprehensive training program for its staff. The MARE Project, in cooperation with the two IDA projects, will contribute to the MOA's efforts to establish a overall training program by: supporting the establishment of a MOA Training Unit; expanding offshore training opportunities for MOA personnel; and, strengthening in-country agricultural staff training programs. While it is recognized that training will be required by all the MOA staff, the MARE Project will initially focus on the professional and technical staff of the Department of Agricultural Research, the Department of Agriculture (including the ADDs), and the Planning Division.

B. The Need for Training in the MOA - The shortage of technical and management skills represents a major constraint to improving the effectiveness of the MOA's research and extension services. The cause for concern is immediately reflected in the structure of the MOA organization. In order to achieve the objectives which have been established for the agricultural sector, the MOA has re-organized its research services into five major commodity groups consisting of twenty-two commodity teams. Concurrently, the DAR is adding an Economics and Data Processing Unit and will increase the number of ARTs from 3 to 8. The MOA has also established a highly decentralized extension system consisting of eight functionally independent Agricultural Development Divisions, (ADDs) backstopped by Headquarters staff. By design the overall structure is skill intensive, as indeed it must be if significant changes are to be expected in the agricultural sector.

Despite generous financing and training in the past, the training required for existing the MOA staff has not kept pace with levels of skills which are needed to effectively operate the structure. A large number of staff with general qualifications in agriculture are in positions requiring specialized skills and/or management experience. Moreover, the new emphasis on farm systems concepts, and on reaching farmers unable to adopt high-input practices, requires that staff learn new skills and approaches in both the extension and research services.

The training needs of the MOA can generally be divided into two basic categories: the need to maintain and upgrade existing skills and the need to develop new skills. The existing skills of the MOA staff represent a considerable investment which must be maintained on a first priority basis. In the area of agricultural research, this means keeping the professional staff current on research findings and improved research methodologies and concurrently maintaining the technical skills of the support staff. In terms of agricultural extension, the technical skills particularly of the Subject Matter Specialists, must be re-inforced on a regular basis to be maintained, and management skills must be upgraded as the staff member is promoted into higher levels of responsibility. The process of improving agricultural productivity also requires that Malawian agricultural personnel acquire new skills in agricultural communication, extension methods, and technical matters related to production. This is especially important in the area of agricultural research where there has traditionally been so few indigenous researchers. There is an immediate need to provide new technical and management skills for those officers who will be assuming the new positions created by the re-organization of the Department of Agricultural Research. The MOA's agricultural extension system also requires special management skills which can support and develop linkages to integrate the decentralized ADD structure as well as to develop new technical skills for the field staff.

Over the last two years, the MOA has contracted with private consultants to examine the training requirments of the Department of Agricultural Research and the Department of Agriculture, which include the ADDs. The overall training proposed for the DAR was included in the IADS Report which was finalized during 1984. This Report forms the basis for the DAR training which will be supported by the MARE Project. The Department of Agriculture has been preparing the groundwork for the extension service training and has recently commissioned a private U.K. consultant to prepare a comprehensive evaluation of the training requirements of the extension service. This report will be completed in June 1985 and will guide MARE Project-financing for subsequent MOA annual training plans.

C. Training Strategy for the MARE Project - The design of the MARE Project highlights staff training as the most critical intervention for increasing the overall effectiveness of the MOA in terms of developing appropriate smallholder technologies and of promoting the maximum research-extension linkages. The strategy of the Training Component is threefold: first, to develop an organizational structure which provides a single focal point for staff development; second, to provide off-shore training, both formal degree programs and short-term practical job-related experience; and, third, to provide in-service training in key areas deemed to be most critical to the DOA and DAR in accomplishing Project goals.

The Project has established targets for the Training Component which relate to significant numbers of long-term trainees attending U.S. universities and to the establishment of MOA in-country training programs. The long term U.S. training will directly address the need to impart new skills into the MOA, and in some cases, to simply expand the

present skills. This type of training has been carefully planned for the most critical MOA positions. In-country training, on the other hand, addresses the need to maintain the skills of all MOA staff, update technical skills on a regular basis, and provide a forum for the exchange of ideas. Mobilizing in-country training programs will require a substantial share of the Project's time and financial resources, with the corresponding benefits of maintaining prior investments in training and for enabling the MOA to be more independent with regard to their future training needs.

The phasing of the activities proposed under the MARE Project Training Component is structured so as to place long-term trainees into their programs as soon as possible and, thereafter, concentrate on the development of an in-country training system. Specifically, with regard to the development of in-country training, it is likely that two years will be required to develop a cadre of trainers and to prepare training materials. The first two years will also provide the time to identify and negotiate the participation of other national and regional training institutions into the MOA program.

D. Technical Feasibility of the Training Component Outputs

1. Institutional Outputs

a) Training Unit - A Training Unit will be established as a mechanism for implementing MOA staff training programs. The principal benefit of establishing the Unit is to provide a single focal point for coordinated staff development and training within the MOA. The absence of a strong training section in the MOA has led to the development of individual training units at the Department level, which has in term led both to a duplication of effort and to a seriously fragmented approach to staff training. In the AID/MARE Project and both IDA Projects, it has been clearly determined that the Training Unit must be attached directly to the Controller for Agricultural Services (CAS), be given the overall responsibility for MOA Training, and be staffed by acceptably ranked-officers and qualified.

The principal functions of the Training Unit will be to:

- prepare a Manpower Development Plan for the MOA;
- provide regular training needs analyses as part of the annual
- staff performance review;
- draft selection criteria for training candidates;
- design training activities;
- identify trainers and assist them with training techniques and materials;
- contact appropriate sources of training;
- process candidates for offshore training;
- maintain records on trainees; and,
- serve as the secretariat to the Training Advisory Committee.

The Training Unit will be staffed by two senior Malawian Training Officers supported by clerical personnel. The Unit will be led by a Chief Training Officer at the P5 rank and assisted by another Training Officer at the P8 grade. Two long-term training specialists will be provided by

the MARE Project to establish the Training Unit, develop its operating procedures, and assist the local officers who will themselves need training and experience abroad before taking up their positions. The Chief Training Officer will report directly to the CAS.

The Training Unit will provide a contact point in the MOA for linkages with the University of Malawi, Bunda College, the Natural Resource College, and other training institutions in Malawi. It will be particularily important to obtain the support of Bunda and the NRC in assisting with in-country training programs.

The Unit will commission studies as necessary to provide information which can contribute to MOA's Training Program. Initially two studies are planned: a study of MOA operations at the EPA-to-farmer level, and another to examine areas of assistance to Bunda College. The first study will examine the extesnion delivery system as it functions from the office of the EPA Development Officer to the smallholder and how information from the farmer and Technical Assistant is returned through the extension/research system. The second study will review the curriculum, faculty and facilities of Bunda College to examine what steps could be taken to upgrade its existing undergraduate curriculum and and to institute an in-service training plan so as to improve agricultural training.

b) Training Advisory Committee - The Training Advisory Committee will be established to serve as an advisory body for the Ministry of Agriculture on training matters. Its principal functions will be to:

- provide a forum for discussing training matters in the MOA;
- interpret and make recommendations for MOA training policy;
- set the priorities for MOA training;
- screen and approve all offshore training candidates;
- review the training evaluation reports; and,
- approve the workplans of the Training Unit.

The nucleous of the Advisory Committee will be the Controller of Agricultural Services, the Chief Agricultural Officer, the Chief Agricultural Research Officer, the Chief Planning Officer, and the Chief Training Officer. This Committee may invite other members as necessary.

2. Training Outputs

a) Long Term Offshore Training - The demand for post-graduate training arising from the national research and extension programs is large and diverse. For this reason US training institutions have a overall comparative advantage both because of the their large numbers and the variety of courses they offer. There are however. some international agricultural research centers and regional training institutions which are more suited for specialized training programs. The design of the MARE Project and the two IDA projects includes the arrangement that AID will finance US based training and IDA will finance long-term offshore training elsewhere.

b) Research - Agricultural researchers in Malawi need specialized knowledge and skills to address the needs and solve the problems that

confront the smallholder farmer. The research needed in a developing country is different, but no less complex, than anywhere else. Frequently, the researcher in a developing country will need a more comprehensive awareness of a subject because the developing country seldom has a great specialization of researchers. Researchers who are well trained in one area and who have appreciable knowledge in related areas are required. A few of Malawi's researchers are well trained but most hold only a first degree in agriculture or a related science.

For the DAR's professional staff to design and implement research programs of the type and in the numbers called for, and to accurately analyze and assess the results, a substantial increase in the number of persons with advanced academic training is required. Table 3 lists the needs for academic training at various levels for each research program. The ultimate goal of the DAR is to provide PhD level training for 27 Staff and MSc training for 80 staff members.

Including those DAR staff who are currently in advanced training, the number of PhDs and MScs in the DAR number 17 and 31, respectively. Table 4 outlines the projected training schedule the DAR requires. Experience in similar institutions in other countries, as well as in the DAR, indicates that the number of people leaving the service through retirement, transfer, resignation, etc., averages 3% per annum. Using this rate for attrition, together with the goal of training 6 PhDs and 30 M.Scs every five years, it will take until the end of this century to achieve the DAR's target. Assuming that 3 year's training is required for a PhD, and 2 years for an M.Sc degree, an average of 15 staff members will be out-of-country for advanced-degree training before the ultimate goal is achieved.

The MARE Project will provide funding for 4 PhDs and 29 MScs over the next five years. AID's training is heavily weighted towards providing the training necessary to implement the AR program (15 out of the 29 MScs). Another 5 MScs will be funded to implement both the Agro-Forestry Commodity Team and the Economics and Data Processing Unit in the DAR. All four PhDs and another four MSCs are being trained in the DAR priority-areas of horticulture and maize production.

c) Extension - Long-term offshore training programs are especially important to the Subject Matter Specialists of the Extension services. A scientific background is necessary to the SMS for identifying and communicating research needs, and for enabling him/her to consult effectively with other DOA collegues in adapting research findings to farmers conditions and in preparing extension programs. One of the most critical aspects of establishing and maintaining working extension-research linkages is to provide comparable levels of skills to both services in order to facilitate a common understanding of smallholder problems and the range of possible solutions.

Although a definitive list of DOA candidates awaits the on-going training analysis of the MOA's extension services, the Ministry has submitted a list of what it considers the most critical positions for long term-training in the DOA, including the ADDs. This list is presented in Table 3. Based on this list and on informal discussions with a variety of MOA officials, the MARE Project proposes to provide 18 MScs

for the DOA over the life of the Project. This includes one MSc to support Project efforts in the Extension Aids Branch and another to support the Women's Program Section.

d) Short-Term Offshore Training - Numerous short courses are available for strengthening the technical and managerial capabilities of MOA staff. The MARE Project will provide funding for a number of courses, workshops, and other practical work-experience type activities that are appropriate to the job-related needs of extension and research personnel. An important advantage of this type of training is that it has the potential for immediate results, and it does not require the trainees to be absent from their posts over an extended period of time.

This type of training is paricularily well-suited for technical officers (and others), who are capable of utilizing further training but are limited because of inadequate formal training credentials. Likewise, study tours abroad can be useful for senior staff and for select junior officers to broaden their perspective beyond Malawi and to acquaint them with the successful implementation of programs in other countries. Currently,the Training Unit will be the responsibility for obtaining all possible information about short-term offshore opportunities before sending any national for training because there is a wide variation in the quality and appicability of courses. Course evaluation should include course content, teaching methodology, cost, length of the educational experience, and the level of education and experience of the other trainees and instructors.

The MARE Project provides 31 person-months of short-term offshore training for the DOA and 32 person-months for the the DAR. In research, Project funds will be used to send the Agro-Forestry staff to ICRAF, and on a study tour to Rwanda, and will fund the following: Nursery Management (U.S. - 4 PM); Temperate Fruit (U.S. - 4PM); Nut Tree Crops (U.S. - 4 PM); USDA Statistics (4 PM); Grain Storage (U.S. - 2 PM); Seed Technology (2 PM); and, Soils (2 PM). In Extension, Project funds will be utilized for supporting activities in the Extension Aids Branch and for training relevant to women involved in agricultural production. Specific courses for Extension Aids include: Print Media Systems for the Publications Section, AV Equipment Maintenance for the Maintenance Section, Video Programming for the Cine Section, Composing for Offset Printing for the Senior Typesetter, Audio/Media Systems for the Radio Section, Graphic Design for the Graphic Artist, and Agricultural Communications for the Head of the Branch. Women's Program Officers will attend the WID course at the ESAMI facility in Tanzania, and female SMSs and researchers will be enrolled in various in offshore courses in agriculture.

It is anticipated that short-term offshore training will be used to a greater extent once the Training Unit is established and is better able to match short-term training needs to the short-term training opportunities. In this respect, funding by the Project for this type of training must remain flexible. Likewise, both IDA Project provide substantial funding reserves for short-term training.

e) In-Country Training - To date, the in-service training capability of the MOA has been limited, strongly oriented towards external resources for training and oriented towards academic subjects. The MARE Project and the two IDA Projects will strengthen the internal training function of the MOA and will place heavy emphasis on making use of the considerable technical expertise and experience already in Malawi to upgrade the skills of all MOA staff on a continuing basis.

1) Training of Trainers - After establishing the MOA Training Unit, the next move towards building a stronger in-country training program will be to identify and train a cadre of local trainers who will provide the mechanism for planning, organizing, and conducting training courses. This is especially important because of the dispersion of the MOA staff and the decentralization of management functions which have created a situation that requires strategically located trainers who are competent to plan and conduct effective training programs for those staff members within their geographic area. These trainers will form the core for implementing Project-financed in-country training, but more importantly, they will provide the capacity for continuing training after external assistance has been completed.

The Training Unit will be responsible for identifying and for bringing together the core group of trainers. It is anticipated that approximately 31 persons will be included in this group, including:

Potential Candidates for Trainer of Trainers

Training Unit	- 2 persons
ADD Training Officers	- 8 persons
Sr. Extension Officers	- 8 persons
Sr. SMS's National HQ	- 4 persons
Extension Aids Branch	- 2 persons
Bunda College	- 2 persons
Natural Resouces College	- 1 person
Dept of Ag Research	- 2 persons
Women's Program Section	- 2 persons
Total.....	31 persons

Once the trainers has been identified, the core group will undergo intensive training for two months in Year 1 of the MARE Project, three months in Year 2, two weeks in Year 3, and one week in Years 4-5. Subjects to be included in the this training are: criteria for trainee selection, choosing an extension message, practical skills testing, lesson and demonstration planning, production of training materials, operation and maintenance of audio-visual materials, curriculum design, course planning and management, and course assessment and evaluation of training.

A critical part of the training of trainers will be in developing training skills and abilities to use adult training methods. Adult training methods such as case studies, role plays, games simulation, skill building exercises, small group discussions, group and self-analytic instruments, etc., used to stimulate thought will be

employed to provide opportunities to practice new behavioral skills. Adult training is highly participatory, meaning that learning exercises are designed so as to optimize interaction among group members so they may exchange knowledge and test new skills together.

This core of trainers will, in turn, support groups of other trainers at the ADD level and below including: Extension Officers, SMSs, Women's Program Officers, Principals of Residential Training Centers and Farmer Institutes, Rural Development Project Officers, and EPA Development Officers. These persons would receive one week of training in Year 1, three weeks of training in Year 2, and one week re-fresher training in each of the subsequent years.

2) Technical Training - Training in technical agriculture is a critical ingredient for upgrading and improving the the research and extension services in Malawi. It has special application in the combined efforts of the DAR and DOA to: develop recommendations for smallholders; strengthen the linkages between both departments; and, to improve the confidence and effectiveness of the DOA in fulfilling its responsibility to disseminate technical messages to smallholder farmers.

There are two aspects to the technical training proposed under the MARE Project including the need to increase technical agricultural skills. It is equally important, however, that existing technical skills be re-oriented to address the needs of smallholders. This perspective is based on the fact that: 1) despite intensive assistance to farmers in some NRDPs, these areas have not achieved significant yields above neighboring areas which were not covered by NRDP; 2) credit club members who qualify for improved seed, fetilizers, and insecticides represent a modest percentage of the nations farming households (15%); and, 3) the MOA's efforts have focused largely on men, although 30% of the household heads are women and certain crops and cultural practices are predominantly carried out by women. From this assessment, it is clear that both the research and extension staffs are overlooking or not addressing smallholder constraints to increased production. Technical talents will need to be directed at those smallholders who do not qualify for credit (and who, therefore, seldom are the recipients of extension messages) or who are not convinced of the need for high cost inputs to increase production. To date, pre-entry staff technical training has been highly generalized but the work at the lower levels of agriculture requires specific skills to reach both male and female smallholders, with particular emphasis directed to the latter group.

Three major pairings of staff are targeted for technical training: DAR researchers and senior DOA (including ADD) Subject Matter Specialists; research technical officers and DOA field SMSs at the ADD and RDP level; and, EPA level SMSs, TAs and FHAs.

For the first group, almost all will have received technical BA training at Bunda College, and some will have graduate degrees from outside the country. These persons will be expected to give more than they get in terms of in-service training. They can expect to keep their skills current through joint DOA-DAR seminars on technical topics of mutual concern. However, their principal role will be to work with the

Training Unit and groups of Trainers of Trainers to develop and prepare modules for technical training in the areas of General Crop Production, Horticulture (including fruits, vegetables, and nut crops), Livestock and Pastures, Land Husbandry, Extension, Agro-Forestry and AR. These modules, in turn, will be adapted and passed on to the other MOA staff who need technical training. It is important to note that these modules will be contiually revised as information from the field (the ARTs and Extension staff) and from research stations develops.

The second group, mid-level SMSs and research Technical Officers, will be exposed to the modules developed by the first group. In addition, this group will be exposed to other training methodologies, including: practical experience involving specialized crops; training on conducting field trials, practical skills testing, statistics, selection of extension messages, and communications skills; and, message response testing. It is anticipated that by Year 2 of the Project, limited numbers of this group will receive 1-3 weeks of training followed by two weeks in each of the subsequent years.

The third group, the EPA Development Officers and FAs and FHAs are critical targets for technical training because they have the lowest technical training base and are directly responsible for passing technical information on to the farmer. There are several approaches which will be used to assist these persons with technical training.

First, they will be exposed to the technical modules developed by the Training Unit through a process which starts at the ADD, works its way through the RDP to the EPAs and finally to the TAs and FHAs. The adaptations of these modules for the latter group will highlight methods for analyzing individual farm situtations, adjusting recommendations, and improving communication skills. Accordingly, the training will include: farming systems, conducting field trials, analysis of results, technical skills related to crop planting and cultivating, and selection of extension messages.

Second, technical agricultural training courses for the EPA Development Officers should be developed by Bunda College. Currently there are approximately 170 DOs who have a most critical role in training and supervising the FAs and FHAs who deliver extension messages to smallholders and who encourage adoption on improved technologies. The Training Unit will work with the Dean of Bunda College and a select group of Project and Development Officers to plan and organize a four-week course to improve and update technical agricultural skills. This course will stress teaching methods and their effective use in teaching smallholders. Another issue which ranks high is what considerations are necessary in making an analysis of the geographic area to be served, and the location of the farmers and their possible groupings with regard to production enterprises, resource availability, competence, and experience.

Third, Field Assistants and Farm Home Assistants will be provided special technical training at the Natural Resources College because, to date, they have had the fewest opportunities for formal training. FAs and FHAs normally have completed a minimum of 2 years of secondary school and have earned a certificate by the completion of two years training at Colby College of Agriculture (now merged with NRC)or hold a certificate

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from the Thichula Institute. Training is planned for 300 FAs and FHAs at the NRC in Years 3-5 of the Project.

Another special group which will receive technical training under the Project is the staff of the EAB and EAUs who will receive technical training in agricultural communications provided through a series of short-term technical assistance trainers funded by the Project.

3). Management Training - The changing structure of the MOA, combined with the need for improved cost-effectiveness, highlights the need for including management training as the second major focus for in-country training. The MOA is continuing to decentralize authority and to add new responsibilities to the PM at the ADD while concurrently consolidating its research station network and sending new Adaptive Research Teams into the field. As a consequence, MOA personnel at all levels are experiencing major changes in responsibility which require special managerial support and guidance to help them in adjusting faster and in developing the working relationships across departments which are needed to make these organizational changes effective.

Management development training is particularly appropriate in times of change because it is highly process-oriented and responsive to the needs of groups and organizations. It is process oriented in the sense that it is meant to facilitate emerging workgroup understandings and to progressively improve individual and group behavioral performance. It is responsive in the sense that it takes into account changing individual needs and perspectives, shifting organizational responsibilities, and helps groups define a more collaborative relationship.

A major objective of the management training provided under the MARE Project will be to: 1) improve the performance of organizational groups such as the National Research Coordinating Units and their Commodity Teams, ADD Program Managers and ADDs staff, and FA/FHAs and their extension blocks; and, 2) create new relationships between new groups or between groups not currently linked, such as the newly-developed ARTS to the ADD staff.

From the standpoint of cost-effectiveness, management training has yet another facet: that of improving the value for money expended in delivering MOA services. This training is is especially relevant to program planning and for improving budgeting and financial systems. The IDA Project is planning a major investment in this type of training.

Management training will be provided to four separate target groups. The first group of 18 persons represents senior MOA management including the two CASs, the CPO and the Deputy, the CAO and Deputy, the CARO and two Deputies, the CVO and Deputy, and the eight ADD Program Managers. The second group consists of 43 persons including the six Section Chiefs of the Planning Division, the Heads of the four Branches of the DOA, the six National Research Coordinators, the eight Assistant Program Managers, the eight Coordinators of Technical Services, the three DAR Station Managers, and the eight AR Team Leaders. The third group of 184 people includes 28 RDP Project Officers, 28 Assistant RDP Project

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Officers, and 128 EPA Development Officers. The fourth group includes 20 persons representing the 16 Financial Controllers and Assistants at the ADDs, and the four Financial Controllers from DAR, DOA, PD, and DOV.

The system for delivering the management training follows the pattern established for technical training. The Training Unit will coordinate with the first group to develop modules for management training which will be delivered through the Trainer of Trainers system. Topics to be covered under the proposed management training include: program planning, budgeting, administration, problem solving, decision analysis, roles and responsibilities, personnel administration, and group dynamics. In addition, because of the special needs of the financial staff, special training programs and courses may have to be initiated using external resources. During Year 1 the MOA senior management group will be provided two weeks training, and thereafter three weeks during each of the following four years. The second group will receive two weeks training every year starting in Year 2. The third group will also receive two weeks training each year starting in Year 2, except the EPA DOs who will only receive one week of training each year. Finally, it is planned to provide the Financial Controllers with a four weeks of training every year starting in Year 2.

4) Training Facilities - Most EPA Centers have a classroom for day training. Average utilization for farmer training is low but the Centers do provide a venue for regular meetings and training sessions for EPA staff. Farmer Training Centers (FTCs) are used by the extension staff for occasional, residential courses conducted for the staff at the RDP level. At the ADD's Headquarters, there are conference rooms where meetings and small seminars/workshops can be held, primarily for SMS staff. The Bvumbwe Research Station has a small resthouse and Chitedze Research Station has a small resthouse and the Colby College facilities which can be used for residential accommodation for in-service trainees attending short training sessions at the stations. Likewise, the pre-service training facilities at Bunda College and the NRC are available during vacations for longer in-service training courses. The embargo on new GOM positions is expected to reduce the demand in the immediate future for the output from both colleges, thereby potentially releasing accomodations for in-service and upgrading-training courses.

E. Appropriateness of the Inputs

1. Long-term Technical Assistance - Two long-term technical assistance positions are provided for the Training Component: a Training Advisor and a Training Specialist. Job descriptions for both of these posts are provided in Annex 9.9. These positions are considered critical for achieving the outputs outlined above because: 1) establishing a comprehensive training plan for the MOA requires a level of professional training and experience which is not locally available; and, 2) the technical assistance personnel will be required to hold line positions while the local staff are sent for training.

2. Short Term Technical Assistance - Thirty-five person months of short-term technical assistance is financed by the Project. Twelve of those person-months are slated for the EPA study. It is expected that a large percentage of the remaining P/M figure will be used to launch the Training of Trainers program and to develop training modules for technical agricultural training.

3. Commodities - The Training Component will requires supplementary office equipment and training supplies for the Training Unit. These include two vehicles for the technical assistance positions, two microcomputers, a mimeograph machine, two typewriters and miscellaneous office and training supplies. This level of commodity input is based on the expected levels of support to be provided by the GOM.

4. Training Funds - All offshore training funds will be disbursed through USAID/Malawi and have been estimated on the basis of previous mission experience. The in-country training funds will be disbursed by the GOM/MOA from a special account which will receive advances from USAID based on the in-country training requirements and previous disbursements. In-country training costs have been estimated on the basis of costs charged to other AID Projects in Malawi.

5. Administrative Support - The principal source of administrative support for the Training Component is the proposed MOA Training Unit. The Unit is expected to have its own secretarial and clerical staff. It is also anticipated that administative support for Project activities will come from the eight Senior Training Officers at the ADD level. Likewise, each of the participating departments will be expected to provide some assistance for the training of their staffs.

The design of the Project also includes the assistance of the USAID/Malawi Training Office in processing applications for offshore training in the United States. This decision was made based on the past experience of the Training Office in assisting Malawian candidates slated for US training, and on the excellent support provided by USAID, which was accomplished without ill-effects to the operations of the Mission.

Table 1: DAR Staff Establishment

Staff ranks and responsibilities	Establishment		Filled Posts	
	No.	%	No.	%
I. Superscale Officers				
ranking professional officers at higher salary levels; primarily research station and department managers.	33	(7)	21	(5)
II. Professional Officers (PO)				
B.Sc. or advanced degrees; researchers without rank.	68	(14)	64	(15)
III. Technical Officers (TO)				
Agriculture diploma graduates; field staff who lay-out and monitor trials, laboratory technitians, research station farm managers.	142	(23)	89	(22)
IV. Technical Assistants (TA)				
Agriculture certificate recipients; field assistants;	276	(56)	238	(58)
Total	491	(100)	412	(100)

Table 2
MALAWI
AGRICULTURAL EXTENSION AND PLANNING SUPPORT PROJECT
National Extension System - Staff Establishment

Staff Ranks and responsibilities	Establishment No.	Establishment %	Filled Posts No.	Filled Posts %
I. Superscale Officers ranking professional officers at higher salary levels; primarily DOA and ADD managers and senir subject matter specialists staff.	55	(2)	7	(12)
II. Professional Officers (PO) B.Sc. or advanced degrees; mostly ADD deputy managers; and senior subject matter specialists	86	(3)	9	(10)
III. Chief Technical Officers (CTO) Diploma holders; experienced subject matter specialists (SMSs) and Supervisory staff at ADD or RDR levels.	43	(1)	5	(10)
IV. Senior Technical Officers (STO) Technical Officers (TO) Diploma holders, mainly extension or credit supervisors, SMSs at RDP and EPA levels and EPA managers.	410	(12)	77	(18)
Senior Technical Assistants (STA) Certificate holders, mainly supervisory staff at RDP or EPA level.	253	(7)	50	(20)
Technical Assistants (TA Certificate holders; technical assistants; credit assistants; farm home assistants; land husbandry; and veterinary assistants, who are in direct contact with farmers as field extension workers	2,621	(75)	409	(15)
Total	3,473	(100)	557	(16)

Source: MOA Planning Division, staff position as of May 1984.
a] Include established positions of Extension Aids Branch.
b] There are an average of 4 superscale grade officers and eight professional officers in the ADD. Of the 141 professional staff in these categories, there are 15 professional staff in degree, and 10 additional officers are currently pursuing advanced degree courses overseas

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Table 3

MALAWI
DEPARTMENT OF AGRICULTURAL RESEARCH
GOALS FOR LEVEL OF ACADEMIC TRAINING OF PROFESSIONAL STAFF

Program	Ph.D	M.Sc.	B.Sc.	TO	TA	Total
Headquarters	3	2	3			8
Nat. Res. Coord's	6					6
Services Coord'or	1					1
Cereal Crops						
Maize	3	4		3	6	16
Wheat/Barley		2		1	2	5
Rice		3		2	3	8
Sorghum/Millet	1				2	3
Horticulture						
Temperate fruit		1		1	2	4
Tropical fruit	1	2		1	2	6
Tree Nuts		2		1	2	5
Coffee		2		1	2	5
Cassava/SW Potato		1		2	2	5
Vegetables/Spices		1		1	2	4
Legume/Oilseeds						
Groundnuts	2	5		3	5	15
Oilseeds		1			2	3
Cotton	2	4		4	8	18
Beans						
Other Gr. Legumes		3		3	3	9
Livestock/past	2	4		6	8	20
Engrg/land Husbandry						
Agroforestry	2	1		2	4	9
Irrig/Drainage	1	1		1	2	5
Soil/Water Cons.		2				2
Mach'y/Cr. Storage		5		3	4	12
Adaptive Research		19			16	35
Econ/Data proc.		3	1	2		6
Support Services						
Soils (Chitedze)		3		3	15	21
Soils (Bvumbwe) 2	2	2		5	11	20
Soils Survey	1	2		1	2	6
Seed Technology		3		10	5	18
Pl Pro/Quarantine	1	1		5	1	8
Station Managers				7		7
Trial Sites				16	11	27
TOTAL	27	80	4	84	122	317

Table 4

MALAWI
DEPARTMENT OF AGRICULTURAL RESEARCH
PROJECTED PROFESSIONAL STAFFING HIRING / TRAINING BY DEGREE

	Beginning Number	To Be Training	Graduated	To Be Hired	Attrition	Ending Number	Goal
			1984-85 To 1988-89				
Ph.D	17	6			3	20	27
M.Sc.	31	29	6		7	47	80
B.Sc.	[illegible]		29	37	7	44	4*
Non-degree	2						
Vacancies	18						
Total	111						
			1989-90 To 1993-94				
Ph.D	20	6			3	23	27
M.Sc.	47	31	6		8	64	80
B.Sc.	44		31	17	6	24	4
Total	111				17	111	111
			1994-95 To 1998-99				
Ph.D	23	6			4	25	27
M.Sc.	64	30	6		11	77	80
B.Sc.	24		30	17	2	9	4
Total	111	—	—	—	17	111	111

*Includes financial controller and Administrative Officer who will not be directly on DAR establishment.

Table 1

TRAINING OF TRAINERS (Person Weeks)

	YR 1	YR 2	YR3	YR4	YR5
Trainer of Trainers N=31	248	372	62	62	31
Sr. Managemnet	15				
ADD Trainers N=54	54	324	54	54	54
Sub-Total	317	696	116	116	85

Table 2

TECHNICAL TRAINING (Person Weeks)

	FY-86	FY-87	FY-88	FY-89	FY-90	TOTAL
GROUP 1						
HQ + ADD + DAR N=12 (DAR NC=7) (DOA=5)	12	24	24	12	12	84
Sub-Total	12	24	24	12	12	84
GROUP 2						
HQ + ADD + DAR N=48 (DAR=8) (DOA=40)	-	11	96	96	48	384
RDP + SMSs + DAR N=127 (DAR=22) (DOA=105)	-	28	254	254	254	790
Sub-Total	172	350	350	350	302	1174
GROUP 3						
EPA + SMSs N=256 (DAR=36) DOA=220)	-	128	256	256	256	896
TAs + FHAs N=2600 (DAR-200) (DOA=2400)	-	-	2600	2600	2600	7800
Sub-Total	128	-	2856	2856	2856	8696
Total	12	324	3230	3218	3170	9956

Table 3

MANAGEMENT TRAINING (Person Weeks)

	YR 1	YR 2	YR3	YR4	YR5
GROUP 1					
HQ + PM = ADD N=18	36	54	54	54	54
GROUP 2					
N=43 persons	-	86	86	86	86
GROUP 3					
RDP - DO 28 APO 28 N = 56	-	112	112	112	112
EPA=128	-	128	128	128	128
GROUP 4					
Financial Controller and Senior Accountants N=20	-				
	460	460	460	460	460
	36				

PROJECT PAPER

ANNEX 9.51 B

TECHNICAL ANALYSIS - RESEARCH

ANNEX 9.51 B.

TECHNICAL ANALYSIS- AGRICULTURAL RESEARCH

A. Background - Agricultural research is conducted by the Department of Agricultural Research (DAR) in the Ministry of Agriculture, the Tea Reseach Foundation, the Tobacco Research Authority, and to a limited degree by Bunda College of Agriculture. The DAR is a comprehensive research department with national responsibilities covering all crops and livestock except tobacco, tea, and sugar. In the past, research concentrated on cash and export crops. Beginning in 1980, however, adaptive research focussed on smallholder subsector needs for the first time.

The proposed IDA-AID assistance to the GOM's agricultural research program is a cumulation of five years planning. Since Independence the GOM has attempted to accelerate the development of the smallholder subsector and in recent years the National Rural Development Program (NRDP) has been the principal vehicle for smallholder assistance. The implicit assumption in the NRDP was that the improved technology necessary to increase agricultural productivity was available. In actuality, smallholder focussed technology was, in most cases, lacking. This led the GOM to examine the agricultural research system to see how it might be changed to better assure a flow of improved technology to meet the needs of smallholders.

The Government of Malawi requested the International Service for National Agricultural Research (ISNAR) to assess the Malawian research system in 1982. The major findings of this study were: 1)investment in agricultural research should be increased; 2) the network of research stations should be rationalized; 3) coordinated commodity research programs for the major smallholder enterprises should be established at the national level; 4) research management and budgeting procedures should facilitate regular evaluation of research progress; 5) research should have access to the resources of reseach intitutions outside of Malawi; 6) research units should conduct production research to show inputs costs and returns to various groups of producers; and, 7) a plan of scientific manpower needs and their sources (based upon specific research program plans) should be established.

Following the ISNAR Report, the MOA established an internal Local Preparation Team to examine the issues which were raised by the Report and to develop recommendations to Government. This Working Group proposed that: 1) a new organizational structure for the DAR focused on multi-disciplinary commodity teams and adaptive research teams rather than on research stations; 2)the number of research stations be reduced from eleven to three; 3) an Agriucultural Research Council be instituted which would be responsible for research policy and prioritizing agricultural research activities; 4) the technical capacity of the DAR be strengthened by additional training; 5) a revised programmining and budgeting process be established whereby each research activity would required justification before funding was approved; and, 6) closer linkages between research, extension, and farmers. The GOM endorsed the recommnedations of the Local Preparation Team and submitted it to the World Bank and USAID for their consideration for financing.

The potential donors, in turn, financed a consultancy by IADs Operations Inc. in late 1983 to examine the proposals of the GOM. The IADs Report

reconfirmed the recommendations of the local preparation team and provided additional assistance in developing criteria for prioritizing research and by undertaking a financial analysis of the proposed re-organization of the DAR. Another contribution of the IADS Report was their groundwork in preparing guidelines for the new Agricultural Research Council to develop a Research Master Plan. Both IDA and USAID reviewed the IADS Report with the GOM.

B. Malawi Agricultural Research Project (612- 0202) - The USAID Agricultural Research Project played an active role in many of the activities described above. Although the Project was authorized in 1979, the contractor - the University of Florida - did not begin implementation until 1980. The Project was intended to help the MOA develop research results which were applicable to smallholders over the 15 to 20 year time frame of the National Rural Development Program. Towards this end the Project provided technical assistance personnel, long-term training to DAR staff, research equipment, and expanded the DAR's infrastructure.

Over its five year life, the Project has achieved a number of successes. First, it has made a sizable contribution to the DAR's infrastructure providing a new research sub-station, two laboratories, staff houses, and research equipment. Secondly, the Project has trained 33 DAR staff to at least the Masters level and, under the auspices of the Project technical assistance, has trained Malawian staff who are now undertaking all maize and oilseed research. Third, the Project has provided major impetus in establishing the MOA's Adaptive Research Program. Fourth, the contributions of women farmers in Malawi were recognized and attention was directed towards addressing the special needs of female smallholders. Finally, the technical assistance personnel contributed significantly to the re-organization of the DAR.

The MARE Project will both build upon what the original Agricultural Research Project started and add new activities, particularly in extension services. The Adaptive Research Program will be one of the centerpieces of DAR activity and the MARE Project over the next five years. The horticulture research funded under the first project will be continued with the support of two years of technical assistance and training. Women's activities will be expanded and will be fully integrated into the MARE Project in all three components (training, research, and extension). The economic analysis section which was begun in the previous project, will be expanded into a full unit by the DAR and supported by the MARE Project. Finally, the agressive overseas training program intiated by the first project will be matched in the MARE Project, and supplemented by the development of an on-going in-country training program.

C. MARE Project Strategy for Assisting Agricultural Research - The Agricultural Research Component of the MARE Project complements the assistance provided by the IDA National Research Project and aims to implement the GOM's proposals for re-organizing and strengthening the Department of Agricultural Research. The MARE Project emphasizes: 1) an overall approach for supporting the MOA's agricultural research program by assisting both the applied and adaptive research activities; 2) an agressive staff training program to provide personnel for the revised DAR organizational structure; 3) technical assistance to initiate the proposed new programs and/or to fill critical DAR

staff positions while local officers are in training; and, 4) a complementary buildup of linkages with the MOA's Extension Services.

D. Technical Feasibility of the Outputs

1. Expanded Adaptive Research Program - Malawi's Adaptive Research Program was intiated under the on-going Agricultural Research Project, with the assistance of CIMMYT using elements of Farming Systemes Research and the Training And Visit Approach. This Progam is implemented through Adaptive Research Teams located in each of the 8 ADDs. To date, three ARTs have been established with teams composed of an agronomist, agricultural economist, and technical assistant from the DAR and a senior extension officer from the ADD. Five more teams will be established during the life of the Project.

Malawi's decision to intitutionalize the Adaptive Research Program into its overall agricultural research system is based upon a thorough assessment of the research requirments of Malawi as reflected in the ISNAR, GOM, and IADS Reports. In summary, the MOA has decided that both its research and extension programs will be more effective if built around the Adaptive Research Teams working alongside extension staff and farmers rather than decentralized research stations and sub-stations. Some of the factors which were considered in arriving at this decision were: 1) for agricultural research to directly address the contraints of the smallholder a mechanism was needed for transmitting information from the farmer to the researchers; 2) to improve the dissemination process a linking of research and extension efforts was required throughout the process of developing locally specific research recommendations.

In addition to the direct support of the present and proposed AID projects, the DAR has the support of several International agricultural research centers to backstop its Adaptive Research Program. The AID centrally funded CIMMYT Project has been instrumental in training the staff of the first three ARTs, and is planning to continue this support throughout the life of the MARE Project. CIMMYT will also continue to address technical and management issues which arise as the ARP develops. Likewise, ILCA has been assisting the DAR since 1984 to integrate livestock activities into the ART methodologies.

An important characteristic of the DAR's Adaptive Research Program, and one that increases the likelihood of its success, is the linkages between extension and research which have been developed to support it. At the headquarters level, the Agricultural Research Council provides a forum for open discussion of the Adaptive Research Program between extension and research staff. In addition, seminars and workshops to discuss the findings and issues arising out of the Adaptive Research Program are planned which will involve both research staff and the Subject Matter Specialists of the DOA. The most critical research-extension linkages for supporting the Adaptive Research Program involve the staff in the ADDs. These include: 1) the participation of a senior ADD extenionist in the ART; 2) the action of the ADD Program Manager in approving the annual ART workplan; 3) the discussion of the ART Program at monthly ADD meetings; 4) the joint training proposed for both ART and ADDs staff; and, 5) the role of FAs and TAs in selecting and monitoring field trials in farmers fields.

Malawi's Adaptive Research Program is also developing links with entities involved in agricultural policy making. The three operational ARTs have

already identified input pricing and marketing policy issues as major contraints affecting the adoption of improved technologies in the areas where they are working. The following channels will be used to communicate relevant information which impacts on agricultural policy: 1) through the ART to both the CARO and the ADD Program Manager; 2) through the Agricultural Research Council; and, 3) through the DAR's Agricultural Economics and Data Processing Unit (AGREDAT) which will cooperate with the Planning Statistics Division in the MOA Headquarters.

The phasing of the new ARTs has been planned with regard to the availability of trained staff and with adequate time to make adjustments where necessary before starting a new ART. For each newly established ART the first year is devoted to a diagnostic stage where information concerning the farming system and farmers of an area are analyzed and local extension staff are trained in Adaptive Research methods. During the next year, five field trials are established in an EPA based upon information arising out of the previous year's diagnostic phase in identifying smallholder contraints. With ART supervision and FA monitoring the farmer establishes the trial and is assisted by the team through to harvest to assure correct and timely application of recommended practices. Following analysis of the trial results, replication of successful trials will be used to develop locally specific recommendations for the area. For "off the shelf" technologies it is expected that, on average, it will take three years to verify succesful field trials. Such technologies may include: better management practices for maize and groundnuts (timely preparation of the land and better plant spacing); better feeding for livestock(utilizing crop stovers and groundnut hulms); and, making more materials available for horticulture (principally seeds and seedlings). For unsuccessful trials, alternative technologies may be used until the problem is solved.

The overall management of the ARTs is the responsibility of the National Coordinating Unit for Adaptive Research (NCUAR) which is staffed by an agronomist and agricultural economist. These two officers will receive Masters level training in the United States, and during their absence the Project will provide two technical experts to fill their positions. This arrangement is scheduled so that there will be three months Technical Assistance overlap both before the local officers depart for schooling and after they return. Specific tasks of the NCUAR are to: 1) Supervise, train, and coordinate the activities of the ARTs; 2) Cooperate with DOA Headquarters and ADD staff in the operations of the ARTs; 3) Coordinate with other NCRUs and ARTs in the identification of production constraints and in the development of finacially viable and socially and environmentally acceptable smallholder technologies; and, 4) Work closely with the AGREDAT to provide aggregate information on ART research activity, and to train ARTs in economic analysis and evaluation skills; and, through AGREDAT, coordinate with the Planning Division and the Agricultural Research Council.

Because the ARTs will be located in each of the ADDs, significant attention has been given to the management role of the ADD Program Manager. As mentioned above, the PM is expected to provide input into the work plans of the ART and is required to approve the formal annual workplan. Futhermore, the PM will also be responsible for the administrative arrangements and local program guidance of the ARTs, although technical advice and direct budget support will still come from the DAR. These shared management responsibilities

are somewhat cumbersome but are workable and basically necessary at this time because of the necessity of having a direct link with research to obtain crucial research information.

2. Strengthened Applied Research - The MOA's Applied Research Program is responsible for selecting research findings from international and regional sources, testing them for their applicability in Malawi, and modifying promising technologies to local conditions where necessary. The Applied Research Program is undertaken at the three main research stations and at their respective sub-stations. Five commodity groups (cereals, horticulture, grain legumes, livestock and pasture, and agricultural engineering/land husbandry) form the structure around which Malawi's applied research is organized. Each commodity group is organized into a National Research Coordinating Unit, and is directed by a Coordinator. Each Unit in turn supports a number of Commodity Research Teams. This arrangement facilitates the establishment of a system that allows teams with multi-disciplinary skills to combine their talents to overcome technical contraints of smallholders.

Like the Adaptive Research Program, the Applied Research Program is guided by the policy line and heirarchy of priorities established by the Agricultural Research Council. In terms of the applied research the priorities will highlight the development of shelf technologies and support to both the ARTs and Subject Matter Specialists. The different Commodity Groups have already made a number of contacts with international and regional research centers which will facilitate the development of shelf technologies including: CIMMYT for wheat and maize; ILCA for livestock pasture and animal traction; ICRISAT for groundnuts and cowpeas; ITA for cassava and pigeon peas; CIAT for beans; CIP for potatoes; IRRI for rice; ICIPE for insects; and, ICRAF for Agroforestry and land husbandry. In addition, links have been forged with several SADCC research organizations, including SACCAR. Support to the ARTs by the applied research commodity groups will be monitored by the ARC which has established a target of using 50% of applied research financing to work on problems identified by the ARTs. It is also important to note that there has been a concious effort in the design of the DAR reorganization to develop the maximum amount of cooperation and coordination between the different commodity groups on issues of mutual concern such as intercropping.

While the previous Agricultural Research Project concentrated on research related to maize and other cereals, oilseeds, livestock, and general horticulture, the MARE Project will emphasize the additional areas of horticulture, agro-forestry and production economics. However, in order to maintain the momementum in these previously supported areas, limited resources have been set aside in the MARE Project for follow-on activities.

3. Horticulture - While horticultural research was only initiated towards the end of the previous project, a sound foundation has been established upon which to continue assistance to this very promising agricultural area. According to the 1980/81 National Sample Survey, fruit and vegetable crops were grown on only 2,333 hectares nationally. In light of horticulture's contribution to improved nutrition, crop

diversification, and its potential for export, the MOA is placing a greater emhpasis on increasing smallholder horticultural production.

To date, research has not developed site specific production recommendations for horticulture which are suitable to smallholders or to their resource endowments. The Horticulture National Research Coordinating Unit, working with the ARTs will identify the major contraints smallholders face and utilize the various horticulture commodity teams to develop technologies and practices for major fruit and vegetable crops appropriate to the level of resources available to the smallholder and diffentiated by different ecological zones. One major area for research is intercropping maize with horticultural crops. The ARTs will be responsible for arranging field trials to verify the recommendations of the Commodity Research Teams. Based on the schedule of ART development and on the potential field trials which could be devoted to horticulture, the Project should be able to develop site-specific recommendations for smallholder production of one major vegetable and one-two major fruits.

4. Agro-Forestry - Agro-forestry is a major new activity for the DAR which will be supported by the MARE Project. The Project will support the establishment of an Agro-Forestry Commodity Team under the Agricultural Engineering/Land Husbandry National Research Coordinating Unit. This team will be staffed by a soil scientist, an agronomist and a silviculturist for agro-forestry. The main purpose for supporting agro-forestry activities under the MARE Project is to develop improved land use practices based on the multiple benefits of using selected woody perennials in conjunction with current or future crop and livestock enterprises.

The objectives of the new Agro-Forestry Commodity Team will be to: 1) strengthen the capability of the DAR to develop and extend appropriate agroforestry technologies to rural smallholders; and, 2) promote, with the cooperation of the ARTs, the development of complementary technology-generating, on-farm trials that demonstrate the technical, economic, and social viability of combining woody, herbaceous and animal components to overcome diagnosed smallholder land use contraints. The first priority of the Project will be to recruit staff for the Team and to establish its organizational structure. Thereafter, the Project will support research emphasizing the productive and protective use of woody perennials in smallholder farming systems.

In terms of staffing, one PhD Soil scientist has already been identified to lead the Agro-Forestry Commodity Team. The two other members of the Team have not been identified, although they are expected to be BSC graduates from Bunda College of Agriculture. All three staff must be in place before Project funds can be used for Agro-Forestry activities.

The first step in developing the agro-forestry research and development program is to send the CT Leader to ICRAF's Fifth Agro-Forestry Research for Development Workshop in Nairobi in November 1985. The objective of this Workshop is to provide senior African researchers and develpment planners with an insight on the principles and practices of agroforestry. On completion of the ICRAF Workshop, all

three members of the Agro-Forestry Commodity Team should conduct a study tour of GTZ's Agrosylvopastoral Project in Nyabisindu, Rwanda. In Rwanda, agroforestry research is being conducted and extended on smallholder farms, under conditions both ecologically and socially which very closely resemble those in Malawi (particularily at medium and high elevations). Futhermore, the develpment of agroforestry has reached a fairly advanced stage in Rwanda and results seem most encouraging. (On completeion of the study tour, the agronomist and sylviculturist would begin master's training as soon as possible in their respective disciplines but with an emphasis on farming systems/agroforestry. Concurrently, the Soil Scientist would begin compiling detailed information on existing land-use practices in Malawi, (including agroforestry practices), agroforestry research to date, and relevant multi-purpose species trials undertaken by the Forestry Department and/or Bunda College of Agriculture. Assistance will be provided by ICRAF personnel for this activity.

On completion of this study, the Soil Scientist with ICRAF assistance, will prepare a 3-day workshop on "agroforestry awareness" for senior level GOM officials from the Ministries of Agriculture, Forestry Veterinary Services, Bunda College of Agriculture, etc. The purpose of this workshop would be to present AFCRU's agroforestry solutions to lan use problems, and to promote the inter-disciplinary interagency approac required for agroforestry research and extension.

On completion of the Agroforestry Awareness Workshop, the Soil Scientist would proceed to Nairobi for a 6-month fellowship in Agroforestry at ICRAF headquarters. The other members of the AFRCU wil also receive fellowships at ICRAF on completion of their Master's training. The training will be so scheduled that at least 2 members of the AFRCU will be in-country to coordinate on-going and planned on-farm trials and component specific, on-station research activities.

On the Soil Scientist's return from the ICRAF fellowship, his first task, with ICRAF assistance, will be to organize and conduct a 7-10 day training workshop in the application of ICRAF's Design and Diagnostic methodology. This workshop will be held for the three existing ARTs teams plus selected technical and extension personnel from the three relevant ADDs. The D&D methodology workshop is to develop an efficient procedural framework as well as practical tools for use by ARTs and ADD personnel to diagnose agroforestry-related problems and potentials in Malawi's land use systems, to identify technologies for solving or mitigating the identified problems, and to develop the latent potentials for the systems. An outline of the basic D&D stages is provided below:

D&D STAGES	BASIC QUESTIONS TO ANSWERS	KEY FACTORS TO TO CONSIDER	MODE OF INQUIR
Prediagnostic	HOW THE SYSTEM WORKS (what does it look like, how is it put together, how does it work?)	Production objectives and strategies	Seeing the system
Diagnostic	HOW WELL THE SYSTEM WORKS (what are its problems, limiting constraints and problem generating syndrones?)	Problems in meeting objectives Causes of identified problems	Troubleshootin the system Deriving specifications
Design	HOW TO IMPROVE THE SYSTEMS (what is needed to improve system performance?)	Problem solving or performance enhancing interventions	Brainstorming and evaluating alternatives
Planning	WHAT TO DO TO DEVELOP THE IMPROVED SYSTEM (what specific R&D actions are needed to develop and implement the envisaged improvements?)	R&D priorities	Project planning and research desig

On completion of the D&D workshop, and assisted by ICRAF, the long-term TA and the AFRCU will implement the D&D methodology in three ADDs with the cooperation of the ARTs and ADD personnel (including agriculture and forestry)

Following the D&D exercise in the three ADDs, ART, ADD and AFRCU personnel will meet in order to determine necessary on-farm and on-station research activities as well as technologies which could be extended to farmers without prior on-farm or on-station trials.

Depending on the smallholder's circumstances, three types of research activities are envisaged, according to the scope of the technology to be generated. These are:

Location-specific: addressing land-use problems arising from a particular set of agro-ecological and socio-economic circumstances (e.g., improved fallow or "covered beans");

Problem-specific: developing the basis for a technology that could address common agro-ecological problems under different socio-economic circumstances (e.g., boundary planting?, hedgerows?, intercropping?); and,

Component-specific: providing essential elements for the generation of location-and problem-specific technologies (e.g., testing selected multipurpose tree species/provenances).

For a location-specific project the understanding required involves three levels of social systems: household, rural community and production and support systems. Objectives for a problem-specific research are derived from understanding the behaviour of common agro-ecological problems under different socio-economic circumstances. On the other hand, specifications for component-specific research could be derived from a "macro" analysis of ecological conditions and the most relevant needs of prevailing land use systems.

It is more than likely that location-and problems-specific research activities will form the majority of the AFRCU's on-farm trials, while component specific activities (species trials) will be the subject of most on-station research. Contractual arrangements with the Forestry Department for conducting multi-purpose species trials should be explored.)

The on-farm trials conducted by the AFRCU that are identified as perturbation experiments and will be designed to probe system response to a particular agronomic or technological stimuli. Does the system respond in the intended way, (i.e., with a reduction in the problem condition, is there an improvement in system performance?) How does the farmer evaluate the interventions? What new design criteria emerges? How might the system be improved? Does the experience suggest whole new approaches? How does this modify the initial diagnosis? These are all questions to be answered through monitoring of the farm trials.

Active monitoring of on-farm trials will be done through the regular collection of pertinent agronomic and farm management data by the "cost-route" method of or other monitoring techniques. Interview information, complemented by direct field measurements, will be used whenever feasible. Monitoring duties will be accomplished by ADD and ART staff and participating farmers.

Outputs from the on-farm trials are expected to be:

Sufficient hard data from field measurements and summary feedback from farmers to render an objective assessment of the specific appropriateness of the experimental technology as an effective and acceptable solution to diagnosed land management problems.

Modification and refinement of the initial diagnosis in the light of the experimental evidence.

Redesign and improvement of the experimental technology (adaptive R&D).

Indications and priorities for controlled on-station research to adapt and optimize existing technologies, develop new prototypes and establish the scientific basic for optimum design of adaptive technologies across a broader range of Malawi's agroecological conditions.

It is also probable that the D&D exercise will identify very simple agroforestry or "on-farm" forestry technologies that do not require further adaptive or on-station research ten agro-ecologically specific technical packages will be prepared for on-farm testing by the AFRCU. An example of these technologies would be boundary plantings, multi-purpose species live

fences around compounds or corrals, homestead plantings and woodlots in marginal areas (gulleys, steep slopes, rocky, infertile areas, etc.) of a smallholder's farm. The Forestry Department has already identified and is extending some of these activities).

In order to take a more formal approach to the extension of these "simple" technologies, the AFRCU - with assistance by ICRAF and the TA - will conduct a technology extension workshop for agricultural extension and forestry personnel at three ADDs. The objective of the workshop is to familiarize/train ADD extension personnel in the use of these technologies as well as to provide them with some formal "agroforestry" extension training.

5. Agricultural Economics and Data Processing Unit - The MARE Project will support the DAR's plans to further develop the Agricultural Economics an Data Processing Unit (AGREDAT) which will furnish economic and financial analyses services for the Commodity Research Teams and provide for the systematic storage of research information. The activities of this Unit will include ex-ante and ex-post financial and economic analysis of experimental work, plus some preliminary general assessments of the adaptability of technologies to farmer objectives, resource use and patterns, and sensitivity analyses. Initially only one economist would work full-time in applied research and would serve as a member of all commodity teams. The workload would therefore necessitate concentration on priority tasks, such as financial analysis of current recommendations and experimental work.

Another task which should receive priority attention is the continued establishment of computer data banks for past and current research work for use by researchers at all levels, including management. This is essential if the Adaptive Research Teams are to have access to the stock of available potential technologies for testing and adaptation to specific farmer circumstances, and to avoid duplication of applied work. As more manpower becomes available, the economists will be able to branch out into the other activites pertaining to commodity programs.

Apart from the functions noted above the Economics and Data Processing Unit will also: 1) operate a computerized data-base management system which will facilitate the storage, retrieval, and processing of research data; 2) assist in analyzing data from storage, for forward planning; 3) assist scientists with research design (statistics or biometrics); and, 4) tutor scientists who need help in analyzing data from their own experiments.

In general, research scientists will be responsible for analyzing the data from their own experiments. Usually, this will be done with programmable calculators. In unusual cases, the experimental design may call for a more sophisticated analysis than can be done on a calculator, in which case the statisticians (biometricians) may assist.

At Project Implementation, the Unit will have two biometricians and on agricultural economist at the PO-level or above, plus TOs. Following the completion of off-shore training, an additional agricultural economist will be added to the Unit. As the number of professional scientists trained to the MSc and PhD level increases, the need for their having assistance from biometricians to design and analyze experiments should decrease. At the same time, the need for and desirability of having more economic and financial analysis will increase. Therefore, through time, it is planned to shift the balance toward fewer biometricians and more to agricultural economists in the Unit.

6. Other National Research Coordinating Units - There is a continuing need to provide limited support to other research areas which either were financed under the previous Research Project or are needed to complement the IDA Research and Extension Project. These areas include cereals, livestock and pastures, grain legumes, oilseeds, and the technical service sections of seed technology and plant protection. The MARE Project will provide training (See Attachment--) opportunities, short term technical assistance (See Attachment --), and assistance to coordinate their requirments with centrally-funded Title XII Collaborative Research Support Programs (CRSP) and International Agricultural Research Centers.

E. Approriateness of the Inputs - The inputs required for the Agricultural Research Component of this Project are outlined in the main body of the paper. A few comments are provided here to explain why and how these inputs were selected.

1. Technical Assistance: - The number of long term technical assistance positions were minimized in the design of this component and have been provided only in cases where the DAR is establishing a new research activity which requires an experienced scientist for implementation (one position in Agro-Forestry and another in the Economics and Data Processing Unit) or where a critical research post needs to be filled while a local officer is away for training (two positons in the National Coordinating Unit for Adaptive Research and one in Horticulture). In both cases the period of service for the technical assistance has been determined by the length of time necessary to set up a functional unit, provide long term training to a counterpart, and allow for an adequate time for handing over.

An indicative plan for short term technical assistance has been provided based upon what DAR research staff feel will be necessary and what has emerged from AID experience under the previous project. Both the GOM and the design team expressed the need to keep the short-term technical assistance flexible, recognizing that this type of assistance is likely to be increasingly used by the DAR as its own staff becomes better trained and specialized problems are identified by them which are appropriate for short term technical assistance.

2. Training - Training is a major issue for the Research Component however, it has already been discussed under the Training Technical Analysis.

3. Commodities - The Project will provide five vehicles and funds for their running costs. These vehicles will be assigned to long term technical assistance positions identified for the Research Component. All other commodities will be provided under the IDA National Research Project.

4. Others - Progam support funds are provided anually to each long term technical assistance position to provide some flexibility in procuring the support materials and other discretionary funding necessary to effectively carry out their work.

AGRICULTURAL RESEARCH COMPONENT

LONG AND SHORT TERM TECHNICAL ASSISTANCE INDICATIVE PLAN

DISCIPLINE	YEAR					TOTAL	
	1986	1987	1988	1989	1990	ST PM	LT PY
ART AGRON				1	1	2	2.5
ART ECON				1	1	2	2.5
AESRCU						0	3
HORTRCU		2				2	2
ENG & LAND HUSB. RCU	1	2	3	1		7	3
LIVESTOCK & PASTURE RCU			1		1	2	
CEREALS		1		1	1	3	
GL & OIL SEEDS RCU		1	1		1	3	
SERVICES DIVISION		1	1		1	3	
SOCIO-ECONOMIST		1	1	1	1	4	
SHORT TERM TOTAL PM	0	7	7	7	9	28	
LONG TERM TOTAL PY	2	5	4.5	1.5		13	

COMMODITIE:

No. 4 WD Vehicles	5		
Other Costs in 000 US$			
Venicle Maint.	48	48	29
Research Operations Fund for TA	25	25	13

FIGURE 2

EPAs WITH ART ACTIVITY

	1985	1986	1987	1988	1989	1990
			Project Life			
Karonga					1	2
Mzuzu			1	2	3	[illegible]
Kasungu	2	3	4	5	6	
Lilongwe	2	3	4	5	6	
Salima			1	2	3	[illegible]
Liwonde					1	2
Blantyre	2	3	4	5	6	7
Ngabu				1	2	3
Total						
AR Trials (a)						
5/ERA/yr (TAs)	30	45	70	100	140	180=2mos/yr each
ADD (SMS) (POs)		30	50	60	80	80=1mo/yr
ART (POs)		3	5	6	8	8=6mo/yr

Total A R Trials 1986-90 LOP = 550

Total Malawians trained by ARTs - 80 ADD + 170 EPA + 170 farmers = 420

170 farmers and 550 trials assumes needed repetition of same plots.

Assuming that 20 additional farmers observed the 170 farmers plots then 3400 farmers were indirectly influenced by the ARTs activities.

Given the magnitude of the workload for 8 ARTs supervising 170 trials in 34 EPA by 1990 and considering the other training and coordinating activities of the ARTs a determination will need to be made as to the number of trials each ART will be able to implement. supervise and analyze.

AGRICULTURAL RESEARCH COMPONENT LONG TERM TRAINING SCHEDULE

LONG TERM TRAINING

SPONSOR	TRAINING
	PhD Level
WB	Beef Product
US	Soil Survey
WB	Temperate Fruit
US	Vegetanle Production
US	Maize Agronomist
US	Nut Tree Entomology
	MSc Level
US	8 ART Agronomy
US	5 ART Economists
US	National Coordination ART Agricultural Economist
US	ART Agronomist
US	Maize Pathologist
US	Maize Breeding
US	Maize Entomology
IDA	Legume Nematology
US	Agricultural Economist
US	Biometrics
US	Agroforestry Agronomist
IDA	Rice Agronomist
US	Silveculture
IDA	Grain Legume Agronomist
IDA	Tuber Agronomist
	Sorghum
IDA	Millet Agronomist
IDA	Tropical Fruit & Spices
IDA	Coffee Horticulturist
US	Vegetable Production
US	Groundnut Entomologist
IDA	Cotton Breeder
IDA	Cotton Entomologist
IDA	Cotton Pathologist
IDA	Reproductive Physiology
US	Agroforestry Soil Scientist
US	Irrigation Agronomist
IDA	Soils Survey
US	Soils Chemistry
IDA	Agricultural Engineering
IDA	Entomologist Pet Product
US	Seed Pathologist
IDA	Librarian

Total MSc Participants - 45 (AID - 29, IDA - 16)
Total PhD Participants - 8 (AID - 4, IDA - 4)

FIGURE 4

AGRICULTURAL RESEARCH COMPONENT

SHORT TERM TRAINING

National Coordinating Unit and Course	Project Year and Person Months 1986	1987	1988	1989	1990	TOTAL
Livestock & Pasture - TO Level						
Poultry Production	2					2
Small Ruminant Product		2				2
Pasture & Forage			2			2
Cereals - TO Level						
Maize Product CIMMYT	2					2
Wheat Product CIMMYT		2				2
Rice Product IRRI			2			2
Grain Legumes and Oil Seed - TO Level						
Groundnut Product ICRISAT		2				2
Grain Legumes Proeduct IITA			2			2
Technical Services - TO Level						
Kansas State University Grain Storage & Marketing Crs	2					2
Mississippi State University Seed Technology Course		2				2
IITA Soils Management Course			2			2
SUB TOTAL						22
GRAND TOTAL						64

FIGURE 4

AGRICULTURAL RESEARCH COMPONENT

SHORT TERM TRAINING

OUT OF COUNTRY INDICATIVE PLAN

National Coordinating Unit and Course	Project Year and Person Months 1986	1987	1988	1989	1990	TOTAL
ART Agronomy - PO Level						
International Center Farming System Course		1		1		2
ART Agri Economy - PO Lev						
International Center Farming Systems Course			1		1	2
Horticulture - TO Level						
1. Nursery Management University of Florida	4					4
2. Temperate Fruit Ag. Res. & Ed. Center Monticello, Florida		4				4
3. Nut tree Crops University of Hawaii			4			4
4. Vegetable Crops AURDC, Taiwan	4					4
Agroforestry - PO Level						
ICRAF Agroforestry Course for 6 months	6	12				8
Rwanda Study Tour	3*					3
Agricultural Economics and Statistics - TO Level						
USDA Crs. TC 140-33 Basic Statistics	2	2				4
SUB TOTAL						45

* Rwanda Study Tour is 3 people expected November 85

FIGURE 5

STAFF POSITION OF DEPARTMENT OF AGRICULTURAL RESEARCH

Planned PhD.	Planned MSc.	Training Needs PhD.	Training Needs MSc.	DAR Units	Officer Position	Degrees Required	TO & TA Position	
				Headquarters	7 assigned 5	3 PhD assigned 1 2 Ms " 1 2 BA " 1		
	2	2	-	National Res. Coord. (NRCS)	7 assigned 7	7 PhD assigned 5		
	4	-	5	Ag. Econ. and Statistics	6 assigned 4	6 MS assigned 1		
1	5	1	4	Cereals	12 assigned 12	2 PhD assigned 1	12	27
3	4	3	4	Horticulture	12 assigned 10	4 PhD assigned 1	17	38
	6	1	6	Grain Legumes Oil Seed	17 assigned 17	4 PhD assigned 3 13 MS assigned 7	10	37
1	1	1	- 1	Livestock & Pasture	6 assigned 6	3 PhD assigned 2 3 Ms assigned 3	6	14
1	7	4	6	Ag. Eng. & Land	19 assigned 13	7 PhD assigned 3 12 Ms assigned 6	16	52
	13	-	14	Adaptive Res. Teams	17 assigned 14	0 PhD assigned 0 17 Ms assigned 3		8
	1	1	1	Plant Protection & Quarantine	4 assigned 3	3 PhD assigned 2 1 Ms assigned 0	15	1
	1	-	1	Seed Service	3 assigned 2	0 PhD assigned 0 3 Ms assigned 2	6	5
	1	-	1	Library & Info.	1 assigned 0	0 PhD assigned 0 1 Ms assigned 0	-	3
6	45	13	42	111 positions 10 dual incumbancy ie 7 NRCs 101 authorized positions	86 Filled	TOTAL	82 267	185

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FIGURE 6

DEPARTMENT OF AGRICULTURAL RESEARCH PARTICIPANTS
TRAINED UNDER PROJECT NO. 612-0202

Name	Degree	Field	Returned or Due Back	Assignment
Chapula, G.M.	Ph.D.	PLT Path	April 84	Head, Plant Protection
Chigwe, C.F.B.	Ph.D.	PLT Brd	July 84	Cotton Breeder
Chikwara, R.	M.Sc.	Ag. Econ	? in Canada	Stat, Ag.Econ., AMA Proc.
Chilambwe, E.	M.Sc.	Frt Crops	July 83	Natl Coordinator Horticulture
Chipola, E.	Ph.D.	Plt Brd.	Feb 84	Tobacco Res. Auth.
Chirembo, A.	M.Sc.	Statistics	May 85	Team Leader Stat, Agecon.Data Proc.
Chiyembekeza	M.Sc.	Plt Brd.	Sep 85	Groundnuts
Dzowela, B.	Ph.D.	Pastures	Feb 84	Natl. Coordinator Livestock/Pastures
Gadabu	Ph.D.	Entomology	Dec 85	Horticulture
Gondwe	M.Sc.	Veg. Crops	July 84	Team Leader Veg. Crops
Khonje	Ph.D.	Soil Microbiology	Dec 85	Groundnuts
Kisyombe, C.	M.Sc.	Plt Path	Dec 84	Groundnuts
Kumwenda, J.	M.Sc.	Agron	Dec 85	Maize
Kumwenda, M.	M.Sc.	Dairy Sc	Dec 85	Livestock
Maliro, C.	M.Sc.	Agron	Dec 85	Groundnuts
Mkamanga, G.	Ph.D.	Plt Phys	April 85	Natl. Coordinator Cereals
Mnyenyembe, P.	M.Sc.	Plt Brd.	Dec 85	Team Leader Wheat/Barley
Msiska, H.	M.Sc.	Range Sc	Dec 85	Pastures
Mtambo, P.	M.Sc.	Seed Tech.	Sep 85	Seed Tech.
Mtukuso, A.	M.Sc.	Small Ruminant	Dec 85	Livestock
Muntaali, F.	M.Sc.	Agron	May 85	Wheat
Muntaali, J.	DL.D.	Anim Nut	June 84	Team Leader Livestock
Mwango, E.	M.A.An		June 85	Adap Res
Mzembe, C.	Ph.D.	Irrigation	Dec 85	Irrigation
Ngwira, L.	M.Sc.	Agron	Nov 84	Team Leader Maize
Nkhoma, D.	M.Sc.	Soils	Dec 85	Soils
Ntha Komwa, B.	M.Sc.	Ag Econ	June 85	Res Secretariate DAR HQ
Ntokotha, E.	Ph.D.	Soils	Feb 85	DCARO (TS) DAR HQ
Nyondo, F.	M.Sc.	Ag Econ	June 86	Adap Res.
Phiri, B.	M.Sc.	Ag Econ	Dec 85	Adap Res
Saka, A.	Ph.D.	Soils	Nov 84	Agroforestry Soils Res. Chitedze
Sibale, P.	Ph.D.	Plt Brd	April 84	Natl Coordinator Oilseeds, etc.
Zambezi, B.	Ph.D.	Plt. brd	June 87	Maize

PROJECT PAPER

ANNEX 9.51 C

TECHNICAL ANALYSIS - EXTENSION

ANNEX 9.51 C

TECHNICAL ANALYSIS - EXTENSION COMPONENT

A. Background - Agricultural Extension, an essential component of the technology development-testing-transfer system, is well-established and functioning throughout the country; but many men and women farmers are still not receiving or making beneficial use of improved agricultural technologies. Four major constraints to the effective transfer of technology by Extension are: 1) lack of appropriate localized technological information; 2) inadequately numbered and trained staff; 3) ineffective communication support; and, 4) inadequate Extension Research-Agrosupport Sector linkages. Significant improvement in Extension performance will require concurrent coordinated action to alleviate all of these constraints.

Achievement of the project purpose to strengthen the MOA's institutional capacity and performance with respect to increasing the production and incomes of smallholders through a technology development-testing-transfer system is contingent upon strong, efficient and coordinated performance of all its components. A continuing supply of appropriate improved technologies, tested and adapted to local needs and situations is the first requirement. Such technologies are valueless, however, until they are used beneficially by the smallholders. Responsibility for disseminating information about the technologies to smallholders and assisting them in using them beneficially, lies with the Extension Service. Therefore, investments in development and testing of new technologies can yield only very limited returns unless accompanied by viable Extension institutions and programs that serve all male and female smallholder farmers.

Agricultural Extension Services in Malawi are well-established and functioning throughout the country. Extension has been decentralized, using a modified T & V block system approach, to permit program development and operation at regional and local levels. Consistent with T & V concepts, Subject Matter Specialists are posted at each level Extension Planning Area (EPA), Rural Development Project (RDP), Agricultural Development Division (ADD) and Ministry (National) to provide in-service training and support to the Field Assistants (FAs) and Farm Home Assistants (FHAs), who are the field extension agents in direct contact with the farmers. Recognizing that staff and other resource constraints render it impossible for FAs and FHAs to contact all farmers and/or families individually, Extension works primarily with groups. FAs and FHAs meet semi-monthly with groups to impart information and training and to obtain feedback. In addition, selected smallholder farmers are provided training at RDP-level Residential Training Centers (RTCs).Both men and women farmers are urged to participate in the local groups. FAs often attend meetings of women's groups organized by FHAs to talk about agriculture and to conduct crop demonstrations.

The Extension Aids Branch (EAB) of the DOA was established in 1958, to provide communication support to the MOA at the national level. The EAB produces various types of printed, audio and visual materials, films, slides, and photographic presentations for use by Extension in disseminating agricultural information to farmers. The Branch also produces several radio programs weekly and operates mobile audiovisual (A/V) units throughout the country which present agricultural information to people in rural communities through movies and puppet shows. This series of activities, undertaken to provide support to extension workers and prgrams, is known as communication support.

The EAB has a large, relatively well-trained staff which is capable of technical production in radio, photography, graphic arts, film production, and offset printing. It is reasonably well-equipped, although much of the equipment is antiquated and a number of critical items are lacking. Visual Aids Sections (VASs) have been established in each ADD to provide communication support directly to the ADD, RDPs and EPAs. The VASs have from one to seven staff members each, and are minimally equipped.

The basic concepts and organization of the GOM's extension system are sound. Performance in terms of effectively assisting all smallholders to increase their production and incomes through beneficial use of appropriate improved technologies is weak, however. Of the factors contributing to such unsatisfactory performance, four are pre-eminent.

Lack of appropriate localized technological information

Agricultural technology recommendations are typically formulated at the national level and are uniform for the entire country, making no provision for the variability that exists between and within ADD regions. Moreover, they are typically predicated on the assumption that small farmers will have access to inputs such as improved seed, fertilizer and insecticides. In reality, only limited numbers of smallholder farmers (particularly those who are women) are eligible to receive the credit required for purchase of such inputs. Low-technology recommendations for the smallholder are few because little localized information is currently available for the FAs and FHAs to pass on to the farmer.

The present process for getting information on new or improved technologies from the source (Research) to the field (FAs and FHAs) is slow and cumbersomeand contributions further to the problem of lack of localized technological information. As an example, the Annual Production Guide produced by the EAB, which includes technological agricultural production recommendations for the coming year is seldon ready for distribution at the start of the cropping season - and at times is not ready until near the end of the cropping season. Because the Guide is the primary source of information concerning the crop recommendations that FAs are supposed to give to farmers, the field extension workers are forced to rely on recommenations from the previous year. The principal reason for delays in publishing the guide is the unwieldy writing, review and approval process through which its contents must pass before the final text is turned over to EAB for printing. Even then, the recommendations are national in character and do not take into account modifications that may be required to adapt them to local conditions.

Inadequately trained staff

In the final analysis, overall achievement of the GOM's extension goals depends upon the performance of well-trained and well supported FAs and FHAs who are supplied with appropriate and locally adapted technologies, and who can work effectively with men and women farmers to disseminate and help interpret technological information. It is in the area of training that the present Extension system is exceedingly weak, although the structure for imparting such training exists.

Improving the competence and performance of the FAs and FHAs must start with well-trained and well-informed trainers and technical backstoppers. At present, Subject Matter Specialists (SMSs) at all levels are typically specialists in name only with only general agricultural training and little or no specific training in their assigned areas of specialization. Also, serious deficiencies in methodological training (program development, communication skills, etc.) exist at all levels, from national to the FAs and FHAs. Management training has likewise been inadequate. Although training courses of all three types have been given, the trainers have themselves typically had insufficient training and experience in the content to be covered or in training methodology..

Ineffective communication support

Strong communication support integrated into extension programs can significantly increase program impact. Such support should include both informational materials and teaching aids for use by FAs and FHAs in working directly with farmers, and multi-media interventions to reinforce the work of the FAs and FHAs as well as to reach smallholders who cannot be served directly by field extension workers.

Lack of effective communication support to DOA extension programs, and lack of linkages and two-way information flow between and among research, extension and other entities involved in the agricultural technology development-testing-transfer process have been identified as major constraints to the adoption and beneficial use of improved technologies by men and women farmers with smallholdings.

The EAB is isolated from Research, is not well-linked into Extension program development and implementation, and is generally considered only a service unit to produce materials requested by others. If the EAB were linked into extension programming, it would be able to suggest ways in which communication support could be provided most effectively; to synchronize its production with program needs; to utilize the FAs and FHAs more effectively in transmiting information to smallholders; and, to carry out communication-related investigations and studies of high priority to the program. Despite such potential, the EAB at present has virtually no role in overall program planning and development, nor in the two-way information flow and development of linkages between and among Research, Extension, and other entities involved in the technology development-testing transfer process.

At the ADD level, the Extension Aids Units (EAUs) are typically staffed with personnel having no specialized training in communication other than two or three months spent at the EAB prior to moving to the EAU. There is virtually no in-service training (either ad hoc or organized) provided to EAU staff. This situation is particularly critical at the EAU (Visual Aids Officer) level. The typical EAU is poorly equipped, with many items worn out or in need of repair, and supplies are inadequate and erratic. There is no effective linkage of the EAU to the EAB, with the result that the EAB can provide little direct technical backstopping and support to the EAUs other than the production of national level publications and the provision of mobile A/V units with national level software. As the result of all the foregoing, communication support provided to the ADD is weak, the EAU is seen strictly as a service unit, and EAU output is low.

Inadequate Extension-Research-Agrosupport Sector linkages

As cited earlier, the process for two-way information flow among and between the above is cumbersome and too often haphazard. Equally critical, the feedback system from farmers through Extension to Research, agrosupport institutions and decisionmakers is not adequate to permit rapid transmission of information concerning field situations and appropriate action related thereto by the relevant agency.

B. Extension Component Strategy - Extension Component Strategy is to strengthen Extension institutional capacity and its effectiveness in transferring improved agricultural technologies to smallholders through alleviation of the four overriding constraints identified above. Increasing Extension capacity and effectiveness in providing assistance to women farmers will be an integral part of that strategy. To implement the overall strategy, the Extension Component will draw heavily upon and function in close collaboration with, the MARE Research and Training components.

MARE's Research Component will strengthen MOA capacity for and performance in development of relevant new technologies through problem-oriented applied research, and through testing and adapting such technologies for beneficial use by farmers, taking into consideration their constraints and possibilities. Meanwhile, the present stock of relevant improved technologies available from Research is sufficient to permit improved Extension performance over the short term, provided the constraints identified below are alleviated. Even if this were not the case, strengthening the communication support system should be undertaken immediately in order to take full advantage of the adopted technologies that will soon be emerging from the Adaptive Research Team system.

MARE's Training Component (see Annex 9.51C) will strengthen Extension's capacity to utilize its existing training and support system to develop a competent cadre of technology transfer agents (FAs and FHAs) who are effectively disseminating relevant and appropriate agricultural information to men and women farmers in all ADDs.

The Extension Component will link into the Training Component in two major ways: a) technical, management and methodological training at all levels which is planned and coordinated through the MOA's Training Unit, imparted by a cadre of competent trainers, and carried out through an organized training system; and, b) communication skills and related training imparted by the communication staff after an ungrading of competence has been realized through a combination of off-shore and in-country training, the latter being provided primarily through technical assistance personnel.

C. Extension Component Outputs - Major outputs for which the Extension Component will have principal responsibility are as follows:

1. Extension Aid Branch (EAB) and ADD Extension Aid Units (EAUs) activities will assist in increasing in smallholder rates of adoption of improved technologies.

The collective impact of seven interdependent sub-outputs will result in achievement of this major output.

a) Institutional capacity of the EAB and EAUs to plan and implement appropriate communication strategies will be developed.

The agricultural communication strategy is a plan for helping smallholders to improve their agricultural production and incomes through the transfer of new information or ideas. To be effective, such a strategy must be developed in association with the source of the new information (Research and Adaptive Research teams) and programs/institutions which provide the means necessary to permit the advantageous use of the new information by the small holders (extension, agrosupport institutions, administrators and policymakers). It must have clearly defined and characterized target populations to which the information is directed (e.g. smallholders in Kasungu ADD who plant local maize), and must be problem-oriented in character.

Implicit in the above definition of an effective communication strategy are: a) the need for communicators to be active participants in the planning and development of the total program, and in other program components in planning and development of the communication strategy; and, b) decentralization of the communication inputs in order to respond and be sensitive to the variable needs, situations and characteristics of Malawian smallholders.

The communication strategy should represent a systems approach to communication support which uses a variety of media and methodologies (print, radio, interpersonal contacts, meetings, demonstrations, videotapes, mobile units, etc.) as part of an interrelated and mutually reinforcing network of communication inputs targetted at specific changes and oriented toward identified smallholders. These three elements - farmer orientation, targetted change, media network - are the fundamental organizing principles around which the communication strategy should be developed.

The means for implementing the communication strategy, which might be termed the communication subsystem, include not only the production and dissemination facilities for which the communicators have direct responsibility, but also extension staff and all other entities which have contact with farmers (e.g., Adaptive Research Teams, ADMARC etc.). Thus, active participation and close collaboration of the communicators with all other programs is as critical to successful communication strategy implementation as to its planning and development.

Internally, the Extension Aids Branch has already developed two excellent mechanisms for strategy planning and implementation. All EAB production is planned and coordinated through a planning committee which holds regularly scheduled meetings quarterly, and additional meetings as needed. As part of the planning process, annual plans of work are prepared which schedule all production and dissemination activities. Such planning is done largely in isolation from research and extension planning, however, with the result that communication support is not integrated into the total program.

At the ADD level, the present Visual Aids Sections lack capacity for communication strategy planning and implementation, and are equally isolated from overall research and extension planning.

A MARE-funded long term agricultural communication specialist will serve as counterpart to the EAB Head in developing a system for communication strategy planning and implementation linked to Research and integrated into the Extension program. The specialist and EAB Head will serve as co-instructors for training EAU heads in use of the system. They will jointly work with Commodity Research Coordinators, DOA Subject Matter Specialists and Program Administrators at the national level, and with Program Managers, Subject Matter Specialists and EAU Heads at the ADD level to develop mechanisms and linkages to integrate communication strategy planning and implementation effectively into the total extension planning process. In so doing, they will coordinate with the agricultural planning and training units.

After the EAB/EAU strategy planning and implementation system has been developed and put into effect, the EAB Head will be sent out of country for short-term (3 months) training in agricultural communications during the second year of project implementation.

By the end of the third year of project implementation, the communication strategy planning and implementation system will be fully operational in the EAB and in the Mzuzu ADD EAU, strategies integrated into the total extension program will be developed annually, and Malawian EAB and EAU staff will have gained sufficient training, experience and confidence to continue the system with minimal assistance. The long term agricultural communication specialist will return on a MARE-funded short term (3 months), assignment during the fourth year to evaluate the system and serve as consultant to the EAB Head.

By the end of project, an overall national communication strategy will be developed annually, based on District-level strategies in each ADD and national needs identified in collaboration with research and extension. The district-level strategies will be operative in at least half of the EPAs in Mzuzu ADD's and in one EPA in each of the other seven ADDs.

b) The EAB/EAU capacity to design and conduct communication-related investigations, to pre-test materials in various media, and to interpret and utilize the results of same to improve program effectiveness and impact will be strenghened.

Traditionally, the job of agricultural communication has been to motivate the farmer to want to use a new idea and then to teach him the skills or knowledge to apply it. The focus has tended to be on the innovation rather than the farmer, and the benefits have been described from the perspective of the program without adequately considering the farmer's desires, constraints, costs, and risks. To develop the farmer-oriented communication strategy described above requires knowledge about the farmer and how the new technologies can best be conveyed to them. Investigation to provide understanding of men and women farmers and guidance concerning the types, formats and styles of presentation most likely to be accepted is the first of three closely related functions of the communication support system included under this sub-output.

Behavioral studies, including KAP (knowledge, attitude, practice) studies, should be conducted to help identify the hidden constraints a farmer may encounter in trying a new technology, to help select a vocabulary which the farmer will understand and accept, and to integrate knowledge about new

technologies into the farmer's own view of his problems and needs. Such investigations should be complementary to those of the Adaptive Research Teams and ADD evaluation sections, and results from all three sources should be used in planning and updating the communication strategy. Interaction among the three groups in planning studies and sharing results is important and mutually beneficial.

Pre-testing picks up where investigation leaves off. The interpretation of investigation results by communication staff in terms of how best to use media and methodologies for maximum impact must be verified in practice. The volume and diversity of materials produced for the communication support program are too great to permit pre-tests with representative samples of men and women farmers and family members of every publication, graphic presentation, radio program, etc. It is critical, however, that samples of such materials be pre-tested regularly to ensure that they are accurate, timely, comprehensible, culturally appropriate, and acceptable to the target group.

Formative or operational evaluation carries the testing process one step further. It provides information about whether the messages disseminated to farmers have been timely and well-received, indicates if and how the various elements are effective, and suggests (together with information received through the feedback system) needed in-course corrections or adjustments.

Communication-related investigations and operational evaluation require staff with training and competence as specialized and demanding as for any specialist in technical agriculture. Specialized training in behavorial science is especially important.

The EAB has an Evaluation and Action Research Section charged with responsibility for carrying out the activities described above. To date, output from this Section has been minimal, owing to staffing problems. Equipment available to the Section consists of one obsolete calculator and two tape recorders. Results of studies are tabulated and summarized, but no statistical analyses are made. In 1984, the Section produced only two KAP studies.

A MARE-funded short-term (6 months), behavorial scientist with training and experience in the types of studies required of the Evaluation and Action Research Section will train Section staff and Evaluation Assistants to be placed in the ADD EABs in modern techniques for the design and analysis of the three types of studies described above (including training in operation of a micro-computer). The Specialist will, in collaboration with the Section Head, develop a comprehensive system for determining studies to be conducted, conducting the studies and analyzing results, and reporting the results to those who have need of same. These activities will be carried out during the first year of project implementation. The same specialist will return for a second short-term, assignment during the fourth year of project implementation to check on progress, make needed corrections in the system, and impart further training to Section and ADD evaluation staff.

The capacity of the Evaluation and Action Research Section to tabulate and analyze data quickly will be expanded through MARE-funded procurement of a micro-computer with appropriate peripherals and software, two programmable calculators and initial supplies of data forms. Without such expanded capacity, the Section would be unable to cope with the volume of data

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generated by the Section. One programmable calculator provided through project funding to each EAU evaluation assistant will permit simple tabulations and analyses of small studies conducted in the ADD under the general guidance of the EAB Evaluation and Active Research Section.

By the end of the project, the EAB Evaluation and Action Research Section will be conducting four major studies and 16 smaller operational evaluation/pre-test studies annually (including one or two small studies by each ADD EAU), at least 15 percent of which are specifically directed toward women with the remainder including women in the sample of respondents.

c) EAB/EAU capacity and linkages will be developed to collaborate with research, extension and agrosupport institutions in the development, production and dissemination of information to targetted audiences of men and women farmers and rural families including information that is culturally acceptable, technically accurate and up to date, that is localized to meet the specific needs and situations of those to whom it is directed, and that is synchronized with Extension's annual plan of work.

The key to achievement of this output is an efficient media production system comprised of five major elements: message development, planning and scheduling, production, delivery, and feedback. Of these, only the third, production, is a largely independent function of the EAB/EAU. All others require close coordination and collaboration with other elements of the total technology development and transfer program.

Message development - The primary source of the basic content of messages to be delivered to farmers through the various media is obviously Research (applied and adaptive). Continuous close coordination and collaboration of the EAB and EAUs with research staff, Adaptive Research Teams and extension Subject Matter Specialists are required to ensure that technical content of materials produced is up to date, technically accurate, timely, and adapted to the particular conditions and farmers' needs in the area toward which the materials will be directed. In addition, the communicators must maintain close contact with other entities for content related to input supplies, prices, other market information, weather, etc. Upgrading the EAB and ADD-level EAUs will facilitate development of direct communication and interaction of EAB and EAU staff with research and extension staff. The EAB Editional Section Staff will play a key role in this type of message development.

Planning and scheduling - The communication strategy developed in collaboration with other program elements will provide a calendar of agricultural topics to be included during the year, synchronized with the extension program and the agricultural cycle. The strategy will also specify the media/methodologies to be used and guidelines as to which combinations of media will be used for each type of topic.

Scheduling the various steps in the production process, the most critical single task, still must be done for each material to be produced to ensure that all will be produced and delivered ahead of the time required for their use. Production of materials to meet emergency or other situations not anticipated at the time of planning the annual communication strategy must be

scheduled in such a way that regularly scheduled production is not thrown off schedule.

Production - This element includes text or script writing, editing and final checks on technical accuracy in addition to printing, recording, filming or similar operations. It also includes checking the "artistic" quality based on insights obtained from investigations, operational evaluations and feedback. The Editorial Board of the present EAB is an effective mechanism for reviewing and checking content, and will be maintained.

Feedback - Farmer and staff feedback (obtained systematically and regularly through the information network) is an integral part of the media production system for adjusting rapidly to unanticipated developments and for correcting poorly received or ineffective materials.

Delivery. The EAB and EAUs only have direct responsibility for dissemination of information through radio and mobile units. The responsibility for dissemination of information through meetings, training courses, demonstrations, etc., is undertaken by the Extension Service, principally the FAs and FHs.

MARE-funded short term specialists in the various techniques and skills required for the improvement of the EAB and EAU media production system (radio and other audio, written communication, graphic arts, photography and silkscreen, video, print media systems and equipment maintenance) will: assess present system elements and, in collaboration with their counterparts, design and implement improved systems; train EAB and ADD staff in newer techniques for currently used media, and in new techniques/media such as audio cassettes, silkscreen and video; and otherwise contribute to building institutional capacity to produce the range and volume of high quality, carefully targetted, educational materials in the various media required for effective communication support.

Staff with varying levels of competence, technical skill and experience are required to man the production system. The officer responsible for planning and scheduling must have managerial skills as well as an understanding of how to select, combine and use media to obtain maximum reinforcement and the general production processes for all media to be used, (print, graphics, audiovisual presentations, radio, photographic, video and films at the minimum.) He/she must also have a general knowledge of agriculture. The head of each production section must have managerial capability as well as technical skills related to production in the media for which the section is responsible. Other staff must have training and skills consistent with the demands of the posts which they occupy.

Project-funded procurement of high priority equipment items for the EAB and EAUs will provide the means for expanded production in both currently utilized and new media.

By the end of the project, the EAB and EAUs will have a combined annual output of at least:

200 radio programs of 5-45 minutes each
20 bulletin
25 technical handbook sheets
6 bi-monthly issues of the farmer's magazine
25 leaflets
2 flipchart series
10 posters
2 slide sets with accompanying scripts
6 audio presentations with accompanying visuals
6 15-minute instructional videotapes

Recognizing the large number of women farmers, approximately 20 percent of the materials produced will be directed toward reaching that group, including a discussion guide and a training reference guide.

d) A viable two-way information network will be developed for collection and distribution of relevant information to, from, between and among the various MOA entities and smallholder farmers.

The need for an uninterrupted and rapid flow of reliable feedback from farmers and rural communities to extension, research and agro-support institutions is well-recognized. The same need exists for the two-way flow of information between and among these institutions.

An important function of the EAB and EAUs should be to facilitate the information flow through collaboration with the relevant institutions in developing and implementing a reliable and rapid information collection and transmission system. Stated more precisely, the EAB/EAU should have responsibility for facilitating the transmission system. The planned information network will not replace existing direct communications among its members. Rather, the purpose of the network is to strengthen and broaden existing channels and provide for rapid communication between any two persons or institutions or among several nearly simultaneously.

The MARE-funded long term agricultural communication specialist, in collaboration with the EAB Head and the EAU officer assigned primary responsibility for information networking, will design an improved information network which clearly defines EAB and EAU responsibilities for its implementation and management. That design will be discussed with proposed network members, and a system for information collection and distribution will be developed in collaboration with them. All such activities will be coordinated with the Planning Division.

By the end of the second year of project implementation, improved monthly feedback reports from EPAs will be collated, summarized and distributed on a national basis, interim reports of problems requiring immediate attention will move promptly to the relevant institution(s), and interchanges of information among the ADDs and other entities of the network will be improved.

e) The EAB and EAU staff will be trained and competent to provide effective communication support at all levels within the MOA.

The first training priority of the EAB will be to ensure that its staff are fully competent to perform all functions for which the EAB is responsible and to train EAU staff to perform similar functions at the ADD level.

Training will be provided primarily in-country by MARE-funded long-and short-term specialists in coordination with the MOA Training Unit. Limited, offshore training will be provided for key staff. By the end of the project, the EAB and EAUs will have trained staff in all key positions in all required areas of expertise.

f) EAB/EAU capacity for providing effective and relevant communication-related training to research, extension and agro-support sector staff will be strengthened.

A need has been identified to train extension, research and other relevant Non-EAB/EAU staff in communication skills.

The EAB officer assigned responsibility for coordination of communication-related training for non-EAB/EAU staff will, with assistance from the long term agricultural communication specialist, collaborate with the MOA Training Unit in developing the plan for communication related training as part of the MOA overall training plan. (Such training will be incorporated into training courses organized by the Training Unit.) All senior EAB/EAU staff will participate in planning and conducting training in their respective areas of responsibility and expertise. Necessary precautions will be taken to schedule EAB/EAU staff participation in such a way that other functions of the EAB and EAUs are not thrown off schedule. By the end of the project EAB staff will be serving as instructors in ten training courses, and EAU staff in each ADD in five training courses, annually.

g) Extension institutional capacity to utilize research-extension linkages and communication support effectively to assist increased numbers of smallholders, specifically including women farmers, to increase their agricultural production and incomes will be developed.

All outputs from the Research, Training and Extension Components will contribute to alleviation of present constraints which limit Extension's capability to influence adoption of improved technologies by men and women farmers with smallholdings. By the end of the Project, the present Extension clientele will have been increased by roughly 25 percent, which will, in turn, lead to increased adoption rates.

2. A mass communication pilot project in one ADD will be developed for identifying effective strategies for information dissemination to the other 7 ADDs.

The principles for developing effective mass communication strategies are well-established. In Malawi, the cost effectiveness of mass communication

strategies has been amply demonstrated through studies conducted by the EAB's Evaluation and Action Research Section. These studies indicate impact, although magnitude and statistical significance have not been well established.

The specific methodologies and strategies that will be most effective vary from region to region and sometimes within a region. For this reason, it is highly desirable to conduct a pilot project in one ADD to learn how best to apply the known principles prior to introducing mass communication strategies throughout the country. Another advantage of such an approach is that the pilot project provides an excellent site for training staff who will later be expected to implement similar strategies in their own ADDs.

The Mzuzu Agricultural Development District has been selected as the site for a three year pilot project on mass communications strategies. The detailed design of the project will be developed by the Title XII Contractor in collaboration with the EAB of the MOA and the EAU in the Mzuzu ADD.

In broad outline, two RDPs will be selected for intensive activity. Investigations utilizing behavioral science and social marketing techniques will be made in each of the selected RDPs to determine the characteristics of men and women farmers and their families. A multi-media approach integrated into the extension program will be utilized. Major components of this approach will include the use of village leaders selected in collaboration with the Block Planning Committee to reach more men and women farmers with information concerning improved technologies; audio presentations with accompanying visuals; handouts of various types targetted at men and women farmers (leaflets, illustrated booklets, etc.); instructional materials for FAs and FHAs; and radio, and instructional videotapes. FAs, FHAs, and EPA, RDP and ADD Subject Matter Specialists will receive training in the use of these materials and equipment prior to and during the pilot project period. Frequent formative evaluation and pre-testing studies will be made to check on project impact and to make necessary adjustments for improving performance. A case study evaluation will be made of overall pilot project impact. Special attention will be given to the problems of women farmers by developing materials targetted to their needs, establishing crop demonstrations with women's groups, including women farmers in the samples drawn for the various types of studies, and providing agricultural training to FHAs.

The approaches found most effective will be expanded in stages to the remaining Mzuzu RDPs and the other seven ADDs. These will be introduced into two additional ADDs following the first year of pilot project implementation, two more the following year, and the final three the next year.

The long term agricultural communication specialist, in collaboration with the EAB Head, will provide leadership in developing the detailed pilot project design, supervising its implementation, and assuring that needed inputs are available as and when needed. An estimated 40 percent of the specialist's time will be spent in Mzuzu for these purposes. The short term evaluation specialist, in collaboration with the EAB Evaluation and Action Research Section Head, will design, supervise collection and interpret data for the initial investigation and early formative evaluations and pretest studies, and will develop a plan and schedule for their continuation throughout the life of the pilot project. Other short term specialists will provide assistance to the pilot project in their areas of expertise. Costs of activities directly

attributable to the pilot project over and above those of the ongoing program (media materials production, staff training, studies, etc.) will be funded by the project through the Title XII Contractor. Procurement of basic equipment required to provide needed production capacity of the ADD EAU will also be funded by the project (the same equipment will also be provided to the other seven ADDs to enable them to utilize pilot project results in strengthening communication support in their own Districts).

A mass communication strategy relevant to Malawi will have been developed and tested in the pilot project by the end of the third year of the Project, and that strategy will have been introduced into at least one RDP in all ADDs by PACD.

D. Extension Component Inputs - Extension component inputs included in this technical analysis are restricted to those directly related to strengthening the EAB and ADD EAUs and those slated for conducting the mass communication pilot project in Mzuzu ADD. All other inputs relating to and impacting on the Extension Component are included under the Research and Training Components.

As indicated in the Extension Component strategy section, the mix of inputs is designed to achieve maximum impact on strengthening EAB/EAU institutional capacity and performance in providing effective communication support to Extension in the most cost effective manner.

1. Training - Training will be done in-country to the maximum extent possible because: 1) the large numbers of EAB and EAU staff to be trained would make costs for training all or most out of country prohibitive; and, 2) sending large numbers of EAB and EAU staff out of country would disrupt planned project activities; in-country EAB/EAU staff training equalling 251 person months will be provided by MARE, and those receiving training will in turn train junior staff under their supervision.

Offshore training will be restricted to eight key staff. Of these, Masters-level training will be provided to the Head of the EAB Editorial Section, which is the most critical single Section in the EAB media production system because it has primary responsibility for message development and preparation of texts for materials to be targetted for specific audiences. Seven other key staff will receive short term, non-degree, offshore training to update their knowledge and skills to enable them to take fuller advantage of the training to be provided in country.

The expatriate specialists on long- and short-term technical assistance assignments will be responsible for developing training plans, materials and curricula, and will serve as trainers in their respective areas of responsibility in collaboration with their counterparts. They will also prepare training guides/manuals in their respective areas of expertise for later reference and use by their EAB counterparts.

The plan both for offshore and in-country training is presented in Table 9.5.1.1. Five of the seven staff to receive offshore non-degree training are scheduled to return by the beginning of Contractor project implementation, and the one staff member to receive Masters training will start in January 1986 to enable him to return to duty early in the Project implementation period. In-country, in-service training courses are scheduled to: 1) synchronize with technical assistance assignments; 2) minimize the time a given staff member will be away from post during

the year; 3) provide maximum opportunity for training sessions to be used for planning the next year's program; and 4) avoid, insofar as possible, scheduling training courses during the period before planting to at least mid-season in the agricultural cycle.

2. Technical Assistance - The EAB/EAU Communication support system requires Technical Assistance personnel who are competent in management, planning, scheduling, communication strategy development, and information networking, in addition to specialized expertise in media production, communication-related investigation and operational evaluation, and A/V print equipment maintenance. An integrated communication support system is at present virtually non-existent, although the media production component is reasonably well developed. However, the introduction of new media, new uses of media currently used, and use of lower technology techniques will require substantive changes in this Component. New concepts and methodologies will be required for the development, testing and implementation of effective mass communication strategies in the Mzuzu pilot project.

Most training will be provided in-country for reasons of practicality and cost effectiveness. Technical assistance will be required for this purpose, and for providing leadership and guidance in designing and implementing an effective communication support system integrated into the total MOA research and extension systems and programs. The technical assistance plan shown in Table 9.5.1.2 is synchronized with the training plan shown in Table 9.5.1.1 and mass communication pilot project scheduled in Table 9.5.1.6.

All MARE-funded long- and short-term technical assistance personnel will have three major functions in their respective areas of expertise and responsibility: 1) staff training; 2) assistance in development of the communication support system; and, 3) design, testing and implementation of effective mass communication strategies in the pilot project, and application of those which prove most effective in the other ADDs.

The long term agricultural communication specialist will have responsibility for providing; 1) leadership and assistance in development and management of the total communication support system; 2) design and implementation of the mass communication pilot project; 3) preparation of job descriptions for MARE-funded short-term personnel; 4) coordination and technical supervision of all MARE-funded short-term TA personnel provided under the EAB and, 5) training related to communication planning, strategies, and system development.

All MARE-funded long- and short-term personnel will serve in an advisory capacity (none will fill line positions) and will work in close collaboration with their GOM counterparts. In selecting candidates for these assignments, the Title XII Contractor will place strong emphasis on practical experience in a developing country setting (preferably in Africa) and training skills in addition to demonstrated technical competence as defined for each assignment.

Where repeat assignments are indicated (agricultural communication, operational evaluation, audio, written communication, equipment maintenance, graphic arts, photography/silkscreen, video production), the same individual should be provided for all assignments in a given field to maintain continuity

of assistance. Flexibility will be maintained to adjust timing, length, and areas of specialization to best meet project needs, but the total short term level of effort will not exceed 48 person months.

3. Commodities - Justification for procurement of commodities for the Extension Component is given in the Waivers Section 8.0 of the Project Paper. Waivers will be required for A/V equipment that is not manufactured in the U.S., and for one critical item for which no established service and maintenance are available in Malawi.

One vehicle will be purchased by the Project for the Agricultural Communication Specialist for official use to provide mobility for making staff visits to the ADDs and for initiating communication-related investigations/evaluations.

Flexibility will be maintained to permit substitutions in equipment to be procured. The MARE-funded communication Consultant and the designated EAB counterpart will assess the equipment situation in each EAU and will provide only those items needed to supplement usable equipment already available. The indicative list of commodities to be procured under MARE funding for the EAUs (see Table 9.5.1.4) is a model based on needs in the Mzuzu ADD and will require modification for other ADDs.

EXTENSION COMPONENT

9.5.1.2 Technical Assistance Plan

Area of Specialization	TOTAL	Person Months FY 86	FY 87	FY 88	FY 89	FY 90
A. Long Term						
1. Agric. Commun.	30	12	12	6	-	-
2. Women's Program Advisor	30	12	12	6	-	-
SUB total - long term	60	24	24	12	-	-
1. Commun. hardware	2	2	-	-	-	-
2. Operational Eval.	7	-	5	-	-	2
3. Audio media	4	-	2	2	-	-
4. Written Commun.	3	-	2	-	1	-
5. Print Media systems	3	-	3	-	-	-
6. Equip. Maintenance	4	-	2	1	-	1
7. Graphic arts	3	-	-	2	1	-
8. Photo/Silkscreen	4	-	-	3	1	-
9. Instructional Video	6	-	-	5	1	-
Subtotal - short term	36	2	14	13	4	3
TOTAL - All technical assistance	96	26	38	25	4	3

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Most commodity procurement will be completed during the first contract year to minimize inflation effects, to have the equipment available for use by technical assistance personnel in fulfilling their responsibilities, and to facilitate (within two years) implementation of the mass communication pilot project. The distribution by location and fiscal year of MARE-funded commodity procurement is given in Table 9.5.1.3.

An indicative list of commodities to be procured under each cost category appears in Table 9.5.1.4. It should be emphasized that this list is only indicative, and that substitutions will be required. These will be identified at the time the Communication Hardware Specialist and his EAB counterpart develop the detailed specifications for all equipment items to be procured.

4. Other Costs - Other Component Costs are: 1) support of long and short-term technical assistance and the mass communication pilot project; and, 2) other program support.

Project funds will be provided for operation and maintenance of the vehicle procured for the long term agricultural communication specialist and short-term technical assistance personnel. Costs of activities attributable to the pilot project which are over and above those of the ongoing program will be funded by the project through the Title XII Contractor. These will include such cost items as materials and supplies, media production, staff training for pilot project personnel, investigations and studies, and expanding pilot project results from Mzuzu to other ADDs.

The other program support category will include partial support for activities of EAB and EAU personnel related to the pilot project, materials and supplies required for producing training materials and for use in training, production of materials to be tested in the field, purchase of reference materials, and for meetings, and participation of key EAB/EAU staff in relevant international conferences and seminars. The distribution of other costs is shown in Table 9.5.1.5.

E. Implementation Calendar - A detailed preliminary implementation calendar for Extension Component activities is given in Figure 9.5.1.4. These activities are categorized as offshore training, in-country training, commodity procurement, technical assistance, Mzuzu mass communication pilot project, and implementation and reporting. A preliminary chronological implementation schedule is shown in Table 9.5.1.6.

The calendar and schedule will be revised during preparation of the Detailed Implementation Plan by the Title XII Contractor and will be updated annually.

F. Relation to Other Projects - The Extension Component will relate specifically to two IDA projects, the earlier USAID-funded Bunda College Project and, potentially, to the proposed AID/S&T centrally-funded Communication for Technology Transfer in Agriculture Project.

1. IDA Projects - The Extension Component will complement the IDA Agricultural Extension and Planning Support Project and will benefit from several IDA project inputs. The planning support and training inputs of this IDA project, and the institutional development and adaptive research inputs of the IDA National Agricultural Research Project will facilitate development of research and extension linkages, increase the capacity of the research/extension

system to identify problems and develop locally adapted improved technologies, and strengthen Extension's capacity to plan programs and upgrade staff competence. The credit input of the first-mentioned IDA project will enable more smallholders to utilize high-potential technologies which require purchased inputs, and will thus expand the potential extension audience for such types of information. Assistance provided by the IDA Extension Project at the ADD level will be concentrated in Mzuzu ADD, which will also be the site of the MARE-funded mass communication pilot project.

B. Bunda College - The earlier USAID-funded Bunda College Project provided assistance to develop that institution's capacity to produce diploma and degree holders to serve the needs of research and extension in Malawi. The MARE project will build on that capacity by funding procurement of a small amount of A/V equipment (valued at $10,000) to use in the Bunda communication teaching program for demonstration and practice sessions with students. The staff is capable of using such equipment but at present has virtually none. In addition, the MARE-funded long-term communication specialist will consult with Bunda College communication staff in reviewing courses offered in that field, and will initiate revisions if necessary to meet the needs of training in communications more adequately. The Extension Component will benefit in the future through having extension staff trained in the rudiments of communication and use of A/V equipment.

3. Communication for Technology Transfer in Agriculture (936-5826) - A proposed centrally-funded project presently under development by AID/S&T, Communication for Technology Transfer in Agriculture (CTTA), will be highly complementary to MARE, and possibilities exist for strengthening the MARE Extension Component through collaboration with CTTA. The purpose of CTTA is to develop and demonstrate a more effective communications support system for technology transfer in agriculture. To achieve this purpose, the CTTA Project proposes to collaborate with existing AID projects in Africa, Latin America and Asia, providing supplemental support for some technical assistance, evaluation, international meetings and seminars related to work being done in the collaborating countries, and production of manuals, videotapes, etc., for use by AID and host countries in planning and implementing projects to provide effective communication support integrated into technology transfer projects. It proposes to intensify inputs in one country selected as a primary site (Honduras) and to provide support on a cost-sharing basis with up to nine collaborating sites.

Support potentially available to MARE from CTTA includes short term technical assistance in evaluation (a behavioral scientist) to concentrate in the mass communication pilot project, funding and personnel required for a case study type evaluation of the mass communication pilot project, access to the worldwide agricultural communication network to be developed under CTTA, opportunity for Malawian participation in international conferences and seminars organized by CTTA, and access to all reports, manuals and videotapes produced by CTTA. MARE would in turn make available to CTTA all reports and evaluations related to the mass communication pilot project, collaborate in development of communication-related investigation and evaluation, and collaborate in the case study evaluation.

Because the MARE and CTTA Projects share a common purpose, albeit at different levels (Malawi vs. worldwide), and the CTTA project can provide certain inputs that cannot be funded under the MARE extension component, USAID/Malawi proposes to utilize the resources of the CTTA Project to support agricultural communication activities under the Mare project wherever possible.

PROJECT PAPER

ANNEX 9.52

FINANCIAL ANALYSIS

ANNEX 9.52

9.52 FINANCIAL ANALYSIS

The principal issues with respect to AID's investment in the MARE Project are:

- Is the overall Project financing plan realistic?

  Is the GOM financial management system capable of utilizing the large levels of project funding; and,

  On what basis has it been determined that the GOM will be able to meet the incremental project-related costs

A. Budget Analysis

1. Total Project Costs - The overall Project cost is US$82,757,000 over a six year period. This sum reflects the following contributions: GOM will contribute $33,057,000; IDA will finance $35,700,000 and, AID will provide $14,000,000 in grant funding. The shares of Project financing are: 40 percent, 43 percent, and 17 percent respectively. In terms of total Project costs foreign exchange represents 42 percent of the budget.

The summary Financial Plan is provided in Budget Table 1. Costs have been allocated with respect to the four components supported by the AID MARE Project. Because IDA documentation did not correspond to the same format, the Design Team, (using IDA documents), reconstructed IDA's contribution into the categories of: Agricultural Training, Agricultural Research, Agricultural Extension, and Other Costs. Financing is divided between components as per the following: Research (50%), Extension (22%), Training (17%), and Other Costs (11%).

Budget Table 2 provides the sources and applications of finance for each of the four components. Funding is distributed as follows: Technical Assistance 12 percent; Training (without Technical Assistance included) 9 percent; Commodities 5 percent; Administrative Support 43 percent; Construction 11 percent; Credit 3 percent; and, Contingencies 17 percent.

Budget Table 3 summarizes all contributions by source of financing and between the four components for each of the six years of Project funding. Financing is phased so that in 1985 only 4 percent of total project funds are available. Over the next five years this figure grows to 13 percent in 1986, 23 percent in 1987, 25 percent in 1988, 19 percent in 1989, and ends with 16 percent in 1990. The GOM contribution to total Project financing begins slowly and by the last year of the Project it will support 58 percent of total project costs.

2. AID Contribution - The AID grant contribution to the Project will provide $14,000,000 or 18 percent of total Project costs. Budget Table 5 provides a summary of AID contributions as follows: Agricultural Training ($8,449,000); Agricultural Research ($2,988,000); Agricultural Extension ($2,161,000) and Evaluation/Studies ($402,000). Seventy-five percent of AID funding will be used to provide foreign exchange financing.

AID percentage contributions by funding categories are summarized as follows:

Funding Categories	Percentages
Technical Assistance	35%
Training	33%
Commodities	4%
Administrative Support	4%
Other Costs	2%
Contingencies	22%

USAID financing is evenly distributed over a five-year period, although there will be a slight distortion in the first three years when candidates are being send for long-term training.

3. IDA Contribution - The IDA contribution of US$35,700,000 is provided through two separate loan projects: the National Research Project ($23,800,000) and the Agricultural Extension and Planning Support Project ($11,900,000). The financing for the Research Project is phased so as to provide most of the funding in years three and four (60%). The Extension Project distributes funding evenly over the last four years of the Project. The IDA contribution provides 68% of its funding for foreign exchange.

4. GOM Contribution - The Government of Malawi contribution of US$33,056,635 is calculated on the basis of the value of GOM resources that will be used for the Project ($30,853,902), and the incremental costs created by Project activities ($2,202,733). Complete GOM costs are summarized in Budget Table 4, which is taken from Budget Tables 10-14.

5. Remarks on the Financial Plan - The Financial Plan for the Project is reasonably phased and realistically funded. In terms of donor financing, overall levels are aggressive yet still realistic (donor funding will increase financial resources in the MOA from between 20 and 45 percent). Likewise, phasing of both AID and IDA resources accelerate quickly at the start of the Project. The characteristic of the financing arrangements highlight the need to ensure there are sufficient personnel available to start the procurement and contracting processes in order to maintain scheduled disbursements.

Likewise, the large levels of financing assigned for administrative support should be adequate to cover all the implementing and operating expenses required by Project activities. Likewise, contingencies have been calculated at generous rates so as to maintain a reasonable margin of safety during project implementation.

B. Financial Management Systems - Although the GOM financial management systems are generally sound, there is an overall consensus that these must be strengthened to fully utilize and account for the greater levels of funding proposed by the Project. Both IDA Projects include long-term technical assistance to support the accounting and financial management system of the Department of Agricultural Research and the Department of Agriculture.

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In the Department of Agricultural Research, the recruited Financial Controller will be responsible for designing a new budgeting system as well as a phased program to introduce it. In the first 18 months the Controller will train the Research accounting staff and will be responsible for the overall financial operations of the Department. A local counterpart trained under the Project will gradually assume line responsibility and the technical assistance position will become an advisory role.

In the Department of Agriculture a Financial Management Specialist will be recruted, and will be responsible for strengthening the existing programming and budgeting system. During the life of the IDA Project, budgeting improvements will first be tested and developed in the Mzuzu ADD and later expanded to the other seven ADD nationwide.

By adding these additional resources, the GOM financial management resources in the Ministry of Agriculture will be capable of managing the levels of financing proposed by the Project.

C. Recurrent Cost Analysis

1. The GOM Public Finance - The public sector in Malawi consists of the central government, a number of city, municipal, and district councils, nine public enterprises, and a few small decentralized agencies. The central government's budgetary system consists of the revenue (current) and development accounts. The revenue account covers the expenditures for on-going government operations and other government expenditures which are primarily of a recurrent nature. It also includes some capital expenditures, mainly in the form of equipment for general administration and defense. The development account is the primary vehicle for capital expenditures. It consists of capital transfers (loans to and equity in public enterprises), gross fixed capital formation (buildings, civil works, vehicles, equipment, and agricultural improvements), consumption (mainly on projects financed from external assistance), grants, and subsidies. 1/

2. The Central Government's Budgetary Performance (Table 1) - The GOM's budgetary performance deteriorated substantially in the years 1977/78 through 1980/81. During this period, government deficit rose from 6.2% of GDP to 11.1%. Total expenditures rose from 23.8% of GDP in 1977/78, to 34.2% in

1. Malawi Growth and Structural Change: A Basic Economic Report, 1982.

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1980/81. Increased expenditures were associated primarily with: (a) the implementation of major projects, including the construction of an international airport in Lilongwe; (b) sharp increases in the maintenance and interest costs of major development projects, and (c) a 30% increase in government salaries in 1978. During this period, domestic financing of overall budget deficits increased sharply from 0.5% of GDP in 1977/78, to 7.3% in 1980/81. Net foreign borrowing as a percentage of GDP declined from 5.7% in 1977/78, down to 3.8% in 1980/81. In order to redress the deteriorating government budgetary performance, steps were taken to reduce the level of expenditures. These included a freeze on the creation of new posts in government and a reduction in the purchase of goods and services. By 1983/84, the overall budget deficit declined to 6.6% of GDP compared to 11.1% in 1980/81. In fiscal year 1983/84, expenditure monitoring systems were introduced to provide greater control of recurrent and development expenditures. Under the monitoring system, expenditures by a ministry in excess of its cumulative allowances have to be cleared with the Treasury by the Reserve Bank, which monitors the account balances on a daily basis. The monitoring system has resulted in substantial accumulation of government deposits, owing in large part to unused balances of certain ministries being carried forward from month to month without limit. Overall deficits are anticipated to drop further to 5.6% of GDP in 1984/85. In addition, total government revenues are expected to rise by 14% in 1984/85 over the previous year because of increases in taxes on goods and services and in taxes on international trade.
Clearly, the government's budgetary performance has begun to show signs of improvement. Nevertheless, additional measures need to be implemented in order to control expenditures and to promote increased revenues. Because recurrent expenditures have been the primary target for reductions, improved efficiencies in the utilization of a decreasing supply of recurrent funds need to be achieved.

3. GOM Budget Support to Agriculture - In current terms, the MOA's recurrent funding levels increased significantly by 48% between 1979/80 and 1984/85. However, as a percentage of the total government recurrent expenditures, the MOA's expenditure levels have remained fairly constant at 9.7%.

Of the total MOA recurrent budget in 1984/85, the Department of Agriculture (DOA) accounts for the largest share (55%), followed by Veterinary Services (20%), Department of Agricultural Research (DAR, 14%), and Headquarters (11%). These percentage shares have remained fairly stable since 1979/80. (Table 2).

Based on 1980/81 constant prices, the average real annual growth rate of the MOA's recurrent budget was about 7% during the period 1979/80 to 1984/85. This average rate, however, masks the large annual fluctuations in recurrent funding levels, which range from an increase of 21% between 1980/81 and 1981/82 to a decrease of 6.2% between 1982/83 and 1983/84. Taken by department, the DOA recorded the highest real annual growth rate of 8% between 1979/80 to 1984/85. In contrast, over the same period, the annual growth rates of the Veterinary Services and the DAR averaged at 2% and 4% respectively.

In keeping with the GOM's commitment to provide adequate financing to the

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MOA under the Structural Adjustment Loans (SAL), the recurrent budgets of the DOA and DAR increased sharply in real terms, by 68% and 38%, respectively, between 1980/81 and 1982/83. This, however, has been followed by real reductions in budget provisions for both departments. The DOA's budget decreased in real terms by 6% between 1982/83, and 1984/85. During the same period, the DAR's budget declined by 14%[1].

4. Recurrent Cost Implications of the MARE Project and the IDA-financed Projects - The financial position of the GOM was given special consideration in the design of the USAID and IDA-financed projects. Owing to the shortage of MOA recurrent funds, emphasis was placed on utilizing existing resources where possible. Thus, of the total GOM contribution to the three projects, approximately 9.3% will come from on-going programs.

It was not possible to design the activities of the USAID and IDA projects without incurring incremental recurrent costs. However, measures to generate savings in the existing research and extension programs were identified in order to cover at least part of these additional costs. In the DAR, a task-oriented program and budgeting system will be introduced in order (a) to insure that priorities in research programs are clear and reflected in budget allocations; and (b) to monitor expenditures as a means of controlling overspending and excessive resource reallocations. Researchers will be reorganized into commodity teams with responsibility for specific crops, as a means of eliminating the current overlap in research programs. The DAR's over-extensive research station network will be reduced from eleven main research stations, nine substations, and 220 trial sites, to three main stations, three substations, and nine trial sites. As a result of the consolidation of DAR's infrastructure, expenditures will be reduced, in real terms, by 28% for technical services, 27% for administration, 15% for overheads, and 4% for implementing on-going research programs. Overall, these imply a 16% reduction in the cost of DAR's on-going activities. On an annual basis, cost savings in the following amounts, in real terms, will be generated:

Estimated Cost Savings for DAR
(MK)

1985	-	108,300
1986	-	201,900
1987	-	433,100
1988 - onwards	-	545,300

In the DOA an extension planning group will be formed to: (a) set operational guidelines for the elimination of low-priority recurrent expenditures; (b) evaluate the efficiency of existing investments in headquarters and at the ADDs; (c) identify potential areas for cost savings and cost recovery; and, (d) establish a system for achieving better resource utilization and cost-effectiveness both at headquarters and in the field. To enable the DOA to reach more farmers without increasing the size of its current extension force, IDA will support the implementation of the block extension system. The MARE Project will support the decentralization of the Extension Aids Branch (EAB) and will strengthen its capability to provide

1/ This section is based largely on information in The Recurrent Budget Study: Malawi, The World Bank, 1984.

extension recommendations more effectivelythrough mass communication . Finally, both USAID and IDA will provide a substantial amount of training in technical and management areas to enable the DAR and DOA to utilize their limited resources more efficiently and effectively.

The incremental recurrent costs associated with implementing the technical and management improvements in the DOA, DAR, and the Planning Division, are shown in Table 3. These costs exclude the operating cost support that will be provided by IDA to the DOA, DAR, and the Planning Division during the life of its two projects. The MARE Project will provide recurrent cost support only in the implementation of in-country training programs and to cover the operating expenses of its technical advisors.

Table 3 segregates the incremental recurrent costs of activities in whic USAID will be directly involved. The bulk of the incremental costs includes increases in salary outlays for the upgrading of nineteen positions in the DA to implement the commodity and adaptive research programs. IDA will provide substantial amount of equipment and vehicles for the DAR, which will require additional operating and maintenance costs during and after the life-of-project. Replacement of these vehicles and equipment in later years will also add to the recurrent expenditures of the DAR. However, the cost savings (which were presented above), will be more than sufficient to cover all incremental costs, except for the replacement of equipment and vehicles.

In the DOA, the bulk of the incremental costs of activities in which the MARE Project will be involved include the additional salaries to upgrade five positions in the EAB at headquarters and one position in each of the ADDs. These incremental costs, however, will be fully covered by: (a) the elimination of redundant services; and, (b) savings that will be generated from reduced expenditures in operation and maintenance as a result of the decentralization of the EAB. The savings to be generated (MK40,000 by 1988), are about 4% more than the incremental costs associated with the activities that will be introduced under the MARE Project. Incremental expenditures wil also be required to operate, maintain and replace the equipment and vehicles which IDA will provide to the Adaptive Research Teams.

Table 4 presents three scenarios of the incremental recurrent cost impac of the USAID and IDA financial projects on the MOA budget. The figures are presented in real terms in order to avoid making arbitrary assumptions on the future growth rates of the MOA budget over a 20-year period.

In scenario 1, the MOA recurrent budget will have to be increased by at most 7%, starting in 1996, in order to cover the incremental recurrent costs of the USAID and IDA-financed projects. This scenario excludes the possibility of any cost savings being realized. However, this assumption is unrealistic because: (a) approval at the highest levels has already been obtained to implement the DAR infrastructure consolidation; and, (b) the IDA-financed research and extension projects will concentrate almost entirely on improving efficiencies in the DAR and the DOA to reduce their current operating cost levels.

Scenario 2 presents the impact of incremental recurrent costs on the MOA budget, with the assumption that cost savings will be realized. In addition to the savings already identified for the DAR and the EAB, an assumption was made that through the activities to be financed by the IDA to improve operations in the DOA, savings of 0.5% of the DOA's 1984/85 budget will be generated by 1989. During the following year, the level of savings will increase to 1% of the DOA budget. In making this conservative assumption it was found necessary to attach some value to the cost-reduction measures that will be initiated in the DOA. If the level of estimated savings remains constant through the year 2005 at the levels discussed above, the MOA's budget will have to be increased by at most 4% to cover the incremental costs associated with the three projects.

For illustrative purposes, Scenario 3 was constructed to show the recurrent cost impact of only the activities in which the MARE Project will be directly involved. The recurrent costs do not reflect the savings that are expected to be generated in the DAR and the EAB. This scenario shows that the MARE Project and the IDA-financed research project will increase the MOA's recurrent budget by at most 2%.

5. Conclusion - In the design of the three projects, every effort was made to minimize the recurrent cost burden on the GOM. Potential sources of savings to cover incremental recurrent costs have been identified, and will continue to be identified during project implementation. Whether or not the GOM will provide sufficient budgetary support to cover these costs will ultimately depend upon: (a) the impact of the three projects on improving the performance of the smallholder sub-sector; and, (b) the budgetary performance of the central government.

TABLE 1: CENTRAL GOVERNMENT BUDGETARY OPERATIONS
(in millions of MK).

	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85
Total Revenue	132.3	174.6	221.6	242.5	263.2	286.0	320.6	381.2
Revenue	116.3	148.6	187.0	199.2	221.0	244.3	288.5	329.6
Grants	16.0	26.0	34.6	43.3	42.2	41.7	32.1	51.6
Total Expenditures	178.5	248.0	305.8	385.6	392.8	400.3	427.4	483.5
Recurrent	101.9	134.5	156.6	183.7	231.9	260.7	281.4	318.9
Development	76.6	113.5	127.9	174.9	124.2	139.6	146.0	164.6
Extra-budgetary	-	-	21.3	-	36.7	-	-	-
Overall Deficit	(46.2)	(73.4)	(84.3)	(116.1)	(129.6)	(114.3)	(106.8)	(102.3)
Financing	46.2	73.4	84.3	116.1	129.6	114.3		102.3
Net Foreign Loans	42.5	61.8	71.0	40.0	31.3	73.6		71.5
Net Domestic Loans	3.7	11.6	13.2	76.1	98.3	40.7		30.8
				(as % of GDP)				
Revenue (exc. grants)	15.5	18.2	21.3	19.0	18.2	17.3	17.8	17.9
Recurrent Expenditure	13.6	16.5	17.9	17.5	19.1	18.4	17.4	17.3
Development Expenditure	10.2	13.9	14.6	16.7	10.2	9.9	9.0	8.9
Overall Deficit	6.2	9.0	9.6	11.1	10.7	8.1	6.6	5.6

Source: Ministry of Finance

TABLE 2:

MINISTRY OF AGRICULTURE RECURRENT BUDGET EXPENDITURES
(in 000's of current MK)

	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85
Headquarters	751	743	729	684	1,390	2,683
Research	1,657	1,876	2,206	3,220	3,510	3,423
Extension	5,127	5,565	7,298	11,578	12,028	13,492
Veterinary Services	2,446	3,076	4,139	4,507	4,311	4,921
TOTAL, MOA	9,881	11,260	14,372	19,989	21,239	24,519

Source: Ministry of Agriculture and the World Bank (1984)

TABLE 3 INCREMENTAL GOM RECURRENT COSTS,
BY PROJECT ACTIVITY
(MK in Constant 1984/85 Prices)

Year	Training	Research	Extension	Sub-Total*	Other Extension Costs	Planning	TOTAL
1985	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0
1987	0	107644	19153	126797	0	0	126797
1988	1553	304304	49315	355172	74348	15972	445492
1989	3105	534800	88088	625993	161377	31943	819313
1990	4658	514700	112728	632086	281425	47915	961426
1991	96764	514700	162008	773472	469042	79858	1322372
1992	96764	514700	162008	773472	469042	79858	1322372
1993	96764	514700	162008	773472	469042	79858	1322372
1994	96764	514700	162008	773472	469042	79858	1322372
1995	96764	838700	162008	109747	553082	79858	1730412
1996	118964	838700	224408	1182072	553082	143558	1878712
1997	96764	838700	203608	1139072	553082	79858	1772012
1998	96764	838700	182808	1118272	553082	79858	1751212
1999	96764	838700	224408	1159872	553082	79858	1792812
2000	96764	838700	162008	1097472	553082	79858	1730412
2001	96764	838700	162008	1097472	553082	79858	1730412
2002	96764	838700	162008	1097472	553082	79858	1730412
2003	96764	838700	162008	1097472	553082	79858	1730412
2004	96764	838700	162008	1097472	553082	79858	1730412
2005	96764	838700	162008	1097472	553082	79858	1730412

* This sub-total includes only the incremental costs of activities in which the MARE Project has direct involvement.

TABLE 4: INCREMENTAL MOA RECURRENT COSTS
(MK000, In Constant 1984/85 Prices)

		SCENARIO 1.		SCENARIO 2		SCENARIO 3	
Year	(1) MOA Recurrent Budget	(2) Total Incre-mental Recurrent Costs	(3) (2) as % of (1)	(4) Total Inc Recurrent Costs Net of Est. Savings	(5) (4) as % of (1)	(6) Net Inc. Recurrent Costs Directly Related to MARE Project*	(7) (6) as % of (1)
1985	24519	0	0	0	0	0	0
1986	24519	0	0	0	0	0	0
1987	24519	127	0.5	0	0	0	0
1988	24519	445	1.8	0	0	0	0
1989	24519	819	3.3	199	0.8	40	0.2
1990	24519	961	3.9	254	1.0	47	0.2
1991	24519	1,322	5.4	615	2.5	188	0.8
1992	24519	1,322	5.4	615	2.5	188	0.8
1993	24519	1,322	5.4	615	2.5	188	0.8
1994	24519	1,322	5.4	615	2.5	188	0.8
1995	24519	1,730	7.1	1,023	4.2	512	2.1
1996	24519	1,879	7.1	1,172	4.8	597	2.4
1997	24519	1,772	7.2	1,065	4.3	554	2.3
1998	24519	1,751	7.1	1,044	4.3	533	2.2
1999	24519	1,793	7.3	1,086	4.4	574	2.3
2000	24519	1,730	7.1	1,023	4.2	512	2.1
2001	24519	1,730	7.1	1,023	4.2	512	2.1
2002	24519	1,730	7.1	1,023	4.2	512	2.1
2003	24519	1,730	7.1	1,023	4.2	512	2.1
2004	24519	1,730	7.1	1,023	4.2	512	2.1
2005	24519	1,730	7.1	1,023	4.2	512	2.1

* Net of estimated savings.

BUDGET TABLE I
SUMMARY FINANCIAL PLAN
MARE PROJECT
(US $ 000'S)

ACTIVITY	AID FX	AID LC	IDA FX	IDA LC	GOM LC	TOTAL
AGRICULTURAL TRAINING	5620	2829	2068	1237	1116	12870
AGRICULTURAL RESEARCH	2759	229	14998	7033	16810	41829
AGRICULTURAL EXTENSION	1895	266	7313	3051	6073	18598
EVALUATION/STUDIES	294	108			9058	9460
TOTAL	10568	3432	24379	11321	33057	82757

BUDGET TABLE 2
SOURCES AND USES OF FUNDS
MARE PROJECT
(US $ 000'S)

PROJECT COMPONENT	AGRICULTURAL TRAINING			AGRICULTURAL RESEARCH			AGRICULTURAL EXTENSION			OTHER COSTS OF PROJECT			TOTAL
	AID	IDA	GOM	AID	IDA	GOM	AID	IDA	GOM	AID	IDA	GOM	
LT TECHNICAL ASSISTANCE	1215	0	0	1738	3828	0	658	1162	0	0	0	0	8601
ST TECHNICAL ASSISTANCE	466	0	0	375	8	0	461	498	0	0	0	0	1808
LT OFFSHORE TRAINING	2255	1118	0	0	0	0	0	0	0	0	0	0	3373
ST OFFSHORE TRAINING	393	689	0	0	0	0	0	0	0	0	0	0	1082
ST IN-COUNTRY TRAINING	1958	1084	0	0	0	0	0	0	0	0	0	0	3042
COMMODITIES	63	0	0	65	2953	0	404	808	0	0	0	0	4293
ADMINISTRATIVE SUPPORT	119	0	1116	184	928	16811	184	864	6073	125	0	9057	35461
INFORMATION/EVALUATION	0	0	0	0	0	0	0	0	0	200	0	0	200
CONTINGENCIES	647	79	0	236	1305	0	171	784	0	33	0	0	3255
INFLATION	1333	335	0	390	5259	0	283	2919	0	44	0	0	10563
CONSTRUCTION (IDA)	0	0	0	0	7750	0	0	1429	0	0	0	0	9179
CREDIT (IDA)	0	0	0	0	0	0	0	1900	0	0	0	0	1900
TOTAL	8449	3305	1116	2988	22031	16811	2161	10364	6073	402	0	9057	82757

BUDGET TABLE 3
SUMMARY OF ALL CONTRIBUTIONS
HARE PROJECT
(US $ 000'S)

ACTIVITY	1985	1986	1987	1988	1989	1990	TOTAL
AID CONTRIBUTIONS							
AGRICUTLURAL TRAINING	346	1540	2220	2040	1446	848	8448
AGRICULTURAL RESEARCH	0	967	1056	705	116	145	2989
AGRICULTURAL EXTENSION	0	792	630	457	161	121	2161
OTHER COSTS	83	104	24	147	0	44	402
TOTAL AID	429	3403	3938	3349	1723	1158	14000
IDA CONTRIBUTION							
AGRICULTURAL TRAINING	349	534	819	826	777	0	3305
AGRICULTURAL RESEARCH	751	2769	6909	7433	2969	1700	22031
AGRICULTURAL EXTENSION	0	497	1372	2741	2154	2200	10364
OTHER COSTS	0	0	0	0	0	0	0
TOTAL IDA	600	3800	10500	11000	5900	3900	35700
GOM CONTRIBUTION							
AGRICULTURAL TRAINING	0	176	194	221	246	275	1116
AGRICULTURAL RESEARCH	2154	2371	2597	1844	3244	3600	16810
AGRICULTURAL EXTENSION	0	911	1036	1165	1375	1566	6073
OTHER COSTS	0	294	791	2502	2631	3037	9058
TOTAL GOM	2154	3752	4617	6550	7496	8478	33057
TOTAL PROJECT	3183	10955	[illegible]	[illegible]	[illegible]	13536	82757

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BUDGET TABLE 4
SUMMARY OF GOH CONTRIBUTIONS
HARE PROJECT
(US $ 000'S)

ACTIVITY	1985	1986	1987	1988	1989	1990	TOTAL
1. ON-GOING PROGRAMS							
AGRICULTURAL TRAINING	0	175872	197780	219536	243679	270495	1107362
AGRICULTURAL RESEARCH	2154376	2371169	2514100	2583654	2736375	3037393	15397067
AGRICULTURAL EXTENSION	0	910893	1024365	1140[illegible]96	1300181	1459971	5839506
OTHER	0	293750	793955	2231950	2465876	2724436	8509967
TOTAL ON-GOING PROGRAMS	2154376	3751684	4530200	6179936	6746111	7491595	30853902
2. INCREMENTAL COSTS							
AGRICULTURAL TRAINING	0	0	0	1196	2655	4419	8270
AGRICULTURAL RESEARCH	0	0	82893	260103	507428	563248	1413672
AGRICULTURAL EXTENSION	0	0	13287	37976	75293	106958	233514
OTHER	0	0	0	69553	165241	312483	547277
TOTAL INCREMENTAL COSTS	0	0	96180	368828	750617	987108	2202733
3. OVERALL CONTRIBUTION							
AGRICULTURAL TRAINING	0	175872	197780	229732	246334	274914	1115632
AGRICULTURAL RESEARCH	2154376	2371169	2596993	2843757	3243803	3600641	16810739
AGRICULTURAL EXTENSION	0	910893	1037652	1182772	1375474	1566229	6073020
OTHER	0	293750	793955	2301503	2631117	3036919	9057244
TOTAL GOH	2154376	3751684	4626380	6548764	7496728	8478703	33056635

BUDGET TABLE 5
SUMMARY - USAID CONTRIBUTION
ALL COMPONENTS - MARE PROJECT

	1985 FX	1985 LC	1986 FX	1986 LC	1987 FX	1987 LC	1988 FX	1988 LC	1989 FX	1989 LC	1990 FX	1990 LC	TOTAL FX	TOTAL LC	
1. TRAINING COMPONENT															
-LT TA	70000	0	270000	0	270000	0	270000	0	235000	0	100000	0	1215000	0	
-ST TA	0	0	40500	0	108000	0	236000	0	81000	0	0	0	465500	0	
-LT Training (US)	198000	0	638000	0	792000	0	451000	0	176000	0	0	0	2255000	0	
-ST Training (US-Others)	18000	0	129000	0	108000	0	66000	0	42000	0	30000	0	393000	0	
-In-Country Training	0	0	0	171000	0	469000	0	469000	0	449000	0	400000	0	1958000	
-Commodities	24000	0	36000	3000	0	0	0	0	0	0	0	0	60000	3000	
-Administrative Support	2000	3000	30003	21000	3000	21000	3000	21000	1500	19500	1500	19500	14000	105000	
Component Base Cost	312000	3000	1116500	195000	1281000	490000	1026000	490000	535500	468500	131500	419500	4402500	2066000	
Physical Contingency 10%	31200	300	111650	19500	128100	49000	102600	49000	53550	46850	13150	41950	440250	206600	
Price Contingency 7%	0	0	82785	14453	202379	77401	252235	120475	182083	159291	57786	184356	777268	555976	
TOTAL COMPONENT COST	343200	3300	1310935	228953	1611479	616401	1380835	659475	771133	674641	202436	645806	5620018	2828576	8448594
2. RESEARCH COMPONENT															
-LT TA	0	0	675000	0	675000	0	388000	0	0	0	0	0	1738000	0	
-ST TA	0	0	13500	0	94500	0	92000	0	81000	0	94500	0	375500	0	
-Commodities	0	0	65000	0	0	0	0	0	0	0	0	0	65000	0	
-Administrative Support	0	0	0	70000	0	70000	0	43800	0	0	0	0	0	183800	
Component Base Cost	0	0	753500	70000	769500	70000	480000	43800	81000	0	94500	0	2178500	183800	
Physical Contingency 10%	0	0	75350	7000	76950	7000	48000	4380	8100	0	9450	0	217850	18380	
Price Contingency 7%	0	0	56296	5240	121501	11057	117650	10741	26755	0	40913	0	363115	27038	
TOTAL COMPONENT COST	0	0	885146	82240	967951	88057	645650	58921	115855	0	144863	0	2759465	229218	2988683

	1985 FX	1985 LC	1986 FX	1986 LC	1987 FX	1987 LC	1988 FX	1988 LC	1989 FX	1989 LC	1990 FX	1990 LC	TOTAL FX	TOTAL LC	
3. EXTENSION COMPONENT															
-LT TA	0	0	270000	0	270000	0	118000	0	0	0	0	0	658000	0	
-ST TA	0	0	24500	0	171000	0	160000	0	67500	0	38000	0	461000	0	
-Commodities	0	0	350000	1000	15000	6000	10000	6000	6000	6000	0	4000	381000	23000	
-Administrative Support	0	0	2000	27000	3000	36000	3000	43000	2000	31000	1000	36000	11000	173000	
Component Base Cost	0	0	646500	28000	459000	42000	291000	49000	75500	37000	39000	40000	1511000	196000	
Physical Contingency 10%	0	0	64650	2800	45900	4200	29100	4900	7550	3700	3900	4000	151100	19600	
Price Contingency 7%	0	0	47982	2081	72010	6594	70948	11953	25184	12341	16813	17236	232937	50205	
TOTAL COMPONENT COST	0	0	759132	32881	576910	52794	391048	65853	108234	53041	59713	61236	1895037	265805	2160842
4. MANAGEMENT/EVALUATION															
-Project Support Services	50000	25000	25000	25000	0	0	0	0	0	0	0	0	75000	50000	
-Studies	0	0	30000	10000	10000	10000	0	0	0	0	0	0	40000	20000	
-Evaluations	0	0	0	0	0	0	100000	10000	0	0	20000	10000	120000	20000	
Component Base Cost	50000	25000	55000	35000	10000	10000	100000	10000	0	0	20000	10000	235000	90000	
Physical Contingency 10%	5000	2500	5500	3500	1000	1000	10000	1000	0	0	2000	1000	23500	9000	
Price Contingency 7%	0	0	3092	1964	969	969	23625	2350	0	0	7601	3811	35287	9094	
TOTAL COMPONENT COST	55000	27500	63592	40464	11969	11969	133625	13350	0	0	29601	14811	293787	108094	401881
TOTAL USAID PROJECT COST	398200	30800	3018805	384538	3168309	769221	2551158	797599	995222	727682	436613	721853	10568307	3431693	14000000

BUDGET TABLE 6
USAID - TRAINING
MARE PROJECT

	1985 FX	1985 LC	1986 FX	1986 LC	1987 FX	1987 LC	1988 FX	1988 LC	1989 FX	1989 LC	1990 FX	1990 LC	TOTAL FX	TOTAL LC
1. LONG TERM TA														
-Training Advisor	35000	0	135000	0	135000	0	135000	0	135000	0	100000	0	675000	0
-Training Specialist	35000	0	135000	0	135000	0	135000	0	100000	0	0	0	540000	0
Sub-Total	70000	0	270000	0	270000	0	270000	0	235000	0	100000	0	1215000	0
2. SHORT TERM ASSISTANCE	0	0	40500	0	108000	0	236000	0	81000	0	0	0	465500	0
3. LONG TERM TRAINING														
-Training Component	0	0	44000	0	44000	0	0	0	0	0	0	0	88000	0
-Research Component	198000	0	440000	0	506000	0	286000	0	110000	0	0	0	1540000	0
-Extension Component	0	0	154000	0	242000	0	165000	0	66000	0	0	0	627000	0
Sub-Total	198000	0	638000	0	792000	0	451000	0	176000	0	0	0	2255000	0
4. SHORT TERM TRAINING														
-Training Component	0	0	6000	0	24000	0	24000	0	30000	0	24000	0	108000	0
-Research Component	18000	0	54000	0	54000	0	24000	0	0	0	0	0	150000	0
-Extension Component	0	0	69000	0	30000	0	18000	0	12000	0	6000	0	135000	0
Sub-Total	18000	0	129000	0	108000	0	66000	0	42000	0	30000	0	393000	0
5. IN-COUNTRY TRAINING														
Training Component														
-Training of Trainers	0	0	0	125000	0	280000	0	45000	0	45000	0	30000	0	524000
-Technical Training	0	0	0	3000	0	80000	0	300000	0	290000	0	280000	0	953000
-EPA Training-Bunda	0	0	0	0	0	28000	0	28000	0	0	0	0	0	56000
-FA-FHA Training-NRC	0	0	0	0	0	20000	0	55000	0	55000	0	55000	0	185000
Sub-Total	0	0	0	128000	0	408000	0	428000	0	390000	0	365000	0	1719000
Research Component	0	0	0	25000	0	20000	0	20000	0	20000	0	15000	0	100000

	1985 FX	1985 LC	1986 FX	1986 LC	1987 FX	1987 LC	1988 FX	1988 LC	1989 FX	1989 LC	1990 FX	1990 LC	TOTAL FX	TOTAL LC	
Extension Component															
-Extension Aids	0	0	0	13000	0	16000	0	15000	0	14000	0	14000	0	72000	
-Womens Program	0	0	0	5000	0	25000	0	6000	0	25000	0	6000	0	67000	
Sub-Total	0	0	0	18000	0	41000	0	21000	0	39000	0	20000	0	139000	
Sub-Total In-Country	0	0	0	171000	0	469000	0	469000	0	449000	0	400000	0	1958000	
6. COMMODITIES	24000	0	36000	3000	0	0	0	0	0	0	0	0	60000	3000	
7. ADMINISTRATIVE SUPPORT															
-Vehicle Operation	2000	0	0	8000	0	8000	0	8000	0	8000	0	8000	2000	40000	
-TA Operating Funds	0	3000	3000	3000	3000	3000	3000	3000	1500	1500	1500	1500	12000	15000	
-Training Supplies	0	0	0	10000	0	10000	0	10000	0	10000	0	10000	0	50000	
Sub-Total	2000	3000	3000	21000	3000	21000	3000	21000	1500	19500	1500	19500	14000	105000	
TOTAL BASE COST	312000	3000	1116500	195000	1281000	490000	1026000	490000	535500	468500	131500	419500	4402500	2066000	
Physical Contingency 10%	31200	300	116500	19500	128100	49000	102600	49000	53550	46850	13150	41950	440250	206600	
Price Contingency 7%	0	0	82785	14453	202379	77401	252235	120475	182083	159291	57786	184356	777268	555976	
TOTAL COMPONENT COST	343200	3300	1310935	228953	1611479	616401	1380835	659475	771133	674641	202436	645806	5620018	2828576	8448594

BUDGET TABLE 7
USAID - RESEARCH
MARE PROJECT

	1986 FX	1986 LC	1987 FX	1987 LC	1988 FX	1988 LC	1989 FX	1989 LC	1990 FX	1990 LC	TOTAL FX	TOTAL LC	
1. LONG TERM TECHNICAL ASSISTANCE													
-ART Agronomist	135000	0	135000	0	59000	0	0	0	0	0	329000	0	
-ART Agricultural Economist	135000	0	135000	0	59000	0	0	0	0	0	329000	0	
-Production Economist	135000	0	135000	0	135000	0	0	0	0	0	405000	0	
-Horticulturalist	135000	0	135000	0	0	0	0	0	0	0	270000	0	
-Agro-Forester	135000	0	135000	0	135000	0	0	0	0	0	405000	0	
Sub-Total	675000	0	675000	0	388000	0	0	0	0	0	1738000	0	
2. SHORT TERM TECHNICAL ASSISTANCE													
-ART Agronomist	0	0	0	0	0	0	13500	0	13500	0	27000	0	
-ART Economist	0	0	0	0	0	0	13500	0	13500	0	27000	0	
-ART Rural Sociologist	0	0	13500	0	13500	0	13500	0	13500	0	54000	0	
-Horticulturalist	0	0	13500	0	0	0	13500	0	0	0	27000	0	
-Agro-Forester	13500	0	27000	0	38000	0	13500	0	0	0	92000	0	
-Livestock Specialist	0	0	0	0	13500	0	0	0	13500	0	27000	0	
-Technical Services	0	0	13500	0	13500	0	0	0	13500	0	40500	0	
-Oilseed Specialist	0	0	13500	0	13500	0	0	0	13500	0	40500	0	
-Cereal Specialist	0	0	13500	0	0	0	13500	0	13500	0	40500	0	
Sub-Total	13500	0	94500	0	92000	0	81000	0	94500	0	375500	0	
3. COMMODITIES	65000	0	0	0	0	0	0	0	0	0	65000	0	
4. ADMINISTRATIVE SUPPORT													
-TA Vehicle Operations	0	45000	0	45000	0	28800	0	0	0	0	0	118800	
-TA Operations Fund	0	25000	0	25000	0	15000	0	0	0	0	0	65000	
-Sub-Total	0	70000	0	70000	0	43800	0	0	0	0	0	183800	
TOTAL BASE COST	753500	70000	769500	70000	480000	43800	81000	0	94500	0	2178500	183800	
Physical Contingency 10%	75350	7000	76950	7000	48000	4380	8100	0	9450	0	217850	18380	
Price Contingency 7%	56296	5240	121501	11057	117650	10741	26755	0	40913	0	363115	27038	
TOTAL COMPONENT COST	885146	82240	967951	88057	645650	58921	115855	0	144863	0	2759465	229218	2988683

BUDGET TABLE B
USAID - EXTENSION
MARE PROJECT

	1986 FX	1986 LC	1987 FX	1987 LC	1988 FX	1988 LC	1989 FX	1989 LC	1990 FX	1990 LC	TOTAL FX	TOTAL LC
1. LONG TERM TECHNICAL ASSISTANCE												
-Ag Communications Specialist	135000	0	135000	0	59000	0	0	0	0	0	329000	0
-Womens Program Advisor	135000	0	135000	0	59000	0	0	0	0	0	329000	0
Sub-Total	270000	0	270000	0	118000	0	0	0	0	0	658000	0
2. SHORT TERM TECHNICAL ASSISTANCE												
-Communications Hardware	24500	0	0	0	0	0	0	0	0	0	24500	0
-Operational Evaluation	0	0	59500	0	0	0	0	0	24500	0	84000	0
-Radio and Other Audio	0	0	24500	0	24500	0	0	0	0	0	49000	0
-Written Communication	0	0	24500	0	0	0	13500	0	0	0	38000	0
-Print Media	0	0	38000	0	0	0	0	0	0	0	38000	0
-Equipment Maintenance	0	0	24500	0	13500	0	0	0	13500	0	51500	0
-Graphic Arts	0	0	0	0	24500	0	13500	0	0	0	38000	0
-Photo/Silkscreen	0	0	0	0	38000	0	13500	0	0	0	51500	0
-Video Production	0	0	0	0	59500	0	13500	0	0	0	73000	0
-Womens Program	0	0	0	0	0	0	13500	0	0	0	13500	0
Sub-Total	24500	0	171000	0	160000	0	67500	0	38000	0	461000	0
3. COMMODITIES												
-Extension Aids Branch	90000	0	3000	2000	5000	0	0	0	0	0	98000	2000
-Extension Aids Unit	190000	1000	0	0	5000	0	6000	0	0	0	201000	1000
-Bunda College	39000	0	11000	4000	0	0	0	6000	0	0	50000	10000
-Vehicles	24000	0	0	0	0	0	0	0	0	0	24000	0
-Womens Program	7000	0	1000	0	0	6000	0	0	0	4000	8000	10000
Sub-Total	350000	1000	15000	6000	10000	6000	6000	6000	0	4000	381000	23000

	1986 FX	1986 LC	1987 FX	1987 LC	1988 FX	1988 LC	1989 FX	1989 LC	1990 FX	1990 LC	TOTAL FX	TOTAL LC	
4. ADMINISTRATIVE SUPPORT													
-TA Vehicles Operations	0	13000	0	13000	0	13000	0	0	0	0	0	39000	
-TA Operations Fund	0	6000	0	6000	0	3000	0	0	0	0	0	15000	
-Mzuzu Mass Communications	2000	8000	3000	12000	3000	12000	2000	6000	1000	1000	11000	39000	
-WP Demonstration Funds	0	0	0	5000	0	15000	0	25000	0	35000	0	80000	
Sub-Total	2000	27000	3000	36000	3000	43000	2000	31000	1000	36000	11000	173000	
TOTAL BASE COST	646500	28000	459000	42000	291000	49000	75500	37000	39000	40000	1511000	196000	
Physical Contingency 10%	64650	2800	45900	4200	29100	4900	7550	3700	3900	4000	151100	19600	
Price Contingency 7%	47982	2081	72010	6594	70948	11953	25184	12341	16813	17236	232937	50205	
TOTAL COMPONENT COST	759132	32881	576910	52794	391048	65853	108234	53041	59713	61236	1895037	265805	2160842

BUDGET TABLE 9
USAID - MANAGEMENT/EVALUATION
MARE PROJECT

	1985 FX	1985 LC	1986 FX	1986 LC	1987 FX	1987 LC	1988 FX	1988 LC	1989 FX	1989 LC	1990 FX	1990 LC	TOTAL FX	TOTAL LC	
1. PROJECT START-UP	50000	25000	25000	25000	0	0	0	0	0	0	0	0	75000	50000	
2. STUDIES															
-Household Dynamics	0	0	30000	10000	10000	10000	0	0	0	0	0	0	40000	20000	
3. EVALUATIONS															
-Mid-Term Evaluation	0	0	0	0	0	0	30000	0	0	0	0	0	30000	0	
-Triennial Review	0	0	0	0	0	0	20000	10000	0	0	0	0	20000	10000	
-Project Review	0	0	0	0	0	0	50000	0	0	0	0	0	50000	0	
-Final Evaluation	0	0	0	0	0	0	0	0	0	0	20000	10000	20000	10000	
Sub-Total	0	0	0	0	0	0	100000	10000	0	0	20000	10000	120000	20000	
TOTAL BASE COST	50000	25000	55000	35000	10000	10000	100000	10000	0	0	20000	10000	235000	90000	
Physical Contingency 10%	5000	2500	5500	3500	1000	1000	10000	1000	0	0	2000	1000	23500	9000	
Price Contingency 7%	0	0	3092	1964	969	969	23625	2350	0	0	7601	3811	35287	9094	
TOTAL COMPONENT COST	55000	27500	63592	40464	11969	11969	133625	13350	0	0	29601	14811	293787	108094	401881

BUDGET TABLE 10: GOM CONTRIBUTION TO AGRICULTURAL TRAINING (IN US $)

	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	Total
I. Contribution from On-going Programs						
Salaries and Benefits 1/	128997	131305	131305	131305	131305	654217
Equipment and Vehicle O & M	40000	40000	40000	40000	40000	200000
Building/Works Maint. and Repairs	625	625	625	625	625	3125
Utilities and Supplies	625	625	625	625	625	3125
Training Facilities	5625	5625	5625	5625	5625	28125
Sub-total	175872	178180	178180	178180	178180	888592
Sub-total	175872	197780	219536	243679	270495	1107362
II. Incremental Contributions						
Salaries and Benefits	0	0	971	1941	2911	5823
Equipment and Vehicle O & M	0	0	0	0	0	0
Utilities and Supplies	0	0	0	0	0	0
Sub-total	0	0	971	1941	2911	5823
Sub-total Adjustment for Inflation	0	0	1196	2655	4419	8270
III. Total GOM Contribution	175872	197780	220732	246334	274914	1115632

1/ Includes trainers from Bunda College and Natural Resources College

BUDGET TABLE 11: GOM CONTRIBUTION TO AGRICULTURAL RESEARCH
(IN US $)

	FY 1985	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	Total
I. Contribution from On-going Programs							
Salaries and Benefits	1076250	1043438	1017187	984375	977812	977812	6076874
Equipment and Vehicle O & M	385750	356000	332125	290375	250313	250313	1864876
Utilities and Building Works M &	262938	312500	276563	222625	192625	192625	1459876
Supplies	276563	271375	261750	238938	228875	228875	1506376
Others	152875	152875	152875	152875	152875	152875	917250
Sub-total	2154376	2136188	2040500	1889188	1802500	1802500	11825252
Sub-total Adjusted for Inflation	2154376	2371169	2514100	2583654	2736375	3037393	15397067
II. Incremental Contributions							
Salaries and Benefits	0	0	7735	21049	30188	30188	89160
Equipment and Vehicle O & M	0	0	27461	84194	132813	132813	377281
Utilities and Buldings/Works M & R	0	0	15768	39039	101688	101688	258183
Supplies	0	0	9656	28094	44438	44438	126626
Publications	0	0	6658	17814	25125	25125	74722
Sub-total	0	0	67278	190190	334252	334252	925972
Sub-total Adjusted for Inflation	0	0	82893	260103	507428	563248	1413672
III. Total GOM Contribution (Adjusted for Inflation)	2154376	2371169	2596993	2843757	3243803	3600641	16810739

BUDGET TABLE 12: GOM CONTRIBUTION TO AGRICULTURAL EXTENSION
(IN US $)

	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	Total
I. Contribution from On-going Programs						
A. Agricultural Communications						
Salaries and Benefits	386324	381032	379741	379741	379741	[illegible]
Equipment and Vehicle O & M	97834	88552	83909	79266	79266	[illegible]
Building Maint. & Repairs	1875	1875	1875	1875	1875	[illegible]
Utilities and Supplies	46363	46363	46363	46363	46363	[illegible]
Others 17	23406	23406	23406	23406	23406	[illegible]
Sub-total	555802	543228	535294	530653	530653	[illegible]
B. Women's Program Section						
Salaries and Benefits	199702	199702	199702	199702	199702	[illegible]
Vehicle O & M	89728	89728	89728	89728	89728	[illegible]
Utilities and Supplies	24460	24460	24460	24460	24460	[illegible]
Building Maint. and Repairs	9725	9725	9725	9725	9725	[illegible]
Sub-total	323615	323615	323615	323615	323615	[illegible]
C. Adaptive Research Program						
Salaries and Benefits	19084	31225	39255	53065	57415	[illegible]
Vehicle O & M	8973	17946	22432	31405	35891	110647
Building Maint. and Repairs	973	1945	2431	3404	3890	12643
Utilities and Supplies	2446	4892	6115	8561	9784	31793
Sub-total	31476	56008	70233	96435	106980	361132
D. Tot. Cont. for On-going Program	910893	922851	929142	950703	961248	4574837
Total Adjusted for Inflation	910893	1024365	1144796	1300181	1459271	[illegible]
II. Incremental Contributions						
A. Agricultural Communications						
Salaries and Benefits	0	7684	10549	13414	13414	45061
Equipment and Vehicle O & M	0	0	0	0	0	0
Utilities and Supplies	0	4286	8723	10841	10841	34691
Sub-total	0	11970	19272	24255	24255	79752
B. Women's Program Section						
Salaries and Benefits	0	0	0	0	0	0
Equipment and Vehicle O & M	0	0	0	0	0	0
Utilities and Supplies	0	0	0	0	0	0
Sub-total	0	0	0	0	0	-

C. Adaptive Research Program:						
Salaries and Benefits	0	0	0	0		0
Equipment and Vehicle O & M	0	0	11550	30800	46200	88550
Utilities and Supplies	0	0	0	0	0	0
Sub-total	0	0	11550	30800	46200	88550
D. Total Inc. Contributions	0	11970	30822	55055	70455	168302
Total Adjusted for Inflation	0	13287	37976	75293	106958	233514
III. Total GOM Contribution (Adjusted for Inflation)	910893	1037652	1182772	1375474	1566229	6073020

1/ Includes postal changes, subsistance allowance and local transfers, processing and printing of films and publications.

BUDGET TABLE 13: GOM CONTRIBUTION TO AGRICULTURAL PLANNING
(IN MK)

	FY 1986	FY 1987	FY 1988	FY1989	FY1990	FY1991 FY1995	FY1996	FY1997 FY2005
Contribution from On-going Programs								
Salaries and Benefits	120000							
Others	80000							
Sub Total (MK)	200000	200000	200000	200000	200000	200000	200000	200000
($)	125000	125000	125000	125000	125000	125000	125000	125000
Adjusted ($)	125000	138750	154013	170950	189763			
Incremental Contributions								
Salaries and Benefits	0	0	9112	18223	27335	45588	45588	45558
Vehicles O & M	0	0	5060	10120	15180	25300	25300	25300
Equip. O & M	0	0	1800	3600	5400	9000	9000	9000
Replacement of Equipment	0	0	0	0	0	0	23700	0
Replacement of Vehicles	0	0	0	0	0	0	40000	0
Sub-total (MK)	0	0	15972	31943	47915	79858	143558	79858
Sub-Total ($)	0	0	9983	19964	29947	49911	89724	49911
Adjusted for inflation	0	0	12300	27303	45463			
TOTAL $ (Adj. for inflation)	125000	138750	166313	198252	235226			

GOM absorption of inc. recurrent cost = 0, 0, 20, 40, 60, 100.

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BUDGET TABLE 14: GOM CONTRIBUTION TO IDA-FINANCED EXTENSION ACTIVITIES
(MK)

	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	FY1991 FY 1994	FY 1995 2005
Contribution from On-going Programs							
TOTAL (MK)	270000	944440	2698400	2684908	2671416		
TOTAL ($)	168750	590275	1686500	1678068	1669635		
Adjusted for inflation	168750	655205	2077937	2294926	2534673		
Incremental Costs:	0	0	4448	8897	13345	22242	22242
Vehicle, Equip. & Build. O & M	0	0	69900	152480	268080	446800	446800
Replacement of Veh. & Equipment	0	0	0	0	0	0	84040
Total (MK)	0	0	74348	161377	281425	469042	553082
Total ($)	0	0	46468	100861	175891	293151	345676
Total Adjusted	0	0	57253	137938	267020		
TOTAL GOM contribution ($,Manf.)	168750	655205	2135190	2432864	2801693		

ATTACHMENT 1:

BUDGET COSTING

ANNEX 9.52

Notes on Costings/Budgets

Technical Assistance - Assuming a family of four, two school age children, on site for two years, number rounded to nearest $100. Contract data was used. All numbers are inflated by 11% after FY1987. The start and finishing times can be deduced from the numbers in the budgets and verified by checking the Technical Assistance Scheduling Plan.

Costs are calculated as follows:

Long Term Technical Assistance

Average Two-Year Contract

	US DOLS
Salaries	100,000
Post Differential (10%)	10,000
Overhead 60%	66,000
Travel Expenses (Int'l & Domestic	
- Round trip tickets (for 4)	12,000
- R & R	5,000
-Per Diem	2,000
- In-country per diem and tickets	12,000
Housing	
- Rental ($625/mo.)	15,000
- Utilities ($140/mo.)	3,360
- Supplemental furniture/appliances	5,000
- Guard ($80/mo.)	1,920
Other Benefits	
- Education	2,500
- Air freight	6,000
- Surface shipment - HHE	15,000
- Surface shipment of POV	2,000
- Storage of HHE	8,000
- Insurance	2,000
- Medical Evacuatio	2,000
TOTAL for two-year cost per Contractor	$270,000
Average one-year cost per Contractor	$135,000

HB

Local Salary Schedule

Local personnel salaries are consistent with the GOM salary scale including all others benefits.

Short Term Consultancies:

(Estimated cost is based on current actual fees paid.)

Typical Contract Data (one month)	
Salary (monthly rate of $5,000	$ 5,000
Per diem ($68 per day)	2,000
Transport (roundtrip from USA)	3,000
In-country travel	200
Car rental	400
Overhead (60%)	3,000
TOTAL (rounded)	$13,500

Training:

Training is of four basic types: long-and short-term offshore and long-and short-term in country. Long-term abroad for bachelor's master's and PhD degrees is costed at $22,000 per year of study. This includes international travel and all logistic support. Short term training abroad is costed at $3,000 per month plus $3,000 for international travel. Long-term training is inflated at the rate of 11% after FY1986. Local short-term training costs vary considerably between urban and rural and between senior and junior staff. The costs in Malawi kwacha used are as follows:

1.

Food	Urban*	Rural
Junior Staff	6.50/day/part.	6.50/day/part.
Senior Staff	15.50/day/part.	8.00/day/part.

2.

Lodging	Urban*	Rural
Junior Staff	7.50	3.00
Senior Staff	60.00	30.00

*Urban includes Lilongwe, Zomba, Blantyre and Mzuzu.

3. Travel - 25.00 roundtrip/participant (average)

4. Workshop Facilities - 50.00/day (with tea)

5. Local instructors - see Nos. 1 and 2 costs above, under category of senior staff and travel, if necessary.

6. Teaching materials - 5.00/participant

Commodities, Equipment and Maintenance:

The uninflated schedule of commodity purchases is found in Section 10.9. An inflation factor of 5% for commodities purchased with Foreign Exchange (FX) and 15% with the local currency (LC) is used for FY 1986. Basic vehicle prices are as follows:

4-wheel drive	$15,000
Sedan	12,000

Vehicle Maintenance is figured at $9,600 per year for all 4-wheel drive vehicles and $4,000 per year for sedans.

PROJECT PAPER

ANNEX 9.53

ECONOMIC ANALYSIS

ANNEX 9.53

ECONOMIC ANALYSIS

A. Background - Quantifying the economic rate of return, ex ante, of institution-building projects presents special problems. In agricultural research and extension for example, major difficulties arise in predicting when a technological breakthrough will occur, the time lag between technology development and farmer adoption, and the level of technology adoption. Disaggregating the impact of factors not directly related to improvements in agricultural research and extension systems further complicates the process. These factors, whose effects cannot easily be ignored, include pricing policies, availability of inputs and markets, and in the case of Malawi, agricultural improvements arising from the National Rural Development Program (NRDP).

As indicated in the PID for the proposed project, ex post facto assessments have confirmed the attractiveness of investments in agricultural research. Because such assessments were conducted in countries where the level of institutional performance and agro-climatic conditions are different from Malawi's, the conclusions from those assessments cannot be applied directly to Malawi. Nevertheless, the assessments do show a consistent trend - economic rates of return from investments in agricultural research have, on average, reached 40% in developing countries.

Because of the procedural difficulties mentioned above, no attempt was made to quantify the economic rate of return of the proposed Malawi Agricultural Research and Extension Project (MARE). However, in order to provide a basis for judging the project's economic worth, an indicative break-even analysis is presented. This involves estimating a stream of benefits whose present value at least equals the present value of project-related incremental costs over the same time frame. To move away from a purely hypothetical analysis, an assessment was made of the feasibility of achieving the estimated stream of benefits in Malawi. In addition, specific measures to ensure the cost-effectiveness of project design are discussed. Finally, other less easily quantified benefits are identified.

This economic analysis aggregates the incremental costs and expected benefits from the MARE Project and the two IDA-financed projects in agricultural research, extension, and planning. Because of complementarities among the three projects, separate analyses would be unrealistic, and could lead to misleading conclusions about the relative economic worth of each individual project.

B. Potential Sources of Economic Gains - Significant economic benefits could be achieved if the improvements in research, extension, and planning which will be initiated under the MARE Project and the IDA-financed activities, are sustained over a long-term period. Economic gains could be realized from increases in agricultural production and/or productivity, as well as from improved efficiencies in research and extension operations.

1. Increases in Agricultural Production and Productivity - Malawi's favorable environmental, ecological, and soil conditions are conducive to the production of a wide variety of agricultural crops. However, the 1980/81 National Sample Survey of Agriculture (NSSA) shows that about 74% of the total

customary land cultivated by smallholders is planted to maize, both monocropped (58%) and intercropped.

The current yields achieved for maize and other major smallholder crops are well below their yield potential. Local maize, which occupies 92% of the total maize area, yields an average of 1.0 ton per hectare, about half of its potential. Yields of hybrid maize are about 2.5 tons per hectare. although with improved farming practices, yields could be increased to 4.5-6.0 tons per hectare. In spite of the higher yields that can be achieved from hybrid maize production, only 5% of the total maize area is planted to hybrids. The average yield of groundnuts is 378 kilograms per hectare, but potentials exist for increasing the average to 800 kilograms. Likewise, the current average yield for pulses of 322 kilograms per hectare could be doubled, while yields for cassava, cotton, and tobacco could be increased by at least 40%.

The Department of Agricultural Research (DAR) has developed improved technologies which could enable farmers to achieve the higher yields mentioned above. However, the rate of farmer adoption of these technologies has been low. For maize, the slow uptake of hybrids has been partly due to their unfavorable storage and grinding qualities. Another equally important factor which has contributed to the low adoption of improved technologies is the lack of attention given to: (a) the local agro-climatic suitability of technical recommendations; and, (b) the diverse social and economic objectives of farmers, as conditioned by their differing access to labor, capital, land, and other employment opportunities. Farmers' desire to minimize risk of income loss and to maximize returns per unit of labor and/or capital invested is also an important consideration which has received insufficient attention. Thus, in order to be acceptable to farmers, improved technologies must be reliable as well as rewarding. Reliability has a technological component (stable growth performance), an economic component (remunerative and predictable prices), and an institutional component (solid input supply and marketing services). (Fleuret, 1984)

The proposed USAID and IDA-financed projects will provide assistance to strengthen the institutional capabilities of: (a) the DAR - to undertake applied and adaptive research as a means of ensuring that technological recommendations are agro-climatically appropriate and consistent with smallholders' socio-economic objectives; (b) the Department of Agriculture (DOA) - to effectively dissiminate improved technologies and provide technical advice; and, (c) the Planning Division - to analyze price policies and project national input supply requirements more effectively. These improvements will provide a more conducive environment for farmer adoption of productivity-raising technologies. If the productivity of food crops is sufficiently increased to meet farm households' consumption requirements, it is likely that farmers will reallocate their freed-up resources to cultivate non-traditional food and cash crops.

2. Savings from Improved Institutional Efficiencies - As indicated in the Institutional Analysis (Annex 9.55), the overhead and administrative costs of DAR's extensive station network currently absorb about 47% of its recurrent budget. The overhead costs of stations with small staff was MK35,000 per researcher in 1983/84, compared to MK7,000 per researcher in the three largest research stations. Consequently, only 31% of DAR's budget is currently allocated to its research programs. With the initiation of the IDA-financed research project, DAR's network of eleven main research stations, nine

substations, and 220 trial sites will be reduced to three main stations, three substations, and nine trial sites. The consolidation of DAR's infrastructure will be coupled with the elimination of redundant technical services, relocation of staff on a research team basis, reductions in utilities costs as stations are closed, and reduction of vehicle running costs. Over a five-year period, these measures are expected to result in a 28% reduction in the real cost of technical services, a 27% reduction in real administrative costs, a 15% reduction in facilities overheads, and a 4% real reduction in the cost of implementing on-going research programs. The proportion of DAR's budget for research programs will increase, in real terms, from 31% in 1984/85, to 46% in 1989/90. Additional cost reductions are expected as efficiencies are gained from improved planning and task-oriented budgeting systems that the IDA project will finance.

In extension, the IDA will provide technical assistance to the DOA to: (a) establish a system for a more cost-effective utilization of resources within the DOA headquarters and at the Agricultural Development Divisions (ADDs) in the field; (b) set operational guidelines for eliminating low-priority recurrent expenditures; (c) evaluate the efficiency of existing investments in the DOA and ADDs; and, (d) identify potential areas for cost savings and cost recovery. To supplement these cost-saving measures, the MARE project will strengthen the capability of the Extension Aids Branch (EAB) of the DOA. A pilot effort will be initiated in Mzuzu to test the most cost-effective mass communications approaches for application in other ADDs. More effective involvement of the EAB in technology dissimination should enable the DOA to reach a larger number of farmers without expanding the size of its extension force.

C. Indicative Break-Even Analysis - Various combinations of increases in the productivity of the major crops grown by smallholders in Malawi, improvements in adoption rates for improved technologies, and estimated efficiency savings in DAR's and the DOA's operations were tested to determine the level of incremental benefits needed to justify investments in the proposed USAID and IDA-financed projects. As discussed in Section III below, the scenario presented in Table 1 appears to be the most realistic and the most feasible.

1. Estimation of Costs - The costs included in the analysis are the investments of USAID and IDA, incremental costs to the GOM of implementing the three projects, and additional costs to the farmers of adopting improved technologies. Estimating the level of incremental on-farm costs that will not slow down adoption of improved technologies proved to be problematic. The information available on labor and input uses for various crops do not distinguish between recommended and actual levels. In most cases, both are combined in estimating crop enterprise budgets. Consequently, it was difficult to determine the correlation between levels of adoption and levels of return per unit of farmer investment. This information will be more rigorously developed through the Adaptive Research program. For the purpose of this analysis, it was assumed that for maize, incremental on-farm costs will not exceed 30% of incremental gross revenues. At this level, returns per labor day will improve by approximately 50% between traditional and improved practices. This was the most evident trend in available information on costs and returns for maize production.

The costs used in the analysis do not include allowances for price

inflation, because it is unlikely that the relative prices of inputs vis-a-vis outputs will change during the time frame of the analysis.

2. Estimation of Benefits - In estimating a stream of benefits from crop production gains, the scenario involving increases only in maize production is presented in this analysis. This does not imply that improvements in the performance of other crops are not expected. Rather, the intention is to demonstrate that even with very conservative assumptions, increases in maize productivity alone can generate a significant impact on investments in research and extension.

Changes in maize production directly attributed to the USAID and IDA-financed projects are expected to occur in 1990. By 1995, improved technologies will be available to enable farmers to increase the current average maize yield of 1.0 ton per hectare to 2.0 metric tons. Adoption rates, in terms of area planted to improved maize, are estimated at 2% of the total maize area in 1990, increasing to 15% by 1995. In estimating the value of incremental maize production, the farmgate parity price of maize was used (MK 201 per metric ton).

In addition to maize production gains, the stream of benefits presented in this analysis includes savings resulting from operating cost reductions and improved institutional efficiencies. Inclusion of these benefits is necessitated by the significant amount of IDA investments in this area.

Based on IDA estimates, the consolidation of DAR's infrastructure and the elimination of redundant services in the department will result in savings of MK108,000 in 1986. By 1989, approximately MK545,000 in savings will have been generated. These estimates are believed by the IDA to be conservative, and do not include the effect of institutional efficiencies that will result from the introduction of improved planning and budgeting systems in the DAR. However, conservative estimates of benefits that will be generated from more cost-effective operations in the DOA were included in this analysis, in order to attach some value to IDA's significant investments in improving efficiencies in extension. It is estimated that by 1989, savings amounting to one-half of 1% of the DOA's 1984/85 budget will be generated. This level of savings should be sufficient to cover at least 50% of the incremental costs to the GOM from implementing the IDA-financed activities in extension. By 1990, total savings will amount to 1% of the DOA's 1984/85 budget.

If the absolute levels of benefits generated by 1995 are maintained during the succeeding years, the present value of incremental benefits will equal the present value of project-related costs, fifteen years after the commencement of the MARE Project (2001). Incremental costs and benefits were discounted at 12%, a rate which reflects the opportunity cost of capital in Malawi (Table 1).

D. Feasibility of Achieving the Projected Economic Benefits - Throughout this analysis, very conservative assumptions were used in projecting project-related benefits. Conservative projections were made to: (a) ensure that only realistically achievable targets are set for project implementors; and, (b) avoid inflating the value of expected gains vis-a-vis project investments.

1. Maize Production Gains - The targets set for increases in maize

productivity are well within the limits of the proven yield potential of maize. The estimated maximum adaption rate of 15% could be below actual accomplishments if the DAR succeeds in developing locally applicable improved technologies. To reinforce the impact of these improved technologies, the ID will provide support to improve the Planning Division's capability to analyze price policies and estimate input requirements. The Adaptive Research teams will supplement the efforts of the Planning Division by collecting micro-leve data on costs and returns from the production of major crops. This information will serve as one of the bases for formulating price policy recommendations for smallholder crops.

If the estimated adaption rates projected in this analysis are to be reached, the financial viability of improved technologies should be emphasized. An important consideration in this area are improvements in returns per unit of labor invested by the smallholders. An indicative assessment of the financial soundness of crop enterprises in Mzuzu, with and without project scenarios, are presented in Table 2. This assessment was undertaken by the IDA to serve as basis for determining credit requirements i Mzuzu. Using prevailing farmgate prices (1984/85) and the known yield potentials of various crops grown in Mzuzu, the assessment shows that overall improvements in gross margins and returns per unit of labor invested can be increased significantly with improved management practices. Crop budgets for different farm sizes in Mzuzu, with and without the project, were also constructed by the IDA. Their estimates show that the most significant improvements in net cash incomes will be achieved by households cultivating 2.5 hectares of farm land. In contrast, even with the application of currently known improved management practices, households with less than one hectare will need to generate off-farm incomes to meet household food requirements. Because a substantial number of Malawi's households fall under this category, it is important for the DAR to develop technologies which significantly improve crop productivity within the limits of the resources of these households.

2. Estimated Cost Savings - The Agricultural Research Strategy Plan developed by the GOM, together with assessments undertaken by the IDA, confir the need for and the feasibility of consolidating the DAR's infrastructure network. The recommendations for tigntening DAR operations have already been approved at highest levels in the GOM. Thus, the estimates of DAR cost savings used in this analysis, which have been discussed between the IDA and the GOM, are realistic and based on firm plans. On the other hand, the estimates of cost savings in the DOA, owing to improved management systems an extension planning, are more tentative. While exact levels are not available at this time, the potentials for generating these savings are fairly certain. The IDA will initiate measures to determine areas in which reduction in expenditures can be made and the appropriate levels of reductions. Because o the uncertainty regarding the exact levels of savings that can be generated i the DOA, the estimates used in this analysis were conservative. Thus, if actual levels fall below the projections, the conclusions reached in this economic analysis will not be significantly affected. As indicated earlier, the objective behind estimating these savings was to attach some value to IDA's and the GOM's investments in extension planning and management systems improvements. In addition, these estimates could serve as indicators of the minimum level of savings needed to justify additional GOM investments in extension planning and management systems improvements. Finally, for the

purpose of showing conservative estimates of potential benefit streams, savings resulting from improvements in the operations of the Extension Aids Branch (EAB) of the DOA were not included. These savings, which are also tentative, were estimated during the design of the agricultural communications sub-component of the MARE project. Based on these estimates, savings amounting to as much as 27% of the EABs 1984/85 budget could be generated by decentralizing the EAB's operations and eliminating redundant services.

E. Cost-Effectiveness Analysis - Measures that will be taken to reduce the costs of the DAR's on-going activities include reductions in station overheads, general administrative costs, and vehicle operating costs. While specific cost reduction measures have not been identified for the DOA, a system for evaluating areas where cost savings could be made will be initiated. Simultaneously, USAID and IDA will assist the DAR and DOA, through training and technical assistance, to operate more effectively and efficiently within the limits of their available resources. Other specific measures designed into the MARE Project and the IDA-financed projects to improve the cost-effectiveness of research and extension operations, as well as to ensure the cost-effectiveness of project design, are discussed below:

1. As indicated in the Institutional Analysis (Annex 9.55), research investments have not always reflected the crop production patterns of smallholders. In addition, technological recommendations have not been differentiated according to agro-climatic conditions, nor adapted to the specific priorities, objectives, and resources of the farmers. Consequently, substantial investments have been made in research and extension programs which have generated only a marginal impact on farmers' productivity. In order to increase returns on research and extension investments, an Adaptive Research program will be continued and instituted nation-wide to ensure that research programs and technological recommendations are relevant to farmers' needs. Research and extension resources will be allocated according to priorities identified in the field. Linkages will be developed among applied researchers, adaptive researchers, and the extension staff to ensure that programs are appropriately focussed on on-farm problems. The relevance, quality, and the impact of research and extension programs will be evaluated regularly.

2. In order to develop the capacity of the DAR and DOA staff to utilize research and extension resources more effectively, a substantial amount of managerial and technical training will be financed by USAID and IDA. In the development of project training plans, priority was given to in-country training in order to maximize utilization of project training funds. Because overseas training is considerably more expensive, this will be provided only in selected cases, including short-term training in highly specialized areas, and long-term degree training. Degree training will be provided only at the appropriate and necessary levels. For example, Ph.D. training will be financed only for the applied researchers of DAR. Training of local trainers is an important aspect of the USAID and IDA Projects. The development of a local training capacity is designed to: (a) make training available to a larger number of DAR and DOA staff during the life-of-project; and, (b) ensure that local staff training will be sustained after the life-of-project.

3. International and regional agricultural research centers undertake basic research on majority of the crops grown in Malawi. Given this, and the

GOM's limited financial and trained manpower resources, it would not be cost-effective for the DAR to duplicate research done in these centers. Neither would it be cost-effective for the USAID and IDA projects to develop a capacity for basic research in Malawi. Thus, collaboration will be developed between the DAR and appropriate international agricultural research centers. Funds will be made available to research coordinators and commodity team leaders to visit international centers for training, consultation, and information exchange. The collaboration will improve the DAR's access to the centers' wide range of germplasm stock technical literature and technical expertise.

4. Currently, each extension TA works with 450-800 farm families in donor-funded areas. When donor funding ceases, however, it is unlikely that the GOM will be able to sustain this TA/farm family ratio. This is currently confirmed in areas not funded by donors, where the TA/farm family ratio is 1:2,100. In order to develop less expensive, but effective extension methods, the IDA will support the Block Extension System (modified Tand V) in Mzuzu, which is based on the concept of technology dissemination to farmer groups in block demonstration sites. In the same ADD, USAID will support the Extension Aids Branch (EAB) in pilot testing two types of mass communication schemes.

The use of mass media for agricultural extension is not new to Malawi. In 1983, a study was conducted by Perraton, Jamison and Arivel, which showed that in Malawi, "it cost about $21 to arrange a single contact between an extension agent and a farmer; about $4-5 a day for a farmer to attend a training center; about $0.17 per farmer contact hour when a farmer sees one of the EAB's mobile films; and about $0.004 per listener hour for radio". The study did not compare costs with impact, which will be undertaken in the proposed USAID project. The impact of the most effective communication approach will be carefully monitored and evaluated, to allow for its replication in other ADDs.

F. Other Less Easily Quantified Benefits - Additional benefits which are less easily quantified could be generated by the USAID and IDA-financed projects. These include: (a) improved income distribution between producers and consumers; (b) positive effects on employment generation and nutrition; and, (c) additional farm incomes and foreign exchange earnings through agricultural diversification.

1. Increases in the production and productivity of food crops, especially of maize, could have widespread benefits for both producers and consumers. Improved technologies that reduce unit cost of production and increase returns per unit of labor and other capital invested should receive wide acceptance by farmers. High adoption rates should result in increased production. Significant increases in total production, in turn, should lead to lower consumer prices. Because the lower-income groups tend to spend a larger proportion of their budget on food, the effect of lower food prices should signifiently benefit these groups.

2. Improved technologies that increase farm incomes will result in an increase in farm household demand for agricultural (e.g., seeds, fertilizers and chemicals) and non-agricultural products. This demand for goods could generate additional off-farm employment opportunities.

3. Priority will be given to the development of technologies for food

crops. The combined effects of increased food production and increased incomes due to improved technologies could result in improved nutritional status. However, widespread nutrition education may be necessary to achieve this impact in Malawi.

4. Finally, as improved technologies raise the productivity of maize, a lesser proportion of total cropped land will be necessary to meet local demand for this food crop. Farmer diversification into other non-traditional cash crops could result, thereby increasing farm incomes and generating additional foreign exchange revenues for Malawi. The magnitude of this impact is difficult to predict at this time, because it is highly dependent on the successful development of maize technologies that are acceptable to the farmers. In addition, further research on non-traditional crops suitable for cultivation in Malawi still needs to be undertaken.

TABLE 1 - INDICATIVE BREAK-EVEN ANALYSIS OF USAID AND IDA-FINANCED PROJECTS
(MK)

	Incremental Project Costs			TOTAL	Incremental Benefits		Total Inc
Year	USAID & IDA	GOM	ON-FARM	INC. COSTS	COST SAVINGS	INC. PROD.	BENEFITS
1985	2,472,976	0	0	2,472,976	0	0	0
1986	12,544,885	0	0	12,544,885	108,300	0	108,300
1987	16,267,757	126,797	0	16,394,554	201,900	0	201,900
1988	16,816,732	445,492	0	17,262,224	433,100	0	433,100
1989	9,053,050	819,313	0	9,872,363	619,648	0	619,648
1990	5,497,341	961,426	353,855	6,812,622	706,677	1,179,468	1,886,145
1991	1,473,383	1,322,372	990,795	3,786,550	706,677	3,302,631	4,009,308
1992	0	1,322,372	1,769,262	3,091,634	706,677	5,897,541	6,604,218
1993	0	1,322,372	4,246,220	5,568,592	706,677	14,154,018	14,860,695
1994	0	1,322,372	6,015,492	7,337,864	706,677	20,051,559	20,758,236
1995	0	1,730,412	8,280,137	10,010,549	706,677	27,600,516	28,307,193
1996	0	1,878,712	10,615,573	12,494,285	706,677	35,385,246	36,091,923
1997	0	1,772,012	10,615,573	12,387,585	706,677	35,385,246	36,091,923
1998	0	1,751,212	10,615,573	12,366,785	706,677	35,385,246	36,091,923
1999	0	1,792,812	10,615,573	12,408,385	706,677	35,385,246	36,091,923
2000	0	1,730,412	10,615,573	12,345,985	706,677	35,385,246	36,091,923
2001	0	1,730,412	10,615,573	12,345,985	706,677	35,385,246	36,091,923

PRESENT VALUE AT 12%

PV of Incremental Costs: MK68,767,169

PV of Incremental Benefits: MK69,131,742

BENEFIT-COST RATIO AT 12%: 1.005

TABLE 2. - COMPARATIVE ENTERPRISE COSTS AND RETURNS (1984/85 PRICES)
(per ha)

Enterprise	Without Project					With Project					
	Yield kg/ha	Gross Revenue MK/ha	Total Var. Costs MK/ha	Gross Margin MK/ha	Return per lab day MK/day	Yield kg/ha	Gross Revenue MK/ha	Tot. Var. Costs MK/ha	Gross Margin MK/ha	Return per lab day MK/day	Improvements per manday %
Rumphi/North Mzimba											
Maize local	1,210	147.60	46.20	101.40	0.88	1,400	170.80	55.15	115.65	.94	11
hybrid	3,000	366.00	186.65	179.45	1.20	3,580	436.75	220.10	216.65	.37	14
composite	2,230	272.00	104.75	167.25	1.24	2,750	335.50	150.55	184.95	.28	3
Tobacco Western/DFC/S.A.	360	324.00	202.00	122.00	0.38	430	387.00	202.75	184.25	.55	45
Oriental	400	316.00	94.60	221.40	0.38	450	355.50	96.10	259.40	.43	13
Groundnuts	400	280.00	57.50	222.50	1.17	460	322.00	77.70	244.30	.25	7
Groundnuts with daconyl						640	445.90	224.70	221.20	.85	-27
Cotton	530	243.80	82.30	161.50	0.77	650	299.00	98.10	200.90	.91	18
Finger millet	625	75.00	11.60	63.40	0.53	725	87.00	12.80	74.20	.57	8
Central Mzimba											
Maize local	980	119.56	41.25	78.31	0.75	1,150	140.30	52.10	88.20	.77	3
hybrid	2,400	292.80	168.55	124.25	0.90	3,200	390.40	214.70	175.70	.17	30
composite	1,490	181.78	90.85	90.93	0.76	2,350	286.70	143.65	143.05	.08	42
Tobacco Western	--	--	--	--	--	400	360.00	202.50	157.50	.48	--
Oriental	490	387.10	96.50	290.60	0.48	530	418.70	96.95	321.75	.52	8
Groundnuts	400	280.00	56.95	223.05	1.19	465	325.80	77.50	248.00	.28	8
Finger millet	625	75.00	11.60	63.40	0.53	725	87.00	12.80	74.20	.57	8
South Mzimba											
Maize local	800	97.60	21.50	76.10	0.85	1,250	152.50	53.40	99.10	.86	1
hybrid	2,125	259.65	147.10	112.15	0.83	3,250	396.50	215.40	181.10	1.21	46
composite	1,750	213.50	113.40	100.10	0.80	2,350	286.70	114.20	142.50	1.06	33
Tobacco Western	400	360.00	201.00	159.00	0.49	450	405.00	203.10	201.90	0.58	12
Oriental	650	513.50	98.50	415.00	0.55	700	553.00	99.00	454.00	0.57	10
Groundnuts	300	210.00	56.50	153.50	0.85	370	259.00	76.40	182.60	0.99	12
Finger millet	625	75.00	11.60	63.40	0.53	750	90.00	12.80	77.20	0.64	12
Nkhata Bay											
Maize local	1,200	146.40	20.70	125.70	1.05	1,950	237.90	61.40	176.50	1.36	30
composite	2,250	274.50	108.90	165.60	1.23	3,000	365.00	152.40	213.60	1.42	15
Tobacco DFC/Western	--	--	--	--	--	450	405.00	203.10	201.90	0.58	--
Groundnuts (Malimba)	625	281.30	23.70	257.60	1.39	675	303.80	24.40	279.40	1.47	6
Finger millet	725	87.00	12.80	74.20	057	725	87.00	12.80	74.20	0.57	0
Wheat (Kenya Nyatta)	950	-	--	--	--	1,400	420.00	145.40	274.60	1.96	--
Rice	1,250	212.50	58.50	154.00	0.79	2,000	340.00	98.20	241.80	1.10	39
Cassava	1,500	60.00	17.40	42.60	0.34	2,000	80.00	23.10	56.90	0.41	21
Thiwi/Lifidzi											
Maize local	1,000	122.00	32.60	89.40	0.81	1,300	158.60	54.00	104.60	0.91	12
hybrid	3,000	366.00	185.10	180.90	1.21	3,600	439.20	219.80	219.40	1.46	21
composite	1,800	219.60	114.00	105.60	0.81	2,350	286.70	144.80	141.90	1.05	30
Tobacco DFC/Western	400	396.00	202.40	193.68	0.59	400	396.00	202.40	192.60	0.59	0

Maize	Local	550	163.70	30.90	72.90	0.77	1,200	146.40	51.70	34.70	0.90	17
	hybrid	2,400	292.80	188.20	104.60	0.75	2,850	347.70	211.30	135.40	0.93	24
	composite	2,050	250.10	136.00	114.10	0.68	2,250	274.50	144.80	129.70	0.98	11
Tobacco S/AC		350	332.50	201.90	130.70	0.44	400	380.00	202.40	177.60	0.55	25
Groundnuts		290	203.00	56.30	146.70	0.82	350	245.00	76.40	168.60	0.91	11
Cotton		550	253.00	82.20	170.90	0.81	650	299.00	98.10	200.90	0.91	12
Wheat		400	200.00	92.70	157.30	1.57	1,250	375.00	142.00	233.00	1.94	24

Source: World Bank 1985.

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ANNEX 9. 54

SOCIAL SOUNDNESS ANALYSIS

SOCIAL SOUNDNESS ANALYSIS

A. Sociocultural Context - The MARE project aims at increasing the capacity of the MOA to serve smallscale male and female farmers in a more effective manner. To be more effective, the programs and operations must be based on recognition of diversity within the smallholder sub-sector. This diversity is based on agroecological and gender differentiation as well as variation in access to cash and labor and amount of land cultivated.

The agricultural sector, which is divided between estates and smallholders provides nearly 50 percent of the GDP, about 90 percent of the export earnings, while employing over 85 percent of the population.

1. Land Tenure - The smallholder sub-sector operates according to customary land tenure. Customary land is the property of the people of Malawi and is vested in perpetuity in the Government. Village headmen have the authority to allocate land to farmers, who in turn have the right to use it, leave it to their relatives or children, or permit others to use it for limited time periods. Customary land may not be sold, mortgaged or used as security for loans. Under this system, land tenure is farily secure, although disputes with neighbors - especially in high population density areas - do occasionaly occur and in extreme cases land may be forfeited for misconduct.

The existence in Malawi of both matrilineal and patrilineal societies is reflected particularly in the inheritance and use of land. For example, in matrilineal societies when a husband resides on the land of the wife's family, he is the one who departs in case of divorce or separation. In actuality, 1970 data from the Lilongwe Development Program revealed that 40 percent of the married men in this matrilineal area had never resided in their wives' village and hence their claims to household land were not problematic. In patrilineal societies, women's rights to land are forfeited when a marriage breaks up.

A program to register customary land was undertaken in the Lilongwe Agricultural Development Division beginning in 1970. This involved a change in the authority under which use rights are guaranteed. The right to register communal land is guaranteed by the laws of Parliament. The registration program was based on the assumption that registered land would result in land improvements for reasons of security. It was also assumed that a land market would develop. A 1983 survey revealed, however, that most respondents had not made improvements to their land, and that no land market or shifting of land ownership had occured.

Smallscale farming households on both registered and unregistered customary land usually have more than one parcel or field. In 1980/81, the mean number of parcels was 2.3 per household. This is a result of allocation aimed at taking advantage of micro-ecological variations. For example, because rainfed crops are produced only once a year, access to land near a stream, river or swampy area, provides an extremely important source for fresh maize, pumpkins, cabbages and other greens for domestic consumption and sale during the dry season.

2. Land Use and Cropping Systems - Maize is the primary staple crop

grown by Malawian smallholders, although various cropping patterns arise based on agroecological as well as other factors. The most common patterns for the main crops are: local maize and groundnuts; local maize groundnuts and tobacco; and local maize, groundnuts and hybrid maize. Besides the main crops, vegetables, potatoes and legumes are cultivated in small garden areas.

Production systems are characterized by crop rotation and intercropping configurations. Trees are part of land-use patterns, but are primarily planted for border shade around houses and for fruit sources. Livestock is also an important component of some smallholder farming systems.

Use of smallholder land is based on multiple factors. Returns to labor and low risk are considered more important than returns to land by most smallholders. Improved packages, often demand more labor than traditional cropping regimes. Moreover, while returns to labor may be higher on some "improved input packages" than the minimum wage rate for hired unskilled labor, a lower-paying off-farm job that lasts for several months might be chosen over higher-paying, but shorter-term, own-farm employment because the total remuneration is greater (Fleuret 1984). Also, amount and quality of land and availability of jobs influence men to seek off-farm employment. For these reasons, regular off-farm employment is more common in the Southern Region.

Acceptance of improved technology has been low, in part because yield instability elevates risk. Even if high, average yields are often unimpressive to smallholders because few of them are "average" and because "average" cropping conditions are rarely obtained. Thus improved technology must be reliable as well as feasible technically (stable growth performance), economically (predictable prices) and institutionally (solid input supply and marketing services)(Fleuret 1984). The reason for growing a specific crop with an anticipated volume of output varies among farmers. The three basic reasons are to obtain a stable food, to obtain a relish food (side dish or snack food) and to obtain cash from sales either directly or after processing. Production decisions by smallholder farmers take into account these factors in the allocation of land, labor and other resources.

The Malawi National Sample Survey of Agriculture, undertaken in 1980/81, estimates that 28 percent of the rural households are headed by women. Seventy percent of the females who head households are either divorced, separated, widowed or unmarried, 20 percent are women whose husbands reside elsewhere because of employment, and 10 percent are married to polygamous husbands. Case studies done on allocation of male and female labor on smallholder farms growing specific food and cash crops reveal that there is no strict division of labor by sex. Generally, however, women can be said to be the main producers of food crops, and in households which produce cash crops, men provide more labor to cash than food crops. The primary labor force among smallholders is family labor.

3. Health and Nutrition - A meaningful proportion of the smallscale farming households are not self-sufficient in the staple food maize. Moreover, evidence indicates that cash from sale of crops and labor is either insufficient or is not adequately allocated for purchasing food within a number of households. That members of smallholdings often work for others in exchange for food indicates that food is an acceptable mode of payment because of a household food deficit.

There is growing evidence that lack of food directly relates to the low levels of nutrition found among children under five years of age in Malawi. The data fron the National Sample Survey of Agriculture shows that malnutrition is a major problem particularly in the months immediately before harvest. Also a high proportion of children are nutritionally stunted, which is a clear indiction of chronic undernutrition (Table 1). The poor nutritional status found among many children may be indirectly linked to the 25-35 percent mortality rates found among children under 5 years of age.

Table 1. Prevalance of low weight for age and nutritional stunting (low length for age) by ADD

ADD	Weight for Age- Percentage of Children below 80% NSSA 1	NSSA 2	Nutritional Stunting- Percentage of Children less than -2Z Score NSSA 1	NSSA 2
Karonga	12.0	31.5	53.3	64.2
Mzuzu	28.2	35.7	62.2	65.4
Kasungu	30.5	35.7	62.7	63.4
Salima	30.6	33.0	64.0	53.8
Lilongwe	26.0	32.5	57.2	58.1
Liwonde	24.7	32.7	52.0	55.1
Blantyre	28.0	37.1	53.4	50.4
Ngabu	29.8	34.9	49.6	47.1
Malawi	27.4	34.6	56.5	

Source: NSSA Report: NSSA 1- immediately after harvest, NSSA2- pre-harvest season.

4. Energy Source - Firewood is the dominant energy source used by smallscale farmers. Ninety percent collect all the wood themselves, but in some areas of scarcity, about 1/4 of the smallholders purchase some portion o their firewood. The distance walked to gather firewood tends to vary between regions, but on a national average, 20% walk over 2 miles or more. In general, collection distance reflects actual supply of firewood in an area bu when the source is far enough away from home, some women respond by returning to scavenge inferior firewood (e.g. bark and roots, found near the home). Another response to scarcity seems to be greater use of mango wood, (an inferior burning wood), as fuel. A survey conducted among male smallholder farmers within a five mile radius of government tree nurseries, revealed that 82% found it difficult to collect building poles because of scarcity of trees 55% believe that cutting of trees has reduced the fertility of their gardens, and most are able to cite reasons for this. In an effort to ensure an adequate supply, almost 40% of the households interviewed had planted trees for firewood or building poles during the past five. Planting trees for fruit, shade and other purposes revealed even higher percentage figures. Smallholders who planted trees generally succeded in keeping them alive. Nearly two-thirds of all tree-growers reported that 75-100% of their trees survived.

B. Institutional Effectiveness Context - Diverse smallholder production and income generation patterns, coupled with farmer strategies to keep risk of income loss at low levels, present a challenge to Malawian agricultural institutions responsible for increasing agricultural production and improving the well-being of smallholder households. Various strategies are emerging to address the situation, however, some of these need to be modified and redirected to increase effectiveness.

Extension messages through extension service agents have treated smallholders as a homogenous group, and have ignored even agroecological variations. Further, Extension Agents are responsible for the main credit program for smallholders (which to date has had a very commendable repayment record) and this has resulted in agricultural field assistants (FAs) spending nearly all of their time with farmers who receive credit. Farmers receiving credit represent a very small percentage of the smallholders, although the exact percent of farmers who receive credit varies by region and year.

Seasonal credit from Extension is made available through credit groups and farmers clubs to reduce administrative cost, to increase monitoring efficiency, and to provide loan security. Group and club members are jointly liable for individual loans. The criteria for club and group eligibility and in turn farmer eligibility for membership has led to careful screening both by the Extension service and by the groups and clubs of potential members. Each member pays an annual MK 2 membership fee. The membership of women from both female and male headed households has been low, except in a few areas where a decisive effort has been made to include them.

Seasonal credit is primarily tied to specific technical packages for certain crops under a specified acreage. FAs are responsible for monitoring correct use of inputs received on credit and for encouraging repayment of credit through the sale of the specific crop. Thus credit has been tied to commercialization. This year, however, Kasungu ADD has introduced a credit package for fertilizer on local maize for consumption, which is worthy of careful monitoring.

The ultimate effect of the seasonal credit program has been that extension agents spend the least time with those who need their services most. Evidence indicates FAs are perceived by farmers as primarily linked with credit services. Hence, those unlikely to receive credit isolate themselves and are isolated from contact with extension agents.

Studies and GOM statistics have documented that women are more disadvantaged than men in receipt of agricultural training or extension advise, even when the female is a head of household or the wife of male head who is a credit package recipient (Utterback 1984). This occurs because the Farm Home Assistants (FHA), who are exclusively female and fewer in number than the FAs, are educated primarily in home economics and domestic science, and have very limited agricultural knowledge and practical agricultural experience. The FAs are almost exclusively male (females trained as FAs are usually posted as FHAs) and feel more comfortable talking with male farmers. FAs are reluctant to make individual household visits to talk with wives and female heads of household because "rumours could start" about intentions.

Training in agricultural subjects and home economics takes place at Day and Residential Training Centers and Farm Institutes. Data from farm

Institutes and Residential Training Centers for 1979-82 reveal that more women than men attend courses, but fewer women than men participate in agricultural courses. The national policy for women's programs set up in 1981 targeted at least 30 percent of the places in agricultural courses for women, but this has not occured. Reasons include: (a) FAs and local leaders recruit men rather than women; (b) husbands prefer to go rather than send their wives; (c) preference of some women for home economics courses owing to self-image; and, (d) domestic responsibilities which prevent a female from leaving the household for any type of residential course.

To date, lack of contact between extension and smallholder men and women farmers can almost be considered a moot point because the technical messages transferred in training courses and by extension agents and aids are not applicable to a significant proportion of the smallholder sector. Heretofore, the work carried out by the agricultural research stations has had little relevance to female farmers and to farmers with limited financial and labor resources. For example, experiments dependent on the use of ox-drawn implements and fungacides have limited potential for applicability given current conditions in the smallholder sector. Less than 20% of the households possess a plough or ridger, and financial conditions and lack of access to a ready supply of water would prevent most farmers from using fungicides. In contrast, work on groundnut breeding for new varieties with resistance to rosette and early leaf spot while maintaining yield and quality are likely to have wider applicability. Thus, while some current research does have potential for adoption by lower resource farmers, more research oriented towards smallholder contraints and local conditions needs to be carried out by applied and adoptive research teams.

C. Sociocultural Feasibility - The AID project aims at increasing the effectiveness of the MOA in the areas of research, extension and training. The improved effectiveness will be reflected in increased agricultural production on smallholder farms on a sustainable basis. This will be accomplished through: increased understanding of current farming systems of male and female farmers within various ecological zones; ecological area-specific technical recommendations adjusted according to different categories of farmers, and access to critical resources; extension agents using education techniques that are more appropriate and applicable to disseminating information to smallholder; identification and use of effective mass communication strategies and techniques; applied research more applicable to conditions of smallholders; better training for FHAs n agricultural subjects; male field assistants giving more attention to women's groups; and, all branches of the MOA taking responsibility to include women as an integral part of their programs. To assess achievements under the project, a comprehensive evaluation system focused on key indicators will be established.

1. Training - Training is the primary focus of the MARE project. Both in-country and offshore training will be provided. For the offshore short-and long-term training, of individuals will screened and selected on past performance in his or her job. This will serve as an incentive for better job performance and should have a positive impact on increasing the efficiency and effectiveness of the MOA.

In-country management, technical and extension methods training will be designed to bring together in the same course persons at different levels of

the MOA (e.g. national level crops officer, ADD Senior crops officers), and it will focus on training different SMSs (e.g. ADD livestock, forestry, land husbandry, women's program, crops, and evaluation officers). This model of horizontal and verticle training has proven effective elsewere and is deemed to be socially and culturally feasible in Malawi.

Another critical element in ensuring that training will have a positive effect is the quality of training, not just in terms of subject matter, but in developing training skills relevant to teaching adults (or training of trainers). Personnel to receive trainer's training have practical, on-the-job experience and specific educational needs related to their job and experience. A lecture method of teaching does not accomodate individual experience and needs, and often the information imparted is not perceived as practical and is often ignored or dismissed as irrelevant. Training using a participatory, experienced-based approach has been proven to be extremely effective. Further, those attending this type of course are able to acquire some educational techniques for using with their staffs. Because of the priority given to the in-country training to be carried out by Malawian trainers in the MARE and IDA Projects, special attention should be given by the Training Unit to the quality of the training provided.

A course evaluation form will be developed to provide information on: topics learned, topics on which further training is desired, and opinions about training techniques used. This information will serve as a feedback guide to the trainer and will also be used by the Training Unit in planning future courses and seminars.

2. Research - The Project will provide support for existing and new adaptive research teams (ARTs). The methodology used by the teams is based on the CIMMIT approach to farming systems research. Given the relatively brief time teams have been operating in the field, work to date is commendable. In the ADDs and nationally, a great deal of expectation is placed on the work of the ARTs.

ART teams have experienced difficulties in interviewing women and to date, no "cooperating" trial farmer is female. Because the ART are male, they are constrained in gathering information from wives in male headed households and from females who head households during their informal and formal surveys. It is less socially acceptable for a man (in contrast to a woman), who is a stranger to the household, to interview a woman in the absence of male household members. Further, women farmers are less likely to give reliable information to a male than a female interviewer, because the answers are apt to reflect gender expectations rather than the actual situation. In an attempt to overcome these constraints, ARTs, have identified the need for part-time assistance of female ADD colleagues. Because of this identified need and because knowledge and skills are gained on a cummulative basis through training and field experience, the Project will encourage ADD Managers to appoint a female staff member, preferably the Women's Program Officer, as a part-time (25-30% of the time) member of each ART, at least during the initial years

To date, the in-country training for the ARTs has focused on farming systems concepts and methodologies and economic aspects. This training needs to be complemented by incorporation of social aspects. An analysis of the ART's formal survey questionnaires reveals a sex bias, and key questions

related to social factors have been omitted. For example, the formal survey questionnaire assumes the respondent to be male and the wife a "dependent". In further illustration of the absence of critical elements of social factors, questions on vegetable growing and plots do not include the loci of control and decision-making regarding production. In all ARTs the socioeconomist position is slated for a holder of a Ms degrees in agricultural economics, with the exception of one who will have an MA degree in applied anthropology. The ARTs socioeconomists will need assistance in developing their capacity to incorporate social aspects into their adaptive research work, and it is planned that short term technical assistance will be provided by the Project either through individual consultancies or through the Center for Social Research. In addition, contract research funded by the Project could be undertaken by the Center for Social Research at the University of Malawi. Alternatively, project funding has been set aside for short-term technical assistance, if required.

By the end of project ARTs are expected to be analyzing their formal survey data by cluster or at least multivariable analyses since this will increase the understanding of different farming systems within an agroecological area and hence improve identification of appropriate technologies for testing vis a vis a particular farming system. Information on social aspects of agroforestry practices should help in development of extension strategies.

The ART's will actively recruit low resource farmers. To facilitate this, the project will support the continuation of a compensation account which is used to reimburse farmers for financial losses which occur owing to failure of the technology or through negligence of the ART or extension agents. This is aimed at reducing the risk of an individual household and will help ensure enlistment of cooperating farmers who occupy the lower two-thirds of the smallholder sub-sector as well as assist in maintaining the credibility of the Adaptive Research Program among farmers. The ARTs should emphasize the involvement of lower resource farmers, especially female heads of households (especially unmarried FHH) and male headed households in which the male is only a part-time farmer, as cooperators when the technology is deemed appropriate for their farming system. This is important because a farmers tend to classify themselves and others into groups based on availability and access to resources, and demonstrated success by a member of one's group will most likely stimulate adoption by others in the same group.

An important responsibility of the ARTs and the National Commodity Coordinating Units, in conjunction with the Agricultural Economics and Statistics Unit, is to identify areas in which applied research is required. The project sponsored production economist will play a vital role in assisting commodity research teams with preliminary economic analysis on proposed trials and with analyses of results. Besides analyzing data according to economic profitability, the economists will be responsible for analysis in terms of calorific values for their respective research teams. Analysis of agricultural output in terms of calorific values is already being done in Liwonde RDP and the Head of Crop Production Department of Bunda College includes information on energy and crude Protein yields in his analyses of research trial results (Edje 1981). Such analysis should be institutionalized and the results used in planning and priority setting.

The importance of dry season vegetable gardens and fruit in providing food for domestic consumption will be incorporated into the horticultural research work plans. On-farm and station research will include vegetables currently grown by smallholders, particularly female, farmers. In this way the horticultural work is expected to address the problem of seasonal food scarcity experienced by many households. Further, by giving adequate attention to women's role in producing vegetables for domestic consumption, this project element should not have a negative impact on women. In contrast, exclusive focus on European style vegetables for cash market would favor men since they tend to take control of vegetable land when cash crops are involved.

The maize breeding work at Chitedze Agricultural Research Station focused on resistence to storage losses from insects and proper pounding characteristics serves to illustrate some existing work that holds promise for low resource farmers and women. Further, it indicates that the project will be building upon a base and orientation which already exists to some extent.

Because intercropping is practised by most smallholder households and can contribute to soil fertility and hence yields, and be labor saving, the organizational framework and allocation of funds for commodity research should promote and encourage collaboration between members of different commodity teams. It is essential that research trials on intercropping assess the interaction on each crop since farmers do. At least some intercropping trials to date, treat one crop as a "reward" rather than fully incorporating the yields of both analyses of results.

To date aspects of agroforestry have not been incorporated into the surveys of Adaptive Research teams. The MARE Project will provide training by ICRAF to the ARTs and to some of their ADD collaborators in diagnostic and design methodology. Agroforestry research is expected to include trials focussed on increasing soil fertility. These will be extremely important to smallholders who are unable to afford fertilizers, because they are not anticipated to demand a high labor input during the critical point in the agricultural season.

3. Extension

a. Training - The training provided under the project for FAs and FHAs should increase their confidence in using various techniques of adult education when working with groups and individual farmers, including group process techniques, and strategies for working with women's groups. FHA supervisors will be involved in these training sessions as well as technical courses in order to provide adequate follow-up on the trainees. To the extent existing resources permit, trainers should also participate in observational follow-ups. The purpose of the follow-up visits on individual FAs and FHAs would be to assess the effectiveness of training given and identification of further training needs.

The management training of supervisors and Subject Matter Specialists should encourage an environment for seeking advice. The current tendency is to regard seeking advice related to one individual's job as a sign of weakness not a strength, (e.g. showing concern with doing a good job). Such a climate should be of particular benefit to extension agents in meeting farmer problems.

b. Credit - The Farmer Credit System in Malawi is directly tied to the Extension Service. Moreover, Extension messages are delivered primarily to farmer's clubs and groups who have received credit.

At present, there is little incentive for farmers to farm new clubs or where blocks are established, to attend block meetings. New membership in existing club is tightly controlled, and there is no incentive for members allow new entrants because membership almost automatically signifies acquisition of credit from the limited available supply. Because the funds available for credit are never large enough to meet the demand from "credit worthy" male and female farmers, the MOA should set a limit on the maximum number of acres for which an individual can receive credit (some receive credit for 3 acres of hybrid maize), and profitable, low-cost packages shou be developed for one-half acre plots. Such actions would facilitate more farmers benefitting from the credit funds available. A precedent exists fo issuance of credit for one-half acre of hybrid maize as exemplified in the Phalombe RDP. Moreover, in this program, repayment rates have been high an women have been involved in the credit program.

FAs should help in the formation of new farmer clubs and work with women's groups as a means of reaching more farmers and addressing the lower two-thirds of the farming communities. This will not occur to any extent unless the current workload is reduced. The amount of time FAs are expected to spend with established farmer and credit club members should be reduced. Work load reductions could be effected in the area of follow-up visits to farmers who have received credit. Clubs and individuals who have received credit for two to three years should not require high levels of FA time allocation.

The freeing of more time for FAs to work with other farmers will be crucial as the ARTs and Commodity Research Teams begin identifying technologies for demonstration and dissemination. The FA is expected to wor alongside of the ARTs when it is in his/her area. This is considered important because the FA is more likely to have greater rapport with the cooperating farmer and because it will provide on-the-job training for the FA. Also, it is more efficient to have the EPA staff involved in monitoring the trials.

c. Extension Aids - To ease the workloads of FAs and FHAs and to reach out to a wider clientele, the project will provide support for extension aids and for the piloting of a mass communications strategy. The decentralization of extension aids to ADDs will permit aids to be developed which take into account agroecological differences and varying farming systems. The high rate of illiteracy among adults (estimated to be 73% for those 15 years and older in 1982, but varying considerably between districts and between men and women) means that visual presentation is extremely important for reaching the majority of farmers.

No basic study exists on male and female farmers' visual perceptions (i.e. the most easily understood technique such as line-drawings, photos, etc.) nor has a study of the cultural meaning of various colors been carried out. Although several studies have been conducted, Extension Aids needs to improve upon the testing of farmers' understanding and comprehension of material intended for smallholder before mass publication of such materials. The project will finance a basic study on visual presentation and meaning of

color and improve the skills for testing of specific materials.

A new survey is being planned by the Evaluation Officer of the Blantyre ADD on farmers' awareness of various recommendations, their main source of information on each, and the actual adoption rate. A modified version of this survey (which includes secondary sources of information and the role of intrapersonal communication, especially between husband and wife), should be conducted in one ADD to provide baseline data for the mass communication and other extension efforts. Questions on awareness and actual adoption should help guide the agricultural planning in the ADD. For example - Is it a lack of knowledge or other factors which inhibit adoption of improved technologies? Do husbands pass on agricultural information learned to their wives? What is the role of leaders, friends and neighbors in encouraging adoption of improved technologies?

The mass communications strategy to be piloted under the project includes use of block committees. The block committees consist of leaders, selected by block members, who are usually local traditional authorities and committee members in farm clubs. To date, few seminars or training sessions have been provided for block committee members. The block committees have the responsibility of determining training needs particularly for training centers (although no procedure is established for this), of identifing other development needs in the area, of helping to organize block meetings, of encouraging membership, and of help ensure that clubs repay credit. The block committees are part of a sectional committee structure which includes Area Coordination Committees (approximately 8 members with farmers' representatives and local leaders, e.g. party leaders, and chiefs) and a Project Coordination Committees, composed of party leaders, local leaders and members of departments at the RDP level. (In ADDs without blocks, similar committees function). Given the anticipated role of Block Committees, attention should be given to lessons to be learned. For example, when Village Development Committees were expected to serve as a channel between project staff and farmers, and to mobilize people, hold meetings and organize agricultural shows in the Lilongwe Land Development Program, some difficulties were encountered in the early phase. Because the committee members tend to be among the top third of the smallholder farming community and often occupy other local leader positions, the problem of volunteer work should not present a barrier if their new functions in mass communication are properly introduced.

Special training sessions are planned for the block committee leaders in regards to their role in mass communications and vis-a-vis FAsand FHAs. These sessions will also be used to encourage the leaders to lend support and provide encouragement for the inclusion of women in block meetings and farmers' clubs and in the formation of women's groups. In addition, leaders should encourage husbands to sanction and, where necessary, permit wives to participate in agricultural programs and training sessions. (The backing of male leaders and husbands was found to be important in the women's agricultural development program in Phalombe RDP).

Women's groups which focus on agricultural production are relatively few in number, although there are significant variations between RDPs. Where they are strong, it is anticipated that they will be used as important channels in

mass communications financed by the Project, particular when more have been established.

Attention focussed on women's involvement in agricultural extension and credit programs is not new. In some ADDs, FAs have worked with women's groups (usually, but not always in collaboration with FHAs), and have encouraged women to join farmers clubs and apply for credit. The women's program in Phalombe, a pilot program carried out among matrilineal households, proved that it is possible to reach women farmers using a group extension approach implemented by male FAs. Techniques and methodologies used in this successful activity included the following: the community was fully aware of the program; men were present (especially during the initial phase) either as participants or in a supporting role at meetings; and, the FA presented himself in such a way that the community knew he was committed to his work. In each village men and women were given the option of whether women would meet alone, but with the help of male leaders or whether men and women would meet together in a group for all activities. In the initial 16 villages, half decided to have a mixed group, however, as the program expanded into other villages more exclusively women's groups evolved.

The success of the Phalombe project is initially attributable to having household level data to support efforts at reaching women. The project involved a survey, and other research information was available on intrahousehold dynamics in matrilineal areas, which correspond with areas of high population density, scarcity of arable land and higher proportions of female headed households. In the northern part of Malawi, where patrilineal groups reside, average size land holdings are larger, access to more land is easier and a smaller proportion of households are female - headed. Intrahousehold dynamics such as control over critical resources related to agricultural production and use of output have not been studied. Further, little is understood about relay planting, dry season income generating activities and a household's access to resources outside its boundaries. The project will support in-depth research on household dynamics for the following reasons: to reveal key questions/issues that should be considered by the ARTs; tocomplement the proposed food and nutrition surveillance work in Mzuzu ADD by determining the extent to which household patterns of control over resources affects availability and type of food for domestic consumption; and, to guide the focus of WP activities in Mzuzu ADD. (The study will be carried out by the Malawian Center for Social Research).

The project will provide intensive food production training for FHAs and in-kind inputs for demonstration of improved agricultural technologies. General income-generating activities are not within the scope of the MARE project because past projects have shown that a significant level of inputs are required for training in management, technical skills and financial record keeping, and for market assessment. At the same time the demand of women for cash especially during the dry season and pre-harvest period is recognized. The Project will address this demand by inclusion of a focus on improved technologies for dry season agricultural production.

D. MOAs Evaluation and Survey Operation - The IDA Agricultural Extension and Planning Support Project aims at strengthening the Planning Division within the Ministry of Agriculture. This Division is responsible for: (a) annual evaluation of on-going projects; (b) compilation and maintenance of agricultural statistics; (c) provision of advice on sectoral policies

including smallholder crop price proposals; (d) identification and preparation of project proposals; and, (e) preparation of annual budget estimates for the MOA. The central evaluation and agro-economic surveys uni is under the Principal Evaluation Officer. This unit supervises the Plannir and Evaluation Units in the eight ADDs. The ADD Units carry out an annual survey of agriculture which entails periodic visits to the same households. In addition, the Units carry out ad hoc surveys at the request of ADD officials. These ad hoc surveys are drawn up at ADDs but submitted to the central planning and evaluation unit for comment. The ADDs also carry out special surveys on behalf of the central evaluation unit and NSO. The Agro-Economic unit of the MOA Planning Division also conducts special studies. For example, it is currently carrying out an intensive labor input survey.

E. Beneficiaries - The primary direct beneficiaries of the MARE Projec will be the MOA officials and staff who are trained and provided with commodities and materials to facilitate their work. Some women farmers, organized in groups, will be recipients of commodities from the agricultural demonstration funds and will benefit from training in improved technologies.

The MARE Project presents opportunities for individuals within the MOA enhance their educational base and acquire more skills and knowledge. These opportunities will allow individuals to move towards fulfilling their own potential. The performances of these individuals, acting in concert with others, will result in actions to improve the MOA as an institution responsi to the needs of male and female farmers. Individual rewards acquired on a cumulative basis include increased job satisfaction, improved self-confidenc and an improved financial position through promotions.

A Civil Service Review Commission is currently reviewing all aspects of the civil service structure including the institution of scientific and technical career streams. The report is due in mid-1985. The establishment o a career stream for SMSs and the introduction of a promotion and incentive system for professional and technical staff, including the Technical Assistance level staff (e.g. FA and FHAs), will be addressed during implementation of the IDA Agricultural Extension and Planning Support Project. The MARE Project will contribute to this through the Training Unit establishment of criteria for selection of individuals to be sent for all-shore training. Job performance is expected to be a basic criteria. Further, it is hoped that the Training Unit will develop means for permittin people in the lower part of the MOA system to enter Malawian institutions (o other off-shore institutions in the U.S. or third Countries) for higher level education. Persons with 2-4 years of job experience proven to be good in their work, but holding a certificate or diploma and desiring a more advance level of education should be assisted to gain entrance for a diploma or BS respectively.

Approximately 33 persons from DAR, and 14 from DOA and 2 persons from the MOA Training Unit are expected to receive advanced degrees under the Project. A further 13 persons from DAR, 14 from DOA and 15 other MOA personnel to be selected by the Training Unit will participate in short-term, out of country training. Approximately Twenty-five percent of the out of country trainees are expected to be women.

In-country training will cover all Extension personnel. All DOA headquarters' officers, training officers and ADD level staff will be involved in the management or technical training given.

Approximately 4,500 smallscale farmers (at least two-thirds of whom are women), are expected to gain improved agricultural skills and to obtain agricultural products as a direct result of the demonstration fund. Some 250 women farmers, representing women's groups, will attend a course on management and leadership, sponsored by the Project.

Indirectly, a much larger number of smallscale male and female farmers are expected to receive information on improved agricultural technologies which are applicable to their agroecological and socioeconomic situation and which will result in increased agricultural output.

Fleuret, P. "Agricultural Institutions Malawi", draft April 1984, AID.

PROJECT ANALYSIS

ANNEX 9.55

INSTITUTIONAL ANALYSIS

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A. Introduction - The Ministry of Agriculture (MOA) is the central institution responsible for overall agricultural policy formulation, planning coordination, and management of the smallholder subsector. The MOA is also charged with providing most of the agricultural services, as well as providing general direction to the parastatals and crop authorities involved in agricultural activities. A Principal Secretary (PS) heads the MOA, and is assisted by a Senior Deputy Principal Secretary (SDPS). The MOA has five organizational units: Department of Agriculture (DOA); Department of Agricultural Research (DAR); Department of Animal Health and Industry (DAHI); Planning Division (PD); and General Administration (GA). In addition, eight Agricultural Development Divisions (ADDs) report to the PS through the Controller of Agricultural Services (CAS) (Table 1).

With the severe fiscal constraint faced by the Government of Malawi (GOM), it is unlikely that its budgetary support for the MOA will show significant real increases over the medium term. It is therefore necessary to ensure that agricultural investment objectives and priorities are more closely linked with resource availabilities, and that key agricultural functions are performed more efficiently and effectively to promote smallholder development. This section will assess the performance of the MOA in the critical areas of agricultural planning, research, and extension, and will identify major institutional issues. How the MARE Project and the IDA-financed National Agricultural Research Project and Agricultural Extension and Planning Support Project will address these issues will be discussed.

The performance of the Agricultural Development and Marketing Corporation (ADMARC), which is chiefly responsible for input supply, credit, and marketing, is not analyzed in this section. Neither the proposed USAID, nor the IDA projects, have been designed to address issues related to ADMARC's performance. However, changes in ADMARC's operations are recognized as being critical to fully realize pay-offs from additional investments in agricultural research and extension. The IDA's Structural Adjustment Lending Operations in Malawi (more specifically, SALII) was designed to stimulate improvements in ADMARC's organization and operations.

Finally, it will be pointed out that USAID/Malawi will undertake, through a Social and Institutional Profile (SIP), an in-depth analysis of all the critical national and local-level institutions involved in the overall development of the smallholder sub-sector. The SIP will also provide, for USAID's consideration, programmatic recommendations to further improve assistance to the smallholder sub-sector of Malawi.

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* This section is based largely on the institutional analyses undertaken by P. Fleuret of the Africa Burear (April 1984), and by the IDA appraisal missions for the National Agricultural Research Project and the Agricultural Extension and Planning Support Project.

B. The Planning Division - The Planning Division (PD) was organized in 1968, and is currently headed by a Chief Projects Officer, who is assisted by a Principal Planning Economist and a Principal Evaluation Officer. The PD has an authorized staff of 13 professionals, and is divided into five sections: marketing, project preparation, central evaluation, project processing, and agro-economic surveys. In addition, an agricultural statistics unit will be created with funding from the IDA National Rural Development Project Karonga-Chitipa. The MOA has recently submitted a proposal to the Office of the President and the Cabinet to upgrade the PD's institutional level. It is also considering a reorganization of the PD which will bring the staff level to 20 professionals (Table 2).

The major functions of PD are: (a) preparation of annual price policy proposals; (b) identification, preparation, and monitoring of all agricultural projects, in collaboration with other MOA departments; (c) preparation of the MOA's annual capital and recurrent budget proposals; (d) preparation of long-range forecasts of production, input requirements, and of food supply and demand; and, (e) planning and conducting of annual agricultural survey, in collaboration with the National Statistics Office; and, (f) planning and supervision of the Adaptive Research Teams'(ARTs) activities related to the conduct and analysis of field surveys on farming systems and field tests of improved technologies (Table 3).

There are several major concerns regarding the PD's performance, assigned functions, and staffing.

1. Staffing Problems - As of October 1984, eight out of the 13 established positions in PD were vacant, including those of the Chief Projects Officer, Principal Planning Economist, Principal Evaluation Officer, and Senior Economist for Project Preparation. However, the Chief Projects Officer position has recently been filled. These vacancies have mainly resulted from availability of more attractive employment opportunities in the private sector and in the parastatals, and from unplanned transfers to other positions in the Government of senior personnel belonging to the "Economic Common Service".* Consequently, the remaining staff is unable to carry out its assigned functions efficiently, and work is undertaken on an ad hoc and emergency basis. The IDA, through the Agricultural Extension and Planning Support Project, has proposed to provide budgetary support for the recruitment of six additional professionals. The problem that remains, however, is the identification of qualified candidates, particularly for the senior management positions.

Another issue related to staffing is the absence of any social science expertise in PD. Under the proposed reorganization of the Division, all professional positions will be filled primarily with economists and some statisticians. There is a need, particularly in the Statistics, Surveys and Evaluation section, for social science input in the design, interpretation and analysis of field survey results and in the coordination, design, and monitoring of specific sectoral studies and contract research that will be

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* Under the GOM's "common services" system, senior professionals are administratively grouped in a common pool from which all ministries may recruit.

initiated and funded under the proposed USAID and IDA projects. IDA has agreed to request the GOM to assign a social scientist to one of the two positions slotted for economists.

Finally, in order to upgrade the skills of the PD staff, IDA will provide training and about 24 person-months of short-term technical assistance to advise the PD on the conduct of specific sectoral studies.

2. Lack of Effective Management - The inability of the PD to fill its senior staff positions has had adverse effects on its performance. In addition, because of the high number of vacancies at all levels in the Division, the Chief Projects Officer has had to undertake numerous routine, but time-consuming functions, which has affected his effectiveness as a manager. There has been insufficient time to focus on long-range work programming for the Division or to provide adequate supervision to the junior staff. The PD is currently assisted by two internationally recruited advisors, but their contribution has been limited to conducting specific studies. In order to alleviate this situation, the IDA will provide long-term technical assistance in agricultural planning and management, and as indicated above, will finance the recruitment of additional staff for PD.

3. Issues Related to Some Proposed Functions of PD - The majority of functions assigned to PD are appropriate (Table 3). However, its involvement in forecasting long-range and annual input requirements appears unnecessary, because this function is already being undertaken by ADMARC and the ADD Program Managers. It could also be counterproductive if inaccurate estimates are made. Experience has shown that farmers' adoption of improved technologies depends heavily on reliable and timely supply of inputs. As it is, ADMARC and the ADD Program Managers often miscalculate input requirements, despite their close proximity to the farmer-users. It is therefore highly unlikely that more reliable estimates can be made at headquarters in Lilongwe. Rather the CD should serve the function of aggregating estimates supplied by the ADDs and ADMARC, and of analysing national and regional trends in input supply requirements and utilization.

A second issue relates to the PD's involvement in proposing price policies for smallholder crops. Currently, except for maize and tobacco, the prices of major crops are set near the appropriate export or import parity levels. Maize prices are set between import and export parity, with the objective of achieving long-run self-sufficiency. Tobacco prices are set at levels which provide returns to farm labor similar to those received from the production of alternative crops. Smallholders' responsiveness to price incentives has been clearly demonstrated in Malawi. Due to seasonal labor constraints and the availability of alternative off-farm employment opportunities, return per unit of labor is an important factor in farmers' adoption of improved technologies. In addition, production performance varies widely across agro-ecological zones and among households with differing access to labor and other productive resources. In proposing price policies, it is vital for the PD to have access to micro-level information on farmer resource availabilities and local-specific costs of production of individual crops using traditional and improved agricultural practices. This information will be generated by the Adaptive Research Teams (ARTs). Under the MARE Project, effective linkages between the ARTs and PD will be developed early on in project implementation.

Third, the PD should not serve the function of planning and supervising the ARTs' farm surveys. It does not have agriculturists, and will most likely have only one social scientist in its staff. Consequently, it is highly unlikely that the PD will be able to carry out this function appropriately. Technical assistance and training will be provided by USAID to develop the capability of the ARTs and the Adaptive Research Coordinating Unit to design, implement, and analyze farm surveys. National level coordination and supervision of the implementation of these surveys should be the function of the Adaptive Research Coordinating Unit. At the regional and local levels, the ARTs should continue to be responsible for designing, implementing, and analyzing the farm surveys.

Finally, as currently planned, the PD will not have any involvement in the contract research to be managed by the Agricultural Research Council (ARC). Initial funding for these studies will be provided by USAID and IDA. Research that will be contracted out will pertain to other topics in addition to commodity-related research. Because of the broad coverage of potential topics for contract research, the social scientist from the PD's Statistics, Surveys, and Evaluation Section should be assigned as a member of the ARC Secretariat to assist in undertaking the staff work necessary to: (a) ensure that requests for contract research are necessary and not duplicative; (b) participate in designing the research proposals; (c) identify the appropriate institution to undertake the research; (d) maintain quality control over the results; and (e) ensure that results are delivered on time.

C. The Department of Agricultural Research - The Department of Agricultural Research (DAR) of the MOA has national responsibility for conducting research on all agricultural crops, except tobacco, tea and sugar. It is also responsible for: (a) the production of breeders' seeds; (b) the conduct of seed inspection and testing services; (c) the propagation and distribution of selected cultivars of fruit and nut trees; (d) the provision of plant quarantine, produce inspection, and plant production services; and, (e) the conduct of soil surveys and analysis.

Research on tea is conducted by the Tea Research Foundation. The Tobacco Research Authority undertakes research on tobacco. Both institutions are funded by their respective industries. Limited research on sugar cane is conducted by two commercial estates. In addition, Bunda College of Agriculture receives core funds from the Ministry of Education and other small grants to carry out specific agricultural research activities.

In September 1983, the DAR, with the assistance of IADs Operations, Inc., and the University of Florida, developed an agricultural research strategy plan. This plan, and subsequent analyses conducted by the GOM, IDA and USAID, surfaced institutional and technical constraints and deficiencies which have hindered the efficient and effective performance of DAR. The institutional problems are discussed below, followed by measures which the MOA has taken or plans to take to address them. Assistance that will be provided by USAID, through the Malawi Agricultural Research and Extension (MARE) Project, and by IDA, through the National Research Project, are also presented.

1. Organization and Research Program Management - DAR is headed by a Chief Agricultural Research Officer (CARO), who is responsible to the Principal Secretary of the MOA through the Controller of Agricultural Services (CAS) for agricultural research. Commodity Research, which is directed by

senior research officers, is conducted at eleven major research stations, nine sub-stations, and about 220 district trial sites. The senior research officers currently control the allocation of station resources. However, research investments have not always reflected current crop production patterns. In 1983/84, for example, a substantial portion of the research budget was allocated to cotton (21.5%), horticulture (16.7%), and rice (15.2%). In spite of the national production importance of maize and groundnuts, these crops received only 7.6% and 5.2%, respectively, of the total research budget. There is also considerable overlap of commodity research program management, and inadequate communication and coordination among researchers. Finally, research programs and results have not been adapted to the local needs, objectives, and resources of the farmers.

In order to rationalize research priority-setting, ensure that research resources are efficiently utilized and allocated according to the importance of commodities, and to improve the relevance and quality of research outputs, the following measures will be taken:

a) DAR Reorganization (Table 4) - The DAR will be reorganized, so that the CARO will be supported by two Deputy CAROs, one in charge of research programs, and the other in charge of technical services and administration. This will allow the CARO more time to manage the national research system and will improve the allocation of staff and other resources. At the operational level, the DAR is organizing its researchers into multi-disciplinary commodity teams and Adaptive Research Teams (ARTs).

The multi-disciplinary commodity research teams are being organized into five commodity-oriented programs: cereal crops; fruits, vegetables and nut crops; grain legumes; oilseeds and fibers; livestock and pastures; and engineering and land husbandry. Each commodity program will be headed by a National Research Coordinator, who will be directly responsible to the Deputy CARO for Research. These Coordinators will be senior scientists concerned primarily with research, not administration. Under each National Research Coordinator are Commodity Team Leaders, who are responsible for single-commodity teams. The commodity teams will undertake applied research under experiment station conditions, with optimum levels of management. Their research findings will be utilized by ARTs for testing and adaption in specific localities. Testing of new crops not already grown in Malawi is also the responsibility of the commodity research teams. The National Research Coordinators will be responsible for identifying promising new crops that logically fall within their purview. These crops will be tested by the most appropriate commodity teams for their agronomic viability. If funds had not been previously allocated for research on a specific new crop, limited scale testing will be undertaken, using discretionary funds during that year. Should further research be found necessary, the responsible commodity researcher will prepare a budget proposal for research on the new crop, for inclusion in the subsequent year's budget programming. The analysis of the economic potentials of these new crops will be undertaken by two agricultural economists assigned to the Agricultural Economics and Data Processing Unit. This Unit is attached to the Office of the DCARO for research programs. Ultimately, the objective is to assign an agricultural economist to each of the five multi-disciplinary commodity groups. At present, however, limited GOM resources preclude recruitment of three additional agricultural economists. Under the proposed Project, USAID will provide long-term technical assistance in the area of production economics to serve as advisor to these agricultural economists.

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Given that a large number of smallholders practise intercropping or multi-cropping, it is crucial that applied research on multi-crop interactions is undertaken. The establishment of a sixth multi-disciplinary commodity group to assess multi-crop interactions would be ideal. However, at present, limited government resources dictate against this action. Currently, the most predominant farmer practice is to intercrop maize with other crops, such as groundnuts, beans, and cassava. Thus, applied research on interactions between maize and these crops will be undertaken by the maize researcher, in collaboration with researchers responsible for groundnuts, beans, and cassava. Budgets for applied research on these traditional intercropping practices will be routinely included in DAR's budget proposals. However, should ARTs identify a need for applied research on interactions between less traditionally intercropped commodities, the National Research Coordinators will assign the appropriate commodity teams to collaborate in undertaking such research. The same budgetary allocation and programming procedures described above for undertaking research on promising new crops will be followed in this case.

The focal point for adaptive research under the new DAR structure will be eight Adaptive Research Teams (ARTs), one for each of Malawi's ADDs (3 are already operational). A coordinating AR unit at headquarters has also been created. Each ART will include staff from research and extension. The objective of the Adaptive Research program is to generate local-specific production recommendations with the collaboration of research, extension, and the farmers. The ARTs will consult relevant Commodity Team Leaders for information on available technology that might be adapted to local conditions. Technical problems encountered by ARTs in their on-farm tests will be relayed to the Commodity Team Leaders for further station research. Under the proposed project, USAID will provide training as well as long-term technical assistance in the areas of agronomy and agricultural economics to serve as advisors to the ARTs. The IDA will also provide training, funds for civil works, the purchase of equipment and vehicles, and operating costs of the ARTs.

b) Creation of an Agricultural Research Council - At the apex of the agricultural research system will be an Agricultural Research Council (ARC), which will be chaired by the Controller of Agricultural Services (CAS). The Council will be comprised of officials from the MOA and from other public and private organizations involved in agriculture in Malawi. The ARC's policy responsibilities will include:

- Ensuring that the agricultural research strategy is consistent with the availability of resources and the allocation of priorities, and conforms with the GOM's goals for agricultural development. A long-term agricultural research master plan will be developed, no later than the third year of project implementation, by the ARC Secretariat and the CARO's staff. The IDA will finance a long-term advisor to the ARC to assist in the development of the master plan.

- Reviewing the DAR's annual research program and ensuring that the needed resources for agricultural research are provided to DAR.

- Advising on areas where donor assistance is required, and coordinating and monitoring donor activities in agricultural research to ensure consistency with the master plan and appropriate allocation of resources.

- Ensuring that funds are available for contract research. The social scientist from the PD, and the agricultural economist from the DAR will serve as members of the ARC Secretariat. The ARC Secretariat will undertake the staff work necessary to enable the ARC to make decisions regarding the allocation of contract research funds. It will also participate in designing proposals as well as monitoring the implementation of research work contracted out.

c) Management and Systems Improvements - Through the National Agricultural Research Project financed by IDA, a task-oriented program and budgeting system will be introduced. Under this system, research and technical service funds, rather than being allocated by station, will be assigned to each Commodity Team Leader, ART Leader, or Technical Service Unit, through their respective coordinators. Personal accountability will be introduced by placing researchers in charge of managing the budgets for their projects. The proposed budget system is envisioned to provide a mechanism for: (a) assigning priorities to alternative activities; (b) ensuring that funds are available for the identified research activities; and (c) monitoring expenditures to control overspending and excessive reallocations.

d) Program Planning and Review - The focus, and therefore, relevance and quality of research will be improved through a structured annual review and planning exercise. Prior to the submission of each fiscal year's budget, the DAR management, including the National Research Coordinators, will review and evaluate the quality, productivity, and cost of each research program from the previous year. They will also evaluate each program proposed for the next year in terms of its content and budgeted cost, and its importance to the national economy. The management will also present a program and budget paper annually to the ARC for review and adjustment, if necessary.

Every third year, the ARC will organize an in-depth external review of DAR's research program. Reviewers will include a senior research administrator, two experienced research scientists with specializations in two of the major commodities of the research program, an experienced social scientist from the University of Malawi, a senior member of the extension staff, and representatives from USAID and the IDA.

e) Publications Development - IDA will provide financing to enable DAR to publish annual reports in a timely manner. These reports will provide an opportunity for a critical evaluation of unproductive research. In addition, IDA will assist DAR in publishing a Research Bulletin annually. These Bulletins will summarize research work being carried out over a number of years.

2. Research - Extension Linkages - To date, the linkage between research and extension has been limited to contacts between the CARO and the Chief Agricultural Officer (CAO) of the Department of Agriculture (DOA), and to informal inquiries by individual extension staff to ascertain research information. The Research Liaison Officer channels queries from extension to the appropriate DAR staff, and requests researchers to summarize their technical recommendations. This approach is fundamentally inadequate. The absence of regular informal and formal linkages between research and extension has resulted in research findings being inadequately focussed on farmers' specific problems, and in extension recommendations being outdated.

In order to develop linkages and closer collaboration between research and extension, the following will be initiated during the life-of-project:

a) Formation of Adaptive Research Teams (ARTs) - Under the current USAID research project, 3 ARTs were formed in Lilongwe, Blantyre, and Kasungu ADDs. Additional ARTs will be formed and assigned to the remaining ADDs.

Linkages between research and extension through the Adaptive Research program will be developed through several mechanisms. First, each ART will be comprised of an agronomist and a socio-economist from DAR, and three technical assistants (one from DAR and two from the extension service). Second, the ARTs will design field experiments jointly with Subject Matter Specialists from the extension service and applied researchers from the DAR. Extension TAs will assist in managing the ART-initiated on-farm trials. Third, the ARTs will be fully integrated into the ADD. Administrative supervision of the ARTs will be the responsibility of the ADD Program Manager. However, the ARTs will remain technically responsible to the DAR because linkage between the ARTs and the research system is equally crucial in the development of appropriate production technologies. Although the ARTs' budget will continue to remain in the DAR, ART funds will be channeled for disbursement through the ADD Program Manager. Annual ART budget proposals will be developed collaboratively among members of each ART. The ADD Program Manager will approve the ART budget proposal prior to its submission to the ART Coordinator. Thus, research budget proposals will reflect priorities agreed upon between research and extension. Finally, another mechanism for linking research and extension will be developed by requiring approval of the ADD Program Manager of ART-tested technologies prior to their dissemination by the extension TAs.

b) Conduct of Research - Extension Workshops Operating costs will be financed by IDA to introduce regular research-extension meetings at the ADD level, and to re-institute the MOA's annual research-extension workshops. The ADD level meetings will have two objectives: (a) to draw upon Commodity Research Specialists to help solve problems arising during the growing season; and, (b) to make these researchers more cognizant of field problems. Their contribution would take two forms: (a) programmed visits by researchers to each ADD once a month to advise on routine predictable issues (e.g., fertilizer application); and, (b) ad hoc responses to crises, principally pest and disease outbreaks. Each CRT will be represented at least once per season in each ADD, as relevant to that ADD. Considering the importance of maize to Malawi's economy, maize specialists will participate in each ADD's research-extension meeting every other month. In addition to responding to ADD-level extension problems, these meetings will strengthen the link between the CRTs, ARTs and ADD Subject Matter Specialists, and assist in the increased familiarization of research staff with farmers' problems. For the sake of economy of ADD staff time, the normal monthly ADD management meeting will provide the forum for these research-extension meetings.

Two crop-specific national research-extension meetings will be held each year, and an annual National Research-Extension Workshop will be held after the main growing season. The latter would be a strategy meeting to

review problems occurring in research-extension linkages, to agree on aspects requiring improvement, and to propose suitable measures. To facilitate discussion and decision-making, participation will be narrower than in the original national workshop, which was discontinued when its cumbersome size made it unproductive. Improvements would be sought in: (a) the scope and effectiveness of the regular ADD workshops; (b) the adequacy and appropriateness of crop recommendations in available extension publications and other aids; (c) the programs, priorities, operation, and organization of the ARTs; and, (d) the relevance of DAR's applied research program to ADD problems.

c) Conduct of Joint Research-Extension Training Workshops Short-term in-country training workshops will be conducted for research and extension staff to orient them to farming systems research concepts and approaches. The participation of both research and extension personnel in these workshops will foster the interchange and collaboration process.

d) Development of Extension Recommendations - Under the MARE project, implementation arrangements will be made to enable the DAR, through the CRTs, to update the Agricultural Handbook of Malawi, which is the basic text of the extension service. Preparation of local-specific extension recommendations will be a direct outgrowth of the adaptive research program.

3. Rationalization of DAR Costs - Overheads and administrative costs of the DAR's extensive station network currently absorb about 47% of its recurrent budget. These overhead costs are particularly excessive for research stations with smaller staff. For example, in FY 1983/84, the average overhead of the DAR's three largest stations was MK7,000 per researcher, while the overhead for the remaining stations averaged over MK35,000 per researcher. The high fixed costs of the DAR and the fiscal constraints faced by the GOM are significantly restricting funds that the DAR can allocate for the implementation of its research programs. In FY1984/85, only 31% of DAR's recurrent budget was allocated to its research programs.

Another area where cost savings could be made is in basic research. International and regional research centers are engaged in basic research for the majority of crops grown in Malawi. Given its budgetary constraints, it is not cost-effective for DAR to duplicate these efforts. The technologies developed in the international and regional research centers should be tapped by the DAR and modified to suit the agronomic, economic, and social conditions in Malawi. In order to streamline DAR's costs, the following measures will be taken:

a) Consolidation of the DAR's Infrastructure and Services A reduction in the DAR's infrastructure network, elimination of redundant technical services, and relocation of staff on a research team basis will be undertaken to reduce the DAR's real level of expenditures on station overheads, general administrative costs, and travel costs for staff. The GOM has already approved the reduction of its current network of eleven main research stations, nine substations, and 220 trial sites to three main stations, three substations, and nine trial sites. In consolidating the DAR's infrastructure, great care was taken to ensure that all of Malawi's arable ecological zones are represented, and that research services will be available regionally.

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b) Collaboration with International and Regional Research Centers Through the USAID and IDA projects, the DAR's National Research Coordinators will be provided with funds for periodic visits (once every 2 or 3 years) to major international and regional centers of research. Commodity Team Leaders will also participate in regional and international consultations (every 2 or 3 years) with research center scientists in their fields. Areas of anticipated collaboration include: (a) sending researchers to CIMMYT, and CIMMYT participation in the annual DAR program review to advise on the maize breeding program; (b) access to a wide range of germplasm for varietal testing through ICRISAT's regional groundnut and sorghum programs and the CRSP supported Phaseolus bean program at Bunda College; (c) exchange of information with and an annual visit to ICIPE on insect control; (d) access to ILCA's comprehensive literature survey on livestock research in Africa; and, (e) closer links with Zimbabwe's research service, especially on cotton research.

The very size and diversity of the many international, regional, and bilateral programs offering help to Malawi's research system inherently entails some risk of channelling DAR's attention and resources into comparatively low priorities. Therefore, it will be one of the important objectives of the research master plan to delineate where major inputs are needed. The DAR will evaluate training offers by international and regional centers or institutes in terms of DAR research and staff development priorities, and will request the centers to design specific types of training in such areas. Though CGIAR technical assistance is generally not charged to national users, similar assistance from certain international and regional centers (e.g., ICRAF) will be financed by IDA to ensure an increased input and improved focus on agro-forestry, including its integration into Adaptive Research programs.

4. Personnel Management

Effective management in the DAR has been prejudiced by lack of staff continuity at both headquarters and on research stations, and by inadequate support staff. As of July 1984, the DAR had a total establishment of 491 technical and professional posts, of which 412 (84%) were filled. Present staffing, which is comprised of 85 (21%) professionals and 327 (79%) non-professionals, is summarized below:

DAR Staff Establishment

Staff ranks and responsibilitie	Establishment		Filled Posts	
	No.	%	No.	%
I. Superscale Officers ranking professional officers at higher salary levels: primarily research station and department managers	33	(7)	21	(5)
II. Professional Officers (PO) B.Sc. or advanced degree holders: researchers without rank	68	(14)	64	(15)
II. Technical Officers (TO) Agriculture diploma graduates; field staff who lay-out and monitor trials; laboratory technicians; research station farm managers	114	(23)	89	(22)
IV. Technical Assistants (TA) Agriculture certificate recipients; field assistants	276	(56)	238	(58)
Total	491	(100)	412	(100)

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DAR recruits its professional and technical staff from Bunda College of Agriculture and the Natural Resources College. Professional staff have B.Sc. degrees. Technical Officers have a three-year diploma, and Technical Assistants have a two-year Certificate in Agriculture. The DAR has not been aggressive in its recruitment, and has had difficulty in attracting the highest quality of recruits for its professional and technical positions.

Until recently, the DAR had no job descriptions for its staff, and thus, criteria for the assessment of potential recruits for promotions were not clear. Currently, managers prepare annual confidential assessments of their staff using standard evaluation forms which are transmitted to the Public Service Commission (PSC) for review. The evaluation format is fairly comprehensive, but it lacks both an adequate assessment of quality of output and a system of feedback to the staff on their performance. The evaluation process has not been used in the assessment of staff training needs. Recommendations for promotion form part of the annual evaluation, although until recently, promotion of both DAR professional and technical staff was by examination in which administrative procedure was a major component. Since 1983, the PSC has ruled that promotion of civil servants should be by interview on issues related to their field of competence. Promotion to superscale posts has become the only method of government to remunerate staff for outstanding performance, and is dependent upon the existence of a suitable vacancy. In DAR, the promotional ladder is constrained by the small number of lower level superscale posts. It is important that the allocation of posts be adjusted to conform to a more pyramidal structure. Promotion should not be dependent upon the movement into research station management because this system has imposed a considerable strain on the small pool of experienced scientists.

In order to strengthen the DAR's technical capacity and improve career growth for its professional staff, the following measures have been, or will be, taken during the next five years:

a) Job Description Development - As part of IDA's project preparation, the DAR has prepared summary job descriptions for all types of positions from CARO to TO, delineating major administrative and substantive responsibilities, and formal qualifications. During project implementation, these job descriptions will be adjusted as needed, and the jobs disaggregated into tasks and skill requirements. Special attention will be given to tasks which the staff member should be able to accomplish without close supervision, and the type of guidance managers should be able to give, and to whom. Taken in aggregate, these job descriptions will describe the DAR's operational system. Most importantly, they will provide clear criteria for assessing potential recruits and making judgments about staff performance and promotional possibilities.

b) Recruitment Degree Graduates - Guided by the above criteria, the DAR has undertaken to recruit degree graduates more aggressively. The DAR will organize career days at the University of Malawi early in the students' recruitment cycle, and will publicize the DAR staff training program and promotional possibilities to solicit applications from outstanding graduates.

c) Staff evaluation - The task and skill breakdowns of the DAR's job descriptions to be introduced under the Project will be used to hel managers analyze staffs' skill gaps. A system will be established to link staff supervision and evaluation with development of staff work programs and the staff training program. The formal annual evaluation process will be modified to allow staff members themselves to: (a) identify the areas in whic they feel they need increased guidance, work experience, and training; and (b review and discuss their managers' comments before they are finalized. A revised staff evaluation form which would supplement the standard civil service format was reviewed at negotiations of the IDA financed project.

d) Incentives and Career Growth - During negotiations of th IDA project, agreement was reached that by end-April 1987, the GOM will develop and formally approve the necessary regulations to implement a scientific career stream for DAR. This career stream should permit high leve advancement of scientists based on the quality and contribution of their research, without requisite movement into managerial roles. This would provide compensation for the DAR's best scientists roughly on a par with that at the University or in the Malawian private sector. The current regulations permitting such high level advancement only on very exceptional grounds, coul not establish adequate incentives to retain the DAR's best scientists. A Civil Service Review Commission financed by ODA is now reviewing all aspects of civil service structure, including the institution of scientific career streams across a spectrum of ministries. The GOM has undertaken to make no changes in civil service policy pending its review of the Commission's report in early 1985. However, by late 1985, it would be reasonable for the MOA to request a suitable promotion policy for the DAR.

As part of IDA's project preparation, the DAR has also changed the number of posts assigned to each of its current civil service ranks, without increasing the total number of posts. This removes past blockages to promotion.

5. DAR Staff Training - The DAR's researchers generally have had little operational experience outside of the Department. To compensate, DAR in-service training has included advanced degree programs abroad and short courses delivered by International Agricultural Research Centers (IARCs) and other overseas research institutions. CIP and CIMMYT have conducted workshops in Malawi. The Department is aiming to have all its professional research staff trained to the MSc level or above by the end of the century.

Of the DAR's 85 professional research officers, only 21 now have advanced degrees (4 PhDs and 17 MScs), while 27 are engaged in advanced degree training overseas financed by USAID and ODA (13 PhDs and 15 MScs). Even with this large training program, only 48 (56%) of the DAR's professional research staff will be advanced degree recipients or candidates by the commencement of the proposed Projects.

To date, the DAR has not actively planned its in-service training program, or sought out institutions to deliver the required training, either in Malawi or abroad. Until preparation of the proposed projects, no one in

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DAR was responsible for developing a staff training program, and no evaluation of staff training needs has was made. The program to date has not included management training, (with the exception of a USDA management course for mid-level DAR and DOA personnel) nor training in planning and budgeting for which there will be an increased need under the DAR's proposed reorganization. Also, there is no program of short-term refresher courses for technical staff.

In order to improve the DAR's training program and to increase the level and number of its trained staff, the following measures will be taken:

a) Recruitment of a Training Advisor

Under the proposed project, USAID will provide a long-term Training Advisor to assist the DAR, DOA and PD in analyzing their long-term training needs and in developing a coherent training program for planning, research and extension.

b) Provision of Additional Training

Both USAID and IDA will finance degree and non-degree training for DAR staff, consisting of:

(i) postgraduate training at Ph.D. level for National Coordinators and selected Commodity Team Leaders, and at M.Sc. level for Commodity Team Leaders and prospective ART members, to provide them with the necessary depth of academic background to undertake research in their respective specialized fields;

(ii) visits or attachments to research centers abroad for research officers and senior research staff to broaden their experience on research practices appropriate to their work program;

(iii) short-term management and technical courses and workshops, largely delivered in-country, in order to:
- provide PO, TO, and TA staff with technical specialized knowledge and job-specific skills;
- ensure satisfactory performance of support staff (e.g., laboratory technicians, equipment operators, research station administrative officers);
- upgrade managers' skills in planning and management of research programs, government procedures, and practical management techniques; and,
- orient research staff towards adaptive research and farming systems concepts, and foster interchange between research and extension staff.

The degree training schedule will be phased and sychronized to maximize collaboration between National Research Coordinator designates or Commodity Team Leader designates and their consultant counterparts before and after training. About 65% of the degree training will be financed by USAID, and will be provided in the United States. The balance will be financed by IDA, and will be provided in Europe and elsewhere.

D. The Department of Agriculture - The Department of Agriculture (DOA) has primary responsibility for providing agricultural extension services to the smallholders of Malawi. The DOA is headed by a Chief Agricultural Officer

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(CAO), and supported by a Deputy Chief Agricultural Officer (DCAO). The DOA has five branches: extension and training; crops; extension aids; land husbandry; and administration. These branches are headed by Assistant Chief Agricultural Officers. Of a total establishment of 3,473 professional and technical posts, the DOA had about 557 (16%) vacancies in May 1984. The following summarizes the establishment posts and number of vacancies:

DOA STAFF ESTABLISHMENT

Staff Ranks and Responsibilities	Establishment a/		Vacancies	
	No.	%	No.	%
Superscale Officers Ranking professional officers at higher salary levels; primarily DOA and ADD managers and senior subject matter specialist staff	55	(2)	7	(12)
Professional Officers (PO) b/ B.Sc. or advanced degree-holders; mostly ADD deputy managers; RDP managers and senior subject matter specialists	86	(3)	9	(10)
Chief Technical Officer (CTO) Diploma holders, experienced subject matter specialists (SMSs) and supervisory staff at ADD or RDP levels	48	(1)	5	(10)
Senior Technical Officers (STO) and Technical Officers (TO) Diploma holders, mainly extension or credit supervisors, SMSs at RDP and EPA levels and EPA managers	410	(12)	77	(18)
Senior Technical Assistants (STA) Certificate holders, mainly supervisory staff at RDP or EPA level	253	(7)	50	(20)
Technical Assistants (TA) Certificate holders: technical assistants; credit assistants; farm home assistants; land husbandry and veterinary assistants, who are in direct contact with farmers as field extension workers	2,621	(75)	409	(15)
TOTAL	3,473	(100)	557	(16)

Source: MOA Planning Division, May 1984

a/ Includes established positions of the Extension Aids Branch.

b/ There are an average of 4 superscale grade officers and eight professional officers in each ADD. Of the 141 professional staff in these categories, there are 15 professional officers with a M.Sc. degree, and 10 additional officers are currently pursuing advanced degree courses overseas.

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The agricultural extension system is decentralized into 28 Rural Development Projects (RDPs) and 180 Extension Planning Areas (EPAs). The planning, administration, and management of the extension program at the field level is carried out by eight Agricultural Development Divisions (ADDs), each headed by a Program Manager (PM).

Each ADD has 2 to 5 RDPs, each of which is headed by a Project Officer (PO). The PO is responsible for overall project administration and supervision of extension, credit, land husbandry, animal husbandry, and veterinary services. About 25,000-30,000 farm families comprise an RDP. Each RDP is further subdivided into an average of 8 EPAs, each headed by a Development Officer of TO Rank. The EPAs are comprised of 5-10 sections with similar agro-ecological conditions. Each section is headed by a Field Assistant (FA) of TA rank. In areas where there are on-going projects financed by donors, each TA works with 450-800 farm families. However, in areas where donor-financing is not available, TAs work with as many as 2,100 farm families. In some EPAs and Sections, there are 211 Farm Home Assistants (FHAs), who work directly with women's groups. The FAs and FHAs work with farmers' credit groups and clubs. Overall technical support is provided to the field extension staff by Subject Matter Specialists.

In 1982, a review of the Malawi's National Rural Development Program (NRDP) was conducted. The review concluded that the institutional framework for the development of extension services is in place. However, it identified several problems which are affecting the effectiveness of the extension service. These include: (a) the limited number of adequately trained and experienced professional and technical officers; (b) absence of structured career development opportunities and of incentives for high achievement; (c) lack of appropriate technical packages for smallholder crops; (d) inadequate planning and budgeting systems; (e) constant changes in managerial staff; (f) poorly prepared and inadequate extension materials; and, (g) inefficient support services.

1. Extension Programming and Budgeting Systems - Although all ADD's routinely prepare annual workplans and budgets, they are of uneven quality. Rather than being prepared parallel to the budget, work plans are formulated 3 to 4 months later. Consequently, budget estimates are not based on careful evaluation of sectoral or extension priorities, but on Treasury-prescribed guidelines on expenditures, (which are about 10% above the previous year's net allocation in current terms). Without a mechanism to ensure that scarce funds are allocated according to the relative priorities of alternative programs, both essential and non-essential agricultural services are cut arbitrarily, with adverse effects on project productivity.

Resource allocation in the DOA would improve considerably with the introduction of a system for linking extension objectives and priorities with resource availabilities. In order to improve the DOA's capacity to plan and make appropriate policy and program decisions, the following actions will be initiated with support from the IDA-financed Agricultural Extension and Planning Support Project:

a) Institution of Extension Planning in the DOA - An extension planning staff will be assigned to the Office of the Chief Agricultural Officer to

advise and assist DOA and ADD management in: (a) developing extension program and budget proposals to be submitted to the MOA and Treasury; (b) analyzing annual work plans prepared by ADDs to ensure that objectives, targets and resource allocations are adequate and consistent with priorities set for the extension system; (c) monitoring the performance of extension programs; and, (d) coordinating or contracting specific ad hoc studies to improve the quality of the extension program. In addition, the staff will develop a revised extension programming and budgeting system which will provide the framework for: (a) estimating, on an annual basis, the minimum budget requirements for the DOA and ADD programs; (b) setting operational guidelines for the elimination of low-priority recurrent expenditures; (c) evaluating the efficiency of the existing investments in the DOA and ADDs; (d) identifying potential areas for cost savings and cost recovery; and, (e) establishing a system for achieving better resource utilization and cost-effectiveness within the DOA and the ADDs.

b) Development of an Extension Strategy - A five-year extension strategy plan will be formulated by the extension planning staff to provide overall policy guidelines for the development of an effective national extension system. The plan will include: (a) extension objectives and priorities; (b) commodities to be procured; (c) production targets; (c) strategies for reaching a greater number of smallholder farmers; (d) staffing requirements and training needs, and, (e) minimum annual budget estimates needed to sustain the extension program. The staff will work closely with the DAR, ADD Program Managers, the Planning Division, and with ARTs in formulating extension priorities and production targets. The plan will be completed by the second year of project implementation, with the assistance of a long-term extension advisor. The DOA, IDA, and USAID will review the plan, and by the third year of implementation, assess progress made and recommend needed adjustments.

c) Conduct of Annual Workshops - To facilitate the introduction of the proposed program and budgeting system, the DOA will initiate annual workshops for ADD Program Managers. These workshops will enable Managers to assess the results of the extension program in the previous year in order to improve the extension work plan for the following year. The workshops will also be used to involve ADD Managers in the formulation of broad extension strategies for national and regional extension programs. Similar workshops will be held at the ADD level with RDP and EPA Managers. The annual workshops will be conducted in June/July each year to enable the Managers to incorporate workshop recommendations prior to finalizing the coming year's plans.

2. DOA and ADD Structure - Currently, the specific job functions at the management level of the DOA are not clearly defined. Consequently, the CAO spends a considerable amount of time handling routine and administrative matters which adversely affects the management of the national extension system. At the ADD level, the present administrative structure has three layers of supervisory and Subject Matter Specialist staff, which is too complex and costly. In order to improve the management and implementation of the extension program, and to provide better technical services to the ADD staff, the following will be undertaken:

a) Modification of the DOA Structure - At the management level, administrative and operational functions will be transferred from the CAO to the DCAO and a Senior Administrative Officer (SAO). This will enable the CAO to concentrate on managing the national extension system.

In addition, the DOA structure will be streamlined and organized into four branches: extension and crops, land husbandry, extension aids, and administration. Some functions performed by the branches will be decentralized to the ADDs (Table 5). Each of the technical branches will be headed by an Assistant Chief Agricultural Officer (ACAO), who will have managerial responsibilities and will report to the DCAO. The ACAOs will be responsible for managing and supervising the Subject Matter Specialists' (SMSs) work plans. Because most of the ACAOs will also function as SMSs, the USAID and IDA Projects will provide both technical and managerial training to enable them to perform their functions more effectively. Because of the expanded managerial and financial functions of the DOA's administrative branch, the existing position of Chief Executive Officer will be upgraded to Senior Administrative Officer (SAO). The SAO will be responsible for managing and supervising the administration, finance, and personnel sections.

b) Review of the ADD Structure - The ADD structure will be reviewed under the proposed IDA Project in order to: (A) provide ADD Program Managers with management systems and procedures to enable them to carry out their functions efficiently and cost-effectively; (b) strengthen the ADD capacity to coordinate and implement extension programs within the framework of a national extension system; and, (c) reduce operating cost and improve the managerial and technical support provided to field extension staff. No substantial changes are expected to be made in the existing ADD organizational structure, because it underwent a comprehensive review during the NRDP Review of 1982 and was determined to be satisfactory. However, substantial modifications are expected to occur in the services carried out by the ADDs.

A review of the ADD structure and extension field services will be conducted by the extension planning staff, in collaboration with the ADD Program Managers. To provide the staff with the opportunity to test the methodology and the best approach for conducting this review, and to minimize unnecessary disruptions in the existing system, the review will initially be conducted and recommendations implemented at the Mzuzu ADD. This exercise will be undertaken in the other ADDs during the second and third years of project implementation. Prior to implementation, the findings and recommendations will be reviewed within the MOA, with ADD Program Managers, and with the Personnel Management and the Training Department in OPC. Implementation of approved recommendations is expected to be undertaken in all ADDs by 1988.

3. Extension Recommendations - The extension service reaches only about one-fourth to one-third of Malawi's smallholders. These are mainly the "progressive" farmers who are members of farmers' clubs, and are mostly male. Most of the technological recommendations disseminated by the extension service have been inappropriate to address farmer's needs, and the quality of technical advice provided by extension agents has been less than satisfactory.

In order to make extension recommendations more relevant to smallholders, improve the effectiveness of extension agents in delivering extension messages, and increase the number of farmers reached by the extension service, the following will be undertaken during project implementation:

a) Improvement of Research Programs - As previously discussed, assistance will be provided by USAID and IDA to strengthen the applied and

adaptive research capabilities of the MOA. Adaptive Research Teams (ARTs) will be formed in every ADD to test the applicability of station-based research on farmers' fields. Improvements in research should enable the extension system to provide relevant and appropriate technological recommendations to the smallholders.

b) Strengthening Research-Extension Linkages - Measures to develop and strengthen linkages between research and extension were discussed earlier. From the point of view of the extension service, the development of these linkages will not only improve the relevance of technological recommendations disseminated to farmers, but should also have a major impact in improving its capability to deliver technical advice. For example, the involvement of Extension TAs in ART on-farm trials will improve their understanding of the technical recommendations that will result from these trials. Consequently, their ability to provide technical advice will be substantially improved.

c) Expansion of Extension Coverage - Through USAID financing, the capability of the Extension Aids Branch (EAB) to develop up-to-date and area-specific extension materials will be strengthened. The EAB will be expected to produce technical publications, teaching manuals, radio programs, and other audio-visual materials to assist the extension TAs in disseminating technical recommendations. A pilot effort to test the most cost-effective mass communication scheme will be undertaken in Mzuzu. In addition, the IDA will support the implementation of the block extension system in Mzuzu which is based on the concept of technology dissemination to farmer's groups in block administration sites. Thus, through mass communications and the block extension system, the DOA will reach a larger number of farmers without increasing the size of its extension force in the field.

4. Extension Staff Training - The recent expansion in extension services has greatly increased the demand for Management and Subject Matter Specialist staff. As a result of too few adequately trained professional and technical officers, some staff are being placed in positions for which they are neither qualified nor trained. Training for field level extension TAs is also urgently needed to improve their effectiveness as technical advisors to farmers.

In order to increase the number of adequately trained extension staff, and to upgrade the quality and relevance of training provided, the following will be undertaken:

a) In-Service Training - To strengthen the technical and managerial capability of the DOA staff, degree and non-degree training consisting of the following, will be provided under the USAID and IDA projects

(1) post graduate training at M.Sc. level, and diploma or specialization level, for SMS and ADD Program Managers to provide them with the expertise to assist DOA in developing extension programs;

(2) short-term fellowships and study tours abroad for DOA senior staff in their field of competence to broaden their perspective beyond Malawi, and to acquaint them with the successful implementation of other extension programs;

(3) in-country courses and workshops for management and technical staff designed to:

- provide field extension staff and SMSs with specialized technical knowledge and job-specific skills needed to disseminate technical recommendations to farmers;

- orient extension staff towards farming systems concepts, and foster better communication between extension and research staff;

- upgrade the skills of extension staff in extension methodologies, especially in the use of mass communication and other techniques for working more effectively with farmer's groups;

- improve the capability of management and supervisory staff to plan, manage, and implement extension programs; and,

- upgrade the ability of training officers to plan and conduct training programs, design curricula, and assess staff training needs.

About 80 percent of the degree courses at M.Sc. level, and 60 percent of the diploma or specialization courses, short-term fellowships and study tours will be financed by USAID. The balance will be financed by IDA. Both USAID and IDA will assist in implementing in-country training programs. In order to reduce operating costs and minimize logistical problems, in-country training will be conducted primarily at EPA centers or at the ADD Residential Training Centers.

b) Establishment of a Professional and Technical Training Unit - Through negotiations between IDA and the MOA, a Professional and Technical Training Unit will be established in the Office of the CAS. This Unit is expected to serve the PD, DOA, and DAR, and will be responsible for developing a compensative MOA training plan and in-service training programs to be financed by USAID and IDA. Eventually, the role of this unit will be expanded to cover all the technical departments of the MOA. The Training Unit will be staffed with two Senior Training Specialists who will be drawn from MOA's or DOA's established posts. A training advisor for this Unit will be financed by USAID to: (a) train managers to conduct the training needs analysis; (b) help design and implement the training program for the the PD, DOA and DAR; and, (c) provide on-the-job training for training officers located at the ADDs

5. Personnel Management and Career Development - As with the DAR, DOA supervisors prepare annual confidential evaluations of their staff, using the Government's standard evaluation forms. These forms are used as the basis for recommending promotion of staff. The form itself is very comprehensive, but is never discussed with the staff member. Thus, constructive discussion between staff and managers on work performance does not occur. The secretive nature of the evaluation process means that staff does not have a clear idea of the areas where their work needs improvement.

The DOA's staff promotion ladder is limited by: (a) the small number of grades assigned to each of its civil service ranks and classes; and, (b) the absence of a technical career stream for Subject Matter Specialists (SMSs), which would allow them to advance in the civil service without requisite movement into managerial positions. Promotion to the limited number of superscale posts is the only avenue available for rewarding staff for outstanding performance. Promotion opportunities for the TAs within their

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grades and to higher grades are even more limited. These field workers constitute the backbone of the extension service and it is essential that they are adequately motivated.

Under the proposed IDA Project, the following changes in staff evaluation and promotion systems will be made:

a) Staff Evaluation - The formal annual evaluation process will be modified to allow staff members to: (a) identify for themselves areas in which they need additional work experience and/or training; and (b) review and discuss the manager's evaluation before this is finalized. Initially, this system will be introduced for the DOA's headquarters and professional staff. As DOA and ADD management acquire experience with this system, it will be gradually extended to all technical staff over the project implementation period.

b) Career Development - The GOM has agreed to establish a professional career stream for extension SMSs. This would permit them to advance in the civil service ladder without moving into the administrative/management track. In addition, this would enable SMSs to receive similar compensation as would the same grade staff in other departments of government or in the private sector. The improvement in career development opportunities will serve as an incentive for the DOA's most experienced SMSs to remain in the Department. During negotiations of the Agricultural Extension and Planning Support Project, IDA will seek agreement from the GOM to introduce a similar promotion system for the other professional and technical staff of the DOA.

6. Women's Program Section (WPS) - The WPS was established in the DOA in 1981 to complement the Food and Nutrition Section. The primary objective of the WPS is to ensure that female farmers are integrated into the MOA's agricultural programs. At present, there is one Women's Program Officer (WPO) at headquarters. In the field, only three ADDs have a WPO because of the limited number of PO grade postings. However, in the five ADDs where a PO position has not been allocated to the WPS, a female Technical Officer has been assigned to undertake the functions of a WPO. In addition, although not directly assigned to the WPS, approximately 211 female extension workers rank with women in the rural areas. Two major institutional issues have slowed down the achievement of the WPS's primary objectives. The first is the inability of headquarters to provide supervision to the field staff. The second issue pertains to the unclear strategy of the WPS in achieving its objective of integrating women into the agricultural programs. Consequently, each ADD is pursuing its own strategy, and most of the assistance given to women has been a matter related to home economics. To address these problems, several measures will be taken. USAID will finance a Technical Advisor to assist the WPS to develop a clear strategy for achieving its primary objective. In addition, technical training in agriculture will be provided to female extension workers to enable them to effectively provide agricultural extension advice to female farmers. Other measures to improve women's involvement in agriculture which are not directly related to the institutional strengthening of the WPS are discussed in the project description for the Agricultural Extension Component and in the Social Soundness Analysis.

TABLE 1 - MINISTRY OF AGRICULTURE ORGANIZATION CHART (UNDER REVISION)

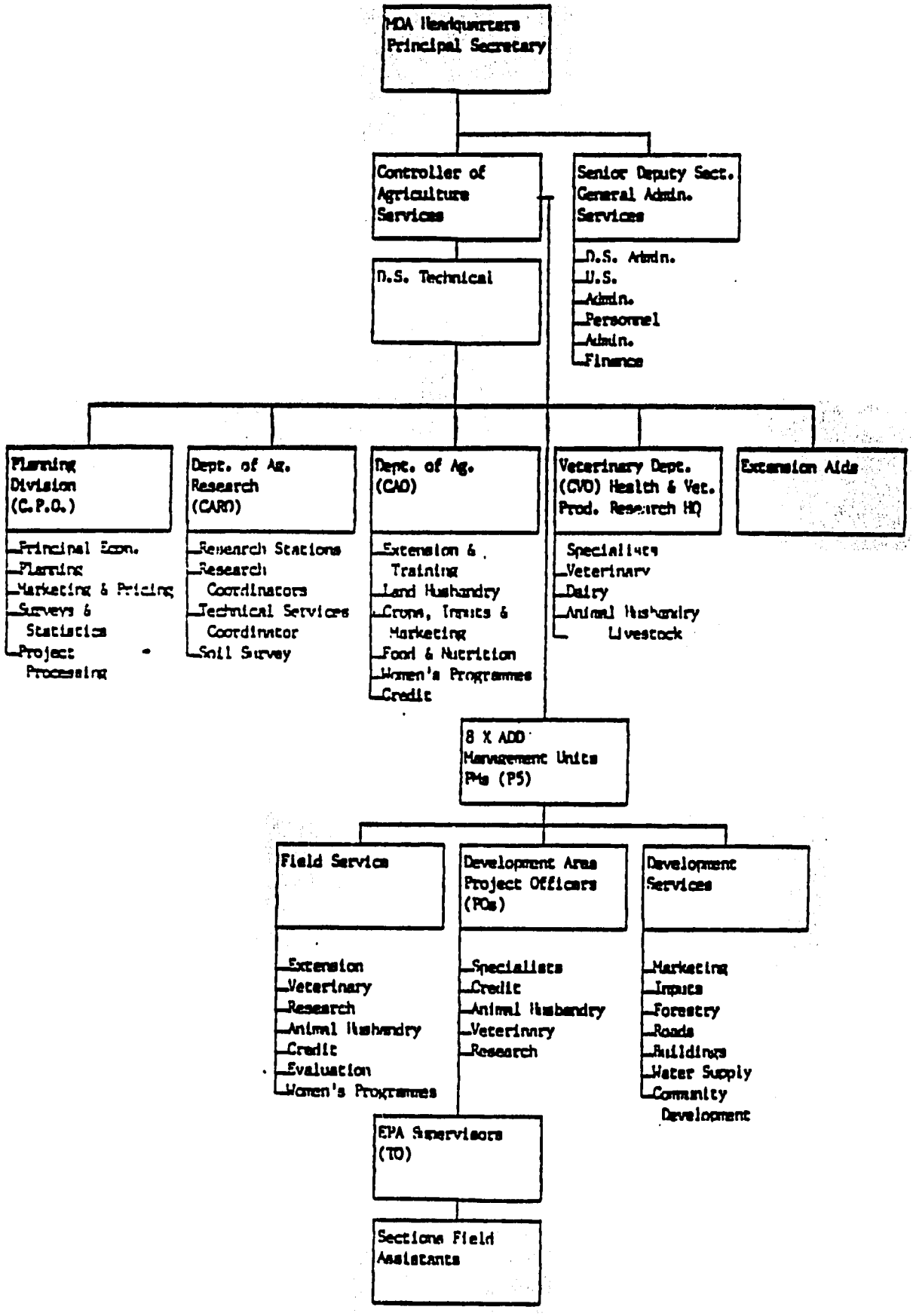


TABLE 2 - PLANNING DEPARTMENT PROPOSED ORGANIZATION

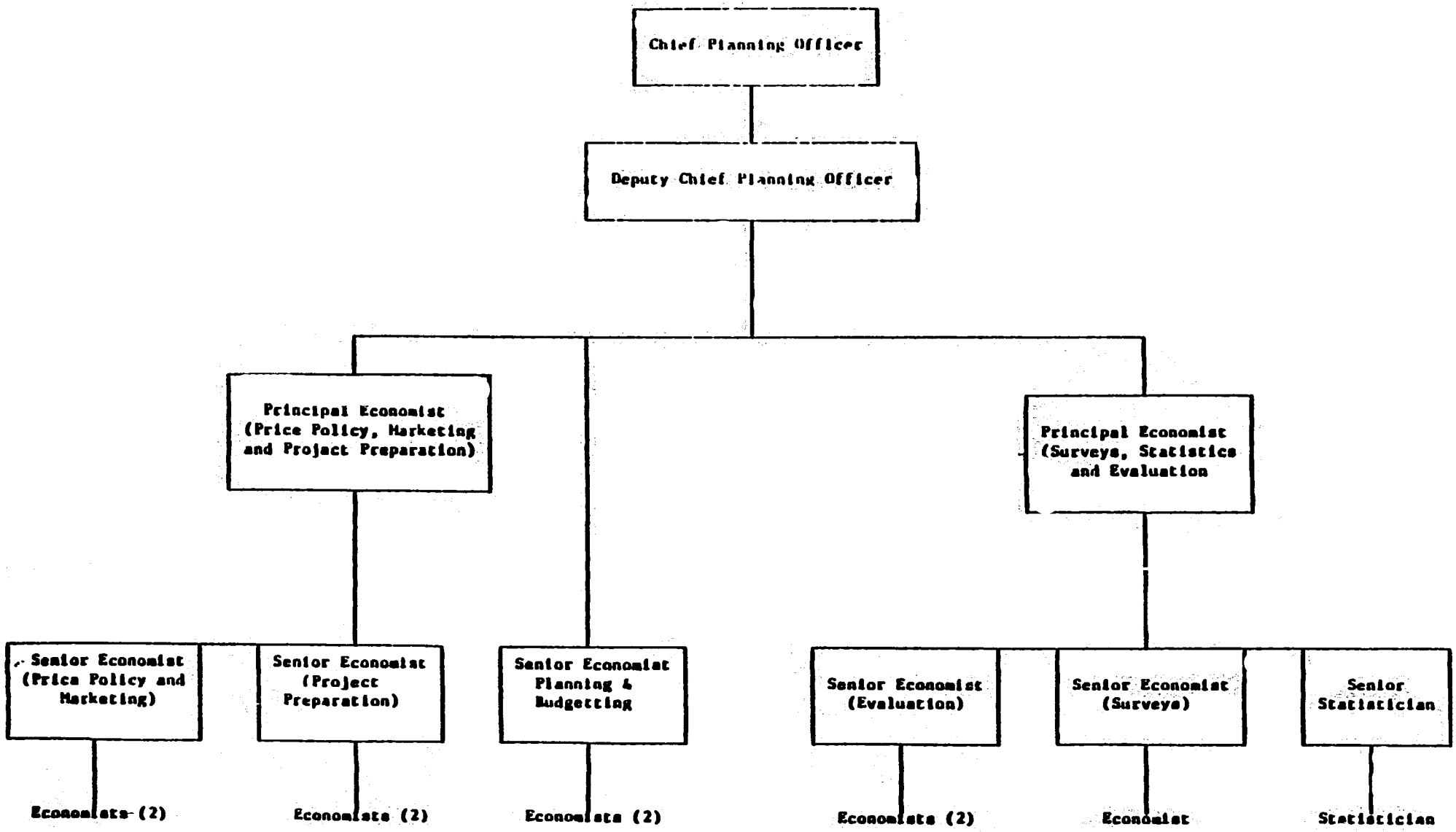


TABLE 3 - MOA - PLANNING DEPARTMENT: TERMS OF REFERENCE

1. During the next five years, the PD's responsibilities would include the following program:

Price Policy, Marketing and Project Preparation Section

(a) analysis of each crop in terms of production, trade, profitability, production costs, credit needs, subsidies and identification of constraints;

(b) impact of prices on farm income, urban income, ADMARC cashflow, foreign exchange earnings and balance of payments;

(c) preparation of annual price policy proposals;

(d) studies of trends in international commodity prices for Malawi's export crops.

(e) identification, preparation and control of all agricultural projects in collaboration and other MOA departments;

(f) identification of regions and commodities with maximum potential for development.

Planning and Budgeting Section

(a) reviewing, evaluating, coordinating and preparing the annual capital and recurrent budget proposals of MOA;

(b) coordinating and preparing long-term (up to 5 years) capital and recurrent budgets of MOA;

(c) long-range forecasts of production, input requirements crop productivity, income gains and population trends;

(d) preparation of annual supply plans and programs for main agricultural inputs;

(e) preparation of annual and long-range projections of the food demand and supply situation;

(f) review and analysis of agricultural sector performance by subsectors since independence and under NRDP;

(g) economic analysis of agricultural research and extension;

(h) analysis of Government interventions in the agricultural sector - their forms and impact;

(i) annual review of agricultural sector performance;

(j) monitoring performance of semi-autonomous crop authorities e.g. tobacco, tea, coffee, sugar etc.

Surveys, Statistics and Evaluation Section

(a) guidance and supervision of the annual crop estimates;

(b) guidance and assistance to ADD's on preparation of annual evaluation reports of ongoing rural development projects;

(c) preparation of periodic (quarterly/half-yearly) project implementation reports, mid-term evaluation reports and project completion reports;

(d) planning and conducting annual agricultural surveys in collaboration with National Statistics Office;

(e) planning, supervision and analysis of field survey data on agricultural production practices and farming systems and field tests of improved technologies;

(f) data collection to measure fertilizer application rates, total use by ADD, RDP and crop and the impact of fertilizer use on yield and productivity;

(g) evaluation of the performance of the four smallholder crop development authorities - coffee, tea, sugar-cane and flue-cured tobacco;

(h) in collaboration with Data Processing Unit, assist ADD's in introduction, maintenance and operation of micro computer facilities;

(i) establishment, updating and expansion of the computerized agricultural data bank;

(j) compilation of all the relevant statistics at the ADD, RDP and EPA levels;

(k) preparation of annual statistical summaries.

TABLE 4 - PROPOSED DEPARTMENT OF AGRICULTURAL RESEARCH ORGANIZATION

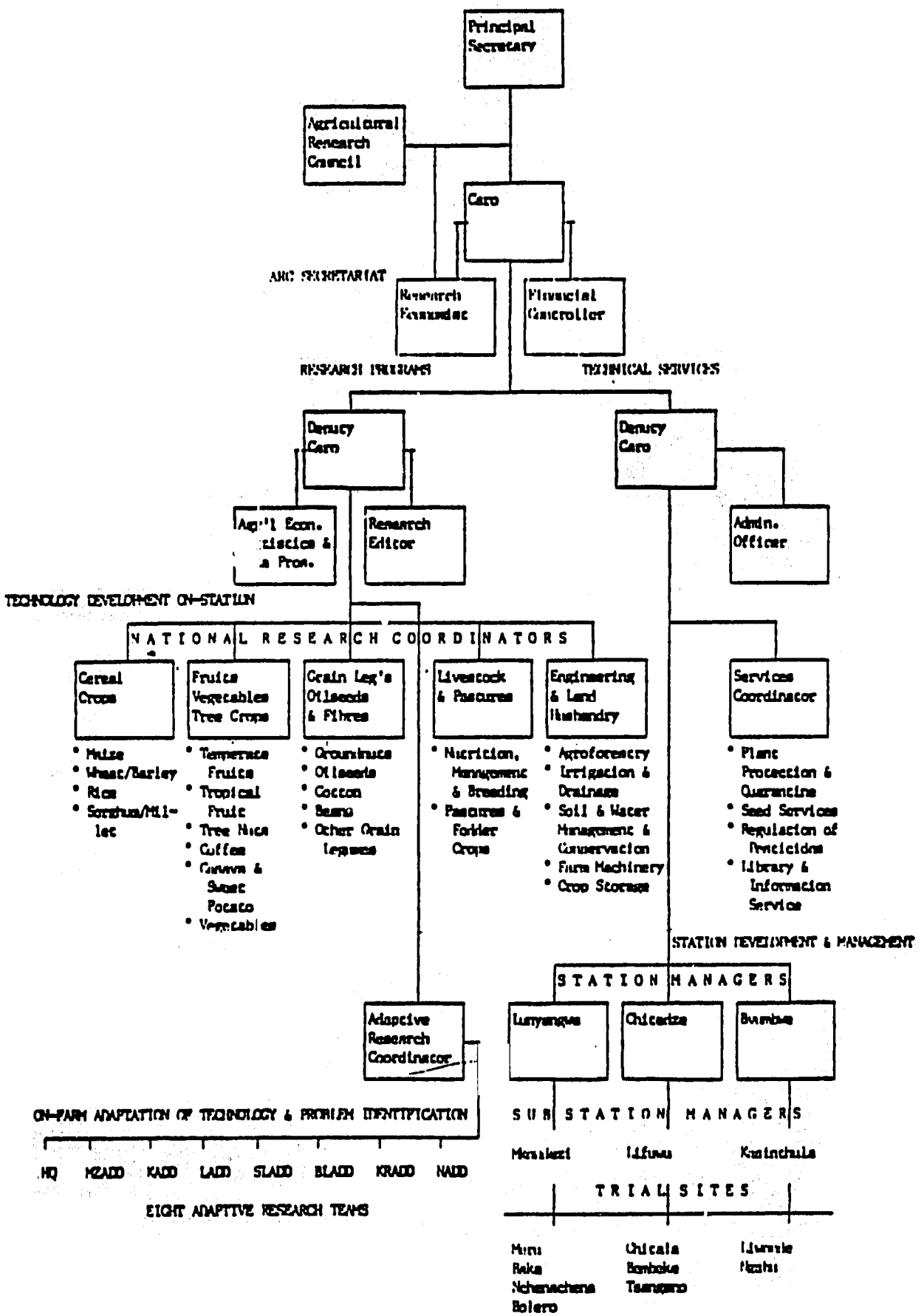
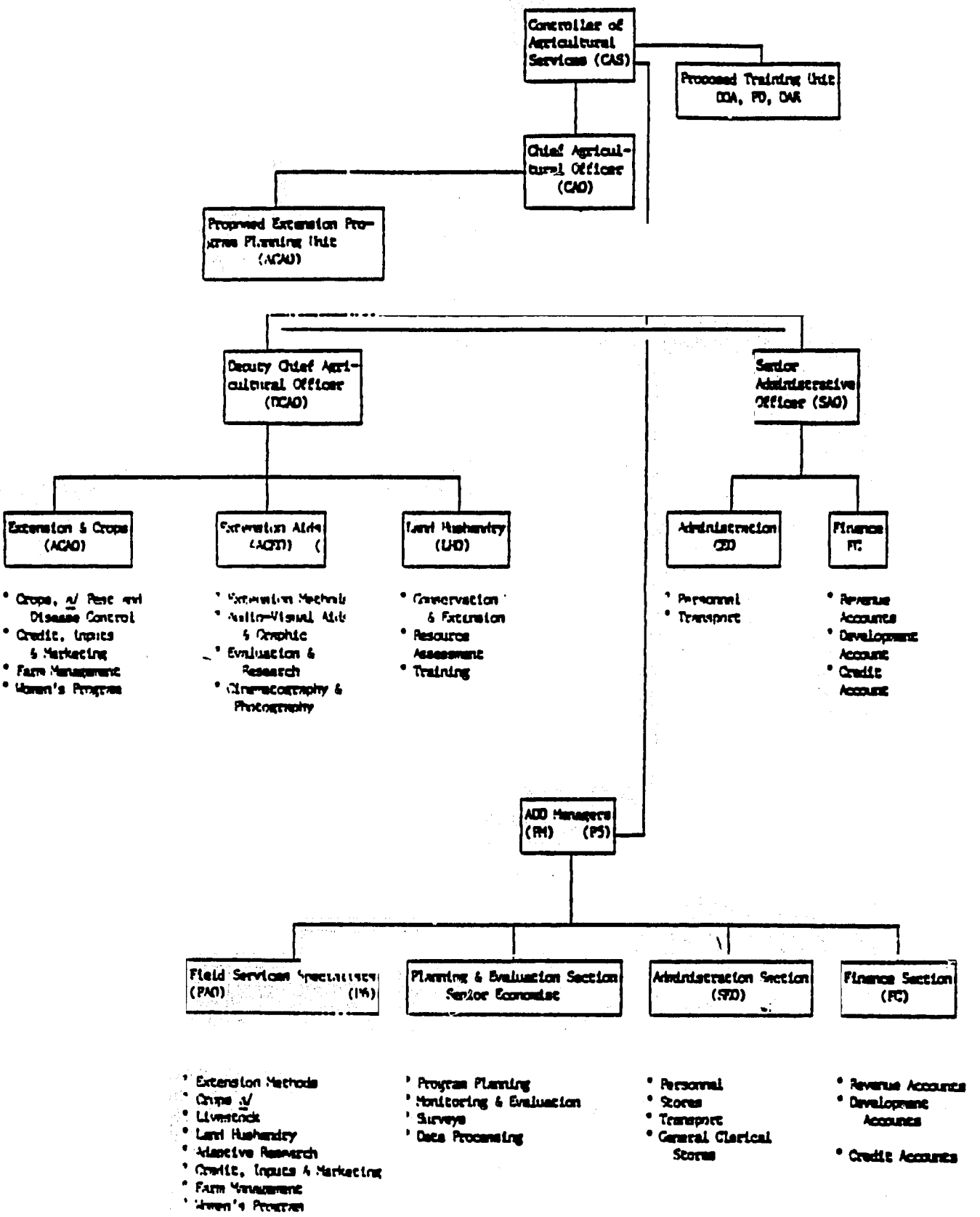


TABLE 5 - PROPOSED DEPARTMENT OF AGRICULTURE ORGANIZATION (UNDER REVISION)



Crops Specialists: cereals, tobacco, cotton, legumes and oilseeds, horticulture.

PROJECT PAPER

ANNEX 9.56

ENVIRONMENTAL ANALYSIS

ANNEX 9.56

ENVIRONMENTAL ANALYSIS

The Initial Environmental Examination (IEE), included in the PID has been reviewed by the Bureau Environmental Officer (BEO) who has concurred in a negative determination for project activities but recommended a threshold decision be defered on research programs. (STATE 024074). The Regional Environmental Officer (REO) was requested in this same cable to review the IIE during the Project Paper design stage and to advise the BEO with regard to the best course of action.

The REO, assisted by the Regional Pesticide Advisor, have re-examined the IIE and have recommended to the BEO that a negative threshold decision to be made on the MARE Project's research activities subject to: 1) the preparation of pest management guidelines; and, 2) preparation of a training program for local staff. Guidelines have already been made approved by the RPA to major crops and includes information and the applications, availability, tradenames and EPA precaution for local formulations. These guidelines will be adhered to in making recommendations to the extension services with regards to the use of pesticides.

It is important to note that the MARE Project includes both a research and an extension component. The research activities both on station and on-farm, involve the development of improved agricultural technologies and packages, but the actual transfer of these technologies is the responsibility of the extension staff. Becuause this research will be carelfully supervised by the research component including the on-station and on-farm trials, it qualifies for a categorical exclusion under Regulation 16 Section 216.2 (C)(2)(ii) " Controlled experimentation exclusively for the purpose of research and field evaluation which are confined to small areas and carefully monitored." With the exception of the women's demonstration activities the Project will not finance the dissemination of production packages.

The main activitiy of the extension component, agricultural communications, is focussed on the development of mass media techniques and evaluation methods as a general matter, rather than the communication of particular production recommendations. For this reason, it qualifies for a categorical exclusion under section 216.2(C)(2)(i), technical assistance which does not directly affect the environment. The womens demonstation activities, a minor part of the Project, will both develop and disseminate the improved technology which will developed. While it is true that the content of these packages is not currently known, given the existing knowledge of the agricultural situation in Malawi, it can be concluded now that the packages will not have a significant negative effect on the environment. The only issue which could cause a significant negative effect is pesticide use, and that will be resolved by adherence to the approved pest management guidelines. Thus a negative determination is appropriate for the womens component, including the dissemination of new technologies portion.

For the purposes of enforcing the compliance of Project activities with the expected environmental procedures a covenant will be included in the Project Agreement requiring adherence to the pest management guidelines.

ANNEX 1D:

INITIAL ENVIRONMENTAL EXAMINATION

Project Country: MALAWI

Project Title and Number: Agricultural Research and Extension (612-0215)

Funding: FY (s) FY85-88 $ 15 million

IEE Prepared by: John J. Gaudet, Regional Environmental Officer

Environmental Action Recommended:

Positive Determination _____
Negative Determination X

See attached justification

Action Requested by: Sheldon W. Cole Date 29/6/84
(AID Representative)

Concurrence: _____
(Bureau Environmental Officer)

Bureau Environmental Officer recommends that a Threshold Decision be deferred on the research programs problem area defining the technology package offered to smallholders; until it is determined what these packages will contain. Regional Environmental Officer to review and advise BEO, AFR/TR/SDP.

APPROVED: ✓
DISAPPROVED: _____
DATE: 12/5/84

Clearance: GC/AFR [illegible] Date 1/16/85

INITIAL ENVIRONMENTAL EXAMINATION

I. Project Summary

The project will provide support for agricultural research, which will allow technology development and transfer in the general areas of:

1. Crops research
2. Livestock research
3. Agro-Forestry research
4. Extension in crops, livestock, forestry, and soil and water management (Land Husbandry)

This effort will be carried out through the farming system research methods employed by the Adaptive Research Teams at the national and regional (ADD) levels. One of the goals of this initiative is to assist in the development of the planning and policy section of the Agricultural Research Council. The project will also provide support for agricultural extension by establishing and training extension workers at the ADD level and at the national level. This overall extension effort will involve some degree of academic and in-service training.

II. Environmental Impacts:

This particular project would normally call for a negative determination because of its emphasis on research and extension training. However, in Malawi there has been a great deal of concern over the direct and indirect effects of agriculture on the natural resource base. Some direct effects would be the: 1) increased deforestation in order to provide fuelwood for domestic and agroindustrial consumption; 2) increased application of insecticide on particular crops (12 applications are now necessary on most cotton crops in Malawi); and, 3) increased loss of topsoil as a result of intensive agriculture caused by a reduced arable land base. For example, a recent World Bank report, The Development of the Agricultural Sector 3459 - MAL/81 stated that "The greatest constraint to agricultural growth in Malawi is a limitation on the supply of arable land". Also they reported that "Expansion of fire-cured and flue-cured tobacco is constrained by the shortage of fuelwood required in the production process". The 1983 Project Preparation Document produced by the (DAR) as an over-all plan for an agricultural research program stated that the research and and service activities would be designed to develop farming systems that would protect the environment. This would include soil and water conservation and management, as well as regulation and controlled use of fertilizers and chemicals.

III Mitigation Efforts

A. General

Both the Government of Malawi and the donor agencies have begun important initiatives to reverse these impacts. USAID, for example, has commissioned a Phase I Environmental Profile for Malawi. The draft profile is has yet to be put into final form, but it will be distributed later to interested parties.

FAO has considered the general environmental situation in its report Phase II Environmental Aspects of Development in Malawi (FAO Doc. No. AG/DP/MLW/81/011).

B. Training

The GOM has recently established the Natural Resource College which will have a graduating class of 300 next year. This College will grant a 2 year certificate with specialization according to eight major programs in: Livestock, Agriculture, Farm Home Assistance (Home Economics), Surveying, Fisheries, Parks and Wildlife, Hydrology and Agroforestry. In addition, the GOM has included the teaching of basic concepts of natural resources in its extension education courses at the regional level.

C. Research

The MOA has already shown its concern for soil conservation by establishing soil scientists at the major research stations (3 staff at B.Sc. level, 2 M.Sc., and 2 Ph.D.). Also research efforts have been directed at establishing pest resistant varieties of cotton, improved methods of application of pesticide, fungicides, and herbicides, improved food storage methods, etc.

IV. Summary of Efforts Needed

A. Pesticides

Despite the above efforts however it is obvious that Malawi is still in need of an environmentally-sound pest management program. An earlier FAO study in 1979, called for a renewed effort to establish pesticide legislation (FAO Review of the Movement and Storage of the Grain Harvest). This study recommended the participation of all parties in drafting and revising pesticide legislation in order to bring it up to date. They also called on those applicators still using hazardous materials, such as methyl bromide and phostoxin, to attend special training courses, pass appropriate tests and be re-trained annually. There is also a need here for a set of Pest Management Guidelines, similar to those produced for USAID in other countries in Africa. These guidelines are arranged on a crop-by-crop basis, and include recommendations, formulations, application rates, restrictions, etc. for the important pest problems for each crop. An assessment of locally available formulations would also be included, along with EPA recommendations regarding registered uses for each of these formulations.

An important approach to the resolution of on-farm pest control problems has already been demonstrated by the Adaptive Research approach in the USAID project (612-0202). Obviously, the use of these methods will be expanded and improved upon in the present project. The USAID Pest Management Guidelines should therefore be looked upon as a tool for use by the ARTs guiding their research efforts and in providing basic information for an expanded extension effort. These Pest Management Guidelines should be considered a dynamic tool. In line with the general concept of Adaptive Research, the guidelines should be flexible enough to change in response to changes in research and extension.

B. Soil Conservation and Forestry

Although several forestry efforts are in process in Malawi and training in soil conservation is going forward, there is still general concern that local participation at the grass roots level is not well advanced. Therefore this project has included some provision for research in agroforestry as well as an extension effort in forestry and soil and water conservation and management (land husbandry).

V. Recommendations

1. Prior to the Project Paper preparation, USAID should request the Regional Pesticide Advisor to draft AID Pest Management Guidelines (PMG) for Malawi with particular attention to the needs of USAID projects.

2. During the Project Paper design some provisions should be made for the short-term training of one or two Malawians at an international level in the technologies of pesticides, their handling and application. This may only amount to an up-dating of staff who may already have an adequate background, but it might require basic training in the subject.

3. During the Project Paper design, attention should be paid to the incorporation of short 2-3 day in-country training courses in pesticide management. These courses should be designed and mounted with the active participation of the Malawian staff undergoing the above training. The goal here would be to create a continuous initiative to deal with the day-to-day pesticide problems in Malawi. The courses should be designed using various sources of local and international expertise (EPA, CICP, ICIPE, etc.). Also, they should be directed at technical staff at different levels from training the trainer down to on-farm applicator. The RPA can supply details of these courses while preparing the PMGs.

4. The Malawian staff trained in the above manner, using the background information supplied in the Pest Management Guidelines and using the experience gained in the Pesticides Management courses, will be in a better position to advise the Agricultural Research Section of the MOA. Their advice will be of particular importance to the National Committe for the Environment (MOFNR) in following up the FAO recommendations in design, introduction and enforcement of proper pesticide legislation designed specifically for local conditions in Malawi.

5. Regarding natural resource management, the project paper team will elaborate further on the research and extension inputs into agroforestry and soil and water management.

6. Regarding the direct procurements or use of pesticides in the project, Reg 16 Section 216.3(2)(iii) will apply as follows:

" Project including assistance for procurements or use, or both, of pesticides for research or limited field evaluation purposes by or under the supervision of project personnel. In such instances, however, AID will ensure that the manufacturers of the pesticides provide toxicological and environmental guidelines and recommendations within which the pesticides will be used. Furthermore, treated crops will not be used for human or animal consumption unless appropriate tolerances have been established by EPA or recommended by FAO/WHO, and the rates and frequency of application, together with the prescribed preharvest intervals, do nor result in residues exceeding such tolerances. This prohibition does not apply to the feeding of such crops to animals for research purposes."

Any technological package designed for use in research or extension will take these precautions into consideration.

VI Action Requested

On the basis of the above and with the proviso that these recommendations will be incorporated in the project design, the Regional Environmental Officer recommends a negative determination for this project.

COPY OF NAIROBI CABLE NO. 09167

1. REGIONAL ENVIRONMENTAL ADVISOR, GAUDET, AND REGIONAL PESTICUDE ADVISOR, JENSEN HAVE REVIEWED PROVISIONS IN IEE AS DIRECTED IN REFTEL. WE SUGGEST THAT THE PP INCORPORATE DIRECTLY THOSE ACTIVITIES LAID DOWN IN SECTION 5 OF THE IEE. THE ACTIVITIES INCLUDE: (A) PEST MANAGEMENT GUIDELINES (PMG) PREPARED IN-COUNTRY BY RPA (SHE IS AVAILABLE FOR TDY IN MAY); (B) DURING PMG PREPARATION RPA WILL OUTLINE COSTING AND IMPLEMENTATION PLAN FOR LONG AND SHORT-TERM TRAINING; (C) IN ADDITION SHE WILL OUTLINE PROGRAM FOR IN-COUNTRY TRAINING COURSES AND WILL IDENTIFY RESPONSIBILITIES INDIVIDUALS TO CARRY OUT TRAINING; AND (D) RPA WILL ASSIST MALAWIAN MOA STAFF IN DESIGN OF PROPER PESTICIDE LEGISLATION, AS REQUIREMENT.

2. REGARDING THE RESEARCH AND EXTENSION COMPONENTS OF THE THE PROJECT THE STANDARD PROCUREMENTS FROM REG 16 WILL BE FOLLOWED. IN THIS INSTANCE THE PROJECT WILL NOT PROVIDE ASSISTANCE FOR PROCUREMENT OR USE, OR BOTH, OF PESTICIDES, EXCEPT FOR RESEARCH OF LIMITED FIELD EVALUATION. IN THE CASE OF RESEARCH AND FIELD TRIALS, ALL APPLICATIONS WILL BE SUPERVISED BY PROPERLY-TRAINED PROJECT STAFF, AND THEY WILL INSURE THAT THE INFORMATION REQUIRED UNDER SECTION 216.3 (B) .(2) (III) WILL BE PROVIDED TO THE RESEARCH PERSONNEL, AND THAT THE PRECAUTIONS MENTIONED IN THIS SECTION WILL BE OBSERVED. PESTICIDES TO BE RECOMMENDED AS PART OF ANY EXTENSION PROGRAM OF TECHNICAL PACKAGE WILL BE ONLY THOSE RECOMMENDED BY THE PMG.

3. IF THE ABOVE PROVISIONS ARE INCLUDED IN THE PP, REIDSO SEES NO OBJECTION TO BE RECOMMENDING A NEGATIVE DETERMINATION FOR THE PROJECT.

4. FOR LILONGWE; PLEASE ADVISE RPA JENSEN IN LUSAKA SOONEST OF PREFERABLE TDY DATES (ONE WEEK SHOULD BE SUFFICIENT) IN MAY.

5. FOR AID/W: ALSO APPRECIATE ADVISING JEFFERS (ON TDY IN LILONGWE) OF BEO'S DECISION REGARDING IEE AS PER PARA 3 ABOVE. THOMAS

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ANNEX 9. 6

IMPLEMENTATION SCHEDULE

ANNEX 9.6

IMPLEMENTATION SCHEDULE

MARE OVERALL PROJECT IMPLEMENTATION SCHEDULE

Action	Responsible Organization	Month	Anticipated Date
Project Paper Approved	AID/W	0	May 1985
Project Authorized	AID/W	0	June 1985
Project Agreement Signed	GOM/USAID	1	August 1985
Prepare RFP for Research and Extension Contractor	REDSO/ESA USAID/Malawi	1	July 1985
Issue Requests for Proposals	REDSO/ESA USAID/Malawi	1	July 1985
Training Advisor and Specialist Contractor	GOM/USAID	2	July 1985
First Set of LT Trainees	GOM/USAID	2	August 1985
Joint Supervision	IDA/USAID	3	September 1985
First Meeting of Steering Committee	GOM, IDA USAID/Malawi	3	September 1985
Establish Contractor Selection Committee	REDSO/ESA USAID/Malawi	4	October 1985
Proposals Received	REDSO/ESA USAID/Malawi	5	November 1985
Final Contractor Selection	Joint Selection Committee	6	December 1985
Contract Signed	REDSO/ESA USAID/Malawi	7	January 1986
Contractor Mobilization and Selection of Personnel	Contractor	6-9	February-March 1986
Vehicle Purchase	USAID/Malawi	9	March 1986
Second Joint Supervision Mission	USAID/Malawi	9	March 1986
Second Meeting of The Steering Committee	GOM, IDA USAID/Malawi	9	March 1986

Action	Responsible Organization	Month	Anticipated Date
Chief of Party Arrives	Contractor	11	May 1986
Contractor Housing Assignments Made	Contractor GOM	11	May 1986
Contractor Personnel Arrive (4 Ag Research, 2 Ag Extension)	Contractor	12	June 1986
Establish Procurement Plan for Commodities and Equipment	Contractor	14	August 1986
Develop/Revise Work Plan by Component	Contractor GOM, USAID/M	14	August, 1986
First Quarterly Report	Contractor	15	September 1986
Second Quarterly Report	Contractor	18	December 1986
Third Joint Supervision	IDA/USAID	15	September 1986
Third Steering Committee Meeting	GOM, IDA USAID	15	September 1986
Contractor Report	Contractor	21	March 1987
Fourth Joint Supervision	IDA/USAID	21	March 1987
Fourth Steering Committee Meeting	GOM - IDA USAID	21	March 1987
Contractor Report	Contractor	24	June 1987
Contractor Report	Contractor	27	September 1987
Fifth Joint Supervision	IDA/USAID	27	September 1987
Fifth Steering Committee Meeting	GOM - IDA USAID	27	September 1987
Contractor Report	Contractor	30	December 1987
Triennial Review	GOM, IDA USAID	32	February 1988
Contractor Report	Contractor	33	March 1988
Sixth Joint Supervision	IDA/USAID	33	March 1988
Sixth Steering Committee Meeting	GOM - IDA USAID	33	March 1988
Mid Term Evaluation	GOM, IDA USAID	36	June 1988

Action	Responsible Organization	Month	Anticipated Date
Contractor Report	Contractor	36	June 1988
Seventh Joint Supervision	IDA/USAID	39	September 1988
Seventh Steering Committee	GOM - IDA USAID	39	September 1988
Eighth Joint Supervision	IDA/USAID	45	March 1989
Eighth Steering Committee Meeting	GOM - IDA USAID	45	March 1989
Ninth Joint Supervision	IDA/USAID	51	September 1989
Nineth Steering Committee	GOM - IDA USAID	51	September 1989
Tenth Steering Committee Meeting	GOM, IDA USAID/Malawi	57	March 1990
Final Evaluation	GOM, IDA USAID/Malawi	60	June 1990

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ANNEX 9. 7

COMMODITY LISTINGS AND PROCUREMENTS SCHEDULE

ANNEX 9.7

COMMODITY LISTINGS AND PROCUREMENT SCHEDULE

A. Items to be Procured - The commodity requirements are detailed in below, and briefly described under each section describing the Project's technical components. The source of individual items will vary, depending on the availability of commodities from the United States and the local market. Precise technical specifications will be developed by the selected Title XII Contractor as defined in the scope of work. In addition, a short-term (two month) Audio Visual Technician will be selected to develop the audio visual equipment specifications as a part of pre-implementation activities.

B. Applicable AID Procurement Regulations - The Title XII Contractor in procuring commodities on behalf of the Government of Malawi's Ministry of Agriculture, will be required to follow the standard AID procurement policies set forth in AID Handbook 11, Chapter 3. Likewise, the Ministry shall be governed by the same regulations when procuring project vehicles on its own behalf.

C. Source of Procurement - The source and origin of commodities being procured for the Project will be countries included in AID Geographic Code 941 (Selected Free World) and Malawi except as authorized under waivers or exempted as shelf items purchased under sanctioned local currency procurement.

D. Shelf Item Procurement - Imported shelf items, having their origin in the United States and other 941 countries, can be purchased without restriction, except for the limitation on the total amount available in the Project Paper for local cost financing.

Shelf items having their origin in the Geographic Code 899 countries are eligible for local cost financing if the unit cost does not exceed $5,000 and the total of such financing does not exceed $250,000 (10% of the total local costs financed by AID under this project however, not to exceed $250,000). Commodities mined, produced, or assembled in Malawi are available for purchase without restriction, except for the limitation upon the total value of local cost financing established in the Agreement.

Procurement of imported shelf items shall conform to good commercial practices, shall be at reasonable prices, and shall be consistent with local laws and practices. A supplier furnishing shelf items for the project must provide a statement attesting to the source and origin of the commodity sold at the time of sale.

E. Delivery - All imported goods will be shipped on a CIF Lilongwe basis. Suppliers will be required to obtain all-risk marine insurance in the amount of 120% of the CIF cost of the goods for any off shore procurement and similar insurance for inland freight. AID's shipping requirements shall be observed as outlined in AID Handbook 11, Chapter 3. Air freight shipments, when needed, will be approved by the USAID Project Officer.

F. Marking Requirements - All commodities to be furnished under this project, when practical, and all shipping containers shall be marked with the official A.I.D. emblem, in color, in strict conformance with AID marking requirements. Suppliers shall be responsible for correctly marking goods and

shipping containers. Emblems shall be affixed by metal plate, stencil label, tag, or other means, depending on the type of commodity or the shipping container and the nature of the surface to be marked, but in all cases must be large enough to be clearly visible at a reasonable distance.

For goods, emblems placed must be substantially as large, as durable, and as visible as the trademark, company or brand names affixed by the producer. Shipping containers must be marked with emblems which will be legible until they reach their destination. Such containers shall display the purchase order number characters equal in height to the shipper's marks.

G. Receipt and Utilization - The Ministry of Agriculture, in collaboration with the Title XII Contractor, shall be responsible for the proper reception and clearances of incoming Project commodities. Inspections of incoming shipments must be made, and receiving documents shall be annotated with comments on evident damages/losses.

Reports of damages/losses must be made promptly on all incoming cargo so that a claim or a "notice to file a claim" may be submitted to the carrier or freight forwarder involved.

All imported items, from whatever source, will be consigned to the Ministry of Agriculture, where the goods will be received and stored. The Ministry of Agriculture is required to put into project use all commodities procured for the project within one (1) year of receipt.

H. Records and Accounting - The Ministry of Agriculture will keep delivery records and any related accounting records, and provide copies for USAID/Malawi. All fiscal documentation in support of the total cost of goods to be procured and transported under this Project shall be prepared by the selected Title XII Contractor for review and certification by the AID Project Officer. Memos describing negotiation and award for individual procurements, as well as copies of quotations received, comparative pricing, etc., shall be maintained by the Ministry of Agriculture and the selected Title XII Contractor in the procurement files.

Based on past experience, a procurement lead time of 8 to 10 months can be expected for U.S. source and origin goods from the time of issuance of an implementation order to arrival of the goods in Malawi. Therefore, the PIL for U.S. and other offshore-funded commodities under this project will be issued in the first project month following the arrival of the long-term Title XII Contractor. Likewise, detailed specifications will be developed in the first project month.

The list of project commodities provided below is intended to be specific enough so that the USAID Project Officer, will be able to draft a Project Implementation Letter for commodities, based on the descriptions given here. In some cases the Project Officer may wish to obtain more complete descriptions from the Title XII Contractor once technical specifications have been completed.

TRAINING COMPONENT COMMODITIES LIST

ITEM DESCRIPTION	AGENT	S/U	FY	VALUE
2 Manual Typewriters	GOM	Shelf	85	500
1 Mineograph Machine	GOM	000	85	2,000
2 Passenger Vehicles (6 passenger sedans)	GOM	899	85	24,000
Training Reference Manuals	CTR	000	85-90	6,500
2 Micro Computers with Periperials	GOM	000	85	10,000
Misc.: Micro Software Micro Maintenance Contract Office Supplies Paper Supplies	GOM	000/ Shelf	85-90	20,000
Training Supplies: 40 Flip Chart Holders Flip Charts Reusable Pads Pads Markers	GOM	000/ Shelf	85-90	30.000
Office Supplies: Paper Stencils Notebooks Misc.	GOM	Shelf	85-90	20,000
		Subtotal		113,000

RESEARCH COMPONENT COMMODITIES LIST

5 Vehicles	CTR	Shelf	86	65,000

EXTENSION COMPONENT COMMODITIES LIST

2 Passenger Vehicles	CTR	899	86	$ 12,000	24,000
			Subtotal		24,000

MOA Communication Division (CD)

1 Offset Press, A3 size, single color, with spare parts 19,000	CTR	000	86	19,000
1 Electric Saddle Stitcher, 2 heads 2,000	CTR	000	86	2,000
Microcomputer/work processor, with peripherals, sofware and spare parts	CTR	000	86	10,000

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Photocopier, with capability for enlarging reducing, and making transparencies; with spare parts	CTR	899	86	10,000	10,000
Mimeographs and electronic scanner (stencil maker)	CTR	899	86	6,500	6,500
Drafting and graphic arts equipment with some materials and supplies	CTR	000/ Shelf	86-90	4,500	4,500
Headliner (mechanical)	CTR	000	86	700	700
Manual portable typewriter	CTR	Shelf	86	300	300
Silkscreen equipment, silk for screen Ulano films, squeegees.		CTR	000	1,000	1,000
		Subtotal			54,000

Evaluation/Action Research Section

Microcomputer/work processor, with software and spare parts	CTR	000	86	10,000	10,000
2 Programmable calculator with printer	CTR	000	86	300	300
High fidelity cassette tape recorder	CTR	899	86	700	700
				Subtotal	11,000

Editorial Section

Standard manual typewriter and other equipment	CTR	Shelf	86	1,000	1,000

Radio Section

2 Stereo speakers	CTR	Shelf	86	200	400
2 Professional turntable	CTR	899	86	200	400
2 4-band radio, cassette player, amplifier	CTR	899	86	500	1,000
10 Portable transistor radios	CTR	Shelf	86	50	500
4 Microphone, with stands and cables	CTR	000	86	200	800
2 Portable cassette tape recorder	CTR	Shelf	86	100	200
2 High speed cassette to cassette copier with slave unit	CTR	899	86	600	1,200

2 Studio monitors (speakers)	CTR	000	86	200	400
1 Bulk tape eraser	CTR	000	86	500	500
Reel to reel and cassettes tapes, editall bars, splicing, tape etc.	CTR	000	86	2,300	2,600
				Subtotal	8,000

Cine Section (All equipment is for videc

2 Automatic video editing control unit	CTR	899	86	1,650	3,300
2 High band U-matic video editing recorder	CTR	899	86	1,800	3,600
1 Edit bay	CTR	899	86		2,200
1 Professional color video monitor set	CTR	899	86		2.000
1 Color video camera	CTR	899	86		2,500
1 Portable color video camera	CTR	899	86		1,500
1 Carrying case for Item 6	CTR	899	86		130
3 Battery pac	CTR	899	86		150
1 A/C adapter	CTR	899	86		170
1 Video tape recorder	CTR	899	86		1,800
1 Studio monitor (video)	CTR	899	86		850
1 Portable VTR (recorder/playback)	CTR	899	86		1,100
1 Oscilloscope	CTR	000	86	800	800
2 Line voltage protectors (against extreme voltage fluctations)	CTR	000	86	100	200
1 E.H.T. meter probe, 40 KV D.C.	CTR	000		300	300
1 Color bar cross-hatch generator	CTR	000		700	700
1 C.R.T. tester, complete with tube base adapter	CTR	000		600	600
Assorted tools and small equipment	CTR	000		300	300
1 Rechargeable soldering iron	CTR	000		50	50
Charging unit for above	CTR	000		50	50

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Spare parts and equipment

Spare parts	CTR	000/	86 899		3,700
Spare equipment	CTR	000/	86 899		
				Subtotal	26,000

ADD Communication Section (8 FAV's)

8 Mimeograph	CTR	899	87	2,000	16,000
8 Electronic scanner (stencil maker)	CTR	899	87	2,250	18,000
8 Electronic typewriter	CTR	899	87	1,000	8,000
8 Photocopier with enlargement and reduction capacity	CTR	899	87	4,000	12,000
8 Graphic arts, drafting equipment	CTR	000	87	500	4,000
8 Small electronic saddle stitcher	CTR	000	87	600	5,000
8 Paper trimmer (30 x 36)	CTR	Shel	87		500
8 Manual typewriter	CTR	Shel	87	300	2,400
8 Programmable calculator	CTR	000	87	100	200
8 4-band radio, cassette player, amplifier	CTR	899	87	500	4,000
8 Reel to reel tape deck	CTR	899	87	400	3,200
8 Monaural speaker	CTR	000	87	50	400
16 Microphone, with stand and cable	CTR	000	87	200	3,200
16 High fidelity portable tape	CTR	899	87	200	3,200
25 Portable cassette recorders	CTR	Shel	87	100	2,500
Misc. audio items and supplies	CTR	Shel	87 899		10,000
10 Video cassette player	CTR	899	87	1,200	12,000
10 TV Color monitor	CTR	899	87	800	8,000
8 Enlarger	CTR	899	87	400	3,200

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8 35 mm. Camera	CTR	000	87	450	3,600
8 Small print dryer	CTR	000	87	150	1,200
8 Zoom lens (35-70 mm)	CTR	899	87	100	800
8 Refrigerator (4 or 5 cu. ft)	CTR	899	87	250	2,000
8 Paper trimmer	CTR	Shel	87		500
8 Flash Unit	CTR	899	87	50	400
8 Timer	CTR	000	87	25	200
8 35 mm. slide projector	CTR	000	87	600	4,800
8 Muti-tester	CTR	000	87	100	800
1 Signal generator	CTR	000	87	700	5,600
8 Audio generator	CTR	000	87	800	6,400
8 AVO transistor tester	CTR	000	87	250	2,000
8 Electric soldering iron, with station and accessories	CTR	000	87	75	600
8 Tool kit	CTR	000	87	200	1,600
10 Bell & Howell servicing kit 1680 or equivalent	CTR	000	87	700	7,000
10 Bell & Howell servicing kit 8399 or equivalent	CTR	000	87	1,300	13,000
8 Silkscreen setup	CTR	000	87	200	1,600
Miscellaneous small equipment and supplies	CTR	Shel	86		14,100
		Subtotal			202,000

<u>Bunda College</u>

Assorted A/V print equipment	CTR	000/ 899	87		30,000

<u>NRC</u>

Assorted A/V equipment		000/ 899			30,000

Women's Program. Asssorted office equipment and reference materials		Shelf/ 000	86-89		18,000

PROJECT PAPER

ANNEX 9.8

EVALUATION AND MONITORING SYSTEM

ANNEX 9.8

EVALUATION AND MONITORING SYSTEM

A. Monitoring and Evaluation - The evaluation system will consist of (a) baseline information; (b) monitoring and reviews; (c) evaluation of agricultural research, and (d) mid-term and end-of-project evaluations with the intent of guiding project directions and assessing achievements. The system has been designed taking into account USAID and IDA requirements and the demands of each on the time of Malawian officials involved in the three projects.

Pertinent data collected as a normal part of the GOM process will be used. Where necessary, the contractual services of Malawians or Americans will be secured to process and analyze the existing data in a form useful for the project purposes.

B. Baseline Data - Baseline data will serve as a reference point for measuring project achievements at the output, purpose and goal levels. Further, key data are needed to guide implementation plans and directions. In regards to the latter, as needs arise during implementation, IDA funds are available under the Agricultural Research Committee for socioeconomic as well as technical case studies.

Data are required to serve as a base for measuring an increase in institutional capacity and improved effectiveness of the MOA in serving male and female small-scale farmers.

It is anticipated that the MOA Planning Division, supported by IDA, will develop a suitable survey instrument which will permit measurement of FA and FHA services and various types of extension aids in increasing awareness and adoption. An important aspect of the proposed monitoring and evaluation plan is the coordination of USAID's systems with both the IDA National Research Project and the IDA Agricultural Extension and Planning Support Project. The IDA National Research Project has scheduled its biannual review for September and March to correspond with the planting and harvesting cycle. USAID proposes to schedule its evaluation monitoring system around those same dates. Given the inter-related nature of all three projects it is essential that this type of cooperation be maintained.

The Social and Institutional Profile and UNICEF/Cornell University Food and Nutrition Surveillance, both expected to be carried out with other USAID funds, will serve as part of the data base.

C. Monitoring and Reviews - USAID Contractors will be required to submit a quarterly report. This will serve as a major tool to monitor project performance. Also, all short-term consultants will be required to submit a report on work carried out, follow-up required and a summary of actual schedules, in addition to any other requirements stated in the terms of reference.

The Training Unit, Extension Aids and the Women's Program will establish internal monitoring and reviewing operations, for instance for the in-country training. For each course trainees will be required to complete a course evaluation form, the formal to be developed by the Training Unit, covering an

evaluation of contents and teaching methods used, and specifying skills learned. Under the management training, individuals should be required to provide written statements on planned and actual achievements since the last course and indicate future plans. While each trainer is expected to analyze the information and use it as a learning tool for future sessions, the Training Unit shall be the depository of all evaluation forms as well as be responsible for analysis to provide guidance for future plans.

Under the IDA National Agricultural Research Project a system for internal, Malawi review is to be institutionalized. This review will entail the following:

- ADD review meetings to: (a) prepare the ADD report for presentation to the annual National Research-Extension Workshop and (b) systematically review the various extension messages being issued to ascertain what updating and local specification is required.

- The annual National Research-Extension Workshop was to review problems occurrring in research-extension linkages, agree on aspects requiring improvement and propose suitable measures. Improvements would be sought in (a) the scope and effectiveness of the regular ADD research-extension workshops; (b) the adequacy including suitable local specificity, of crop recommendations in available extension publications and aids; (c) the programs, priorities, operation and organization of the ARTs; and, (d) the relevance of DAR applied research program to ADD problems. To assist in clarifying the agenda for the latter, the meetings would discuss reports prepared by each ADD on problems and future research needs, and by each commodity group on the major elements of its research and proposed future priorities.

The process described above will feed into the DAR Annual Planning and Review Exercise which includes the following stages:

- Commodity and Adaptive Research Group Reviews (end of July). Each National Coordinator would conduct a detailed review of the results of the previous season's research, and appraise the research proposals for the next fiscal year. Commodity team and ART reviews would be chaired by the relevant National Coordinator and would include the CARO, Deputy CARO Research, and Commodity Team Leaders.

- DAR Review and Planning Exercise (mid August). Based on the above commodity reviews, all the National Coordinators, CARO, and Deputy CAROs would sit as a panel to review and evaluate the previous season's program and, in that light, and in line with economic priorities, both to (a) adjust the program for the next season and (b) plan tht next fiscal year's program. A representative of the Extension Service, including representatives of selected ADDs would also participate. - Program and Budget Paper to ARC and ARC Review (end August-October). The CARO, with assistance from the Deputy CARO (Research) and the National Coordinators, would prepare an Annual Program and Budget Paper to the ARC (September). The ARC would review and adjust emphasis on the program as necessary to reflect major national priorities and recommend changes as necessary inter alia to maximize cost-effective participation by NGOs and the University. The ARC would review the draft budget, adjust as necessary, and endorse it.

One of the IDA bi-annual supervisory missions on the National Agricultural Research Project will coincide with the ARC review (iii) above. The IDA person together with a USAID representative will attend the presentation of papers on programs at the review and planning meeting. However, the rest of the meeting should be conducted without the presence of donor representatives, so as to permit open, frank discussions among the Malawians.

USAID will schedule its internal reviews around the dates of the IDA biannual reviews. USAID will use the services of RESO/ESA and AID/W to conduct these reviews. The first review is expected to center on procedures and operations especially in regard to the training, agroforestry, women's programs and the Mzuzu pilot communications programs.

D. Evaluations - A Triennial Review is scheduled under the National Agricultural Research Project to take place no later than March 31, 1988. The ARC will develop terms of reference for the review which will be submitted to IDA and USAID for approval. IDA and USAID will submit to GOM a short-list of three to four names per position, and the ARC selection of reviewers will require final IDA and USAID approval. It is expected that one reviewer will be from IDA and one from USAID.

The Triennial Review is to be an in-depth scientific review, but also address institutional issues. The review is to be carried out by a distinguished, experienced research administrator with international and tropical experience (serving as the Team Leader), two other experienced reviewers, with specializations in two of the major commodities of the research program, an experienced social scientist from the University of Malawi community, and a senior member of the extension staff.

The results of the Triennial Review will feed into a mid-term evaluation focussed on progress toward achieving outputs, and administrative and institutional aspects. An IDA representative for the Agricultural Extension and Planning Support Project will participate on the team. The terms of reference of the mid-term review will take into account those of the Triennial Review to avoid duplication. It is anticipated that the team will include experts in training, extension, agricultural economics and rural sociology.

During the last year of the project in cooperation with GOM and IDA, USAID will conduct a final evaluation. A consultant will be used to analyze household level data from the Planning Division and additionalinformation to determine the effect of the projects on male and female small scale farmers. Two additional consultants will address other aspects of achievement of project purpose. At lease one of these consultants will be a Malawian.

E. Administrative Responsibilities and Arrangements - The USAID Project Manager will be responsible for the allocation of funds for the Triennial Review and arrangements for the mid-term and end-of-project evaluations. For the evaluations, USAID will submit a list of candidates and resumes and a draft of the terms of reference to the Project Steering Committee for comment and approval. Prior to each evaluation, the Project Steering Committee and Chief of Party will be responsible for ensuring the following:

- The Training Division will have summarized the in-country course evaluations, have these evaluations available for the reviewers, and have a record on all in-country and out-of-country trainees, including the sex of

trainee. Other relevant documents will also have been collected for the team.

- The National ART Coordinating Office will have copies of all ART reports: background information, informal surveys, formal surveys, on-farm trails and others. Also a statistical summary by ADD on percentage of survey interviewees, interviewers and client farmers who are women.

- The DAR will have copies of DAR plans, budgets and reports and ARC case studies.

- Extension Aids Headquarters will have a complete set of all material produced at Headquarters and at ADD level and study reports ready for the team.

- The Women's Program will have a summary report by ADD on use of demonstration funds, copies of demonstration fund requests to be available in each ADD office, and a statistical report by ADD on the percentage of credit recipients and trainees at RTC agricultural courses who are women and number of women's groups.

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ANNEX 9.9

TRAINING PLAN

LONG TERM TRAINING PLAN
(in constant 1985 dollars)

TRAINING AREA	START	COMPL.	FY 85	FY 86	FY 87	FY 88	FY 89	F. ~	TOTAL	P/Y
Agricultural Research										
PhD. Level										
Soil Survey	9/85	9/88	66,000	----------	----------				66,000	3
Entomology (nut tree)	9/85	9/88	66,000	----------	----------				66,000	3
Maize Agronomy	9/87	9/90			66,000	----------	----------		66,000	3
Vegetable Production	9/87	9/90			66,000	----------	----------		66,000	3
MSc. Level										
Maize Pathology	9/85	9/87							44,000	2
Maize Beeding	9/85	9/87							44,000	2
Entomology (Maize and Groundnut)	9/85	9/87							44,000	2
Nematology	9/85	9/87							44,000	2
Agronomy (AR)	9/85	9/87							44,000	2
Agronomy (AR)	9/85	9/87							44,000	2
Agronomy (AR)	9/85	9/87							44,000	2
Total			444,000	9931,000	660,000	264	0	0	2,255,000	102.5

Total Participants
PhD - 4
MSc - 29
33

LONG TERM TRAINING PLAN
(in constant 1985 dollars)

TRAINING AREA	START	COMPL.	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	TOTAL	P/Y
Agricultural Research										
Msc. Level (cont.)										
Agronomy (AR)	9/85	9/88		44,000					44,000	2
Agronomy (AR)	9/86	9/89		44,000					44,000	2
Agronomy (AR)	9/86	9/88		44,000					44,000	2
Agronomy (AR)	9/87	9/89			44,000				44,000	2
Agronomy (AR)	9/87	9/89			44,000				44,000	2
Ag. Economics	9/86	9/89		44,000					44,000	2
Ag. Economics	9/86	9/88		44,000					44,000	2
Ag. Economics	9/86	9/88		44,000					44,000	2
Ag. Economics	9/87	9/89			44,000				44,000	2
Ag. Economics	9/87	9/89			44,000				44,000	2
Agronomy (AR-Coordination Unit)	9/86	9/88		44,000					44,000	2
Ag. Economics (AR-Coordination Unit)	9/86	9/88		44,000					44,000	2

LONG TERM TRAINING PLAN
(in constant 1985 dollars)

TRAINING AREA	START	COMPL.	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	TOTAL	P/Y
Agricultural Research										
Msc. Level (cont.)										
Ag. Economics	9/86	9/88		44,000					44,000	2
Biometrics	9/87	9/89			44,000				44,000	2
Agroforestry Agronomy	9/86	9/88		44,000					44,000	2
Silveculture	9/86	9/88		44,000					44,000	2
Vegetable Production	9/88	9/90				44,000			44,000	2
Entomologist ( )	9/87	9/89			44,000				44,000	2
Agroforestry Soil Scientist	9/87	9/89			44,000				44,000	2
Irrigation Agronomist	9/88	9/90				44,000			44,000	2
Soils Chemistry	9/87	9/89			44,000				44,000	2
Seed Pathologist	9/88	9/90				44,000			44,000	2
Research Subtotal -			440,000	484,00	484,00	132,000	0	0	1,540,000	70

Total Participants
PhD - 4
MSc - 29
Total 33

LONG TERM TRAINING PLAN
in constant 1985 dollars)

TRAINING AREA	START	COMPL.	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	TOTAL	P/Y
Extension										
MSc Level										
Horticulture (WPS)	Sept 86	Sept 88		44,000----------					44,000	2
Communications/ Ag. Extension	Sept 86	June 88		55,000----------					55,000	2.5
Agronomy	Sept 86	Sept 88		44,000----------					44,000	2
Farm Management	Sept 87	Sept 89			44,000----------				44,000	2
Land Resource Surveys	Sept 87	Sept 89			44,000----------				44,000	2
Agronomy	Sept 86	Sept 88		44,000----------					44,000	2
Ag. Education and Training	Sept 86	Jan 88		44,000----------					44,000	2
Agronomy	Sept 88	Sept 90				44,000----------			44,000	2
Farm Engineering	Sept 88	Sept 90				44,000----------			44,000	2
Agronomy	Sept 86	Jan 88		44,000----------					44,000	2
Agronomy	Sept 88	Sept 90				44,000----------			44,000	2
Nutrition	Sept 86	Sept 88		44,000----------					44,000	2

LONG TERM TRAINING PLAN
(in constant 1985 dollars)

TRAINING AREA	START	COMPL.	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	TOTAL	P/M
Pest Management	Sept 87	Sept 89			44,000----------				44,000	2
Adult Education	Sept 87	Sept 89			44,000----------				44,000	2
	Extension Subtotal		0	359,000	176,000	132,0000	0	0	627,000	28.5
Training ISC Level										
Ag/Extension-Education-Personnel Planning	Jan 86	Jan 88		44,000----------					44,000	2
Ag/Extension-Education-Admin/Management	Sept 86	Sept 88		44,000----------					44,000	2
	Training Subtotal		0	88,000	0	0	0	0	88,000	4

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SHORT TERM OFF-SHORE TRAINING PLAN

(IN CONSTANT 1985 DOLLARS)

TRAINING AREA	START	DURATION	FY 85	FY 86	FY 87	FY 88	FY 89	FY90	TOTAL	P/M
EXTENSION Print Media Systems for Head, Publications EAB - 6 months	1986	5 mos		21,000					21,000	6
A/V Equipment Maintenance for Head, Maintenance, EAB 5 months	1986	5 mos		10,000					10,000	5
Video Programming and Production for Head, Cine, EAB, 3 months	1931	5 mos		12,000					12,000	3
Composing for Offset Printing and Equipment Maintenance for Senior Typesetter, EAB 3 mon	1986	3 mos		12,000					12,000	3
Audio Media Systems for Head, Radio - EAB 1 month	1986	1 month		6,000					6,000	1
Graphic Design for Graphic Artist, EAB 3 months	1987	3 mos			12,000				12,000	3
Agricultural Communications (Head) EAB, 3 months	198	3 mos			12,000				12,000	3
Development Planning Management and Women for 4 WPOs ESAMI - 6 weeks	1987, 88, 89	6 weeks			6,000	(2) 12,000	6,000		24,000	1.5
Research Methodology Focussing on W/D Issues for 3 PU (Female) Researchers ESAMI - 4 weeks	1988, 89, 90	1 month				6,000	6,000	6,000	18,000	

TRAINING AREA	START	DURATION	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	TOTAL	P/A
RESEARCH Nursery Management (TO)	1986	4 mos		15,000					15,000	4
Temperate Fruits (TO)	1987	4 mos			15,000				15,000	4
Nut Tree Crops (TO)	1988	4 mos				15,000			15,000	4
ICRAF Agroforestry (PO)	1986, 87	6 mos 12 mos		21,000	21,000				42,000	18
ICRAF Rwanda Study Tour (PO)	1985	1 month	(3) 18,000						18,000	3
USDA Crs TC 140-33 Basic Statistics (TOs)	1986 1987	2 mos 2 mos		9,000	9,000				18,000	4
Poultry Production (TO)	1986	2 mos		9,000					9,000	2
Maize Production CIMMYT	1986	2 mos		9,000					9,000	2
Grain Storage and Marketing (TO) Kansas State	1986	2 mos		9,000					9,000	2
Seed Technology Course	1987	2 mos			9,000				9,000	2
Soils Management IITA	1988	2 mos				9,000			9,000	2
			18,000	141,000	84,000	42,000	12,000	6,000	303,000	39

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ANNEX 9.10

WOMEN'S PROGRAM SECTION

WOMEN'S PROGRAM SECTION ACTIVITIES

A. Introduction - In 1981 the Women's Program Section (WPS) was instituted to complement the Home Economics Section in order to focus attention on rural women's contributions to and involvement in agriculture. Although women have traditionally been heavily involved in agricultural production, their participation in Farmer's Clubs and in formal and informal agricultural training courses has been very low. This is of particular concern with respect to Female Headed Households (FHHs), which make up approximately 30% of all farm households in Malawi, because most of these women make all agricultural decisions and are solely responsible for the level of agricultural production. Seventy percent of the female heading households are either divorced, separated, or unmarried, 20 percent are women whose husbands reside elsewhere due to employment and 10 percent are involved in polygamous marriages.

The establishment of the WP Section was a first step in recognizing women's important contributions to agriculture and was identified as the mechanism for helping to integrate women more fully in agricultural development. The objectives of the WP Section include reorienting female extension workers from home economics to agricultural training and encouraging agricultural extension agents (predominantly male) to include women in on-going credit, extension, and training activities. The WP Section was also given the responsibility for monitoring women's involvement in agriculture and for advising the MOA on ways for improving women's participation in on-going agricultural programs.

Although the WP Section has been in place for 4 years, it has not yet made a clear and decisive break from its previous home economics orientation. Female extension staff remain strongly rooted to their established modes of operation, and male extension workers and management within the ADDs continue to view the WPS's primary responsibility as home economics. Women's groups are generally viewed as groups where home economics skills are being imparted, and not as potential agricultural units where the transfer of agricultural technologies can take place, although activities such as the Women's Project in the Phalombe RDP have demonstrated that women's groups can successfully undertake agricultural activities.

B. Problems and Contraints

1. Problems Faced by Women Farmers - Much has been written about the status of women farmers in Malawi as well as the special problems that women farmers face. Several factors have been identified that particulaly limit women's ability to participate in existing agricultural programs. These are:

a) Women are Low Resource Farmers - The majority of women farmers in Malawi (particularly those households headed by women) are at the bottom end of the economic spectrum. In fact, low levels of resources often cause married men to depart for off-farm employment, leaving their wives to head the farm household. These women are primarily subsistence farmers with limited land under cultivation, and with little if no cash profits resulting from their production. No data exist on control and distribution of resources

within male headed households, so the position of women within these remains unclear. Women's primary concern is to grow enough food for their families using their limited resources. They are likely to be "risk adverse" with respect to new technologies that require high financial and labor inputs.

b) Women are Poor Credit Risks - As low resource farmers, women are not considered as good "risks" for credit programs. If women wish to join an existing farmer's club, they must be accepted by the Farmer's Club Committee. Yet, because the farmer's club is collectively responsible for credit given to members and will not be eligible for further credit if there is a default on the loan, it has no incentive to accept new members (male or female) unless it is assured that the new members can repay credit. Women are poor risks because they usually have no collateral to offer, no previous credit history, and have not been previously involved in cash crop production.

c) Credit is Distributed First to Established Farmer's Clubs - All ADDs face the serious problem of inadequate credit funds to meet the demand of smallholder farmers. Their policy is to provide credit funds to those farmer's clubs that have successfully repaid credit. New clubs receive credit only when new credit funds are obtained or when established farmer's clubs default. With the increase in the prices of inputs, credit funds are growing even more scarce, which means that the chances of new clubs receiving credit are very slim.

d) Cultural Perceptions of "Women's Roles" - Several perceptions regarding the role of women have retarded women's involvement in agricultural development, including:

- MOA-imposed perceptions of what women farmers should do, as demonstrated by FHAs who are home economics-oriented and by the home economics courses at the RTCs and DTCs for which women are recruited.

- Men's perception of women's roles (e.g., a husband will attend an agricultural training course and send his wife to a home economics course, or male FAs will work primarily with men in extension and agricultural training.)

- Women's self-perception, i.e., women will de-select themselves from agricultural training and concentrate on home economics courses.

A shift in perception of what women's involvement in agricultural programs should be requires a reorientation on the part of MOA management, extension workers, and rural men and the women themselves. Further, clarification is needed as to what group of women farmers should be focussed upon. Currently, for example, the home economics activities serve women only from the upper third of rural society.

2. Agricultural Research and Technology Transfers - To date, the main emphasis of research has been on cash crops such as hybrid maize, tobacco, cotton, rice, and groundnuts. Agricultural technology transfer has meant adoption by the farmer of technologies requiring high levels of inputs which are available to the farmer through credit packages. For a farmer, either male or female, who has not received credit and cannot afford to purchase the prescribed inputs, the improved agricultural research remains largely irrelevant. Women are first and foremost responsible for producing

enough food for their families, and agricultural research which is heavily focused on cash crops is not addressing women's most pressing concerns.

Adaptive Research Teams (ARTs) conduct farmer's surveys and on-farm trials to determine the relevance and viability of proposed agricultural technologies. The ARTs already in place, however, have not included women in their on-farm trials owing to difficulties both real and perceived in approaching female farmers as all-male teams. If the needs of women farmers and their ability to implement proposed agricultural innovations are to be investigated, they must be included in the ARTs surveys and on-farm trials. Recognizing this problem, the ARTs have suggested including the WPO from the ADD in their field surveys so that women farmers can become clients in adaptive research activities.

3. The Roles of the Women's Program Section - The primary goals of Women's Program Section have been defined as: helping women to increase food production through increased extension efforts; and, promoting better use of both human and material resources available to rural women in order to improve family health and welfare. Recommendations for the more active involvement of women in agricultural programs has followed from this, but, although WPOs recognize the need for a greater emphasis on agriculture and a lesser emphasis on home economics, clearly defined objectives and strategies for achieving basic goals have remained elusive.

At present, each ADD pursues its own individual approach towards a women's-oriented program. There is no standardized methodology for the WPOs to provide information to the ADDs on women farmers, on the monitoring of women's involvement in agricultural programs, or on reorienting female extension workers' teaching methods towards food production. The perception of the WPS by other sections and by the WPS itself needs to be more fully addressed and the legitimacy and responsibilities of the WPS clearly established.

4. Women's Activities Staffing

a) Farm Home Assistants - The FHAs are the extension workers who have traditionally worked most closely with women. FHAs received a one-year training at Thuchila Farm Institute where they were primarily trained in Home Economics subjects with only a minimal exposure to technical agriculture. Although potential FHAs are now undertaking a two-year course at the Natural Resource College where they are given the same agricultural coursework as future FAs (the first group of more qualified FHAs will graduate in mid-1985), those FHAs already in the field have virtually no agricultural qualifications. While FHAs have been told to teach more agriculture to women's groups, most have not done so because of ingrained habits and because many are not comfortable with agricultural topics for which they have had little training. Although FHAs are now beginning to participate in Field Assistant (FA) agricultural refresher courses, these short courses are intended to build on an existing base of knowledge and not to teach a subject to those with no previous knowledge. Short lecture-based courses will not give FHAs the confidence they need to teach agriculture to women's groups. More basic training for FHAs in agricultural subjects appropriate to women farmers is required.

Although a small number of female FAs have been trained, virtually all have been assigned as FHAs or to Training Centers because of the shortage of female extension staff and because most women FAs have been unwilling to take on a Section which would require a great deal of travelling to Blocks and farmer's clubs. Recruiting of women for the FA course has been difficult because women identify agriculture as a career for men. Women tend to identify themselves more with the FHA program because it is specifically geared toward the training of female extension workers. Yet even in the FHA course, not enough women are recruited for training because they are unwilling to accept the rural postings that go along with the job, their educational expectations are directed elsewhere or they have conflicting family commitments.

There are now 211 female FHAs working in Malawi as compared to approximately 1600 Field Assistants. The FHAs are based at the EPA level (which contains numerous, far-flung sections) where they have limited mobility to cover their geographic area of assignment as compared to the FAs who are responsible for only one Section within the EPA. The tendency is for FHAs to stay at EPA centers and interface with women who reside nearby. It is reasonable to expect FHAs to travel within a 4-5 mile radius or further where there is access to transport, but their outreach is not monitored. Under the present program, FHAs mainly serve women in the upper third of rural society. At present, the low number of female extension workers as compared to male extension workers means that any strategies to provide more agricultural extension services to women farmers must also rely on the male extension workers.

b) Women Program Officers - Out of 8 ADDs, only 3 have a Women's Program Officer (WPO) at the professional officer (PO) level. This is serious constraint with respect to their status, credibility and skills in developing programs. In order to function as a Subject Matter Specialist (SMS) on an equal footing with other SMSs, a WPO should be a Professional Officer. This will be particularly criticial if WPOs work with the ARTs to incorporate female farmers into Adaptive Research activities.

WPOs in the ADDs also need more exposure to general WID issues, particularly as they relate to Malawi, in order to be more effective as SMSs. They need to be able to address women as a separate interest group with special needs as well as to insure that women are incorporated in general programs so that they cease to be disadvantaged relatives of male farmers.

c) Women's Program Section/Headquarters - At present, there is only a single staff member, the WPO/HQ, assigned to the WPS in the Ministry of Agriculture. Her basic role is to ensure the rural women and their special needs are incorporated into the MOA's program planning and development.

C. Strategies for improving Extension Services to Women - The following strategies are outlined as the means for improving the quality of extension services women farmers receive from female (and male) extension workers, and as the means for including women farmers more fully in other agricultural programs.

1. WPS Overall Activity Directions and Staffing - A requisite for integrating women into the agricultural development process is adequate

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leadership from Headquarters. The WPO at Headquarters, in cooperation with WP officers at the ADD level and with advice from the USAID-funded Technical Assistant for the WPS, should develop a manual for women's activities which more clearly defines policy guidelines, clarifies main objectives and specifies strategies. This should take into account the program objectives of Home Craft Workers and Maternal and Child Health Care Workers. The manual should also contain guidance on: (a) intended clientele; (b) the loci of responsibility in regard to assembling data on women's involvement in agricultural programs; (c) guidelines for presentation of data at ADD staff seminars and project seminars; and, (d) the development of cooperation and collaboration with other MOA sections. The WPS should also develop guidelines for a system to more closely monitor the work of FHAs to determining work actually done and geographic coverage. A minimum number of days working with women's groups outside the EPA Center should be specified, the expected geographic coverage outside the center should be identified (related to access to transport), and targets for the number of agricultural clubs and other women's groups the FHA is expected to organize and serve should be set. In addition, the WPS should devise a method for determining if there is improved coverage by those FHAs in the Mzuzu ADD who receive motorbicycles provided by the IDA project.

The 5 ADDs without a WPO at professional officer level should give top priority to upgrading the WP position to a PO post (this could be accomplished through the allocation of an existing PO position within each ADD). The WPS should also continue to work towards the assignment of a WP officer at the RDPs. Owing to the low number of FHAs in the field, WPOs should be active in recruiting new FHAs to fill vacancies that exist in the ADD.

2. Technical Assistance - Under the MARE Project, a long-term (2 1/2 years) Specialist will be recruited for the Women's Program Section. The TA will be based in the Ministry Headquarters where she will work with the WPO/HQ (or acting WPO/HQ) as her counterpart. Her responsibilities will include advising and assisting with: (a) organizing workshops, seminars, training courses, extension aids, and training manuals for assisting WPOs at the ADDs, FHA and FA at the RDPs, and women's groups in upgrading their agricultural skills levels; and, (b) establishing the proposed demonstration fund's criteria and procedures. She will also provide guidance on developing clearer directions for the WPS. (See Job Description in Annex 9.10).

3. Training

a) WPO/HQ - The MARE Project will fund the WPO/HQ for a Masters degree course for two years. One of the three WPOs now working at the ADD level will be appointed as Acting WPO for the period the WPO is in long term training. The MARE-funded advisor will be contracted for a period designed to overlap by at least 3 months before and after the WPO's training period.

b) WPOs-ADD level

(1) Short-term, in-country training seminars and workshops should be organized for all WPO (TO to PO level) for the purposes of: improving the understanding of WID issues and strategies; developing women-oriented activities within the MOA; standarizing approaches towards

implementation of strong women's activities within the ADDs; and, collaborating with other SMSs to ensure adequate participation of women farmers in all levels of ADD programs. Workshops for WPOs should also concentrate on project planning, monitoring of women's involvement in ADD programs, and methods for presenting data and making presentations at ADD staff seminars and Project seminars. These seminars and workshops are expected to be financed by the DOA from its recurrent budget.

(2) Two WPO will be trained as trainers (see Training Annex) and will be responsibile for developing and conducting special courses for upgrading the FHA's basic agricultural skills levels and service delivery methodologies.

(3) Where appropriate, WP staff will be sent for short-term, off-shore training for courses on WID, such as those offered by the East and Southern Africa Management Institute in Tanzania. The WPS Advisor will assist in identifying appropriate courses, workshops and seminars. Selection of candidates should be based on job performance as well as job responsibilities.

(4) Because the WPS places a special emphasis on assisting women to increase food production, WP staff should also participate in other appropriate Project or ADD-funded training courses for SMSs to upgrade their own skills in food production, management and communications.

c) Farm Home Assistants and other Field Extension Personnel

(1) The two WPOs trained as trainers will develop and give courses for FHAs and FAs in group process extension techniques and strategies for organizing new women's groups based on the Phalombe experience of involving male community leaders. A series of courses will be held so all field extension personnel will be trained in these techniques.

(2) FHAs in all ADDs will participate in an intensive one month food production training courses which will impart skills in low-capital input food production techniques for crops such as legumes, vegetables, fruit trees and in small animal husbandry with the aim of improving women's ability to feed their families and provide a nutritionally sound diet without high-capital inputs. FHAs will also learn how to link food production to the more traditional women's group lessons of cookery, child weaning, health and nutrition. This training will focus heavily on learning by doing. Immediate supervisors will also be involved in the training to facilitate follow-up and feedback.

During this training, 3-4 days will be devoted to group process techniques for identification of viable activities for use of demonstration funds, and application and monitoring procedures. It is expected that the food production course will include all FHAs. Upon successful completion of training, FHAs will be eligible for access to demonstration funds. The two WPO trainers, with the assistance of the WP Advisor, will identify suitable trainers (eg. technical specialists who have been to the Training of Trainers course) and will develop the course program.

When all FHAs have been trained, the WPS will work with the Extension Aids Branch on the publication of a reference guide based on the technologies and methods discussed during the course. The reference guide will also include the results of the trainee's evaluation of the course.

(3) WPs will train FA's in group process techniques, for identification of viable demonstration fund activities, and application and monitoring procedures.

(4) FHAs will also participate in other Project-funded training courses which are aimed at improving technical and communication skills.

(5) ADD refresher courses will be conducted for FHAs and should include problem solving methodology as well as home economics skills; methods for developing collaboration between FHAs and FAs in the field; and, evaluation as to what extent FHAs have been able to effect the shift from the orientation on home economic lessons to food production.

(6) FHAs should participate in the Credit Seminars that are held at the ADD level in order to provide information to women's groups on credit programs in the ADD and to assist groups to apply for credit when they wish to do so.

(7) WP will develop a course for trainers aimed at womens groups which focusses on leadership and management skills.

d) Expansion of Women's Groups - The number of women's groups with which FHAs and FAs work is relatively small. FHA-associated groups tend to be comprised of women from the upper third of rural society who are interested in home economics. To expand coverage to include women whose priority is agricultural production and who belong to the lower two-thirds of rural society, new groups need to be formed with the assistance of FHAs. The women's project in Phalombe RDP can serve as a successful model.

e) Funds for Women's Demonstration Agricultural Activities - The MARE Project will provide financing for the establishment of a demonstration fund for agricultural production by women's groups. The purposes of the fund are: to teach skills associated with improved agricultural practices and technologies, and to provide limited resources (e.g. tools) for adopting improved technologies; to demonstrate benefits from improved food production practices which are within the economic means of most of the group members; and, to demonstrate the credit worthiness of the group and its individual members so as to provide them greater access to agricultural credit. These purposes indicate three different strategies and levels of financial assistance. All commodities will be ordered and purchased by the ADDs. Care must be taken to ensure that the demonstration plot is perceived as belonging to the participants. Given that most of the demonstrations will be for rainy season agricultural activities and because of the time constraints of most women, it is strongly recommended that each participant be assigned a portion of the demonstration plot. This will help to ensure that the work is carried out on a timely basis. Moreover, it is expected that each participant will receive all or most of the output from her labor. The group may decide to sell some to raise money for investment in future group activities.

Demonstration Fund criteria, application format, and procedures will be established by the WPS, with assistance of the WP advisor. The criteria should be: a minimum number of 10 active participants; a maximum of $100 for a group's first demonstration and a maximum of $250 for a second demonstration (although HQ could approve special requests over this amount based on group stability, performance and an economic analysis of the proposed activity); a group would only be eligible to receive allocations twice; no individual could participate more than twice in an activity receiving demonstration funds; and, that two-thirds of the group officers (including the chairperson) and participating members and intended direct beneficiaries are women.

The format should include: purpose of demonstration, as perceived by members; intended participants' decision on allocation and use of the output; proposed action plan; a budget, which specifies items requested from the fund; indication of technical advise needed; and, information on group, (e.g. year begun, previous activities, number of members, and number intending to participate). It is anticipated that the request will require Development Officer approval, because EPA supervision may be required. The request would be reviewed by the ADD WPO in consultation with other appropriate SMSs and approved by the ADD. The WPO at the ADD would be responsible for ordering commodities and overseeing their distribution, and for keeping appropriate records.

The WPS, with guidance from the WP Advisor, will establish a system for monitoring the use of demonstration funds and for assessing the benefits and spread effect. The demonstration fund is intended primarily for use through FHAs. However, it is expected that during year three of the project, FAs, with appropriate training, will have access to the fund to use with women's groups.

f) Recruitment of Female Extension Workers - Given the low number of women who undertake agricultural extension training, a special effort should be made to attract women to such training courses. This can be provided by:

- Natural Resource College: at present the NRC sends a representative to Secondary Schools upon invitation for Career Day talks. The WPS should liaise with the NRC for outreach to co-ed and girl's secondary schools.

- WPOs: WPOs should be involved in school talks to secondary school girls on careers in the MOA, and on the role of women farmers in development.

g) Integration of Women in Agricultural Programs - An important function of the WPS is to help ensure that women are more fully integrated into agricultural programs, and to obtain statistics on women's participation. The WPS also has an important role vis-a-vis agricultural research to ensure that research is conducted that will benefit women in their role as food producers.

4) Research

a) Adaptive Research Teams - The ARTs need to include women farmers in their formal and informal surveys and in on-farm trials and demonstrations. This can be done through the part-time assignment of WPOs to work with the ARTs especially on surveys and analysis of data. The critical stages where her time will be most worthwhile is in assuring that women's problems and potential agricultural involvement are addressed in surveys, and that women are included as respondents and cooperating farmers. Over the life of project the WPO's involvement is expected to decrease. In addition, the WPOs should participate in the development of labor profiles on individual crops.

Date on activities associated with a given crop should be compiled to determine whether new technologies being promoted are benefiting men or women or both.

b) Applied Research - Agricultural research in Malawi has been heavily oriented towards cash crops and technologies requiring large capital inputs relative to smallholder incomes. Applied research on food crops and technologies requiring less expensive input levels would be of greater value to women farmers who tend to be low resource farmers. The WPS should liaise with the Department of Agricultural Research to identify crops with low capital input requirements which yield good profit margins so that these crops can be promoted for income-generating activities in women's groups.

5) Extension

Collaboration between FAs and FHAs - Given the small number of FHAs in the field, extension outreach to women must also rely on Field Assistants, who are almost all male. Collaboration between male and female extension workers should be promoted in the following ways:

a) Team Work by FA and FHA - Because the FA covers a smaller area than the FHA, he/she should be encouraged to assist the FHA in working with women's groups on agricultural extension, especially where the FHA is located at too great a distance for regular supervision. The FHA will have some supervisory and teaching responsibility for the group, but the FA will provide assistance to the group on a more regular basis.

b) NRC Field Training - While at the NRC, FA and FHA candidates should work together in their field practicals for their course in Extension Methods. This would help provide a model and precedent for future collaboration between FAs and FHAs when they are at their posts.

6) Credit

Because of the limited availability of credit funds, and because of women's low access to credit to date, specific efforts need to be made to allocate some credit funds for women. In the short-term, credit to women's groups should be encouraged. Clear guidelines need to be established on providing credit to women's groups, and credit packages should be modified where appropriate (e.g., smaller credit packages). Women's groups should be eligible for credit either as a group or for as individual club members (as in a farmer's club). Initially the group might receive credit or a group and be eligible for individual members the next year upon successful repayment of the loan.

7) Extension Aids - Extension aids more relevant to women farmers need to be developed. Slides, posters, radio programs, and publications should depict women doing agricultural work and participating in agricultural programs. The WPO/HQ should be actively involved in monitoring the inclusion of women by Extension Aids, and should assist in the development of suitable extension aids materials for FHAs and women farmers.

8) Data on Women's Participation - The cooperation of other sections of the DOA and the Planning Division is necessary for provision of data on women's integration in agricultural programs. FA's monthly reports should disaggregate by sex data on farmer contacts. Statistics on membership in farmer clubs and blocks should also be available by sex. ADD summary records on credit recipients and records of attendance at home economic and agricultural courses at training centers should be disaggregated by sex. In some ADDs these records are already kept and others should be required to do so.

The Planning Division's monitoring and evaluation program should ensure that data are processed and analyzed according to sex of household head. Further, when appropriate, it should include in survey designs information on the women in male headed households, such as extension contacts and information received.

Attachment A

Organizational Framework for the Women's Program Section

and Cooperating Entities

Ministry of Agriculture

Women's Program Section

Staff — Women's Program Officer (P.O.) — Reports to Chief Agricultural Officer

Cooperators in Women's Activities

Agricultural Development Divisions (ADDs)

Staff — 3 P.O. WPOs, 5 STO WPOs — Reports to Program Manager

Rural Development Projects (RDPs)

Staff — Female 29 STAs and TOs — Reports to Project Officer

Extension Planning Areas (EPAs)

Female 190 TAs (FHAs) — Reports to Development Officer

Extension Sections

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Attachment B

NUMBER OF STAFF MOA INVOLVED IN WOMEN's ACTIVITIES BY GRADE AND LOCATION

	P.O	STO	TA	STA	FHA		FA	DA (No Formal Training)
HQ	1	-	-	-	-	-	-	-
NADD	-	-	1	-	13		2	3
BLADD	1	-	4	1	23		3	-
LWADD	-	-	3	1		28*		-
LADD	1	-	1	5	37		4	9
SLADD	-	-	1	-		13*		-
KADD	-	1	2	2		26*		-
MZADO	1	1	1	1	23		6	8
KRADD	-	-	2	1	11		-	1
NRC	1	1	1	1	-		-	-
SCA	-	-	-	1	4		-	-
TOTALS	5	3	16	13	190			21

Only total figure available

211
female ext. workers

No. of staff in WP by grade

P.O. - 5
S.T.O. - 3
T.O. - 16
S.T.A. - 13
T.A. - 190 (F.H.A. AND F.A.)
D.A. - 21

Female Extension Workers - 211 (F.H.A., F.A. AND D.A.)

PROJECT PAPER

ANNEX 9.11

JOB DESCRIPTIONS

JOB DESCRIPTION

Position: Agricultural Production Economist

Work Location: Chitedze Agricultural Research Station, Lilongwe, Malawi

Length of Assignment: 3 years

Responsibility: Technically responsible to the Chief Agricultural Research Officer, Department of AGricultural Research, Ministry of Agriculture.
Administrative responsibility to the Title XII University Contractor for the USAID/Malawi Agricultural Research and Extension Project (612-0215)

Counterpart Staff:
Biometrician (and Team Leader of Unit), MSc
Biometrician, BSc
Statistician/Computer Programmer - Slated for MSc training (9/86)
Agricultural Economist - Slated for MSc training (9/86)
Agricultural Economist - Slated for MSc training (9/86)
Agricultural Economist - Currently in PhD training

Background:

The Department of Agricultural Research (DAR) is one of four major divisions within the Ministry of Agriculture in Malawi and is currently undergoing a comprehensive reorganization. Amo g the institutional changes which are being implemented is the establishment of an Agricultural Economics, Statistics and Data Processing Unit which will operate under the auspices of the DAR. Because this is a new activity, the assistance of a Production Economist is required for developing the Unit.

Scope of Work and Responsibilities:

This position will not have within its scope of work any agricultural research activities per se, rather the Production Economist will advise and assist the Unit's Team Leader to organize the Unit and to establish procedures for the following service delivery systems:

- Provide economic, financial and statistical analysis for the five commodity coordinating groups of the DAR (Cereals, Horticulture, Grain legumes, Livestock and Pastures, and Agricultural Engineering/Land Husbandry).

- Establish an advisory/training service to commodity teams for design of research and required data collection for preliminary financial, social and biological analysis of individual research projects.

Establish a computerized bank of data to include: all biological, economic and social research conducted by the MOA or other relevant Malawian institutions; relevant biological, economic and social researchconducted by regional and international institutions; and information relative to prices, population, production, etc., which can be used to determine trends or changes.

The three development areas enumerated above are listed in order of priority for implementation. The Production Economist will, however, be expected to have initiated preliminary activities in all areas well in advance of the end of tenure.

The Production Economist will have the additional duty of training the counterpart staff as well as the commodity staff to develop their analytical capabilities.

Facilities:

Mainframe computer facilities are available as are micro-computers for field and research station work. The World Bank, in addition, is providing more equipment which will be located both at the MOA and on the research stations. A good data base exists and reliable statistical information is regularly generated but these are not centrally located or readily available. Reference materials are also limited.

The Production Economist will be assigned a vehicle for official use and will be provided a fuel and maintenance allowance. In addition to DAR resources, a development fund of $5,000.00 per year has been budgeted for identified training needs of the Unit's staff. The project has also allocated funds for short-term technical assistance and training.

Qualifications:

MSc in Agricultural Production Economics, with 10 years experience; broad experience in organizing, planning and developing an agricultural economics and statistical unit under developing country conditions; experience in training staff in developing a service delivery system; a portion of experience should have been a major assignment in a developing country (preferably in Africa) in work related to smallholder production; and, demonstrated ability to incorporate traditional attitudes or cultural practices and women-specific issues into the planning of research and in the analysis and interpretation of data.

Position: Horticultural Specialist

Work Location: Bvumbwe Agricultural Research Station, Limbe, Malawi

Length of Assignment: Two years

Responsibility: Technically responsible to the Chief Agricultural Research Officer, Department of Agricultural Research (DAR), Ministry of Agriculture.
Administratively responsible to the Title XII University Contractor for the USAID/Malawi Agricultural Research and Extension Project (612-0215).

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Counterpart Staff:

Entomologist - Slated for PhD training (August 1985)
Temperate Fruit Horticulturist - Slated for PhD training (9/85)
Vegetable Horticulturist - Slated for PhD training (9/87)
Tropical Fruit Horticulturist - Slated for Msc training (9/87)
Coffee Agronomist - Slated for MSc training (August 1985)
Tuber Agronomist - Currently in MSc Training
Nut Crop Horticulturist - Currently in MSc training

Background:

Horticulture crops in Malawi represent a wide range of temperate and tropical fruits, vegetables and tubers, spices, nut trees and coffee. The Ministry of Agriculture is encouraging greater production of all horticultural crops by estates (20 or more acres) and smallholders (3 to 5 acres) to improve nutrition, to promote crop diversification and to increase export levels.

To date, increased horticultural production has been impeded by: lack or shortage of seed, nursery stock, fertilizer and pesticides; inadequacy of markets and processing facilities; transportation difficulties; and lack of relevant and/or up-to-date technology. In addition, within Malawi's 3 agroecological environments, the varying amounts of rainfall during the rainy season (November to March) and the significant elevation differences have complicated crop adaptability and production practices.

Scope of Work and Responsibilities:

Because most of the counterpart staff are scheduled for off shore training during the 2 year tenure of the Horticultural Specialist, this position will have the major advisory responsibilities for planning and supervising on-station, smallholder-oriented trials at Bvumbwe and for planning sub-station research to meet national priorities. The focus of these activities will be the application of existing technology and/or the development of new technology appropriate to smallholder's farming systems.

The Horticulture Specialist will, to the extent possible, develop vegetable cropping systems based on annuals that fit with the smallholder farmers' tendency to plant 3/4ths of their land to maize. Because there are three distinct agroecological regions in Malawi, recommendations for horticultural production must be developed that fit within both the smallholders' farming systems and their ecological environment. Concurrently, multiple cropping and intercropping techniques should be developed in order to make optimum use of limited smallholder resources. Attention should also be directed to the special needs of women farmers, who comprise about 30 percent of Malawi's smallholders.

It has already been determined that work on basic, on-station research will have little benefit in the short-run nor will it help in achieving the MOA's goal of rapid adoption of available technology to dramatically increase fruit nut and vegetable production. Emphasis will, therefore, be directed towards adapting available technology to local conditions and developing simple, site-specific recommendations that can be adapted by low-resource, smallholder farmers who have little inclination or ability to take risks.

Linkages with the local Adaptive Research Teams should be forged to determine specific farmer problems in horticultural crops. This will allow for rapid identification of culturally-acceptable practices with agro-ecological appropriateness, and will facilitate in the long term, profitable production of horticultural crops by smallholder farmers.

Facilities:

Bvumbwe Agricultural Research Station is a reasonably equipped facility of 500 acres. The World Bank is providing funds to further develop station infrastructure and for additional equipment both at Bvumbwe and associated sub-stations.

The Horticulturist will be assigned a 4 WD vehicle for official use and will be provided a fuel and maintenance allowance. In addition to DAR resources, a development fund of $5,000.00 per year has been allocated for the purpose of funding research and/or training to assist the Horticulturist in accomplishing the basic scope of work.

Qualifications:

PhD in fruit and/or vegetable horticulture, with 10 experience in years fruit and vegetable research and/or production. A portion of this experience should have been a major assignment in a developing country (preferably in Africa) in research and/or production under small-scale, low resource conditions. Candidate should have a demonstrated ability to incorporate traditional attitudes or cultural practices and women-specific issues into the planning of research and in the analysis and interpretation of data.

Position: Agro-Forester

Work Location: Chitedze Agricultural Research Station, Lilongwe, Malawi

Length of Assignment: Three years

Responsibility: Technically responsible to the Chief Agricultural Research Officer, Department of Agricultural Research, Ministry of Agriculture.
Administratively responsible to the Title XII University Contractor for the USAID/Malawi Agricultural Research and Extension Project (612-0215).

Counterpart Staff: Soil Scientist (and Team Leader), PhD
Forestry Agronomist - Slated for MSc training (9/86)
Silviculturist - Slated for MSc training (9/86)

Background:

The responsibility for agro forestry research has only recently been transferred to the Department of Agricultural Research (DAR). Prior to this, agro forestry activities were conducted under the auspices of the Ministry of Forestry with work primarily confined to wood and lumber species more suited to plantations. Other work done in agro forestry includes: intercropping Lucaena for forage for smallscale dairy operators conducted by the Livestock and Pastures unit of the DAR; trials and extension activities using a number of tree species for the purpose of soil conservation conducted by the Land Husbandry section of the Agricultural Development Divisions (ADDs); and, intercropping trials conducted by Bunda College. None of these activities took into account smallholders' farming systems or economic returns, with the result that there has been little adoption of the various technologies.

Scope of Work and Responsibilities:

The primary responsibility and first priority for the Agro-Forester is to advise and assist the Team Leader in organizing and establishing procedures for the new Agro Forestry Section under the Agricultural Engineering and Land Husbandry Unit of the DAR.

The Agro Forestry Unit will work closely with all commodity groups because trees will, in most cases, be grown in association with other crops. Particularly close links will be established with the Adaptive Research Teams (ARTs). ARTs work directly with smallholders and will require training by the Agro Forestry Unit in agro forestry diagnostic and design techniques as well as information regarding the latest and most relevant agro forestry technology. In return, the ARTs will provide the Agro Forestry Unit with the results of their surveys regarding smallholder farming systems, attitudes, and interest in Agro Forestry technology. To expedite this process, the Agro Forestry Unit will assist the ARTs in the design of on-farm trials to assess the social and economic feasibility of agro forestry solutions to land use constraints. The ARTs, whose primary duties are to conduct general surveys of farmer problems and to establish adaptive trials on farmers' fields, will be a resource for quick testing and extension of new agro forestry recommendations. To assist with the training of the ARTs, research and extension staff in agro forestry, a contract will be made with ICRAF for two to three months staff time per year. ICRAF will also be used as a resource for Malawian Agro Forestry staff training.

The Agro Forester's principal technical duties, and second priority, will be to use currently available technology to provide recommendations for the design and testing of agro forestry practices suited to the smallholders' farming systems. These recommendations must be aimed at providing a financial return to a risk-averting, low resource smallscale farmer. With the ARTs conducting the adaptive trials, recommendations for agro forestry practices to be incorporated into smallholder cropping and livestock systems will be readily verified and demonstrated at the farmer level. Extension Service staff in close liaison with the ARTs can then extend the varified practices to other areas of their ADDs.

The third priority for the Agro-Forester will be in research and the development of new Agro-forestry technology, as deemed necessary and appropriate.

Facilities:

Department staff and research station facilities as indicated above are available and will be enhanced by a World Bank loan providing funds and advisory services on research station development.

ICRAF is to be contracted for in-country training, short-term technical assistance and short-term training in Nairobi.

Nursery stocks of a number of legumenous species for forage and fertilizer, and fruit and nut species for intercropping and border plantings are available from the Ministry of Forestry and DAR. Laboratory and reference materials are limited.

The Agro-Forester will be assigned a 4 WD vehicle for official use and will be provided a fuel and maintenance allowance. In addition to DAR resources, a development fund of $5,000.00 per year has been budgeted for the purpose of funding research and/or training to assist the Section in accomplishing its basic scope of work.

Qualifications:

A PhD in an agricultural discipline applicable to Agro Forestry; ten years of experience in agro forestry, a portion of which should have been a major assignment in a developing country (preferably in Africa) working at field level in the adaptation of available agro forestry technology for smallholder farming systems; and, a demonstrated ability to incorporate traditional attitudes or cultural practices and women-specific issues into the planning of research and in the analysis and interpretation of data.

Position: Agricultural Communications Specialist

Work Location: Extension Aids Branch (EAB), Ministry of Agriculture, Lilongwe, Malawi.

Length of Assignment: 2-1/2 years

Responsibility: Technically responsible to the Chief Agricultural Officer or designee, Department of Agriculture (DOA). Administratively responsible to the Title XII University contractor for the USAID/Malawi Agricultural Research and Extension Project (612-0215)

Counterpart Staff: Head, Communication Division, MSc.

Background:

The Extension Aids Branch, which was established in the Department of Agriculture in 1958, provides communications support for Malawi's Extension Service at the national level. In addition to the EAB activities ongoing at the national level, Extension Aids Units (EAUs) have been established at each of the 8 Agricultural Development Divisions (ADDs) to provide communications support directly to Extension personnel at this level as well as those working directly with farmer groups in the Rural Development Projects (RDPs) and Extension Planning Areas (EPAs).

A well structured and organized extension system is in place in Malawi, however, there are two primary constraints which have prevented the EAB from performing at its most efficient level, including: inefficient and ineffective support, in general; and in particular, lack of linkages and two-way information flow between and among research, extension and smallholder farmers and other entities involved in the agricultural technology development/testing/transfer process.

Scope of Work and Responsibilities:

The Communications Specialist will advise and assist the EAB Head in accomplishing the following specified duties:

- Develop long range and annual plans aimed at upgrading and institutionalizing the EAB and EAUs to provide the effective communications support systems required by the Extension Service.

- Train EAB and ADD EAU staff in communication planning, strategies and system development, including preparation of training and reference guides and manuals.- Develop, in cooperation with Commodity Research Coordinators, DOA Subject Matter Specialists and Program Administrators at the national level, and with Program Managers, Subject Matter Specialists and EAU Head at the ADD level, mechanisms and linkages to integrate communication strategy planning and implementation effectively into the total extension planning process.

- Develop and strengthen the EAB's capacity to design and conduct communication-related investigations, to pre-test materials in various media, and to interpret and utilize the results to improve program effectiveness and impact.

- Design and implement the Mzuzu Mass Communication Pilot Project (approximately 40 percent of Communications Specialist's work schedule has been allotted for this sub-Project). Identify the most promising and/or effective results of the Pilot Project and develop recommendations for use in other ADDs.

Facilities and Staff:

The EAB has printing and other media equipment and materials, although much of the equipment is antiquated and some critical items are lacking. The EAUs at the ADDs are minimally equipped with many items worn out or in need of repair and replacement parts. The Project will fund commodity procurement for equipping the EAB with new and more up-to-date equipment and materials.

There is a large, relatively well-trained staff at the MOA who possess technical production skills in radio programming, photography, graphic arts, film production and off-set printing. The EAUs at the ADDs have from one to seven staff members, most of whom have had little specialized training in communications. The Project has budgeted for a comprehensive training program for communication staff at all levels.

The Communications Specialist will be assigned a vehicle for official use and will be provided a fuel and maintenance allowance. In addition to DOA resources, a development fund of $5,000.00 per year has been budgeted for the purpose of funding training and/or materials and equipment to assit the division in accomplishing its scope of work.

Qualifications:

Minimum of a Master's degree in a relevant discipline (either in agriculture with complementing study/experience in communications or in communications with complementing study/experience in agriculture) with at least 10 years experience; minimum three years cumulative experience in the establishment, organization and operation of multi-media agricultural communication production units and programs in developing countries (experience in Africa preferred); familiarity with communication strategies, all media to be utilized under the Project, communication-related investigation and evaluation, and communication networking; experience in planning, scheduling and production in various media to provide effective communication support to technology transfer programs; and, a demonstrated ability to incorporate traditional attitudes or cultural practices and women-specific issues into the planning of information dissemination and media presentations.

Position: Adaptive Research Agronomist

Work Location: Chitedze Agricultural Research Station, Lilongwe, Malawi

Length of Assignment: 2-1/2 years

Responsibility: Technically responsible to the Chief Agricultural Research Officer, Department of Agricultural Research (DAR), Ministry of Agriculture.

Administratively responsible to the Tital XII University contractor, USAID/Malawi Agricultural Research and Extension Project (612-0215)

Counterpart Staff: Agronomist, National Coordinator of Adaptive Research - slated for MSc training (9/86)

Background:

Under the on-going reorganization of the DAR, eight Agricultural Development Division (ADD)-based Adaptive Research Teams (ARTs) and a National Adaptive Research Coordinating Unit are being established. To date CIMMYT, IDA and the terminating Malawi Agricultural Research Project (612-0202) have funded and trained three operational ARTs and the National Coordinating Unit. Three ARTs are to be trained and deployed during the tour of the Specialist, and two ARTs will become operational after the tour.

The Adaptive Research Section was established for the general purpose of assisting agricultural researchers to be more responsive to the constraints and problems of smallholder farmers in Malawi.

Responsibilities that have been assigned to the ARTs include:

- Conducting surveys at the farm level to determine priority problems and constraints to increased productivity and profitability of smallholder agriculture.

- Verifying/adapting, through on-farm trials, available technology to relieve the identified constraints.

- Developing new or relevant technology in cooperation with subject matter specialists and researchers where available technology does not prove adaptable to smallholder needs.

- Verifying, through on-farm trials, developed technology and delivering the new practices to the Extension Service.

- Alerting the policy makers of constraints to production that cannot be solved through technology.

- Establishing the basic links between and among research, extension, and smallholder farms.

Scope of Work and Responsibilities:

The Adaptive Research Agronomist is expected to be in place and begin orientation into the Adaptive Research Program in Malawi and its on-going activities at least 3 months prior to the National Coordinator's departure for long-term training. Similarly, a three month overlap following the Coordinator's return is expected.

The Adaptive Research Agronomist will assume the duties of the National Adaptive Research Coordinator during the latter's absence. These duties are as follows:

- To coordinate the research activities among adaptive research teams and between these teams and the applied research programs. Particular attention should be given to ensuring that the teams are fully appraised by the commodity research specialists on constraints under review before any farm trials are initiated and to ensure collaboration between teams and different ADDs with common problems.

- To ensure that adaptive research teams are interacting with the ADD staff as required by the Program Manager.

- To appraise and refine work programs and budgets of individual adaptive research teams to ensure that they are practical and are targetted on the objectives approved by the ARC.

- To ensure that the work programs of the Adaptive Research Teams operate within the annual budget allocation and to state the case to the CARO for any emergency situation in the team's operations which require additional funding.

- To draw attention to individual ART team leaders any appropriate information from internal or external sources.

- To monitor and evaluate research progress with members of the adaptive research teams and ensure that reports are prepared in a timely manner.

- To act as Secretary of the Annual National Research/Extension workshop.

- To appraise budgets for research funded under National Rural Development Projects and to make recommendations for allocations.

- To monitor and evaluate research undertaken under NRDP funds and to ensure that reports are prepared in a timely manner.

- To counsel and encourage adaptive research staff.

- Undertake such activities as requested by CARO.

- Organize and supervise field level activities ongoing in a wide range of environments and under differing living conditions. (A major portion of the Agronomist's time will be allocated to this work responsibility).

The Adaptive Research program is already established, and its methodologies have been set and have the approval of the MOA| Thus, the Adaptive Research Agronomist will not be expected to have any major responsibilities with regards to reorienting or changing the Adaptive Research approach that is now being implemented in Malawi. In addition, this position will not have within its scope of work any research responsibilities per se, rather it is an advisory, leadership and management position.

Facilities and Staff

Office space, computer equipment support staff and station facilities will be provided by the GOM. The Adaptive Research Agronomist will be assigned a 4 WD vehicle for official use and will be provided a fuel and maintenance allowance. Over and above DAR resources, a development fund of $5,000.00 per year has been budgeted for the purpose of funding research and/or training to assist the Unit in accomplishing its basic scope of work. A long-term (2-1/2 years) expatriate Agricultural Economist will concurrently be contracted to assist the Agronomist with the management of the Adaptive Research Unit.

Qualifications:

PhD in Agronomy with ten years experience in agronomic research and/or production, a portion of which should have been a major assignment in a developing country (preferably in Africa) working with small-scale, low-resource farmers; experience in planning, guiding and managing agronomic research/production; experience with multiple and intercropping technology applicable to optimizing production and profitability of risk-averse, low-resource smallholders; proven ability to work in a coordinating and liaison capacity; a demonstrated ability to incorporate traditional attitudes and cultural practices and women-specific issues into the planning of research and in the analysis and interpretation of data; and, recent work experience with farming systems research and in the adaption and transfer of available technology to farmers' fields.

Position: Adaptive Research Agricultural Economist

Work Location: Chitedze Agricultural Research Station, Lilongwe, Malawi

Length of Assignment: 2-1/2 years

Responsibility: Technically responsible to the Chief Agricultural Research Officer, Department of Agriculture Research (DAR), Ministry of Agriculture and to the National Adaptive Research Coordinator (NARC)

Administratively responsible to the Title XII University contractor, USAID/Malawi Agricultural Research and Extension Project (612-0215)

Counterpart Staff: Socio-Economist, National Adaptive Research Coordinating Unit - slated for MSc training (9/86)

Background:

Under the on-going reorganization of the DAR, eight Agricultural Development Division (ADD)-based Adaptive Research Teams (ARTs) and a National Adaptive Research Coordinating Unit are being established. To date, CIMMYT, IDA and the terminating Malawi Agricultural Research Project (612-0202) have funded and trained three operational ARTs and the National Coordinating Unit. Three ARTs are to be trained and deployed during the tour of the Specialist, and two ARTs will become operational after the tour.

The Adaptive Research Section was established for the general purpose of assisting agricultural researchers to be more responsive to the constraints and problems of smallholder farmers in Malawi.

Responsibilities assigned to the ARTs include:

- Conducting surveys at the farm level to determine priority problems and constraints to increased productivity and profitability of smallholder agriculture.

- Verifying/adapting available technology, through on-farm trials, to relieve the identified constraints.

- Developing new or relevant technology in cooperation with Subject Matter Specialists and researchers where available technology does not prove adaptable to smallholder needs.

- Verifying, through on-farm trials, newly developed technology and delivering the new practices to the Extension Service.

- Alerting the policy makers of constraints to production that cannot be solved through technology.

- Establishing the basic links between and among research, extension and smallholder farmers.

Scope of Work and Responsibilities:

The Adaptive Research Economist is expected to be in place and to begin orientation to the Adaptive Research Program in Malawi and its on-going activities at least three months prior to the Socio-Economist's departure for long-term training. Similarly, a three month overlap following the Socio-Economist's return is expected.

The Adaptive Research Agricultural Economist will assume the duties of the Socio-Economist, National Adaptive Research Coordinating Unit, during the latter's absence. These duties include:

- Assisting the National Adaptive Research Coordinator (NARC);

- Assuring that all Adaptive Research Teams (ARTs) undertake research directed towards identifying and solving social and economic constraints;

- Providing leadership and counsel to the ARTs in social and economic areas;

- Conducting aggregate analyses of ART data, (biological, social and economic), to identify commonalities or constraints that cannot be alleviated by technology;

- Identifying relevant researchable topics which are beyond the capabilities of the ARTs and preparing workplans for contract research or consultancies.

- Identifying and consolidating training requirements for the ARTs; and

- Undertaking other activities as requested by the NARC.

The Adaptive Research Program in Malawi is already established, and its methodologies have been set and have the approval of the MOA. Thus, the Adaptive Research Economist will not be expected to have any major responsibilities with regards to reorienting or changing the Adaptive Research approach that is now being implemented in Malawi. In addition, this position will not have within its scope of work any research responsibilities per se, rather it is an advisory, leadership and management position.

The AR Economist will, by necessity, have the dual role of economist and social scientist, and will be expected to provide leadership to the ARTs in incorporating economic and social factors in the planning and analysis of on-farm trials. The Agricultural Economist will also be expected to spend a significant amount of time in supervising and organizing field-level activities ongoing in a wide range of environments and under differing living conditions.

Facilities and Staff:

Office space, support staff and station facilities will be provided by the GOM. The Adaptive Research Agricultural Economist will be assigned a 4 WD vehicle for official use and will be provided a fuel and maintenance allowance. In addition to DAR resources, a development fund of $5,000.00 per year has been budgeted for the purpose of funding research and/or training to assist the Unit in accomplishing its basic scope of work. The AR Economist will assist the long-term expatriate Agronomist who will concurrently be contracted to act as National Coordinator for the Adaptive Research Unit.

Computer time, mainframe and micro, will be available to the AR Economist and support staff.

Qualifications:

MSc in Agricultural Economics with five years experience in applied production economics or research, a portion of which should have been a major assignment in a developing country (preferably in Africa) working with small-scale, low-resource farmers; ability to work in a coordinating and liaison role; experience in planning, leading and managing applied production economics activities; experience in optimizing production and profitability of risk-averse, low-resource smallholders; a proven ability to incorporate social and women-specific issues into planning of research and in the analysis and interpretation of data; and, recent work experience in farming systems research and adaption and transfer of available technology to farmer's fields.

Position: Training Advisor

Work Location: Ministry of Agriculture, Lilongwe, Malawi

Length of Assignment: 3-5 years

Responsibility Technically and administratively responsible to the Controller of Agricultural Services (CAS) Ministry of Agriculture

Counterpart Staff: Chief Training Officer, Ministry of Agriculture - slated for MSc training (9/86)

Background:

At present, the Ministry of Agriculture (MOA) has no comprehensive training plan nor is there a focal point for coordinated staff development. There is no coordinated mechanism for determining training needs or for considering programs most appropriate for meeting individual and group skills requirements.

The need for enhanced training for staff at all levels of the Ministry of Agriculture is well documented. Lack of sufficiently or properly trained personnel has retarded both the MOA's efficiency and effectiveness in achieving its basic objective of increasing smallholder farmer production and incomes. In addressing this major constraint, the Malawi Agricultural Research and Extension Project (MARE) has identified the provision of training as the central priority for targetting project activities.

Centralized and coordinated organizational framework for MOA training will be developed, including the following activities:

- Establishment of a Training Unit attached to the Controller for Agricultural Services at the Ministry of Agriculture;

- Establishment of a Training Advisory Committee consisting of the CAS, the Chief Agricultural Officer (CAO), the Chief Agricultural Research Officer and the Chief Training Officer to assist in the development of a training policy and an overall training plan;

- Institution of a comprehensive study of the Extension Service and the effectiveness of its delivery system; and,

- Institution of an in-service training program directed towards the immediate needs of DOA and DAR personnel at an administrative and program level.

Scope of Work and Responsibilities:

The Training Advisor post is the lead position of the training component. This position has work responsibilities as follows:

- To provide leadership in the development and implementation of a national training policy for the DOA and DAR.

- To train Malawian counterparts.

- To work closely with the Training Advisory Committee in an advisory capacity.

- To develop an overall training plan which will provide the DOA and DAR personnel with beneficial training designed to upgrade technical and managerial abilities.

- To provide leadership in establishing criteria and procedures to be followed in the selection of candidates for long and short term, off-shore training.

- To develop a system of monitoring and evaluating the impact of all DOA and DAR in-country training

- To identify qualified experts, from various international institutions and centers, worldwide and in Malawi, who can deliver specific types of training.

- To develop consultative mechanisms with MOA and Malawi educational institutions for short-term, in-country training.

- To develop a strategy to assess the effectiveness of residential training centers and farmer institutions.

Facilities:

Office space, support staff, mainframe computer facilities, office equipment, and a vehicle for official use will be provided by the Government of Malawi.

Qualifications:

PhD in administration, educational administration or agricultural and extension education (an extensive record of work and/or graduate level studies in the area of manpower development may substitute for a PhD); ten years experience in the broad area of personnel management/manpower development which should include a major assignment in a developing country (preferably in Africa); demonstrated ability to plan training programs; demonstrated ability to assess training needs in relation to major Ministerial functions; knowledge of training opportunities and resources available from IARCs, Regional Centers and national institutions; experience with adult education methodologies; and, a demonstrated ability to function in a liaison and coordination role.

Position: Training Specialist

Work Location: Ministry of Agriculture, Lilongwe, Malawi.

Length of Assignment: 2-4 years

Responsibility: Technically and administratively responsible to the Controller of Agricultural Services (CAS), Ministry of Agriculture

Counterpart Staff: Training Officers, Ministry of Agriculture - slated for MSc training (9/87)

Background:

At present, the Ministry of Agriculture has no comprehensive training plan nor is there a focal point for coordinated staff development. There is no coordinated mechanism for determining training needs or for considering programs most appropriate for meeting individual and group skill requirements.

The need for enhanced training for staff at all levels of the Ministry of Agriculture (MOA) is well documented. Lack of sufficiently or properly trained personnel has retarded both the MOA's efficiency and its effectiveness in achieving its basic objective of increasing smallholder farmer production and incomes. In addressing this major constraint, the Malawi Agricultural Research and Extension Project (MARE) has identified the provision of training as the central priority for targetting project activities.

A centralized and coordinated organizational framework for MOA training will be developed, and will include the following activities:

- Establishment of a Training Unit attached to the Controller for Agricultural Services at the Ministry of Agriculture:

- Establishment of a Training Advisory Committee consisting of the CAS, the Chief Agricultural Officer (CAO), the Chief Agricultural Research Officer and the Chief Training Officer to assist in the development of a training policy and an overall training plan;

- Institution of a comprehensive study of the Extension Service and the effectiveness of its delivery system; and,

- Institution of an in-service training program directed towards the immediate needs of DOA and DAR personnel at an administrative and program level.

There is a particularly critical need for enhanced training within the Department of Agriculture (DOA) which is the MOA's organizational entity that houses the Extension Service in Malawi. The DOA is a decentralized organization with offices and key personnel spread throughout Malawi. There are a minimum of five administrative levelsand the lowest administrative unit functions as the contact point with smallholder farmers. Specific training posts have been established at each Agricultural Development Division (ADD). Training is also a responsibility of RDP Project Officers and EPA Development Officers. The level of formal training throughout the DOA is relatively low and most personnel recognize the need for additional training.

Scope of Work and Responsibilities:

The Training Specialist will be directly responsible for training at all administrative levels of the DOA. Specific responsibilities include:

- Developing and implementing a training program for the trainers in both the DOA and the Department of Agricultural Research.

- Training Malawian counterpart.

- Working with the Training Advisor to assist in accomplishing various aspects of the overall training plan.

- Developing resource materials for trainers at the ADD, RDP, EPA, Residential Training Centers and Farm Institutes.

- Incorporating all techniaues necessary and appropriate to the development of training programs which meet the needs of trainees and upgrades their knowledge, skill and performance.

- Supervise and assist with a planned assessment of RTCs and FIs.

- Advising on the planning, implementation and evaluation of all training being undertaken in the DOA.

- Participating in in-service training as a trainer, when possible, and overseeing logistical, material, and training program needs (e.g. methods, needs assessments, evaluation, etc.)

Facilities:

Office space, support staff, mainframe computer facilities, office equipment. and a vehicle for official use will be provided by the GOM.

Qualifications:

PhD. in Educational Administration, Agricultural and Extension Education, a record of similar responsibilities may substitute for the PhD; 10 years experience of adult training which should include a major assignment in a developing country (preferably in Africa); experience in the use of participatory teaching methods; experience in organizing, leading and managing training programs.

Position: Women's Program Advisor

Duty Location: Department of Agriculture (DOA, Ministry of Agriculture, Lilongwe, Malawi.

Length of Assignment: 2-1/2 years

Responsibility: Technically responsible to the Chief Agricultural Officer (CAO), Department of Agriculture.

Administratively responsible to the Title XII University contractor of the USAID/Malawi Agricultural Research and Extension Project (612-0215).

Counterpart Staff: Women's Program Officer (WPO) - slated for MSc training (Sept 86) or designee.*

*(One of the three WPOs now working at the Agricultural Development Division (ADD) level will be appointed as Acting WPO for the period the WPO is in long-term training.)

Background:

In 1981, the Department of Agriculture (DOA) established a Women's Program Section (WPS) for the purpose of focussing more sharply on the needs and problems of women involved in agricultural production in Malawi. The WPS is a complementary women-oriented program to the Food and Nutrition Section, which functions primarily in the area of home economics. To date, a clear break from a general home economics orientation has not taken place within the WPS. Part of the problem for this reorientation failure has been the lack of an overall development and institutional plan for the WPS.

Scope of Work and Responsibilities:

The basic responsibility of the Women's Program Advisor is to assist in institutionalizing a support system and developing a plan of action for the WPS in order to be more responsive to women involved in agriculture and to more effectively address the special constraints women encounter in fulfilling their responsibilities for provision of food for domestic consumption and for the production of cash crops. Specific responsibilities include:

- Providing advice to the WPS on defining WP objectives, strategies and action programs, and on establishing a system to monitor staff performance;

- In cooperation with the MOA Training Unit, work with WP trainers in the development and organization of a Farm Home Assistant intensive on-month agricultural course and a short follow-up course; In addition, work with WP trainers in the development and organization of a course for Farm Assistants, a course for leaders of women's groups and other training considered essential to the strengthening of the WP; assist with conducting training, when appropriate.

- In consultation with Agricultural Development Divisions, establish criteria, application format and procedures for use of a demonstration fund for women's groups' agricultural activities;

- In cooperation with the Training Unit, assist with identification of out-of-country, short-term training courses, seminars and study tours which will strengthen the capacity of the WPs;

- In cooperation with the MOA's Communications Division, provide guidance on extension materials needed to reinforce the WP training and demonstration fund activities;

- In cooperation with the Agricultural Development Division and Adaptive Research Teams, arrange for the involvement of WP officers in adaptive research activities;

- In cooperation with the MOA's Statistical and Data Processing Unit, advise on collection of statistics on women farmers' participation in agricultural programs;

Assist in monitoring the extent to which women and women's special concerns are integrated in MOA programs.

Facilities:

Office space and housing will be provided by the GOM. The project will provide a sedan vehicle for official use as well as a fuel and maintenance allowance. In addition to DOA resources, a development fund of 5,500.00 per year has been budgeted for the purpose of funding special studies or training to assist the WPS in accomplishing its basic scope of work.

Qualifications:

MSc. in Agricultural and Extension Education or Adult Education; a minimum of five years experience developing and providing training for extension staff or working directly with farmers, with at least two years in a developing country (preferably in Africa); demonstrated ability to work directly with or in programs aimed at assisting low-resource farmers; experience in organizing, leading and managing programs targetted for identified clientele groups, such as women; demonstrated ability to function in a liaison and coordination role; experience in developing training programs; experience in the use of participating teaching methods; and experience in evaluating programs for impact.

PROJECT PAPER

ANNEX 9.12

TECHNICAL ASSISTANCE PLAN

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LONG TERM TECHNICAL ASSISTANCE

(IN CONSTANT 1985 DOLLARS)

AREA OF SPECIALIZATION	START	COMPL.	FY 85	FY 86	FY 87	FY 88	FY 89	FY90	TOTAL	P/Y
RESEARCH										
Production Economist	June 86	June 89							405,000.00	3
Agroforester	June 86	June 89							405,000.00	3
Agricultural Economist	June 86	Jan 89							337,500.00	2.5
Agronomist	June 86	Jan 89							337,500.00	2.5
Horticulturist	June 86	June 88							270,000.00	2
EXTENSION										
Agricultural Communications Specialist	Jan 86	Jan 89		337,500----------					337,500.00	2.5
Women's Program Specialist	Jan 86	Jan 89		337,500----------					337,500.00	2.5
	July 85	July 88	405,000----------						405,000.00	3
TRAINING										
Training Advisor	Aug 88	Aug 90				270,000----------		------	270,000.00	2
Training Specialist	July 85	July 81	270,000----------						270,000.00	2
					270,000----------					
			675,000	2,430,000	270,000	270,000			3,645,000.00	

SHORT TERM TECHNICAL ASSISTANCE

(IN CONSTANT 1985 DOLLARS

AREA OF SPECIALIZATION P/Y	START	DURATION	FY 85	FY 86	FY 87	FY 88	FY 89	FY90	P/M
EXTENSION									
Communications Hardware Specialist	1986	2 months		2					2
Operational Evaluator	1987	5 months						2	
	1990	2 months			5			2	7
Audio Media	1987	2 months				2			
	1988	2 months			2				4
Written Communication	1987	2months			2		1		3
	1989	1 month							
Print Media Systems	1987	3 months			3				3
Equipment Maintenance	1987	2 months			2	1		1	4
1988	1								
1990	1								
Graphic Arts	1988	2 months				2	1		
	1989	1 month							3
Photo/Silkscreen	1988	3 months				3	1		4
	1989	1 month							
Instructional Video	1988	5 months				5	1		6
	1989	1 month							
Women's Program	1989						1		1

CONT.....

AREA OF SPECIALIZATION P/Y	START	DURATION	FY 85	FY 86	FY 87	FY 88	FY 89	FY90	P/M
RESEARCH									
Livestock	1988	1 month							
	1990	1 month				1		1	2
Cereals	1987	1 month			1		1	1	3
	1989	1 month							
	1990	1 month							
DL & Oil Seed RCU	1987	1 month			1	1		1	3
	1988	1 month							
	1990	1 month							
Services Division	1987	1 month			1	1		1	3
	1988	1 month							
	1990	1 month							
Art. Agronomist	1989	1 month					1	1	2
	1990	1 month							
Socio-Economist	1986	1 month			1	1	1	1	4
	1987	1 month							
	1988	1 month							
	1989	1 month							
	1990	1 month							
Art. Economist	1989	1 month					1	1	2
	1990	1 month							
Horticulturist	1987	1 month			1		1		2
	1989	1 month							
Eng. and Land Husbandry	1986	1 month		1	2	3	1		7
	1987	2 months							
	1988	3 months							
	1989	1 month							
TRAINING									
EPA Study						12			12
Training Planners				3	8	6	6	0	23
.....				6	26	35	12	11	100

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