AGENCY FOR INTERNATIONAL DEVELOPMENT

Washington, D. C. 20523

PROJECT PAPER
AMENDMENT #2

EGYPT: National Agricultural Research (263-0152)

August 22, 1988

AGENCY FOR INTERNATION EVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CO: C (A = Add, C = Change, D = Delete) — Amendment Number 2 — DOCUMENT CODE 3

2. COUNTRY/ENTITY: EGYPT

3. PROJECT NUMBER: 263-0152

4. BUREAU/OFFICE: ANE — 01

5. PROJECT TITLE (maximum 40 characters): NATIONAL AGRICULTURAL RESEARCH PROJECT

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 09 DD 30 YY 94

7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4)
A. Initial FY 85 B. Quarter 4 C. Final FY 93

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

A. FUNDING SOURCE	FIRST FY 88 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total			60,000	185,000	115,000	300,000
(Grant)	(35,000)	(25,000)	(60,000)	(185,000)	(115,000)	300,000)
(Loan)	( )	( )	( )	( )	( )	(
Other U.S. 1.						
Other U.S. 2.						
Host Country		20,000	20,000		75,000	75,000
Other Donor(s)						
TOTALS						

9. SCHEDULE OF AID FUNDING ($000) 375,000

A. APPROPRIATION	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) ESF	180	000		60,000		170,000		300,000	
(2)									
(3)									
(4)									
TOTALS								300,000	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 080, 012, 052, 053, 247

11. SECONDARY PURPOSE C: 140

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

A. Code	BR	R/AG	TECH	TNG	PVOU	COOP	
B. Amount							

13. PROJECT PURPOSE (maximum 480 characters)

To improve Egyptian capability to provide farmers with productivity-increasing technologies in a supportive policy environment.

14. SCHEDULED EVALUATIONS
Interim MM 09 YY 90 — MM 04 YY 91 — Final MM 04 YY 94

15. SOURCE/ORIGIN OF GOODS AND SERVICES
[X] 000 [X] 941 [X] Local [X] Other (Specify) 899

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

USAID/Egypt Controller concurs with the proposed methods of implementation & financing. As there are several new activities and implementing units for which it was not possible to do assessments of the contracting, procurement, accounting & reporting capabilities of the implementing agencies, such assessments must be completed before any disbursements to new activities will be approved.

William A. Miller, AD/FM 8/15/86

17. APPROVED BY
Signature: Marshall D. Brown
Title: Mission Director
Date Signed: MM 08 DD 22 YY 86

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

AID 1330-4 (8-79)

PROJECT PAPER AMENDMENT NO. 2

NATIONAL AGRICULTURAL RESEARCH PROJECT 263-0152

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ACRONYMS AND ABBREVIATIONS

ACDI	Agricultural Cooperative Development International
A&E	Architect and Engineering
AERDRI	Agricultural Extension and Rural Development Research Institute
AERI	Agricultural Economics Research Institute
AID or AID/W	Agency for International Development, Washington
ANE/PD/ENV	Asia-Near East/Project Development/Environmental
APC or APCP	Agricultural Production and Credit Project
ARC	Agricultural Research Center
CAAES	Center for the Administration of Agricultural Extension
CAMD	Center for Agricultural Management Development
CAS	Central Authority for Seeds
CASE	Center for the Administration of Specialized Extension
CBD	Commerce Business Daily
CDA	Community Development Association
CDSS	Country Development Strategy Statement
CFR	Code of Federal Regulations
CID	Consortium for International Development
CP	Conditions Precedent
CRSP	Collaborative Research Support Program
DCA	Data Collection and Analysis
DG	Director General
EAD	Extension Affairs Division
8 (a)	Small Disadvantaged Business with a Contract with the Small Business Administration
EMCIP	Egyptian Major Cereals Improvement Project
EO	Executive Office
EOPS	End of Project Status
ESF	Economic Support Funds
FAA	Foreign Assistance Act
Feddan	1.04 acres
FM/FA	Financial Management/Financial Analysis
FX	Foreign Currency (U.S. dollars)
FSN	Foreign Service National
GNP	Gross National Product
GOE	Government of Egypt
Handbook 10	Participant Training
Handbook 11	Country Contracting
Handbook 14	Procurement
HRDC/ET	Human Resources Development Cooperation/

	Education and Training
IARC	International Agricultural Research Center
IFB	Invitation for Bid
IMS	Irrigation Management System
IRRI	International Rice Research Institute
ISTI	International Science and Technology Institute
IQC	Indefinite Quantity Contract
LC	Local Currency
LE or L.E.	Egyptian Pounds
LEG	Legal
L/COMM	Letter of Commitment
L.P.	Linear Programming
MALR	Ministry of Agriculture and Land Reclamation
MOU	Memorandum of Understanding
MS or MSc	Master of Science
NARC	National Agricultural Research Council
NARP	National Agricultural Research Project
NASS	National Agricultural Statistics Service
NCR	National Cash Register Company
O&M	Operation and Maintenance
OMB	Office of Management and Budget
PACD	Project Assistance Completion Date
PASA	Participating Agency Service Agreement
PC or P.C.	Personal Computer
PDS/PS	Program Development and Support/Project Support
PDS/E	Program Development and Support/Economic
PDS/P	Program Development and Support/Program
PBDAC	Principal Bank for Development and Agricultural Credit
PhD	Doctor of Philosophy
P.M.	Person-Months
PSA	Procurement Services Agent
PSFS	Private Sector Feasibility Studies Project
PIL	Project Implementation Letter
PP	Project Paper
PSC	Personal Services Contract
PVO	Private Voluntary Organization
PWWR	Public Works and Water Resources
R/E	Research and Extension
RFTP	Request for Technical Proposal
RSP	Research Support Program
SFPP	Small Farmer Production Project
SMS	Subject Matter Specialist
S&T	Science and Technology
TA	Technical Assistance
U/AES	Undersecretariat for Agricultural Economics and Statistics

USAID	United States Agency for International Development (outside the U.S.)
USDA	United States Department of Agriculture
USDH	United States Direct Hire
USG or U.S.G.	United States Government

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FIRST AMENDMENT
TO
PROJECT AUTHORIZATION

Name of Country: Arab Republic of Egypt

Name of Project: National Agricultural Research Project

Number of Project: 263-0152

1. Pursuant to Sections 531 and 532 of the Foreign Assistance Act of 1961, as amended (the "Act"), the National Agricultural Research Project was authorized on July 30, 1985. The authorization is hereby amended as follows:

a. Paragraph 1 is amended in its entirety to read as follows:

"1. Pursuant to Sections 531 and 532 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the National Agricultural Research Project for the Arab Republic of Egypt (the "Cooperating Country") involving planned obligations of not to exceed Three Hundred Million Dollars ($300,000,000) in grant funds over an eight-year period from the date of the authorization, subject to the availability of funds in accordance with the AID OYB allotment process, to help in financing foreign exchange and local currency costs of goods and services required for the Project. The planned life of the Project is nine years from the date of initial obligation."

b. Paragraph 2 is amended in its entirety to read as follows:

"The Project will improve data collection and analysis; technology generation, technology transfer and policy analysis/formulation processes; information utilization and dissemination; seed production capabilities; and agricultural research facilities, all with a view to improving Egypt's capability to provide farmers with productivity-increasing technologies in a supportive policy environment."

c. Subparagraph 3(C)(2) is deleted in its entirety.

d. Paragraph 3(D) is deleted in its entirety.

e. Paragraph 3(F) is amended by (1) changing the title of the paragraph to "Conditions Precedent to Disbursement for Commodities and Motor Vehicles"; (2) making the present paragraph subparagraph (1); and (3) adding the following subparagraph:

"(2) Prior to any disbursement for motor vehicles or the issuance by AID of documents pursuant to which disbursement will be made for motor vehicles, with the exception of the motor vehicles already on order as of the date of this Agreement, the GOE shall, except as the parties otherwise agree in writing, furnish to AID in form and substance satisfactory to AID, evidence that whatever governmental action is necessary in order to obtain full exemption from import restrictions, duties, taxes or other similar impositions for all project-financed motor vehicles has been taken."

f. Paragraph 3(H) is amended by (1) renumbering the paragraph as paragraph 3(I); (2) renumbering subparagraph (6) as subparagraph (5); and (3) adding to the end thereof the following additional covenants:

"(6) The Grantee shall, except as the parties may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to AID, prior to the beginning of the Grantee's fiscal year each year of the Project, annual implementation and financial plans for each of the Project components which shall include a review of outputs achieved over the prior years;

(7) The Grantee shall ensure that for the life of the Project that the use of the experimental lands which are upgraded under the Project is restricted to agricultural research;

(8) The Grantee shall make a concerted effort to involve the private sector in agricultural research, seed technology, technology transfer and policy analysis/formulation activities contemplated under the Project;

(9) The Grantee shall annually increase its cash contributions in support of the Project's recurrent costs so that, by the PACD and beyond, allocations to the implementing agencies, the Agricultural Research Center and the Undersecretariat for Agricultural Economics and Statistics, will meet all Project recurrent cost needs;

(10) Neither Grant funds nor Special Account funds may be used to pay salary supplements to Grantee personnel except pursuant to mutually agreed criteria;

(11) The Grantee will provide A.I.D., on an annual basis, with copies of its accounting records on local currency and in-kind contributions provided for the Project;

(12) The Grantee will cooperate with A.I.D. to assess the accounting, contracting, procurement and reporting capabilities of the Grantee's implementing agencies and to resolve any shortcomings identified in the course of such assessment; and

(13) The Grantee will commission a study, for completion within one year of the date of the Third Amendment to the Grant Agreement, to review current laws and regulations governing the seed industry. The study will provide recommendations for modification of the policy environment regarding seed production, processing and distribution, to strengthen private sector participation in the seed industry. Based on those recommendations, the Grantee agrees to submit a plan to USAID for implementing changes which appear appropriate. The status of these changes will be reviewed and approved by both parties prior to approval of the annual plan for the Seed Technology component for fiscal year 1991."

g. A new paragraph 3(H) is added as follows:

(H) Conditions Precedent to Disbursement for Technology Transfer, Seed Technology, Policy Analysis and New Initiatives/Project Management Components
Prior to any disbursement or the issuance by AID of any documentation pursuant to which any disbursement will be made for the technology transfer, seed technology, policy analysis or new initiatives/project management components, the GOE shall, except as the parties may otherwise agree in writing, furnish to AID, in form and substance satisfactory to AID:

(1) a statement of the names of the individuals who will be responsible for implementation of each of the four components, together with a statement regarding their designated duties and authorities; and
(2) evidence that the Grantee has appointed a counterpart for each long-term technical assistance advisor."

h. Based on the justification provided in the Project Paper, I hereby waive the requirement of full and open competition to permit an increase in the scope of work and the value of the host country technical assistance contract between the Consortium for International Development and the Ministry of Agriculture, and to extend said contract to September 30, 1994.

i. Based on the justification provided in the Project Paper, I hereby approve a waiver from AID Geographic Code 000 to Code 935 to permit local procurement of imported shelf items in an amount not to exceed $10,000,000 and to increase the per unit imported shelf item price limit to $10,000. By my signature below, I certify that exclusion of procurement from Free World countries other than Egypt and countries included in Code 941 would seriously impede attainment of U.S. foreign policy objectives and objectives of the foreign assistance program.

2. The authorization cited above remains in force except as amended hereby.

Marshall D. Brown
Director, USAID/Egypt

AUG 22 1988

Date

Clearances:

OD/AGR/ACE, SHaynes
AD/AGR, EStains
(A)AD/PDS, VMolldrem
FM/FA, HPangan
PDS/PS, PDowns

DRAFTED: MSWard:mf:7/21/88:NARPAUTH

NATIONAL AGRICULTURAL RESEARCH PROJECT

263-0152

RECOMMENDATIONS AND SUMMARY

I. RECOMMENDATIONS

A. That USAID/Cairo approve this amendment which will improve Egypt's capability to provide farmers with productivity increasing technologies in a supportive policy environment;

B. That the LOP authorization be increased from $130 million to $300 million; and,

C. That the PACD be extended by one year to September 30, 1994, making the total LOP nine years.

II. SUMMARY

A. Project Title: National Agricultural Research Project (NARP)

B. Project Number: 263-0152

C. Source of Funds: Economic Support Fund

D. Amount of Total AID Grant: $300 million, consisting of:

Item	Date	Amount
Original Authorization	7/30/85	$130,000,000
First Amendment	9/21/86	-0-
Second Amendment	Pending	170,000,000
Total Authorization		$300,000,000

E. Government of Egypt Contribution: $75 million-Local Currency Equivalent in Cash

F. Terms: Grant

G. Grantee: Government of Egypt

H. Implementing Agency: Ministry of Agriculture and Land Reclamation.

I. Life of Project: Nine years (Original grant agreement signed 9/12/85). This Amendment will extend the PACD by one year until 9/30/94.

J. Project Goal: To increase agricultural productivity.

K. Project Purpose: To improve Egypt's capability to provide farmers with productivity-increasing technologies in a supportive policy environment.

L. Purpose of Project Paper Amendment: This Project Paper Amendment is being prepared to: (1) broaden the scope of the Project by adding four new components; (2) to clarify GOE and USAID responsibilities; and, (3) to redefine the scope of the research component. These changes will result in removing major constraints to improving agricultural production in Egypt.

M. Project Description: The amended project has been revised and expanded to provide a more comprehensive approach to the complex tasks of generating, adapting, and diffusing useful agricultural technologies to the Egyptian farmer. Basic and important lessons have been learned from the existing project and incorporated into the amended project design. Needs assessments have more clearly specified problem areas and quantified the inputs required to provide solutions. Working groups and design teams have reviewed a wide array of projects and evaluations in search of viable strategies and mechanisms to improve the project's impact.

The existing project is gathering momentum and making progress, but the experience of its early implementation has suggested that its focus on research must be expanded to more adequately address the entire sequence of activities which links the farmer with new technology. The activities in support of improved agricultural research capabilities will be continued and expanded. Formerly minor initiatives intended to upgrade policy analysis capabilities, improve seed quality and expand supplies, improve technology transfer, and provide for project management and new initiatives have been expanded into full project components. The increased emphasis on these important factors will provide a more balanced approach to agricultural research and the

application of useful technology by Egyptian farmers. The following will summarize the five priority areas of the amended project.

Research: This component is intended to significantly improve and expand agricultural research in Egypt. It encompasses the core activities included in the existing project, many of which are currently underway. Project activities focus on the Agricultural Research Center (ARC), Egypt's most important research institution. The two major activities are the institutional strengthening of ARC's research management capability, and the expansion of agricultural research with a rigorous orientation toward relevant, practical technologies.

The institutional improvement of ARC involves a comprehensive program of human resources development, management improvements, and upgrading of physical facilities. A technical assistance contractor (CID) is already in place with an 11-person interdisciplinary team providing guidance and assistance to ARC for improving management systems and research practices. A long-term advisor in aquaculture will be added under the amended project. A separate contract is in place with IRRI providing technical assistance for rice research. The budget for technical assistance in the amended project has been increased from $12.5 million to $22.1 million.

An extensive training program in support of both management improvement and research methodology has been designed in response to a training needs assessment. It provides for 276 graduate and post-doctoral participants, observational and invitational travel, and in-country training for over 40,000 participants in 164 different types of programs. Facilities improvements include a modest renovation program for existing buildings, a maintenance program, and land improvements. Commodities include lab equipment, farm machinery, library books and periodicals, office equipment, and vehicles. All facilities improvements and commodities were specified in needs assessments, and are required to increase the efficiency of management and research operations.

The research component also provides financial support for agricultural research activities. A Research Support Program provides $12.6 million to fund in-house ARC research to provide a continuous flow of improved technology to farmers and develop farmer feedback mechanisms. A Research Grant Program will provide $15.8 million to support university research and strengthen linkages with the university community. An International Collaborative Research Program will provide $16 million in funding for research in Egypt in collaboration with international experts. This will facilitate access to worldwide technology and its adaptation to local circumstances. All

three of these research support programs will focus on national development priorities and assure relevant, problem oriented research.

Policy Analysis: With the Egyptian government initiating serious policy reforms, the need for concise and timely policy analysis has never been greater. Managing the transformation of the agriculture sector without an adequate policy analysis capability is like negotiating a twisting mountain road at night without headlights. This component is designed to strengthen the policy analysis capability of the MALR Undersecretariat of Agricultural and Economic Statistics (U/AES). It is intended to result in an enhanced U/AES ability to monitor the agriculture sector and analyze the impact of policy decisions. This will facilitate more effective policy reform, liberalization of agriculture, and increased productivity.

The project will provide $9.5 million for 5 long-term technical advisors and 240 person months of short-term experts. It will provide $3.1 million for training, including U.S. long term training for 16 high level technicians and managers, U.S. short term training for 67 other staff, and in-country training for 573 persons. Commodities include $2.7 million for office equipment and vehicles. Support services will include $2.7 million for technical studies and minor renovation of office space.

The technical assistance and training will be supplied to the U/AES to improve its ability to conduct and manage priority analyses, interpret and utilize results of these analyses, and to address economic policy issues. The technical assistance contractor will assist in improving management practices and research methodologies, developing a quick response capability for urgent research topics, and establishing feedback mechanisms. The training program will provide the staff with advanced analytical and subject area expertise. Policy workshops and seminars will be utilized to strengthen linkages with outside public, private, university, producer, and other groups.

The statistical analysis and data processing capability of the U/AES will be upgraded, with emphasis on improving the quality, scope, and accessibility of information. Technical assistance will be provided to systematize reporting formats and develop a data base information system for policy and statistical analysis. A total of 76 personal computers will be provided for the U/AES and 38 field offices. Internal training programs will instruct staff in the use of PC and mainframe computers.

An Information Center will be established to support the policy analysis operations of the U/AES. Technical assistance will be

provided for planning and development of this center. Long term U.S. training for 3 staff and short-term U.S. technical training for 6 persons will be included. Equipment for archive management, printing, microfiche, and office equipment also will be provided.

Seed Technology: Seed research and processing in Egypt needs considerable upgrading. It is characterized by outmoded technology, untrained staff, and inadequate equipment. The seeds it produces are expensive, unreliable, and inefficient, resulting in low crop yields and poor return on investment. Improving seed technology is a key to providing farmers with quality seeds which can have a quick, relatively low cost impact on increased yields estimated at 30 to 80 percent. With this in mind the $900,000 seed technology activity has been increased to $42 million in the amended project. The component emphasizes improvement of the ARC Central Authority for Seeds (CAS), a public sector organization which concentrates on seed research and processing of the many varieties of seeds which are currently unattractive to the private sector.

This component provides $1.6 million for one seed technology adviser and 7 person months of short term experts. It includes $2.5 million for U.S. long term training of 66 persons and 17 persons short term. It provides $27.1 million in commodities for research equipment and testing and genetic lab equipment. It also includes $4.1 million in services for renovation of 8 seed processing plants, a Genetic Resources lab, and a cotton research lab.

The technical adviser is currently in place under the CID contract. He will assist the Director of the ARC Seed Institute to plan training, select equipment, develop research programs, supervise the installation of equipment, and plan maintenance procedures. Training has been planned in response to a training needs assessment to improve staff capabilities for seed research, processing, operations, maintenance, and training. Commodities will include lab equipment to upgrade research and testing facilities, quality control equipment for standardization of seeds, equipment for a genetics lab, modern seed processing equipment to upgrade 8 plants to a total capacity of 40,000 tons per year, and spare parts for 5 plants financed under a previous A.I.D. project.

Technology Transfer: The existing project did not include a comprehensive program for improving technology transfer because the agricultural extension system needed basic reform before any assistance would be worthwhile. That reform is now well underway. A definitive review of the extension system in Egypt and other countries has sought to draw on lessons learned and develop a viable

extension system for Egypt. The result is a $51 million program to support the improvement of technology transfer in Egypt.

The technology transfer component is designed to improve communication between research organizations and the farmer. This includes the diffusion of new technologies to the field, and feedback on the conditions and needs of farmers. Linkages between farmer and scientists must be improved so research can be oriented toward solution of practical problems to generate relevant technology. Coordination of extension services must be achieved in order to package the technology properly and deliver it when and where it is appropriate.

This component includes $4.8 million in technical assistance under the CID contract for 2 long term technical advisers and 182 person months of short term experts. It provides $11.9 million for 552 months of U.S. long term training, 160 months of U.S. short term training, and 64,057 months of in-country training. It provides $11.9 million for commodities, including office equipment, vehicles, and media processing equipment. It also includes $12.4 million in support services for extension demonstrations, office renovations, and technology transfer grants.

The project will provide support for the strengthening of the planning and management capabilities of the ARC Extension Affairs Division (EAD), which is responsible for monitoring and guiding the planning and operation of the 20 governorate extension services. EAD senior staff will receive short term training in planning and management. The staff of EAD's applications-oriented centers and institutes will be upgraded with U.S. long term training for a total of 14 technicians, trainers and communications experts.

The project will encourage decentralization of technology transfer institutions by strengthening governorate level extension services and improving coordination between the national and governorate level. Technical assistance will be provided to assist local government councils to develop, review and approve yearly extension plans. Technical assistance and U.S. short term training will be provided for up to 10 senior extension officials in each governorate to improve their administrative skills. Approximately 350 extension workers in each governorate will receive in-country training to improve their communications skills for working with farmers. Funding is provided for modest renovation of extension facilities, office equipment, and communications. Transportation equipment will be provided to improve service delivery. The project also supports the development of technology packages tailored for each governorate,

and the costs of technology delivery such as media, demonstration plots, and farmer training.

This component will provide support for non-public extension service agencies in the form of a $3.5 million grant fund. Organizations and activities will be supported which are problem oriented, which cater to farmer needs and involve farmer participants, and which increase agricultural productivity. Examples include indigenous PVOs, private sector companies, farmer groups and cooperatives, agriculture faculties of Egyptian universities, and innovative program grants.

The project will strengthen the research community's technology transfer capability at the governorate level. It provides for the training of subject matter specialists from a wide variety of public and private institutions in 1-week courses in techniques for packaging research findings in forms acceptable to farmers. It provides funds for the preparation of technology packages identified in governorate extension plans or requested by non-public extension groups. It provides for the conversion of 10 ARC experimental stations into Research and Extension Centers in order to improve outreach to farmers in their service area.

Project Management and New Initiatives: This component provides technical assistance and support to the Executive Office which will administer the project. This will include the installation of management monitoring and financial control systems, and the development of support services such as implementation planning, monitoring and evaluation, procurement, maintenance, and communications. The Executive Office will also be provided with technical and financial resources to deal quickly with emerging agricultural development problems and detect new opportunities by preparing studies and developing new projects or other initiatives. The component includes $4.5 million for 2 long-term management specialists and 74 person months of experts. It provides $0.7 million for 192 months of training. It also includes $3.9 million in support for administration, studies, evaluation, and audits.

The revised summary cost estimate and financial plan by component and expenditure category as a result of this amendment is as follows:

($000)

By Component	AID $FX	AID $LC	GOE $LC	TOTAL $
Research	86,474	56,819	34,220	177,513
Technology Transfer	16,202	24,754	7,425	48,381
Policy Analysis	12,604	4,951	3,745	21,300
Seed Technology	32,958	2,367	7,607	42,932
New Initiatives	6,675	2,660	3,714	13,049
Project Totals	154,913	91,551	56,711	359,886
By Expenditure Category				
Technical Assistance	33,036	5,232	720	38,988
Training	22,104	18,225	2,321	42,650
Commodities	67,204	4,108	3,250	74,562
Services	32,569	63,986	50,420	146,975
Project Totals	154,913	91,551	56,711	303,175
Contingencies	7,467	4,276	2,683	14,425
Inflation	22,139	19,656	15,606	57,401
Total	184,518	115,482	75,000	375,000
Cumulative Total	$300,000		$75,000	$375,000

This is a dynamic project and we expect some changes to be made as a result of implementation experiences. Recognizing that the Financial Plan is illustrative, we have designed flexibility into the budget by allowing up to a 15 percent shift between project components with mutual AID and MALR approval.

The GOE contribution to the Project will be the local currency equivalent of $75 million in cash. Only $18 million of the A.I.D. contribution will go for recurring operational costs and this will be in the early years of the project. By 1993 all recurring costs will be financed by the GOE.

N. Procurement Plan:

1. Technical Assistance: A non-competitively procured amendment to the Research Component's primary TA contractor is proposed as part of this PP amendment to: (1) increase the number of in-country person months; (2) add a resident aquaculture specialist;

and, (3) add two technology transfer specialists for the Technology Transfer Component.

Under the Policy Component, a separate primary TA contractor will be negotiated. Until the contractor arrives, the project will utilize host country personal services contracts and AID-direct contracts for an economist, management specialist and a statistician. In addition, technical assistance for a data processing specialist for 2 years and short-term TA to develop the tender documents for the primary TA contractor are envisioned.

Technical assistance for the Seed Technology Component is provided for under the Research Component's primary TA contract.

A direct contract for project management services will be negotiated. Management services will be procured from ISTI for a bridging period of up to nine months in order to allow time to issue a scope of work, select a firm, negotiate a contract and allow for arrival of personnel.

2. Training: Offshore manpower training and related services, including long-term academic training and short-term training for NARP will be handled by a competitively procured contractor(s).

3. Commodities: A Procurement Services Agent (PSA) will be utilized to assist in procurement and develop MALR procurement capabilities. Most procurements will follow AID Regulation 1 procedures. However, some commodities may be procured under Handbook 11 procedures by a PSA. Local commodity procurement will be the responsibility of the MALR Procurement Office.

4. Services: Local currency services will be needed to support the Project. All services will be procured according to the appropriate USAID Regulations and Handbooks.

O. Implementation and Monitoring: A Steering Committee, appointed by the Minister of Agriculture and Land Reclamation and composed of senior MALR and other governmental officials, is responsible for the overall implementation policy framework. The Director General of the Agricultural Research Center (ARC) will be the overall GOE Project Director. He will be assisted by a Deputy Director of each major component of the Project. The Deputy Directors will be responsible for the day-to-day operations of their component. The Deputy Directors will have a delegation of authority to implement their component based on

annual implementation and financial plans approved by the Steering Committee of which the overall Project Director is a member. USAID responsibility for implementation will be with the Agriculture Office of the Agricultural Resources Directorate.

The annual implementation and financial plans will be submitted for USAID approval for each component prior to the beginning of the GOE fiscal year. These plans will also include a set of benchmarks based on the attached Table S-1 (p. xxiii). These benchmarks are estimates which may change during the course of the project, and will be updated annually. The annual plans will serve as the basis for monitoring Project implementation. Approval of annual plans will in part be subject to progress in meeting projected benchmarks.

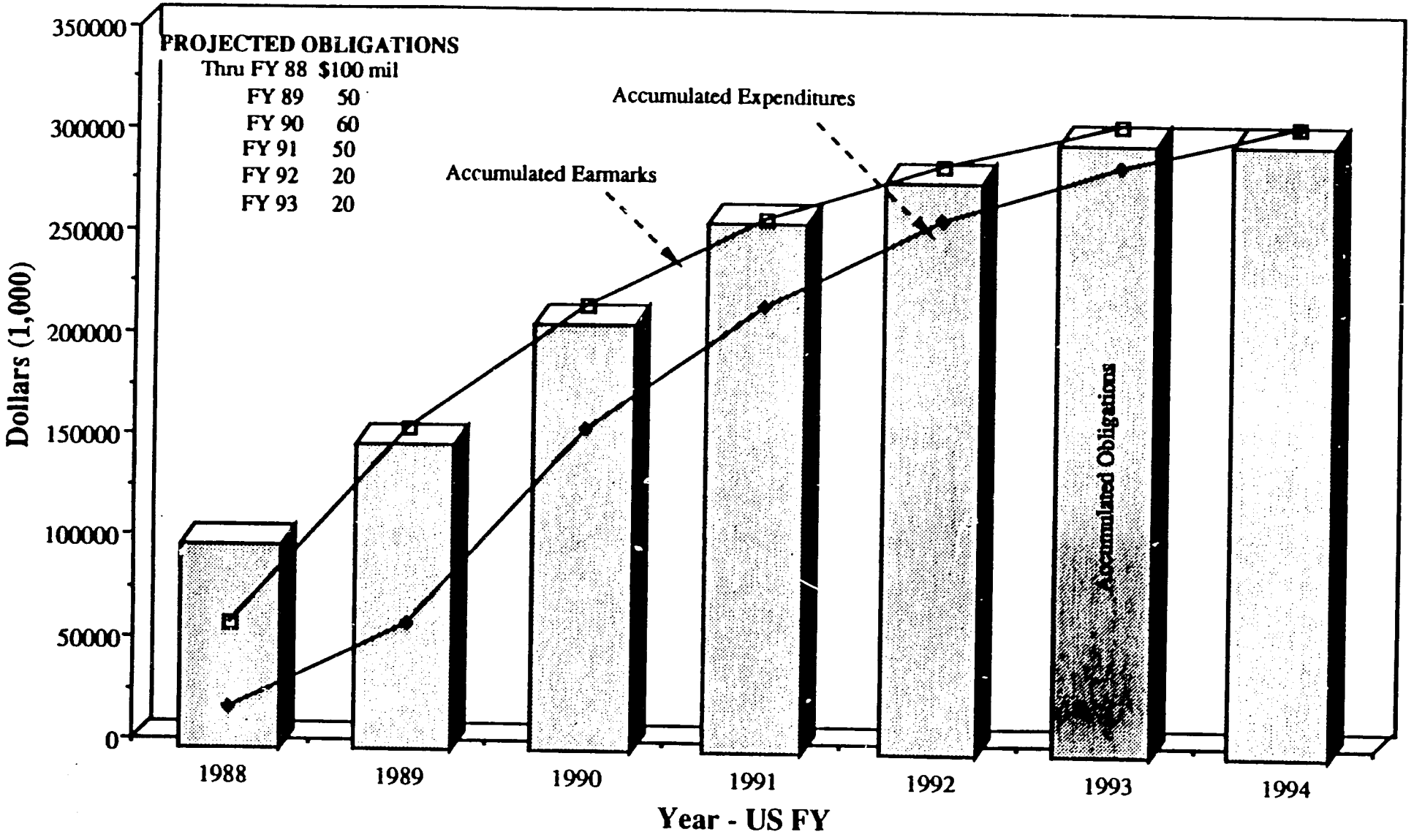
P. Section 611 (a) Considerations: The analyses of this project indicate that the Section 611 (a) requirements as set forth in the Foreign Assistance Act are met.

Q. Proposed Obligation Schedule:

Period	Amount
Through 1987	$45,000,000
Proposed 1988	55,000,000
Proposed 1989	50,000,000
Proposed 1990	60,000,000
Proposed 1991	50,000,000
Proposed 1992	20,000,000
Proposed 1993	20,000,000
Proposed 1994	0
Total	$300,000,000

The proposed annual obligations are based on projected expenditure levels and may vary from the above schedule as expenditures vary. Chart S-1 (p. xxii) shows projected expenditures, earmarks and obligations. Obligations will also be based on progress toward meeting projected project outputs to be determined and submitted with annual plans to USAID.

NARP - PROJECTED EXPENDITURES, EARMARKS AND OBLIGATIONS



* The annual obligations proposed are based on the projected expenditure levels, and thus may vary from the above schedule as expenditures vary.

Chart S-1

TABLE S-1

NATIONAL AGRICULTURE RESEARCH PROJECT
(263-0152)
AMENDMENT NO. 2

NARP OUTPUT SCHEDULE

ACTIVITY	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993	FY 1994
I. RESEARCH COMPONENT						
A. INSTITUTIONAL IMPROVEMENTS						
I. HUMAN RESOURCE DEVELOPMENT						
DOCTORAL STUDIES (76)	76					
POSTDOCTORAL TRAINING (221)	4	46	46	49	46	30
OUT-OF-COUNTRY SHORT-TERM TRAINING (280)	25	58	58	58	58	33
IN-COUNTRY TRAINING (25000)	4600	4400	4000	4000	4000	4000
II. MANAGEMENT IMPROVEMENTS						
-RESEARCH PLANNING FOCUSES ON NATIONAL GOALS AND COST EFFECTIVE METHODOLOGY	75%	80%	85%	90%	95%	100%
-IMPLEMENTATION STATUS OF ALL APPROVED RESEARCH PROPOSALS MAINTAINED BY COMPUTER	60%	75%	85%	95%	100%	100%
-REALIGNMENT OR EARLY TERMINATION OF MARGINALLY IMPLEMENTED RESEARCH PROPOSALS	5%	8%	12%	15%	20%	25%
B. TECHNOLOGY PRODUCTION PROCESS IMPROVEMENTS						
I. SUPPORT FOR ARC RESEARCH						
RESEARCH CONDUCTED WITHIN NATL DEVELOP. GOALS	75%	85%	95%	100%	100%	100%
BUDGET ALLOCATED TO PRIORITY RESEARCH NEEDS	75%	85%	95%	100%	100%	100%
RESEARCH PROPOSALS WILL CONTAIN A COST ANALYSIS	50%	60%	70%	80%	90%	100%
RESEARCH ACTIVITIES (IMPLEMENTATION STATUS, ACCOUNTING, AND FINANCIAL REPORTS) WILL BE MAINTAINED BY COMPUTER	30%	50%	75%	80%	100%	100%
MONITORING AND EVALUATION SYSTEM ESTABLISHED	50%	60%	70%	80%	90%	100%
II. RESEARCH GRANTS						
GRANTS AWARDED TO PUBLIC UNIVERSITIES	235					
GRANTS AWARDED TO PRIVATE INSTITUTIONS		15	20			
FIELD TRAIL OF RESEARCH RESULTS		20	50	50	60	30
RESEARCH PACKAGES ADOPTED BY FARMERS			5	25	20	25
III. INTERNATIONAL COLLABORATIVE RESEARCH						
AGREEMENTS SIGNED	3	4	7	7		
RESULTS PUBLISHED			15	18	15	20
PROBLEMS SOLVED			1	6	8	12
IV. U. S. UNIVERSITY COLLABORATIVE AGREEMENTS		6	8	10		

TABLE S-1

NATIONAL AGRICULTURE RESEARCH PROJECT
(283-0152)
AMENDMENT NO. 2

NARP OUTPUT SCHEDULE

ACTIVITY	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993	FY 1994
II. POLICY ANALYSIS COMPONENT						
A. INSTITUTIONAL IMPROVEMENTS						
I. HUMAN RESOURCES DEVELOPMENT						
DOCTORAL STUDIES (4)	4					
MASTERS STUDIES (9)	4	5				
OUT-OF-COUNTRY SHORT-TERM TRAINING (108)	55	37	15	1		
IN-COUNTRY TRAINING (725)	206	151	107	87	87	87
WORKSHOPS/SEMINARS (80)	15	18	18	17	17	5
II. STRENGTHENING AG. ECON. AND POLICY ANALYSIS						
BASELINE ESTABLISHED	100%					
INTERNAL MANAGEMENT SYSTEM IN PLACE	50%	100%				
MONITORING AND EVALUATION SYSTEM	50%	75%	100%			
COMMODITY SPECIALISTS TRAINED	20	20	20	20	20	
COMMODITY WORKSHOPS	4	6	6	6	6	6
NATIONAL COMMODITY OUTLOOK CONFERENCES	1	1	1	1	1	1
POLICY BRIEFS	5	12	12	12	12	12
POLICY GUIDELINES	3	5	5	5	5	5
MINISTERIAL MEMORANDUMS	5	12	12	12	12	12
III. STRENGTHENING LINKAGES FOR POLICY DIALOGUE						
TRANCHE III BENCHMARKS COMPLETED	100%					
POLICY RELATED STUDIES	8	10	8	8	8	8
POLICY RELATED WORKSHOPS	10	10	10	10	10	4
IV. STATISTICAL ANALYSIS AND DATA PROCESSING						
NATIONAL LIST SAMPLING FRAMES	100%					
OBJECTIVE YIELD SURVEYS	2	4	6	8	8	8
CROP & LIVESTOCK COST OF PRODUCTION ESTIMATES	2	4	6	8	8	8
V. INFORMATION CENTER ESTABLISHED	25%	50%	75%	100%		
III. SEED TECHNOLOGY COMPONENT						
A. HUMAN RESOURCE DEVELOPMENT						
DOCTORAL STUDIES (6)	2	2	2			
MASTERS STUDIES (60)	10	10	10	15	15	
OUT-OF-COUNTRY SHORT-TERM TRAINING (17)	4	4	3	3	3	
B. SEED RESEARCH IMPROVEMENT						
SEED RESEARCH LAB EQUIPPED	CONTRACT AWARDED	BEGIN INSTALLATION	EQUIPMENT IN OPERATION	RESEARCH UNDERWAY		
GENETIC RESOURCES SECTION EQUIPPED	CONTRACT AWARDED	BEGIN INSTALLATION	EQUIPMENT IN OPERATION	COLLECTION BEGINS		

TABLE S-1

NATIONAL AGRICULTURE RESEARCH PROJECT
(263-0152)
AMENDMENT NO. 2

NARP OUTPUT SCHEDULE

ACTIVITY	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993	FY 1994
C. QUALITY CONTROL IMPROVEMENT						
SEED TESTING LABORATORIES EQUIPPED (8)	CONTRACT AWARDED	BEGIN INSTALLATION	EQUIPMENT IN OPERATION			
REFEREE TESTING LABORATORY EQUIPPED	CONTRACT AWARDED	BEGIN INSTALLATION	EQUIPMENT IN OPERATION			
IN-PLANT QUALITY CONTROL UNITS INSTALLED (12)	CONTRACT AWARDED	BEGIN INSTALLATION	EQUIPMENT IN OPERATION			
INCREASE IN SEED SAMPLES TESTED			10%	20%	30%	35%
INCREASE IN SEED FIELDS INSPECTED			15%	25%	35%	50%
D. IMPROVE SEED PROCESSING FACILITIES						
REPLACE EXISTING SEED PLANTS EQUIPMENT (8)	CONTRACT AWARDED	BEGIN INSTALLATION	EQUIPMENT IN OPERATION			
UPGRADE FIVE AID FINANCED PLANTS	CONTRACT AWARDED	BEGIN INSTALLATION	EQUIPMENT IN OPERATION			
REPLACE COTTON RESEARCH AND GINNING FACILITY	CONTRACT AWARDED	BEGIN INSTALLATION		EQUIPMENT IN OPERATION		
DECREASE IN PROCESSING LOSSES			10%	20%	30%	35%
INCREASE IN SEED COMPLETELY PROCESSED			15%	25%	35%	50%
IV. TECHNOLOGY TRANSFER COMPONENT						
A. HUMAN RESOURCE DEVELOMENT						
DOCTORAL STUDIES (5)	3	2				
MASTERS STUDIES (9)	3	6				
POSTDOCTORAL TRAINING (5)	1	3	1			
OUT-OF-COUNTRY SHORT-TERM TRAINING (160)	20	30	30	30	30	20
IN-COUNTRY TRAINING (28500)	4400	4500	4400	4400	4400	4400
B. DECENTRALIZED PUBLIC EXTENSION SERVICE IMPROVEMENTS						
I. FINANCE GOVERNORATE EXTENSION PLANS	6	12	18	20	20	20
II. PROMOTE DIALOGUE THROUGH WORKSHOPS (20)	2	4	4	4	4	2
III. RENOVATE GOVERNORATE EXTENSION FACILITIES		5	5	5	5	
IV. TECHNOLOGY PACKAGES COMMISSIONED/PROCURED	18	18	18	18	18	18
C. SUPPORT FOR NON-PUBLIC EXTENSION SERVICE AGENCIES						
GRANTS AWARDED TO NON-PUBLIC EXTENSION	5	10	10	15	15	15
D. STRENGTHENING RESEARCH COMMUNITY TECHNOLOGICAL TRANSFER CAPABILITY						
SMS WORKSHOPS	24	42	60	60	60	60
TECHNOLOGY PACKAGES PREPARED (30 PKG'S)	2	6	6	6	5	5
ARC EXPERIMENT STATIONS CONVERTED TO R/E CENTERS (10)	4	3	3			

I. BACKGROUND AND RATIONALE

A. Background

The Nile Delta with its associated Nile River Valley is one of the world's oldest agricultural areas, having been under continuous cultivation for at least 5,000 years. Except for a few oases and some arable land in the Sinai, most of Egypt's 5.8 million cultivated feddans are confined to this river area. As late as 1960, Egypt was essentially self-sufficient agriculturally, however, over the last two decades, agricultural production has failed to keep pace with the country's growth in population, income, and consumption. Consequently, the nation has become increasingly dependent on agricultural imports. A significant portion of this is an unnecessary drain on Egypt's limited foreign exchange since the country has the potential of doubling agricultural production. Agricultural production can be increased by increasing productivity on the existing lands, and to a lesser extent by expansion to new lands .

The National Agricultural Research Project (NARP) was developed with the goal of increasing Egypt's agricultural productivity. The original project purpose was to strengthen the capability of the agricultural research community to provide a continuous flow of improved, appropriate agricultural technology. As described in the original Project Paper, the major elements of the project were improved research management, improved research methods, personnel development, data collection and analysis, information utilization and dissemination, seed production, improved research facilities, commodities, and a research grants program. For the entire project, life-of-project funding was estimated at $210 million which was comprised of an AID grant of $130 million (almost equally divided between foreign exchange and local currency costs) and a GOE contribution equivalent to $80 million in local currency, mostly on an in-kind basis. Incremental funding of the project began in September 1985, with an initial obligation of $30 million and with a Project Assistance Completion Date (PACD) of September 30, 1992.

After one year of operation, the project was amended to: (1) obligate an additional $15 million of AID funds; (2) reflect the use of additional local currency resources generated by the devaluation of the Egyptian Pound; (3) add a new "Research Support" element to the project; and, (4) streamline the project's administrative and implementation arrangements. This amendment was intended to be limited in scope and anticipated the need for a full-scale amendment in the subsequent year to address other issues. This first amendment did not require an increase in AID life-of-project funding of $130 million, but the PACD was extended one year to September 30, 1993. The

original and amended project budgets ($000) show AID funds distributed as follows:

Inputs	Original Budget	Amendment 1
Technical Assistance	$ 14,700	$ 14,700
Training	34,600	26,280
Renovation	11,800	7,255
Commodities	26,700	26,045
Services	28,800	43,819
Evaluation & Audit	600	600
Contingencies	12,800	11,301
Total	$ 130,000	$ 130,000

The original and amended project budgets did not provide funds for inflation over the life of the project.

As of June 30, 1988, the financial status of the project was $60 million obligated, $45 million earmarked, $32 million committed, and $8 million expended.

B. Project Amendment Rationale

The design of the original project was limited to a research component and remains basically valid. Ever since the original project was approved, it was felt that the planned activities needed to be better described and needed either selective strengthening or broadening of their scope. It was also agreed that the research component budget needed to be adjusted to account for inflation and further devaluation of the local currency.

GOE and USAID officials have realized that strengthening of the local research technology generation capability in isolation from other critical factors will not accomplish the project objectives. Seeds were almost neglected in the original project although they represent one of the quickest methods of increasing production. The necessity of an effective technology transfer mechanism to stimulate farmer's demand for and adoption of technologies has been recognized. The need for a supportive policy environment which affords farmers the freedom to plant, sell and maximize profit in response to market forces is also felt. Consequently, it was agreed in principle that USAID would support those areas in an amended and expanded NARP project.

The idea of broadening the scope of the project was presented in the form of a Concept Paper. It was proposed that NARP be amended: (1) to clarify the description of previously authorized activities, to strengthen

implementation arrangements, and to adjust the budget under the research component; (2) to add a technology transfer component to promote direct/indirect interactions between scientists, researchers, technologists and farmers; and, (3) to provide support for a GOE policy analysis unit to be responsible for formulating, monitoring and evaluating agricultural policies in support of the GOE's plans to liberalize agriculture. The seed component was originally part of the existing research component. During the design phase it was developed as a separate component to facilitate administration.

With AID/W concurrence, USAID reviewed and approved the Concept Paper's proposed modifications and provided the design team with detailed guidance for the preparation of this Project Paper Amendment.

C. Relationships to AID/GOE Projects and Strategies

1. AID Projects

Agency-wide lessons learned are set forth in the 1983 A.I.D. Program Evaluation Report No. 10, "Strengthening the Agricultural Research Capacity of the Less Developed Countries: Lessons from AID Experience." Among the 17 lessons learned, the following lesson is the key to the design and implementation of research programs: "A two-way information system between the researchers and extension service and the farmers is essential in programming and implementing research activities." The project implements this lesson by strengthening on-farm and interdisciplinary research and by strengthening the technology transfer system under the project's new technology transfer component. In the past, USAID projects have supported technology development for increased crop productivity. The research component builds on the experiences of the recently completed Rice Research and Training, Agricultural Mechanization, Aquaculture Development, Major Cereals Improvement, Agricultural Management Development and Agricultural Development Systems Projects.

Aspects of the ongoing Irrigation Management Systems (IMS) and completed Small Farmer Production (SFPP) Projects have been incorporated in the technology transfer component. For example, dissemination of improved water management practices will be required in each governorate's technology transfer program. Both NARP and IMS have funds reserved for technology transfer personnel to receive water management training. Moreover, senior officials from the Ministries of Agriculture and Land Reclamation and of Public Works and Water Resources have recently been tasked by the GOE with developing a Memorandum of Understanding to strengthen and clarify NARP/IMS coordination. Under the SFPP, research findings were delivered to farmers as part of a cash and in-kind credit package. Adoption rates among these farmers were very high. Under the

technology transfer component, the guidelines for establishing each governorate's technology transfer program incorporate the following lessons learned from the SFPP: (a) disseminate to farmers only technologies which are financially viable; and, (b) develop a strong farmer feedback mechanism.

The policy analysis component complements the ongoing Agricultural Production and Credit (APC) and the recently completed Data Collection and Analysis (DCA) Projects. The policy reform element of the APC Project will be supported by NARP's policy analysis component which will assist decision-makers to: define policy issues related to the decontrol of agriculture; identify policy options for decontrol; select appropriate policies; monitor policy implementation; and, assess policy impacts. The DCA Project strengthened MALR staff capacities to collect and analyze data for statistical purposes and set a foundation for the policy analysis component. Unlike the DCA, the policy analysis component will strengthen analytical capabilities for purposes of policy planning, implementation, and evaluation.

2. GOE Strategies

The Second Five Year Plan for Socio-economic Development (1988-92) reflects the GOE's concern for increased agricultural productivity. It emphasizes an expanded role for the private sector and the need for continued policy reform. Priorities are technology development and projects that strengthen public and private institutional capacities. The GOE's long-term objective is the removal of government restrictions in the allocation of cropped areas and on the operation of market forces in the agriculture sector.

Egypt's intermediate term objectives for the agricultural sector were given in a speech by the Deputy Prime Minister and Minister of Agriculture and Land Reclamation, His Excellency Dr. Youssef Wally, on August 17, 1987, at the inauguration ceremony of the MALR Agriculture Investment Office. He indicated that these objectives include: (a) strengthening agricultural research to be capable of testing and maintaining a continuous flow of new technology; (b) wide adoption of new technology through national production campaigns and other programs involving extension and research; and, (c) greater support to small farmers through incentive pricing policies and readily available agricultural extension services. This project is designed to help meet these objectives by strengthening the institutional capabilities of the nation's agricultural technology development and transfer systems and its agricultural policy analysis, planning, monitoring and implementation capabilities.

3. AID Strategies

In the AID policy paper on Food and Agricultural Development, AID policies emphasize that countries should develop human resources and institutional capabilities as well as strive for agricultural policies to reflect market forces. The research, technology transfer, seed technology, and policy analysis components are each designed to develop human resources by the provision of training and technical assistance and the strengthening of institutional capabilities through operational and facilities improvements, i.e., structural/procedural reorganizations and provisions of equipment and selected facilities renovation.

The CDSS focuses USAID assistance on the two sectors with the greatest potential for productivity increases: agriculture and private industry. USAID's strategy is to: (a) increase USAID investments substantially in agriculture in response to implementation of policy reforms; (b) support further improvements in the agricultural research system; and (c) consider supporting improved agricultural extension, through private as well as public channels, to facilitate information dissemination. The components of this amended project implement this strategy by strengthening the GOE's policy analysis capabilities and Egyptian technology development and dissemination capabilities.

II. DETAILED PROJECT DESCRIPTION:

A. Goal and Purpose

The goal of this project is to increase agricultural productivity. The purpose of this project is to improve Egypt's capability to provide farmers with productivity-increasing technologies in a supportive policy environment. The design of this project emphasizes increasing crop and livestock yields by the creation and transfer of appropriate technologies, and by facilitating a policy environment which encourages their generation/use, and removes constraints to agricultural production.

The amended project's strategy calls for enhancing the effectiveness and extent of a broad range of public and private institutions involved in Egypt's agricultural development. The four priority areas to be focused on under the amended project include: (1) agricultural research; (2) technology transfer; (3) seed technology and (4) agricultural policy. First, the project's strategy includes a series of activities to strengthen the involved public institutions' managerial, professional, technical and/or service delivery capabilities to carry out their mandates in the four priority areas. Second, several mechanisms are proposed to encourage systematic participation of other interested public and private organizations in these areas. Third, a number of activities are designed to encourage an open dialogue and to foster permanent linkages between the principal GOE agencies involved and other public and private institutions which are interested and involved in the priority areas. Fourth, significant project resources are set aside for a variety of Egyptian institutions to address critical technology generation/transfer and policy problems facing agriculture. Lastly, funds have also been allocated for the study/analysis of emerging problems and the development of new program(s) which will help develop USAID opportunities for meaningful future participation in Egypt's agricultural development.

B. End of Project Status

At the end of this project, the following results are anticipated:

(1) Agricultural yields will have increased by at least 10%;

(2) Agricultural yields at the demonstration stage will have increased by at least 25%;

(3) At least 30 improved and appropriate productivity-increasing technologies will have been generated;

(4) ARC capability to generate future technologies, both in-house and through other public/private institutions will be strengthened;

(5) Technology transfer activities are based on local farmers' needs and planned and implemented with active participation of farmers and public and non-public extension service agencies;

(6) Farmers' use and application of improved technological practices are significantly increased;

(7) Farmers' access to and use of improved seed is significantly increased; and,

(8) A policy analysis unit within the MALR (U/AES) effectively functioning and, with the assistance of other public/private service organizations, contributing to the formulation and monitoring of sound agricultural policies;

C. Project Components

This amendment broadens the project scope by adding technology transfer, policy analysis, seed technology, and project management/new initiatives components to the original research oriented project. Total project cost increases from $210 million to $375 million and AID's contribution from $130 million to $300 million. The project life has been extended for one full year (for a total of nine years) to the new PACD of September 30, 1994. Principal areas of activities to be financed under the project include: (1) strengthening agricultural research capability; (2) strengthening policy analysis capacity; (3) seed technology; (4) improving the technology transfer system; and (5) project management and support for new initiatives in agricultural development. Each of the components are described below and in detail in the annexes.

1. Research Component

a. Background

The original project paper and Amendment One were limited to the research component. The analysis that led to the design of the original project identified as a major constraint to increased production in Egypt - the lack of appropriate technologies to address continuously changing agronomic conditions. The purpose of the original project was to remove that constraint by developing an agricultural research system capable of providing farmers with a continuous flow of improved technologies. This component will deal mainly with the most important Egyptian agricultural research organization,

the Agricultural Research Center (ARC), and through the ARC, with other public and private institutions involved in agricultural research.

The original design of this component remains valid. However, several activities initiated under the research component were found to be too limited in scope and budget to adequately address the needs of the agricultural sector and meet the objectives of the Project. Some of these activities such as land improvement, maintenance and international collaborative research have been expanded under the research component. Other activities namely technology transfer, seeds and policy analysis have been substantially redesigned and expanded as separate components. These components are described in subsequent sections of the project description and in the technical annexes.

AID and GOE resources will be used to improve the management capacity, research techniques and methods, and the skills and professional competency within the agricultural research community. These resources will also be used to upgrade research facilities and to adequately equip these facilities. AID resources will be in the form of training, technical assistance, commodities, renovation and support services. GOE resources will be primarily for salaries, and for operations and maintenance.

The following sections will provide an update of previously approved research activities and summarize adjustments in the research component budget.

b. Progress to Date

Significant progress has occurred since the Project was amended in September 1986. Important steps have been taken to improve ARC's management and administrative capability, its interdisciplinary research techniques and methods, and the skills of its professional and technical staff. A brief description of major progress to date follows:

1. Technical Assistance (TA)

The primary TA contractor, the Consortium for International Development (CID) was selected and has been in place since September 1986. An 11 person interdisciplinary team plus short term experts have provided ARC with assistance in carrying out institutional and technology production process improvements. This team is also providing assistance to the non-ARC research community. A waiver for a non-competitively procured amendment to the CID contract is proposed as part of this PP amendment to allow the GOE the option to extend the long term team members through the end of the Project, add a resident aquaculture specialist for three years and provide two long term technology transfer experts for

five years each. These changes will result in an increase of the TA budget from $12.5 million to $22.1 million. A second TA contract is in place with the International Rice Research Institute (IRRI) for assistance in rice research management, plant breeding, interdisciplinary research and training for rice researchers.

2. Training

The NARP Training Committee, ARC staff and CID carried out a comprehensive needs assessment of manpower and training requirements. This assessment was then matched against MALR strategies and ARC Plans to formulate a detailed Manpower Development and Training Plan for the Project. This comprehensive Training Plan offers various training options to strengthen ARC's research and support services. Training will be available for managers, researchers, technicians and skilled laborers. The Training Plan provides guidelines for selecting participants, objectives for each level of training, preferred training methods and procedures, an implementation plan and an evaluation and monitoring plan.

The selection of a contractor to administer out-of-c ıntry training has been made. In-country training has already begun and is l ;ing administered by the NARP Director General and implemented by the N ıRP training unit. The MALR's Center for Agricultural Management Deve ›pment (CAMD) will be used to develop management skills training and c ›rdinate other in-country training as needed. Training activities will include

-Joint U.S.A. and Egyptian graduate degree programs for 76 participants;
-Post-doctoral training for at least 200 participants;
-Observational and invitational travel for participants to attend conferences, seminars, and workshops;
-Training in adaptive research execution and management for 100 participants; and,
-In-country training opportunities for over 40,000 participants, covering 164 different types of programs.

The training budget for research shows a decrease from the Amendment 1 level of $26 million to a new level of $22 million. This reflects the shifting of some training to other components.

3. Research Support Program (RSP)

The Research Support Program finances all interdisciplinary research conducted within the ARC. The goal of RSP is to strengthen the existing agricultural research system within ARC in order to provide a continuous flow of improved technologies to the farmer and to create an adequate feedback system between farmers and researchers. In late December 1987, ARC formulated an improved research management system for the RSP. The new system provides standard management procedures and a framework for the accomplishment of research goals. This program management system provides specific guidelines and targets for improvements in the key areas of: (a) research planning, management, monitoring, and evaluation; (b) programming research according to well defined priorities; and (c) financial management in terms of budgetary, accounting and reporting of research expenditures. The new system calls for the setting of annual targets in the key areas mentioned above to show progress towards meeting the following end of project status (EOPS):

1) ARC research will be conducted exclusively in areas of study which are within national development goals;
2) ARC research proposals will include a cost analysis of alternative appropriate methodologies and indicate selection of the most cost effective methodology;
3) The implementation status of all ongoing research will be maintained by a computer based information system;
4) ARC research budget will be allocated to the highest priority research;
5) A computer based accounting system will track funding of all ongoing research; and,
6) A computer based financial reporting system will be providing ARC management with reports on a timely basis.

A.I.D. support for this activity is $12.6 million.

4. Research Grants Program

The Grants Program is designed to facilitate research by Egyptian Universities and private sector groups that will supplement research being done by ARC. This activity will also strengthen linkages and collaboration between ARC and the non-MALR research community to address technology-related constraints to agricultural productivity. In October 1987, ARC and CID published a comprehensive Manual for Grant Research under the NARP. This manual provides detailed criteria and procedures to assist non-ARC organizations in preparing research proposals under the Grant Program.

Criteria for selection of research proposals for funding include: problem's relevance to national development priorities; problem addresses an actual or demonstrable need of farmers; proposed solution using applied research will result in new/improved technology/process/product; clarity of problem to be addressed and suggested approach; provision for active involvement of farmers; and potential for significant increases in productivity, socioeconomic benefits and spread effect.

A research grant coordinating committee comprised of ARC officials and representatives from outside private/public institutions, in close consultation with USAID, has been established. USAID is represented on the committee as an observer. This coordinating committee reviews proposals and requests selected modifications as appropriate. ARC staff assist the coordinating committee in processing, administering and evaluating the research grants.

Costs to be financed are the operational costs of the research, (excluding researchers' salaries) expendable supplies, minor scientific nonexpendable equipment, minor research specific facility improvements, foreign TA and travel. Funds may also be used to finance costs associated with the processing and administering of research grants as well as dissemination of final results. A total of $15.8 million from AID funding has been allocated for this activity, down slightly from the $16.2 million budget in the original project paper.

5. International Collaborative Research

The primary objective of this activity is to foster professional exchanges between ARC scientists and international experts in various fields for purposes of solving agricultural problems in Egypt.

The key elements of these collaborative programs are: (1) the research will be conducted jointly in Egypt using ARC facilities and supplies; (2) the problems to be researched will be of common interest; (3) the international scientists' salaries will not be financed from this project, but rather from their own institutions; and, (4) project funds will be used to finance international travel and per diem costs incidental to participating scientists, publication of the research results, and limited research specific materials.

Up to ten of these programs will be with U.S. universities and the USDA, and will be administered by AID/W Science and Technology Bureau (S&T) through centrally funded buy-in projects or, in the case of USDA, perhaps through a PASA. Approximately four of these buy-in programs will be through Title XII Collaborative Research Support Programs (CRSPs) in the areas of sorghum/millet, small ruminants, aquaculture pond dynamics, and peanuts. The remainder of these ten programs will be in subject areas

which will be determined through tripartite consultations among ARC, USAID, and S&T

Up to eleven additional collaborative programs may be established with selected international agricultural research centers. Definitive determinations of the subject areas for all of these programs have not yet been made. These determinations will be made through tripartite (ARC/USAID/IARC) discussions which are underway and will be formalized in Memoranda of Understanding (MOU).

A total of $16 million of AID funding has been allocated for the international collaborative research activity. A total of $15.5 million will finance research activities and $500,000 is budgeted for needed administrative services. While the original Project Paper states that Egyptian scientists will do applied and basic research in collaboration with U.S. Universities and International Centers for Agricultural Research, no line item budget was provided. This amendment remedies this omission.

6. Research Facilities Improvement:

The 1986 Project Paper Amendment budgeted approximately $9.3 million for research facilities improvements such as renovations, maintenance and land improvements. Since that time, MALR, AID and CID reviews of the improvements needed indicated that these activities were substantially underfunded. Revised facility improvement plans and budgets have been developed which allocate $24 million for these activities. A description of the proposed improvements follows:

-A comprehensive maintenance program in support of ARC physical facilities, research instruments, farm machinery, and transportation equipment will be instituted. This will include a central service facility in Dokki properly equipped with maintenance equipment and an adequate inventory of spare parts. Also two regional sub-stations will be similarly equipped (but on a smaller scale) at research facilities previously financed by AID in Sakha and Sids. The remote areas will be served by mobile repair and maintenance units. An AID total of $5.5 million has been allocated for this activity (approximately $3 million in L.E. for contractual services, $1.9 million for maintenance equipment and spare parts, and $0.6 in L.E. for workshop renovation);

-Agricultural research is conducted on approximately 3,500 feddans of land which has been delineated for use strictly by ARC for plant and livestock research. To facilitate ARC's work, research station land improvements are proposed and include irrigation upgrading, drainage improvements, land leveling, sub-soiling, and gypsum applications;

-A project covenant specifies that the upgraded land may be used for research purposes only. Approximately $9.5 million of AID funding will be spent on proposed land improvements, all in local currency;

-Several research stations in remote areas are not inter-linked with the various research institutes and research stations in ARC's network due to the lack of telecommunication facilities. An equivalent of $1 million in local currency from AID funding will be spent on the purchase and installation of equipment for establishing an effective communications network throughout the ARC system; and,

-For renovation of buildings, an estimated L.E. equivalent of $9.5 million of AID funding will be needed for the upgrading of existing research-related structures. Research library buildings, laboratories, on-farm trials facilities, and research station structures, e.g., administrative buildings, storage buildings, station guest houses and green houses will be renovated.

7. Commodities:

Regarding the furnishing of research equipment, preliminary inventories and needs assessments for research and other support equipment have been completed. Approximately $28.8 million of AID funding will be spent on this budget item. Equipment and supplies for research labs consisting of analytical scientific instruments and other items will total an estimated $12.8 million. The farm machinery needed to prepare and maintain research plots will include tractors and plows and cost $3.2 million. The National Agricultural Library system will be upgraded with $3.5 million of books, journals, and other needed materials and items. $0.4 million will be utilized to procure aquaculture equipment and supplies. The office equipment needed for the research institutes and other research related offices of ARC will include typewriters, copiers, computers, and desks and cost an estimated $1.8 million. Transportation equipment will include approximately 129 pickup trucks for hauling materials, 22 buses and 178 utility vans to transport research staff to and from remote stations, and 544 motorcycles to transport researchers to and from experiment locations, e.g., on-farm research trials, and will cost an estimated $8.2 million.

c. Summary of Budget Adjustments

Budget adjustments increase the research component's total AID costs from $130 million to $174 million, including contingencies and inflation. This $44 million net increase is primarily attributable to the following areas: contingencies and inflation (from $11.3 to $30.7 million), international collaborative research (from $0 to $16 million), land improvement (from $615,000 to $8 million), and maintenance programs (from $1.5 to $6.5 million), as well as minor offsetting changes in other areas.

d. Summary of Component Budget:

The total AID contribution for the Research component is estimated to be $174 million. Major AID inputs to be financed include: (a) technical assistance totaling $17.8 million for 12 long term advisors and 75 person months of short term experts over the life of the project; (b) U.S. long term training for 297 persons, U.S. short term training for 290 persons, and in-country training for 26,220 persons for total training costs of $22.1 million; (c) procurement of commodities totaling $30 million such as office equipment and supplies, vehicles, aquaculture equipment and supplies, library equipment, farm equipment, and laboratory equipment and supplies; (d) support services for a total of $73.4 million which will support the maintenance program, renovation of existing research-related structures, research station land improvements, communication facilities, rice research activities, the research support program, the research grant program, to finance international collaborative research grants; and, (e) contingencies and inflation of approximately $30.7 million.

2. Policy Analysis Component

a. Background

Egypt's policy level officials are under constant pressure to make critical policy decisions on an urgent basis. Some of the most urgent economic and socio-political issues are within the agricultural sector. Too frequently these issues and problems need almost immediate response and little if any precedents, based on Egyptian experience, are available to provide guidance. There is a limited agricultural policy analysis capability to staff out, study, and prepare policy briefing papers for those who must make the policy decisions. Technical staff are not generally available to develop and analyze important information, make objective recommendations or to assist top level government officials to fully consider alternative policy strategies and consequences. Past agricultural policies have depressed and distorted agricultural production and have resulted in uneconomic consumption. Also, the monitoring and evaluation of the impact of agricultural policies and programs have been weak. The GOE's agricultural development strategy is currently in transition. The recent removal of price, acreage and government procurement controls on many crops is a significant indicator of Egypt's intention to decontrol the agricultural sector, rationalize policies and move towards a more competitive market-oriented economy. The objective of the policy analysis component is to assist the MALR in this transition by strengthening MALR's in-house capability to formulate policy options and upon implementation of new policies to monitor and analyze their impact.

The Undersecretariat of Agricultural Economics and Statistics (U/AES) is currently the primary office within the MALR that is directly involved in the policy decision-making process. The U/AES is responsible for responding to ministerial questions concerning policy issues, monitoring of policy reforms and developing of policy alternatives, and plays a direct role in policy negotiations for the MALR. The policy analysis component will focus on strengthening the U/AES capabilities to carry out, manage and coordinate the MALR/GOE policy monitoring and analysis efforts.

b. Component Description

The primary emphasis of the policy analysis component is to strengthen the U/AES in-house monitoring and analytical capability in well defined policy areas. Data-related activities will be supported to buttress the policy analysis process. Strengthening of policy analysis capabilities requires introducing new analytical methodologies and procedures, establishing an agricultural commodity situation and outlook program, supporting the further development of the national agricultural information system with respect to improving data collection procedures, computerizing the data processing services, and creating new channels for information dissemination. These changes will enhance the U/AES ability to assist the GOE in creating a policy environment conducive to the accomplishment of GOE's goal of liberalizing agricultural policies and increasing agricultural productivity. Four specific sub-components to be financed under this component include: (1) strengthening of the economic and policy analysis function, (2) strengthening linkages with other public and private agencies to facilitate policy dialogue, (3) instituting additional improvements in the statistical analysis and data processing services, and (4) setting up an information center. The total AID contribution for this component is estimated to be $21.6 million including contingencies and inflation.

(1) Strengthening the Economic and Policy Analysis Function

The objectives of this sub-component are to strengthen the U/AES ability to conduct and manage priority analyses, interpret and utilize results of these analyses and to address economic policy issues. Specific activities to be financed include:

-Administrative and organizational improvements aimed at coordinating various U/AES functions, both in Cairo and in the field, and improving the internal operations of the policy analysis group will be instituted;

-Establishment of a mechanism which provides feedback from those affected by GOE policies will be developed to include, inter alia, a monitoring and evaluation capability to identify and evaluate impacts of

policy reforms being implemented and an administrative capability to coordinate similar activities with other public and private entities;

-Development of a quick-response capability to respond to ministerial questions concerning policy issues. The senior economic staff and the policy analysis group will receive in-country and short-term training in the U.S. in preparing assessments and succinct memoranda which stress relevant facts, identify policy options, describe implications of each policy choice, and other key issues related to policy and strategy;

-Establishment of a Commodity Outlook Program through the training and development of a group of junior staff officers (approximately 20 per year) by the TA team. Junior officers will be trained to function as commodity specialists with responsibility for routine monitoring and reporting of information and problems related to domestic production, processing, utilization, and consumption including price information. Commodity specialists will serve as technical resource individuals (supplying information and assisting in the analysis) to the policy analysis group and other working groups outside the U/AES for addressing policy issues;

-Upgrading the economic staff's analytical capacity to monitor and analyze cost and return estimates for major crops such as cotton, wheat, rice, maize, lentils, fodder, vegetable crops and livestock. The monitoring and analysis of crops and livestock profitability and input usage is extremely important to the policy monitoring and evaluation activities in determining changes in farm profitability and efficiency of input usage under competitive market conditions;

-Strengthen linkages between MALR and other ministries in utilizing analytical tools and information to address policy questions. For example, the MALR will collaborate with the Ministry of Public Works and Water Resources in upgrading the agricultural sector linear programming (L.P.) model to evaluate sector level policy questions related to the policy reforms;

-The Economic Studies Department will be electronically linked (by the provision and installation of personal computers) with the national agricultural information data base (stored on a Mainframe computer at U/AES headquarters) to facilitate the access and analysis of secondary data for policy analysis. The staff will be trained in how to access the information and use the analytical software programs for policy analysis and related work; and

-A modest renovation of the U/AES headquarter offices and their field offices (20 offices and other facilities) will be undertaken to provide adequate space for U/AES staff and equipment.

(2) Strengthening Linkages to Facilitate Policy Dialogue

The objective of this sub-component is to engage and utilize the insights and knowledge of public and private sector expertise to address policy issues and to contribute to the improvement of the process of agricultural policy formulation. Its strategy is to raise the level of public understanding, promote policy dialogue within the GOE and between the GOE and the private sector, and to increase the private sector's involvement in performing policy analysis which should lead to improved policy formulation. Specific activities to be financed include:

-A series of approximately 10 policy-related workshops and seminars annually, for a total of 50, to encourage dialogue among policy decision-makers, producers, traders and consumers will be sponsored. Specialists both from within and outside of Egypt will be encouraged to participate as guest speakers and observers; and,

-A series of approximately 50 problem focused studies of short- to medium-term duration will be contracted out during the project life. These policy studies will be directed towards priority policy issues as determined by a technical committee. They will involve estimating key structural parameters such as demand and supply elasticities; analysis to determine policies for commodities still under price and/or quota control; analysis of the impacts of macro interest rates, exchange rate, and trade policies on the agricultural sector; and exports of traditional and non-traditional agricultural products.

(3) Statistical Analysis and Data Processing Improvements

A statistical analysis and data processing capacity within the U/AES is critical in support of the policy monitoring and analysis work, as the U/AES is responsible for the collection and processing of primary data for policy analysis. Presently, considerable amounts of information pertinent to the agricultural sector exists within the U/AES and related agencies, but its quality, scope and accessibility need further improvement and additional support. Planned improvements include:

-Activities started under the DCA project, i.e., the establishment of national sampling list frames, program for the verification of administrative data, objective yield forecasting models, collection of basic data on cost and return estimates and sampling procedures for the collection of agriculture census data, will be expanded/completed;

-Development of codified forms for the systematic reporting of data from field offices to headquarters. The coding and tabulation of governorate statistics at the governorate level will help reduce the processing cost and timely release of information for analysis. Information will be transmitted by computer disk;

-A total of 76 personal computers will be installed in the statistical and data processing divisions, and 38 field offices to facilitate data processing and analysis. Information will be collected, tabulated, and processed at each field office level before being sent to headquarters. This will help enhance the data processing function and information availability, and reduce processing costs;

-Development of a data base information system to store and retrieve information for agricultural policy and statistical analysis. For example, information relevant to policy questions on crop estimates such as price, acreage, yield, production, input usage, and cost of production and livestock estimates will be made accessible to analysts, key decision-makers and other users through computer terminals. This will require the development of integrated and interactive programs to process and analyze data to provide tabulated or graphic results; and,

-An internal training program for the NCR Mainframe computer, installed under the DCA project, and for the personal computers (P.C.s) will be instituted. The U/AES staff will receive training to operate, maintain and train headquarters and field office staff.

(4) Establishment of an Information Center

An information center will be established in support of the U/AES above-discussed sub-components. The center will serve as a repository of pertinent materials, establish linkages with other sources of information within and outside Egypt for the use of analysts and researchers, and print/reproduce studies/reports/papers/brochures for distribution to interested individuals and entities in the public and private sector at nominal or no cost. Specific activities to be financed include:

-The center, to be housed in the existing U/AES facilities, will be planned and developed with the assistance of the TA contractor;

-A staff of three will receive long-term professional training in the U.S. of an average of two years duration in the areas of library science, production of audio-visual and printed materials, and public relations. In addition, a staff of six will receive short-term technical training in the U.S.

of an average of six months duration in the areas of procurement, production and distribution of materials as well as in the maintenance of equipment; and,

-The center will be furnished with microfiche, printing, audio-visual, photocopying, book binding and office equipment. In addition, personal computers and associated software in support of the center's activities will be provided.

c. Summary of Component Budget:

Total AID inputs in support of the policy component is estimated to be $21.6 million. The technical assistance will cost approximately $9.5 million for five long term consultants and 240 person months of short term experts. The estimated training cost is $3.1 million which includes U.S. long term training for 16 trainees, U.S. short term training for 67 persons and in-country training for 573 persons. Commodities of $2.2 million include office equipment and supplies, vehicles, information dissemination equipment, and field equipment. Support services, such as contract technical studies, renovation, etc., will cost approximately $2.7 million. Contingencies and inflation are estimated to be $4.1 million.

3. Seed Technology Component

a. Background

The seed sector is currently characterized by seriously inadequate and outmoded technology, equipment and facilities, and few persons trained in seed technology. Seed costs are high, quality is poor, operating efficiency is low and national resources are used unnecessarily. As a result of poor seed quality and marketing, crop yields are lower than they could be; transfer of technology to farmers is slow and incomplete; excessive planting rates are used, wasting much food grain for unnecessary seed use; stands are mixed and inconsistent and higher crop losses occur from weeds and diseases. Crop yields and total production are 30-80% lower than they could be if improved seed and production practices were used.

The strengthening of seed technology is a logical part of the research/extension linkage. Research is of little value to farmers unless it reaches them in a form they can use. Improved seed is the only way to transfer improved genetic developments. While farmers may not understand the factors which make high yields a benefit of improved seed, they do understand how to use seed and recognize that improved seed works. Although some funds ($900,000) were included in the original NARP Project Paper for seed technology, it was only a small portion of what is actually needed.

A detailed analysis of needs in the seed industry was recently completed by the GOE in collaboration with a U.S. consultant seed expert. It detailed the current situation, surveyed plants and compiled a comprehensive list of equipment and other needs. This analysis builds on a 1985 study, Delivering Agricultural Technology: An Analysis of the Seed Industry in Egypt, financed under the Data Collection and Analysis Project. The two studies indicate that both the public and private sector have important roles to play in the seed industry, but that at the present time neither is fully equipped to do the job required.

Total farmer seed needs are approximately 600,000 tons/year. Currently the public and private sector combined supply only 350,000. Estimates are that some 69 small scale processing plants, strategically located throughout all Governorates, are needed to process total national needs of field crop seed. There are currently only 16 government plants and 4 major private sector seed processing plants. The GOE has no plans to increase the number of government plants. The GOE wants to facilitate the expansion of the private sector in the seed industry, and feels that the increase in the number of seed processing plants must be met by the private sector.

(1) Private Sector

The private sector in Egypt has long been involved and active in the production and supply of vegetable seeds, and speciality seeds such as berseem clover. Today in Egypt there is growing private-sector interest and profit potential in producing special seed crops such as corn and sorghum, as well as some vegetable and forage crop seeds. Private companies formed in recent years include M.S.R. Pioneer Seed Co., Egypt Seeds, and National Seeds. There is also an older company, Mekhemr Brothers, exclusively involved in berseem seed production, and several small companies providing vegetable seeds. Either because of GOE policy and/or regulations, or lack of sufficient profit, the private sector is not substantially involved in seed production and processing of cotton, rice, wheat, soybeans and lentil seed.

Hybrids especially provide an opportunity for the private sector as they give major increases in yield potential and farmers must purchase new seed for each crop. Evaluation of major crops as to the potential for private-sector seed production indicates that a large number of seed crops can eventually be profitably produced by private sector firms.

It is GOE policy for the Government seed program to withdraw from the production of seeds in areas where the private sector develops the capability to supply that particular crop seed. This has already occurred in corn and sorghum; the Government does not produce seed of these crops,

even though the commercial private sector seed companies produce less than 50 percent of total seed needs for these crops.

Problems which currently impede more private sector participation in the seed industry include:

-the need to make a massive investment in technology, personnel and facilities which may require years to recover;

-a lead time of 3-5 years between production of small amounts of breeder seed and supplies large enough to deliver to farmers;

-a minimum of 8-9 years required for the development of improved plant varieties which can be sold to farmers in the form of seed;

-the lack of adequately trained personnel;

-inadequate supply of foundation and registered seed;

-lack of a formal GOE seed policy to remove uncertainties regarding government and private sector involvement in the sector;

-GOE subsidies on some seed;

-a PBDAC monopoly on seed marketing and tie-ins with subsidized fertilizer;

-low rates of return compared to other investments, except for companies already in the industry; and,

-a lack of an adequate support system which provides seed lab testing, certification services, seed law implementation, extension promotion, etc.

USAID has supplied limited support to the private sector seed industry. USAID assisted in financing the construction of a major seed plant by Pioneer Seed. An attempt to form a joint venture between Dekalb and Pfizer to establish a seed production operation is being supported by USAID's Private Sector Feasibility Studies Project (PSFS). USAID projects, which support joint Egyptian/U.S. business ventures, can assist private sector involvement in the seed industry. Besides PSFS, which finances reconnaissance visits and feasibility studies, the Private Sector Commodity Import Program provides credit for U.S. equipment purchases. Loans in Egyptian pounds can be made from the Special Account.

Under the policy analysis component of this project, a study will be carried out to review current laws and regulations governing the seed industry. The study will lead to a plan, for implementation by the GOE, of actions to strengthen private sector participation in the seed industry.

(2) Public Sector

The Government has the responsibility to ensure adequate supplies of food, which requires a dependable and continuing supply of higher-yielding seed. To provide this seed, the Government must carry out public-service activities such as research, plant breeding, certification, seed law implementation, breeder and foundation seed, and in some cases seed processing and distribution. As A.I.D. Evaluation Special Study No. 23, Private Sector Development in the Thai Seed Industry noted, "Many major open-pollinated crops, such as rice, wheat, and cotton, are very important in developing nations, but the seed activity related to the crop is so unprofitable that it will not attract private investment. In these cases, the Government must do the seed and crop improvement work." Production by the GOE of seed for these crops will remain in the public sector for the foreseeable future.

Under current circumstances the GOE is unable to adequately carry out its role in the seed industry, either in production or support activities. The most serious problems include:

-a lack of trained personnel;

-inadequate research to resolve seed supply problems and support private sector development;

-poor quality control;

-no systematic collection and long-term storage of genetic materials and,

-lack of adequate processing facilities; equipment is generally outmoded and in poor condition.

Funds under this component are intended to assist the GOE to better carry out its responsibilities in the seed sector and to create conditions needed for additional private sector involvement.

b. Component Description

Through this project component, USAID will assist seed industry development by providing technical assistance, in depth seed technology training, and equipment to renew and upgrade basic facilities: testing laboratories, processing plants, a genetic resources laboratory, a cotton seed research/breeder seed laboratory, and in-plant quality control. The numbers of facilities upgraded and the components involved are only a small part of total requirements, but will initiate the development process in a balanced way which will improve seed supply, help develop seed research and technology transfer and promote private sector development. This component is based on a model used for a successful blending of public and private sector seed interests to modernize the seed industry in India, Brazil and most recently Thailand.

Under this amendment the proposed activities include: (a) technical assistance; (b) training of seed technologists; (c) instituting improved testing, standardization, quality control, and certification procedures; (d) improving inventory control of germ plasm, breeder seed, and foundation seed; (e) replacing antiquated equipment in eight existing plants and a cotton research and ginning facility; and, (f) upgrading the efficiency of the five seed cleaning and processing plants which AID financed under earlier projects. A total $42 million of AID funding is budgeted for this component.

(1) Technical Assistance

One long term seed specialist will be provided under this component to coordinate seed related activities. He will work closely with the National Director of the ARC Seed Institute to select appropriate training in seed technology for ARC personnel, in equipment selection and preparation of specifications, development of research programs, supervision of equipment installation and maintenance procedures. Up to seven months of short term technical assistance is also anticipated in support activities such as manual preparation and equipment operation. The long term consultant is already in place as a member of the CID team. Short term assistance is also provided for under that contract.

(2) Training

ARC currently has no employees trained specifically in seed technology. This project will finance long term training for approximately 66 persons to provide leadership in the fields of seed research, certification, testing and processing. Short-term training overseas will be provided for approximately 17 persons, and in-country training in critical operations will be provided for a larger number of staff. Training objectives are to initiate

movement toward increased technical/managerial competence of seed staff, to train persons to conduct further in-country training (training of trainers), to provide some staff who can lead in installing improvements in operating technology and systems, to improve seed program operations, and to develop a trained manpower pool upon which the private sector can draw.

(3) Commodities

Funds under this activity will be used principally to upgrade and update research and testing facilities, data management, and quality control and processing equipment. The following problems/solutions will be addressed by this component.

-Research to resolve seed supply problems has not been adequate to support improved seed supply and private-sector development. Under EMCIP, a seed research building was established, but was not fully equipped. This lab will be equipped to perform problem-solving and industry-development research.

-Equipment will be provided for essential quality-control testing in: six seed testing laboratories, which conduct research and provide "service" testing to government and private-sector seed programs; the referee testing laboratory which provides overall testing quality control support and guidance; and, twelve in-plant quality-control units to test seed on an operational/management guidance basis. This equipment will support improved testing, standardization, quality control, service to the private sector, and certification as well as reduce cleaning losses.

-Variety development and maintenance need the support of systematic collection, long-term storage, and a ready supply of genetic materials which can provide traits needed by farmers. ARC has established the Genetic Resources Section; this section will be equipped so that it can effectively collect, multiply, catalog and store seed of balady strains and varieties developed domestically and internationally.

-A major problem is lack of adequate processing facilities. Equipment is old and outdated, and wastes excessive amounts of seed, sometimes averaging as much as four times the cleaning loss internationally considered acceptable. Improvement of processing facilities will improve the quality of seed provided by ARC and other government programs, reduce cleaning losses, enable farmers to plant lower rates, and permit custom processing services for private seed programs. No new plants will be constructed; eight of the existing plants will be re-equipped with easy-to-operate, minimum-maintenance modern equipment. These 8 plants are designed to handle 5,000 tons/year each,

for a total design capacity of 40,000 tons/year, only a small part of total needs.

-To support research and seed supply aimed at improving farmer income from cotton and improving the quality of cotton marketed, the Sakha Cotton Research and Seed Ginning facility will be renovated and equipped with up-to-date equipment.

-Five plants constructed under EMCIP need spare parts and some additional equipment. These plants provide custom processing services for the private sector (in fact plant employees receive bonuses for doing so), but their ability is limited. Spare parts will be provided, along with a few new machines needed to improve their capability to clean crop seed and serve the private sector.

(4) Services

This activity provides $4.1 million for urgently needed renovation of two Central Authority for Seed (CAS) plants, the Genetic Resources Lab in Bahteem and the Cotton Research/Seed Lab in Sakha.

c. Summary of Component Budget:

Total AID contribution for the seed technology component is estimated to be $42 million. Major inputs to be financed by AID include: approximately $1.6 million of technical assistance for one long term seed advisor for a total of 89 person months and 7 person months of short term experts; U.S. long term training for 66 trainees and out of country short term training for 17 persons will cost $2.5 million; procurement of commodities, such as equipment for research, a genetic resources laboratory, seed conditioning, testing laboratories, and data management, is estimated to be $27.1 million; renovation of seed facilities will cost $4.1 million; and, contingencies and inflation will total $6.7 million.

4. Technology Transfer

a. Background

The technology transfer system has stagnated. Extension staff at the governorate level are not sufficiently trained and there are few institutionalized linkages with research. Salaries are not adequate. Extension lacks communication equipment, transportation and crucial operating budgets which limits the number of farmers that are contacted.

The overall system for technology transfer is not effectively operating to systematically and continuously monitor farmer needs, draw appropriate technology from a variety of research institutions and disseminate technical information through a comprehensive network of private and public intermediary groups to farmers.

In the early 1980's a number of "first generation" USAID-financed projects were implemented. Through these projects, a variety of extension methods have been tested. The results of these "first generation" agricultural projects, have provided convincing evidence that an effective technology transfer system is critical to increasing agricultural productivity. Lessons learned from this "first generation" experience has taught us that an effective system provides: (1) coordinated promotion of technology, agricultural inputs and credit; (2) continual development of improved technology packages; (3) training of workers in effective dissemination techniques; (4) improved follow-up at the governorate level; and (5) a farmer feedback mechanism.

During 1987 the MALR commissioned a GOE Consultants Working Group to study how to improve the effectiveness of the technology transfer system. As a result of the Working Group activities, some significant organizational changes were made in late 1987. An ARC Deputy Director for Extension Affairs (ARC/EAD) was appointed to oversee the extension function within MALR, establish an effective technology transfer system, and serve as the focal point for this project component. The Central Administration for Agricultural Extension Services (CAAES) and the ARC Agricultural Extension and the Rural Development Research Institute (AERDI) have been active participants in the deliberations on strengthening the technology transfer system.

In response to a GOE request for USAID assistance for strengthening the technology transfer system, a USAID/GOE design team was organized. The team carefully reviewed the findings/recommendations of various studies and the GOE enacted and/or proposed changes in the area of technology transfer. The design team concluded that:

-The public extension service is going through a massive reform program and that it is not engaged in regulatory activities, i.e., implementing/monitoring GOE production control programs;

-There is a growing realization that a large number of intermediary groups such as village banks, cooperatives, PVOs, universities, farmers associations, companies, schools and mass media are involved in the technology transfer process and that these groups must be involved in the development of any effective technology transfer program;

-The existing technology transfer system is not demand driven. For it to become effective, it must be organized at the local level, with active participation of local farmers, and be supported by all concerned local, regional and central level agencies;

-The researchers are not involved enough in the technology transfer process. This has resulted in poor dissemination of technologies to farmers and intermediary/transfer groups as well as the limiting of the farmer feedback system and the impact of technologies which have reached farmers;

-The service delivery capabilities of various technology transfer groups (public extension service and others) are weak and require considerable integration and strengthening; and,

-There is no effective mechanism to coordinate public and private sector research and their technology transfer activities.

b. Component Description

The objective of this project component is to strengthen the transfer system so that it draws needed technology from researchers and transfers it through public/private sector networks to farmers. The approach is to start with the determination of technology needs of local area farmers and then design an appropriate program/plan which is responsive to those needs. Four specific sub-components to be financed include: (1) strengthening of the planning and management capabilities of ARC/EAD; (2) decentralizing public extension service improvements; (3) supporting non-public extension service agencies; and (4) strengthening the researchers' technology transfer capabilities.

A major evaluation of this component is planned after two full years of support has been rendered. (For detailed monitoring and evaluation information, please refer to Section VI, the Monitoring and Evaluation Plan) The evaluation will measure the success of the proposed technology transfer approaches and help the MALR and USAID to make whatever design adjustments are needed after this initial phase of the project.

(1) Strengthening Planning/Management Capability of ARC/EAD

The Supreme Council for Agriculture Extension, comprised of a broad representation of non-public extension service groups, will be responsible for setting broad guidelines in support of the entire technology transfer component. ARC/EAD is the GOE organization responsible for

implementing the component and coordinating/supporting the entire technology transfer system. It is ARC/EAD's responsibility to provide needed support to the decentralized public extension service, to actively involve the non-public extension service groups in the process, and to ensure that the Egyptian research community is capable of meeting local technology needs. Planned activities under this sub-component include:

-Developing guidelines/criteria/operating procedures governing each sub-component's activities;

-The planning and management capability within ARC/EAD will be enhanced. Long-term and short-term plans in support of the technology transfer system will be developed. Senior staff of the various units of EAD (CAAES, CASE and AERDRI) will receive short-term training in extension planning and management, monitoring and evaluation, and related areas;

-AERDRI's capacity in the area of research and development in support of the technology transfer system will be strengthened by the provision of U.S. Masters degree training of four persons in the fields of agricultural extension and extension methodology. U.S. short-term training will be conducted in such areas as program design, methodology, program analysis, survey statistics, and statistical analysis at USDA and similar training institutes. Funds to conduct studies will be provided to AERDRI. In addition, resources to conduct seminars over the project life will be made available to encourage dialogue among the participants in the system;

-AERDRI's capability to assess, plan and direct technology transfer training will be enhanced. With the assistance of the TA contractor, AERDRI staff will formulate plans to meet CAAES, CASE, and AERDRI skill requirements that are in short supply or need updating. It is anticipated that three AERDRI professionals will receive U.S. long-term training, and others will receive U.S. short-term training in the fields of adult education, education administration, vocational agriculture, education planning and development, audio-visual education, etc.;

-The capacity of CASE to mobilize and assist the research community to prepare and disseminate technology packages will be strengthened. Four CASE professionals will receive U.S. long-term training (2 MS and 2 postdoctoral) and a staff of 10 persons will receive short-term U.S. training in the areas of research presentation, research packaging, information dissemination, information utilization, data presentation, and information management; and

-CAAES staff will be trained in the planning, production and dissemination of effective agriculture communication strategies and programs. The unit will be furnished with communication support equipment for limited in-house production of communication materials. A total of three professionals will be trained (1 MS and 2 postdoctorals) in the planning, production and dissemination of effective communication programs. Professional/technical staff will also receive U.S. short-term training in the areas of mass media and information dissemination.

(2) Decentralized Public Extension Service Improvements

Egypt has 20 agricultural governorates with wide variations in agri-climatic conditions and socio-cultural farming practices. Because of this heterogeneity, this sub-component will provide support to the public extension service on a governorate or decentralized basis. The primary objective of this sub-component is to assist the GOE in making the decentralized extension service responsive to farmers needs and to improve its delivery capacity to serve those needs. Specifically:

-Governorate Extension Councils, with representation of farmers and non-public extension service organizations (note that non-public extension service organizations include both public and private sector entities, e.g., PWWR, PBDAC, Producer Associations, PVOs and mass media), will be established to develop, review and approve yearly governorate extension plans;

-Planning, management and monitoring capabilities of local extension officials will be strengthened. A capacity to survey and assess local farmers' technology needs will be installed. In addition to the provision of TA and on-the-job training, short-term training of 10 senior extension officials in each governorate of about two months duration in multiple administrative skill areas in the U.S. is contemplated. An estimated 350 extension workers in each governorate will receive in-country training, in effective communication techniques for relating with farmers;

-Effective linkages will be established: (1) between the governorate extension service and the entire Egyptian research community (ARC, R/E centers, regional university(ies) and others); (2) between the governorate extension service and the non-public extension service groups to encourage/promote the exchange of information and dissemination of available appropriate technology; and (3) among researchers, extension workers and farmers in general. One workshop/seminar will be arranged annually in each governorate to promote dialogue among the participants in the technology transfer process;

-Within the public extension service, a system which recognizes and rewards outstanding service to farmers will be instituted. In addition each governorate will institute an Extension Agent of the Year or similar award;

-A modest program of extension facilities renovation will be undertaken in the 20 governorates;

-As needed to conduct the decentralized extension plans, each governorate's extension service will be equipped with reproduction, office, communication and transportation equipment to improve their physical capacity to deliver services;

-Approximately 18 technology packages will be commissioned/procured annually by the governorates for distribution to farmers; and

-Costs associated with actual technology delivery activities (use of mass media, field days, demonstration plots, farmers training, etc.) will be financed to provide hands-on experience to the extension field staff and farmers.

The above-listed activities are illustrative. Specific requirements of each governorate will be spelled out in each governorate life-of-project and annual plan. The plans will summarize local farmers needs, priority subject areas, the roles of the various groups in the delivery of technologies, sources of technology packages and information, target audiences, cost of activities and expected outcomes. ARC/EAD staff will review each plan to ensure its compliance with the established criteria and operating procedures. Upon approval of the Supreme Council and USAID concurrence, ARC/EAD will arrange for the provision of technical and other inputs called for in each of the plans.

(3) Support for Non-Public Extension Service Agencies

The support for decentralized public extension service, as discussed above, provides ample opportunities for non-public extension service organizations to participate in the development and implementation of the governorate's public extension programs. It is important, however, that farmers continue to receive needed technical inputs from reliable non-public extension service sources as well. Therefore, under this sub-component a $3.5 million grant fund has been set aside for the technology transfer activities of non-public extension service organizations. The estimated funding levels provided below are illustrative and will need to be adjusted on the basis of actual project experience. The extent of participation will determine the distribution of this fund among the various groups.

The technology transfer activities to be supported under this sub-component must: (a) be based on well documented farmer needs; (b) be problem focused; (c) be planned and implemented with the beneficiary farmers' participation; (d) demonstrate a clear potential for increasing agricultural productivity; and (e) show that these activities complement the efforts of the governorate public extension service. An illustrative list of grantees to be financed includes:

-Indigenous private voluntary organizations (PVOs);

-Commercial private sector companies or organizations;

-Egyptian universities (mostly agricultural faculties);

-Activities initiated by or aimed at hard to reach groups such as farmer groups, community development associations, cooperatives, and a multitude of youth/women/self-help groups;

-Mass media activities; and,

-Innovative Program Grants: In addition to the technology transfer grants discussed above, public and private sector research organizations and technology transfer intermediary groups will be eligible for grants to carry out special activities that will contribute to a better understanding of the technology adoption process. The objective here is to stimulate a variety of Egyptian organizations (governments, universities, private sector, etc.) to become involved in developing and testing innovative approaches to technology transfer.

The Supreme Council will establish a technical screening committee(s) of local experts to evaluate proposals. The approved proposals will be included in the component's annual implementation and financial plans to be submitted to USAID for approval and financing.

(4) Strengthening Research Community Technological Transfer Capability

In order to enable the research community to effectively address technology needs of the local farmers and provide support to the governorate public extension service and non-public extension service, a series of activities is proposed under this sub-component. These include enlisting and training of subject matter specialists (SMSs), support for the preparation of technology packages, and converting ten experiment stations into R/E Centers. To ensure that these efforts bear relevance to local farmers needs,

the decentralized extension plans will be the basis for support to each of these activities. Specifically:

-CASE will prepare a roster of researchers and specialists in a wide variety of fields and from a variety of institutions (public/private) who are interested in receiving training to serve as SMSs (SMSs are researchers who primarily refine and package research findings in forms which are acceptable to farmers). AERDRI, with the resident TA advisor, will use this information to prepare an SMS training plan and arrange approximately six week long workshops a year, at each of the ten R/E Centers. The training of SMSs will cover technical subjects and methodologies for the preparation of technology packages, how to train extension personnel, dissemination techniques, and communication skills.

-CASE will organize technical advisory groups to prepare technology packages of practices based on subjects/areas identified in each of the governorate public extension plans and/or requested by non-public intermediary groups. Costs, associated with the preparation of each package, and dissemination will be financed under the project; and

-Over the project life, 10 ARC experiment stations will be converted into R/E Centers. Each of these centers will be developed to assist two adjacent governorates in all aspects of their technology transfer activities.

c. Summary of Component Budget

AID inputs for the technology transfer component total $51 million. The technical assistance will cost approximately $4.8 million for 2 long term extension advisors and 182 person months short term TA. Long term U.S. training (552 training months), short term U.S. training (160 training months), and in-country training (64,057 training months) are estimated to cost $11.9 million. Approximately $11.9 million will be spent on procurement of commodities. This procurement of commodities will include office equipment and supplies, vehicles, and media production equipment for. Approximately $12.4 million will be utilized to provide support services such as demonstrations, office renovation and technology transfer grants. Contingencies and inflation are $10 million.

5. Project Management/New Initiatives

a. Background and Description

The objective of this component is twofold. One is to provide assistance to ARC to establish an Executive Office to provide overall project management for the expanded NARP. The second is to provide resources for the study and analysis of crucial and emerging opportunities for agricultural development.

(1) Project Management and Support

The GOE entity responsible for overall coordination and administrative management of project implementation is the ARC. An Executive Office (EO) has been established within the Office of the Director General (DG) to assist in project management, monitoring, evaluation and financial operations. The EO has the following responsibilities:

a) coordination of overall project activities;
b) to monitor and evaluate project activities;
c) annual Implementation and Financial Plans;
d) to exercise budgetary control; and,
e) to coordinate reporting and disbursement requests to USAID.

The DG is assisted by a Senior Project Coordinator. The Coordinator will assist in developing implementation plans and budgets, liaison among the various project contractors, GOE personnel and USAID staff, as well as monitoring and other assistance during the implementation period of the project. Even though the Coordinator will be based at ARC with the EO, it is anticipated that considerable time will be spent with USAID staff in liaison activities at USAID offices. The coordination is currently being provided through a firm that was selected due to its 8(a) status. The services of the Sr. Project Coordinator and an additional resident specialist will be provided through a new 8(a) contractor including expanded responsibility for commodity procurements and TA for new initiatives.

The EO is organized around two major activities: (a) Administration and Finance; and (b) Support Services. The EO utilizes a combination of permanent MALR/ARC staff that are supplemented by contract personnel, both long and short term, to assist in carrying out its responsibilities.

(a) Administration and Finance

This Section is responsible for assisting the Director General in administering the financial aspects of the project. It maintains official project records and files and prepares project financial reports. These reports include the financial management reports required by USAID. Project-wide control of cash receipts and disbursements, including checking accounts and balances, is maintained in central ledgers.

(b) Support Services

Implementation and Financial Plans for all project components are consolidated for project management approval and subsequent clearance with USAID. Monitoring and oversight reports of project operations are prepared in this Section. The EO relies heavily on computer-based systems for performance of its work.

The initial project information system will monitor the initial results of project activities, e.g., number of persons trained, technologies developed and tested, research proposals funded, number of commodities purchased, etc. Information for monitoring purposes will be provided primarily by quarterly reports prepared by each component and compiled by the EO. Budgetary oversight will indicate whether resources are being allocated and used as planned. The continued development of an information system will be expanded using the existing network of PCs begun under the project.

The decision to include an information system in this project is based on the assumption that it will make a difference to project performance, particularly in terms of an improved planning system and the more effective implementation of development activities. The complexity of the project, and its potential long-range impact on agricultural development in Egypt, demands relevant and timely information for all levels of project participants. Consultants, technical advisors and other resources will be provided through this activity.

Other support services provided include procurement, both off-shore and local, maintenance of facilities and vehicles, architectural and engineering services, renovation of facilities, communications, local travel and per diem, office supplies and equipment, publications and printing, clerical assistance, and other direct operating costs allowable under GOE and USAID programs.

(2) New Initiatives

Egypt's agricultural sector is going through a transitional period. This shift is creating new and challenging opportunities for agricultural planners and decision-makers. The new initiatives sub-component is designed to provide quick and flexible resources to address unforeseen requirements that may surface which could cause a bottleneck to improving agricultural development. This component is expected to result in the formulation of new development progress or project studies which could create opportunities for new project development. The objective of this activity is to make resources available to project management to address emerging problems or opportunities, undertake special initiatives, and to take advantage of time sensitive opportunities not covered elsewhere in this or any other on-going agricultural project financed by USAID.

An illustrative list of activities to be financed under this component include:

- 72 p.m. of short term consultancies;
- 18 special studies of short to medium duration such as development of the seed industry, a fertilizer sector study, fruits and vegetables, and agricultural marketing;
- U.S. training for senior management of the MALR;
- 24 long-term postdoctoral participants;
- 18 study tours to the U.S.; and,
- 24 in-country seminars.

Commodities include those items which directly support the EO, Director General and overall project implementation. It will provide equipment to facilitate the exchange of project implementation and status information with collaborating organizations and USAID.

Services to be partially funded include the operating costs of the EO, general project support not otherwise provided, e.g. specialized maintenance and repairs, printing and project related media development and production.

Evaluation and audit services for the entire project are consolidated into this component as well.

The Ministry and USAID will jointly determine and approve the use of these funds prior to any commitments.

b. Summary Component Budget

AID inputs for the project management/new initiatives component, which total $11.4 million, include costs associated with technical assistance of $4.5 million for two long term management specialists and 74 person-months of short term TA; training ($0.7 million) for 192 training months; commodities ($0.2 million) to support project administration; support service costs of $3.9 million for administration, evaluation and audit activities; and contingencies and inflation of $2.1 million.

III. SUMMARY OF FEASIBILITY ANALYSES

A. Administrative Analysis

This analysis assesses the capacity of the implementing agencies with regard to functions considered critical to the successful implementation of the project. It also assesses the adequacy of the proposed implementation arrangements given the relative strengths and weaknesses of concerned GOE agencies.

1. Implementing Agencies

The research, seed technology, project management/new initiatives and technology transfer components will be implemented by the ARC, and the policy analysis component will be implemented by the U/AES. ARC was established as a research and extension institution with a corporate status and is governed by a Board of Directors. As a semi-autonomous organization, the ARC has its own budget and deals directly with the Ministry of Finance in the budgetary process. ARC can disburse funds without external approvals. The U/AES, on the other hand, works directly with the MALR Undersecretary for Finance and Administrative Affairs regarding budget matters. Both of these agencies are supported by the MALR Foreign Affairs Office in the procurement of required inputs from foreign sources.

2. Past Experience

ARC has successfully implemented three other large AID financed projects. In addition, ARC also has the experience of implementing projects financed by other donors, primarily the Canadian, German, Japanese, and Danish governments. Likewise, the U/AES successfully managed the USAID's recently completed DCA project. These past experiences have revealed that the GOE implementing agencies have an adequate number of managerial and technical staff, but their quality and distribution is uneven.

3. Proposed Implementation Strategy

A comprehensive institutional development program is proposed to address technical, managerial and institutional constraints facing the concerned MOA agencies. Comprehensive training programs have been planned to improve technical/managerial competence of the professional and

administrative staff. The technical assistance teams will assist the GOE agencies in addressing the organizational and procedural bottlenecks aimed at improving the efficiency and effectiveness of these agencies.

4. Conclusion

Given the existing status of ARC and U/AES, as discussed above, the establishment of implementation units and the Steering Committee, the benefit of the research component's two years of implementation experience, and the quality of the implementation plan produced to date, the implementation of the amended NARP by ARC and U/AES is most likely to proceed as proposed in the implementation plan. In summary, it can be concluded that the organizational and implementation arrangements proposed for the amended project are sound and that the project is administratively feasible as planned.

B. Technical Analysis

The Technical Analysis explores: (1) the technical options which could be employed for the realization of the project objectives; (2) the strengths and weaknesses of various options; and, (3) the basis on which option selection was made.

The research and seed technology components focus on institutional development conforming to the concept that improved agricultural technology can best be developed through an indigenous national research system which maintains linkages with the outside research world. The complexity of the social and agro-climatic aspects of Egypt's farming systems requires research to develop technologies and practices that fit the environment in which farmers must cultivate. The technical design takes these factors into account. The analysis also considers the equity concerns of agricultural development and notes that, unless there is a broad and equitable participation in the process of increasing agricultural production, food self-sufficiency would be of little value. Thus, the achievement of food self-sufficiency must include small farmers in the process so that both their outputs and incomes are increased. The prudent use of project funds to mobilize local physical and human research resources, as proposed under the research component, will address the technical constraints and will increase farmers yield. In summary, the analysis concludes that the research component's focus on institution building, research coordination, and research support services will foster an environment conducive to generating appropriate technologies for Egyptian farmers.

The analysis points out that Egyptian farmers will find and use appropriate and needed technology from anywhere it is available. Studies in Egypt have shown that information flows through numerous public and non-public intermediary groups (banks, seed dealers, coops, etc.) to farmers. After reviewing various options of supporting the technology transfer system in Egypt, it is concluded that the best way to encourage a wide range of organizations to become involved in the technology transfer process is to strengthen and support a decentralized system that is responsive to the local farmers' needs. In other words, a bottom up approach is recommended rather than a system which is predominantly top down with production targets established by central planners. The proposed activities will assist the GOE in effectively decentralizing the public extension service to the local governorate level to respond to farmers needs. At the same time, the proposed approach provides ample opportunities for non-public extension organizations to conduct their own technology transfer activities as well as to participate in the development and implementation of the governorate technology transfer plans. The analysis concludes that the activities proposed under this component make good sense and are technically feasible.

The agricultural policy analysis component focuses on strengthening the capacity of the MOA to perform policy analysis. After reviewing the advantages and disadvantages of which organization should take the lead in the area of policy analysis, the U/AES was selected as the appropriate agency for the project's focus. The analysis recognizes the need for reliable data, availability of information and an open dialogue among producers, traders and consumers on significant policy issues. The activities proposed under the component will assist the GOE in strengthening the U/AES to design, evaluate and manage policy analysis. Linkages with other public and private institutions will be established. Activities such as data collection, analysis and processing will be interlinked with the primary focus on policy analysis. The human and analytical resources of the private sector are proposed to be utilized in the identification, study and analysis of significant policy issues. In summary, the analysis concludes the proposed activities will result in the desired capacity building with respect to policy analysis. Moreover, these activities will foster a policy environment conducive to the adoption of new technologies and liberalization of the agricultural sector. Finally, the technical approach proposed is compatible with the current environment and existing/planned local capacity.

C. Economic and Financial Analysis

1. Purpose

The purpose of the economic analysis is to determine whether the project is a worthwhile investment of Egypt's scarce resources, i.e., whether, from a national perspective, the additional outputs which are expected to result from this project are sufficient to justify the expenditure. The financial analysis determines whether the project is likely to generate sufficient additional income to farmers to convince them to make the necessary investments and adopt the new technologies. The principal difference between the economic and the financial analysis is that the prices used in the financial analysis are those which the farmers actually receive for their products and pay for their inputs, while in the economic analysis the prices for both inputs and products are those which would be expected in a fully open, internationally-competitive environment.

2. Benefits

The projected benefits of this project are difficult to determine accurately because they depend not only on the success of the research, technology transfer, seed technology and policy analysis components of the project but also on the extent to which the farmers respond to the new technology and policy environment. Nevertheless the results of similar projects in the past enable us to make reasonable assumptions on the potential benefits accruing from the project and establish with reasonable confidence the profitability and desirability of investing the proposed funds in this project.

We follow the established procedure of comparing the discounted costs and benefits of the without and with project situation to determine the feasibility of undertaking the project. Because of the importance of the policy environment in determining crop profitability, farmer income and GNP growth, we further divide the project situation into two parts. We first compare the "without-project" situation to the alternative including the research, seed technology and technology transfer components only. Then we add the policy analysis component and repeat the analysis. The results are summarized in this section.

3. Rate of Return

As had been shown in the analysis of the original project, the returns per feddan of the main crops to the farmer show substantial increases in the "with research, seed technology and technology transfer" case over the

"without". Expected net returns above costs from the improved technological packages range from an increase of 130 percent for berseem to 300 percent for cotton. When we compare the "without-project" alternative to the "with-project" situation on economic criteria, the increases in income per feddan of a given crop continue to be substantially above the "without-project" situation, but the ranking of the profitable crops changes. Cotton, rice and tomatos, the crops in which Egypt has comparative advantage, become significantly more profitable while the relative profitability of berseem and other crops suffer.

The financial internal rate of return of the project is 41 percent. The economic internal rate of return of the project with the research, seed technology and technology transfer components only is 63 percent while the inclusion of the policy analysis component raises it to 308 percent. This improvement in the economic rate of return when the policy analysis component is included shows the crucial importance of the policy environment. Although the project is economically attractive even without the policy analysis component, the project's full potential for improving Egypt's agriculture and resource allocation will not be achieved unless the policy environment improves as currently expected.

4. Conclusions

Simulations with alternative values of the crucial assumptions on yield and adoption rates show these results to be robust. The financial and economic analysis provide reasonable assurance that the proposed investment on this project is justified and has the potential to provide a significant payoff to the Egyptian farmers, the agricultural sector and the economy.

D. Recurrent Cost Analysis

Of the $300 million AID contribution to NARP, only $18 million (6%) will go for recurring operational costs of the MALR during the project. AID is financing such costs because: (1) the GOE budget is now constrained; (2) the expected benefits of agricultural research are among the highest of all possible development options; and, (3) AID wants to maximize the return of the capital infrastructure (research buildings) it financed under previous agricultural projects. AID share of these operational costs as well as the activities covered by such costs are illustrated in Table III-1. As this Table shows, the AID contribution will gradually decline from 100 percent in 1989 to 0 percent by 1993.

TABLE III-1

AID SHARE OF NARP OPERATIONAL COSTS

	Thru FY 88	FY 89 100%	FY 90 75%	FY 91 50%	FY 92 25%	FY 93 0%	TOTAL
Research							
Research & Support	4000	3500	2600	1700	800	0	12600
Technology Transfer							
Travel	0	500	375	250	125	0	1250
Maintenance	0	240	180	120	60	0	600
Printing	0	140	105	70	35	0	350
Media	0	160	120	80	40	0	400
Administration	0	100	75	50	25	0	250
Policy							
Travel	0	188	141	94	47	0	470
Maintenance	0	40	30	20	10	0	100
Administration	0	40	30	20	10	0	100
New Initiatives							
Executive Office	470	280	210	140	70	0	1170
Printing	0	50	38	25	12	0	125
Media	0	140	105	70	35	0	350
TOTAL	4470	5378	4009	2639	1269	0	17765

This amendment will require the GOE to annually increase its cash contributions in support of the project's recurrent costs so that by the 1993 and beyond, the MALR's Chapter II (BAB II) allotments from the GOE will meet all project recurrent cost needs.

E. Social Soundness Analysis

The social soundness analysis included in the original PP, for the research component (of which seed technology was a part) of the project, is still valid. The policy analysis component does not have strong socio-cultural implications. This analysis, therefore, is restricted to the technology transfer component.

1. Sociocultural Feasibility

The project is compatible with the sociocultural environment in that it reinforces and supports what farmers are already doing--maximizing their production opportunities. The Project reinforces what the farmers are already doing independently by trial and error. The Project does this by marshalling resources of the agricultural research community to generate technologies using scientific methods and by transferring these technologies to farmers using modern communication techniques.

Participation of the farmers in the verification and demonstration phases is essential for the success of the Project. Farmers who participate will do so voluntarily. To compensate for the time involved and the use of the farmers' land, the package of inputs (seed, fertilizer, chemicals), however, will be given to the farmer.

2. Changes in Institutional Relationships

This project calls for numerous changes in institutional relationships. For example, a reorientation of ARC, including the transfer of 7,000 employees, will result in many changes in long established relationships. The extent to which any disruptions in these relationships might stall implementation at critical points should be examined by project management. Issues regarding new or revised roles and functions should be anticipated and cleared up. This project assumes numerous linkages within the government as well as with private sector entities. Given the basic problems hindering effectiveness of the GOE's system of extension workers, creating new links between research and private sector, and voluntary organizations with the farmers will be critical to ensure project success. Many of these linkages do not currently exist. Making sure that they are first of all established and then maintained will require a great deal of communications

and group dynamics skills. Consequently, the project should have staff with the time and talents required to nurture these linkages. The participation of representatives of farmer groups should also be actively encouraged. Project staff could assume responsibility for ensuring input and feedback from farmers.

3. Social Consequences and Benefits

World wide experience indicates that it is the larger, wealthier, and more influential farmers who reap the greatest benefit from technology transfer services. However, in Egypt, these large farmers exert leadership in their communities regarding crops and technologies used. If the project is designed keeping in mind the key role that these farmers play in community production decisions, it can make them an integral part of the technology transfer system. Women will benefit in particular from the project's emphasis on training and use of women extension agents. The MALR has already demonstrated, in the predecessor EMCIP, its concern for increasing the role of women in agricultural production.

F. Environmental Analysis

The activities of this project for environmental considerations qualify for a "negative determination," in compliance with the requirements of 22 CFR Part 216 entitled Environmental Procedures. The determination was acknowledged by the ANE/PD/ENV, Environmental Coordinator. The addition of technology transfer, seed technology and policy analysis components to the Project does not constitute any new environmental issues different from the original Project Paper.

IV. IMPLEMENTATION PLAN

Overview

The National Agricultural Research Project Grant Agreement was signed on September 12, 1985. The Grant Agreement was amended on September 21, 1986, to adjust the budget for changes in the Egyptian pound exchange rate and to extend the PACD to September 30, 1993. This second Amendment clarifies and strengthens the original Research Component, adds a section for Support Services to the Executive Office of the Project, and adds four new Components in addition to the existing Research Component: (1) Policy Analysis; (2) Technology Transfer; (3) Seed Technology; and, (4) Project Management/New Initiatives.

Each of the four major project components, Policy Analysis, Research, Seed Technology, and Technology Transfer, will have a Deputy Project Director who reports to the Director General. The Project Management/New Initiatives component will be assigned directly to the Director General. It includes a mechanism to conduct audits, improve monitoring, provide miscellaneous technical assistance, training and procurement and, carry out special initiatives approved by Project management.

The following sections discuss the management of the implementation process through the organizational structure established by the Ministry.

A. GOE Project Implementation and Coordination:

1. Steering Committee

His Excellency, the Minister of Agriculture and Land Reclamation, is responsible for the overall GOE supervision of the Project. A steering Committee, appointed by the Minister and composed of senior MALR and other governmental officials, is responsible for the overall implementation policy framework of the Project. The Steering Committee membership is currently composed of the following persons:

HE Dr. Yehia Hassan, The Governor of Menufia, Chairman
Dr. Ahmed Momtaz, Director of ARC and NARP Director General
Actg. Kamal Reda, Undersecretary for Finance and Administration, MALR

Eng. Mohamed Dessouki, Administrator, Foreign Relations Department, MALR
Dr. Hassan Khedr, Undersecretary for Economics and Statistics, MALR

His Excellency, the Minister, may reformulate the Steering Committee during the life of the Project to facilitate implementation. The Steering Committee will be responsible for: (a) overall policy guidance, leadership and coordination of project activities; (b) approval of the Life of Project Plan; (c) approval of Annual Implementation and Financial Plans; and, (d) monitoring the progress of implementation to assure that the Project is kept on schedule. The Steering Committee will meet as needed, but no less than monthly.

The approved Annual Implementation and Financial Plans will serve as the basis for monitoring Project implementation. These annual plans will also include a set of benchmarks to be used to monitor progress in implementation. Before new plans are approved, outputs from the previous year will be reviewed. Approval of the following years plans will in part depend on progress the previous year in meeting output goals.

2. The National Agricultural Research Council (NARC)

The National Agricultural Research Council is composed of distinguished senior scientists, academics and managers from both government and the private sector. Its primary role is to advise the Director General on technical aspects of the Project. Its membership will be expanded from its current focus on research to cover the breadth of specialization required for effective technical leadership of the Project. Members of NARC are appointed by His Excellency the Minister of Agriculture and Land Reclamation. The National Agricultural Research Council will meet as needed, but no less than monthly.

3. Director General

The Director General is responsible for the day-to-day execution of the Project and has the ultimate management responsibility. He is advised by the NARC on matters relating to project implementation and operates within the overall Project policy framework established by the Steering Committee. He is appointed by His Excellency the Minister of Agriculture and Land Reclamation.

Deputy Directors will be nominated by the Director General for each Project Component and appointed by His Excellency the Minister to assist in

the implementation of the project. This management team will share responsibility for project implementation pursuant to a guideline for the Delegation of Authority approved by the Steering Committee. The Director General will monitor the work of all components to assure compliance with project objectives.

The Executive Office of the Project Director General is organized into two major functions: (a) Administration and Finance; and, (b) New Initiatives and Support.

The Executive Office utilizes a combination of permanent MALR/ARC staff that are supplemented by contract personnel to assist in carrying out its responsibilities.

4. Deputy Directors

Deputy Directors will be appointed for each major component of the project. They serve as members of a management team headed by the Director General. They are responsible for the day-to-day operations of their Component within a Delegation of Authority granted by the Director General and approved by the Steering Committee. The current Delegation of Authority, dated 5 January 1988, will be modified as needed during the life of the project to further improve the effectiveness of project implementation.

5. Working Groups

Working groups have been established to assist Project managers in the development of technical aspects of the Project. A working group is responsible only for technical inputs and does not have responsibility for administrative or financial aspects of the project.

The chairmen of the working groups are nominated by the Director General and appointed by His Excellency the Minister. Individual members of the committees are appointed by the Director General.

Additional working groups will be established, as required, to assist in implementation of the new components.

B. USAID Project Management:

On behalf of USAID, the Agriculture Office of the Agricultural Resources Directorate will be responsible for overall project management. The Office Director will be responsible primarily for supervising and

coordinating project monitoring activities. The Office Director will be assisted by three USDH and three FSN Project Officers. Other USAID personnel will provide support services with regard to engineering, training, legal, contracting, and financial matters, as required. Annual work plans, progress reports, contractor reports, financial reports, consultations with the GOE officials and site visits will be the tools used to monitor project implementation.

C. Implementation by Project Component

1. General

All components will be implemented in the most advantageous manner that will assure maximum utilization of available resources and progressive implementation of the project. The management structure established by the GOE for project implementation will be the overall framework for each component. Training, procurement and technical assistance will be coordinated by existing administrative and management mechanisms unless other means are determined by the project management, and approved by USAID, to be more advantageous for the project.

a. Research Component

The Research Component of NARP has been in place since the Project Grant Agreement was signed in September 1985. No substantial changes in implementation, organizational, administrative, or operational procedures are expected as a result of this Project Paper Amendment Number 2. Although somewhat slow during the first year, implementation is now progressing satisfactorily and is expected to improve substantially as implementation systems, modes, analysis, etc. are completed and operational. Major procurement actions are expected to be completed in the next 2-3 years which will accelerate expenditures substantially.

b. Policy Component

Implementation of this component will be through a Deputy Director with a Delegation of Authority from the Director General. An Implementation and Financial Plan, approved by the Director General, will be the authority for the Deputy Director to implement this component. Technical assistance will be provided through a prime contractor to be selected, and the existing PASA with USDA. Training and other procurement actions will follow established project policy.

c. Seed Technology Component

Implementation of this component will maximize operational and cost efficiency. The seed technology public service activities of research, research support, quality control, technical support, training and genetic materials will be organized into one operating unit. Essential linkages with crop-related research will be developed through the MALR research and Research Support Program budgets. A Deputy Director will prepare an annual Implementation and Financial Plan.

Seed operations are necessarily market and time sensitive. These will be organized into a General Agricultural Organization which can operate along commercial lines emphasizing seed quality. Such infrastructure will also facilitate transferring some of them, at a later date, to the private sector. To ensure operating efficiency, these are further separated into three groups (vegetables, field crops, and cotton) according to technological requirements.

Technical assistance will continue to be provided through the Prime Contractor for the Research Component (CID). Training and other procurement actions will follow established Project policy.

d. Technology Transfer Component

Implementation of this component will follow established project policy for procurement, training and other procedural matters. A Deputy Director will prepare an Annual Implementation and Financial Plan for approval by the Director General. Close coordination will be required with the Research Component. Technical assistance will be provided through the Prime Contractor for the Research Component.

e. Project Administration/New Initiatives Component

Implementation of this component will be under the direction of the Director General. Expenditures under this component will require joint MALR/USAID approval. Technical assistance will be provided through a nine month bridging of a current technical assistance contract to be followed by a contract with an 8(a) firm.

D. Implementation Schedule

The schedule projects that the Amendment to the Project Agreement will be signed in August 1988. Establishment of start-up activities will begin as soon as possible. Significant events are as follows:

Activity	Date
- Grant Agreement Amendment Signed	August 1988
- Host Country PSC (Policy Analysis) Arrives	August 1988
- Second Year Research Imp./Fin. Plans Approved	August 1988
- First Year Policy Analysis Plans Approved	August 1988
- Research Component Offshore Training TA Arrive	October 1988
-Technology Transfer (2) and Aquaculture Specialists Arrive	November 1988
- RFTP for Policy Analysis Issued	November 1988
- First Year Technology Transfer Plans Approved	January 1989
- IFB for Seed Equipment Issued	January 1989
- TA Contractors for Policy Analysis Selected	January 1989
- TA Policy Contractors Arrive In-Country	March 1989
- Project Implementation/Financial Plans (all components) Approved	June 1989
-Project Implementation/Financial Plans (all components) Approved	June 1990
- Mid-Term Evaluation (Technology Transfer)	January 1991
-Project Implementation/Financial Plans (all components) Approved	June 1991
-Mid-Term Evaluation (Policy Analysis)	August 1991
-Project Implementation/Financial Plans (all components) Approved	June 1992
-Project Implementation/Financial Plans (all components) Approved	June 1993
-Evaluation (Seed Technology)	September 1993
- Project Assistance Completion Date	September 1994

E. Technical Services Contractor Responsibilities:

1. Prime Technical Assistance

The current technical assistance contractor for the Research Component, the Consortium for International Development (CID), will become the prime technical assistance contractor for all components except policy analysis and project management/new initiatives. Additional long-term advisors and short-term experts will be added to the current CID

contract. This will simplify contract administration for project managers. The appropriate waiver request is explained in the Procurement section of this paper.

2. Training and Related Services

A contract will be executed for training and related services for all off-shore training to be funded from the project. The contractor will be responsible for administering the off-shore training program pursuant to directions from the MALR.

3. Other Service Providers

The existing PASA with USDA for data services will support the Policy Component. To the extent other technical services that are only available from USDA are found necessary, the PASA may be amended.

Several contracts will be made with IARC's that will include technical assistance or advisory services from experts in selected fields.

Project management and coordination services will be contracted separately from the prime technical assistance contractor through an 8(a) firm.

Other service providers may include maintenance technicians for specialized equipment, contractors for renovation, audio-visual services, agricultural services and specialized technical installations.

F. Procurement Plan

1. Technical Assistance

The research component's primary TA contractor (CID) is providing long- and short-term technical assistance services and was competitively procured under a host country contract. A non-competitively procured amendment to the CID contract is proposed as part of this PP amendment to: (1) increase the number of in-country person months; (2) add a resident aquaculture specialist for three years; and, (3) add two technology transfer specialists to the Technology Transfer Component. For the Research Component's rice research efforts, there is currently in place a four-year host country TA contract with the International Rice Research Institute (IRRI). In addition to technical assistance, the IRRI contract includes limited training activities for rice researchers.

The U/AES will utilize competitively bid contracts for an economist, management specialist and a statistician to assist with component activities. Host country personal service contracts are the preferred mode in order to reduce logistic burdens on USAID. TA for data processing activities and for developing specifications for computer and data processing commodities will also be procured.

Technical assistance in seed technology is currently being financed under the CID contract and will continue during the period of this project amendment.

The studies and consultancy under the Project Management/New Initiatives component will be provided both through AID-direct and host country contracts. The AID-direct contracts could be through centrally funded buy-in projects, personal services contracts, or private firms, e.g., 8A and others.

Each Component Director and the Project Director will be responsible for selecting and contracting for needed local services. The number of individuals/contracts as well as financial requirements will be determined in annual implementation/financial plans. They may include professional and support staff, firms and institutions to carry out studies, baseline data collection, workshop/seminar/conference services, and other mutually agreed to local services.

2. Training

Most of the training under the project is in support of the research component. A needs assessment and a master training plan have been completed and approved by USAID. An RFTP related to this training was advertised in the Commerce Business Daily with the proposal opening date of February 29, 1988. The RFTP called for offshore manpower training and related services including long-term academic training, postdoctoral, and short-term training. Short-term observational tours will be provided to policy planners and analysts to selected countries to present technical papers and observe agricultural development potentially applicable to Egypt. A contractor has been selected by the GOE. The selection was approved by USAID and contract negotiations will begin in August. Magnitudes of training by type are as follows: degree training 100 PhDs and 20 MScs in approximately twenty fields of study (24-48 months); 200 postdoctorals with training more than 20 subject areas at U.S. universities, U.S. agencies, U.S. private industries, and international agricultural research centers (up to 12 months); up to 300 managers, researchers, and technicians will receive hands-on training (up to 6 months); and 200 observational training

opportunities. The training contractor will be responsible for actual placement, arranging allowances, advances, and travel following Handbook 10 guidance. These project training plans comply with the provisions of Mission Order No. 10-1 (Participant and In-Country Training) and are in compliance with the requirements of Handbook 10.

For all off shore training under the seed technology, technology transfer, policy analysis and project management/new initiatives components a host country or AID direct contract will be used. This contract may be competitively bid or non-competitively procured using an 8(a) firm or an amendment to the research training contract.

Under the technology transfer component, each technology transfer plan will originate with the Governorate Extension Council and will reflect specific training. Implementation of the approved plans will be carried out by ARC/EAD with the assistance of the TA contractors which support the extension affairs of each governorate. A design team has indicated the types of training needed for basic institutional strengthening of the involved institutions. The initial estimates for long-term and short-term training are based on these needs. Additional needs assessments or refinements of the current in-country training estimates should occur during the first year of this component's implementation and thereafter at specific intervals linked directly to the implementation of the individual governorate plans.

Specific numbers and types of training for the policy analysis and seed technology components have been determined during design.

In-country training will be the responsibility of the MALR.

3. Commodities

Offshore commodity procurements will include the following categories: seed equipment, farm equipment, office equipment, library materials, computer systems, and vehicles. Most procurements will follow AID Regulation 1 procedures. However, some commodities may be procured under Handbook 11 procedures by a Procurement Services Agent (PSA), except for books and journals which will be procured under AID-direct contracts per Handbook 14 procedures. The GOE will submit procurement plans for various commodity categories prior to disbursement of funds by AID for procurement of particular commodities.

Local commodity procurements will include the following categories: office equipment, small value farm equipment and laboratory items, small hand tools and implements, training items and library furnishings. The responsibility for these procurements will rest with the Procurement Office

of the MALR. Responsibilities include specification development, solicitation, evaluation, award and receipt of commodities.

4. Services

A wide variety of services will be needed to support the Project. They include: land preparation; renovations; repairs and maintenance; communications; technical studies; printing; media development and production; audit and evaluation services; and other misc. support services. All services will be procured according to the appropriate USAID regulation and Handbooks.

5. Waivers

In order to permit essential implementation actions, the Mission Director is requested to approve the following waivers which are included in the amended Project Authorization:

a. Non-Competitive Procurement of Services - An amendment to the research component's primary TA contractor's level of effort and scope of work is needed to: (1) add a resident aquaculture specialist; (2) add two technology transfer specialists to the Technology Transfer Component; and, (3) extend the length of the contract;

b. Source Waiver for Shelf-Item Procurement - A Geographic Code waiver (from 941 to 899) is needed to permit the local procurement of a large amount of small value research materials, equipment, spare parts, and supplies. The waiver will permit such procurements up to the amount of $10 million, and increase the per item limit from $5,000 to $10,000. Purchasing of these off-the-shelf items will greatly expedite the project's implementation; and,

c. Contract with ISTI for management services during a bridging period of nine months. The bridging period will allow time to prepare documentation, evaluate offers, and select and contract with a firm. Following this period a firm will be contracted to provide management services through the life of project.

G. Gray Amendment:

Small business and minority firms have been and will continue to be encouraged to participate in this project in accordance with AID regulations.

Every effort will be made to identify appropriate opportunities for minority firm involvement in project implementation. A minority firm was awarded the original contract to provide project coordination. An earlier contract with a minority firm provided start-up services at the beginning of the Project.

In addition, the Project's evaluation services are suitable for performance by a minority firm and, as such, we intend to set aside this work for minority contracting as provided by the Agency's Gray Amendment guidelines.

H. Policy Determination 15;

An examination of issues regarding PD 15 was carried out and is detailed in Annex D. The examination found that the NARP project is not likely to have a significant adverse effect on U.S. agricultural exports, and may actually increase imports of U.S. cotton, corn, soybeans, and frozen meat.

I. Logistics

Office space for the work force members working on the project will be provided by the MALR. Renovations of some of the facilities will be executed to bring them up to acceptable standards of safety, security and comfort. Because MALR holdings of essential office equipment are less than adequate, limited amounts will be procured for use of project staff. To ensure that project staff are mobile, a number of vehicles will also be procured. These will be assigned to the different operating organizations for use of both contractor and GOE staff.

J. Conditions Precedent and Covenants

1. Conditions Precedent

a. Prior to any disbursement or the issuance by A.I.D. of any documentation pursuant to which any disbursement will be made for the technology transfer, seed technology, policy analysis or project management/new initiatives components, the Grantee shall, except as the parties may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., a statement of the names of the individuals who will be responsible for implementation of the each of the five Project components, together with a statement regarding their designated duties and authorities, and evidence that the Grantee has appointed a counterpart for each long-term technical assistance advisor.

b. Prior to any disbursement or the issuance by AID of documents pursuant to which disbursements will be made for motor vehicles, with the exception of the motor vehicles which are on order as of the date of this Agreement, the Grantee shall, except as otherwise agreed in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., evidence that whatever governmental action is necessary in order to obtain full exemption from import restrictions, duties, taxes or other similar impositions for all project-financed motor vehicles has been taken.

2. Covenants

a. The Grantee shall, unless otherwise agreed in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., prior to the beginning of the Grantee's fiscal year during each year of the Project, annual implementation and financial plans for each of the Project components which shall include a review of outputs achieved over the prior year.

b. The Grantee shall ensure that the use of the experimental lands which are upgraded under the Project is restricted to agricultural research.

c. The Grantee shall make a concerted effort to involve the private sector in agricultural research, seed technology, technology transfer and policy analysis/formulation activities contemplated under the project.

d. The Grantee shall annually increase its cash contributions in support of the Project's recurrent costs so that by the PACD and beyond, allocations to the implementing agencies, the Agricultural Research Center and the Undersecretariat for Agricultural Economics and Statistics, will meet all the Project's recurrent cost needs.

e. Neither Grant funds nor Special Account funds may be used to pay salary supplements to Grantee personnel except pursuant to mutually agreed criteria.

f. The Grantee will provide A.I.D., on an annual basis, copies of its accounting records on local currency and in-kind contributions provided for the project.

g. The Grantee will cooperate with A.I.D. to assess the accounting, contracting, procurement and reporting capabilities of the Grantee's implementing agencies and to resolve any shortcomings identified in the course of such assessment.

h. The Grantee will commission a study, for completion within one year of the date of the Grant Agreement, to review current laws and regulations governing the seed industry. The study will provide recommendations for modification of the policy environment regarding seed production, processing and distribution, to strengthen private sector participation in the seed industry. Based on those recommendations, the Grantee agrees to submit a plan to USAID for implementing changes which appear appropriate. The status of these changes will be reviewed and approved by both parties prior to approval of the annual plan for the Seed Technology component for FY91.

V. COST ESTIMATES AND FINANCIAL PLAN:

A. Financial Data Summaries:

The total cost of the project is estimated at $375 million. AID will provide a grant of $300 million. The GOE contribution will be $75 million in-cash. The GOE's annual cash contributions in support of the project's recurrent costs will gradually increase so that by 1993 and beyond, the ARC and U/AES Chapter II (BAB II) allotments from the GOE, will meet all project recurrent cost needs. Table V. 1, "Summary of Expenditures and Obligations by Fiscal Years", presents the planned obligations in relation to the disbursement of funds over the life of the project. Table V. 2, "Summary Cost Estimates and Financial Plan", shows the life-of-project costs of inputs by project component (research, technology transfer, policy analysis, seed technology, and project management/new initiatives), by foreign exchange and local currency, by AID and GOE contributions. Tables V. 3 and V. 4 "Projection of Expenditures by Fiscal Years", summarize AID and GOE input expenditures by component and U.S. fiscal years. Charts V. 1 and V. 2 provide a percentage breakdown in chart form of the total projected expenditures by component and major expenditure category.

This is a dynamic project and we expect some changes to be made as a result of implementation experiences. Recognizing that the Financial Plan is illustrative, we have designed flexibility into the budget by allowing up to a 15 percent shift between project components with mutual AID and MALR approval.

B. Cost Estimates

The research, technology transfer, policy analysis, seed technology, and project management/new initiatives components' detailed financial data for TA, training, commodities, and services are provided in the Annexes. The cost coefficients are indicated in these annexes. The cost estimates are derived from the historical cost data of other USAID/Cairo projects. The requirements of Sections 611(a) and (e) of FAA have been satisfied.

The current costs (1988 prices) of goods and services to be purchased with L.E. were adjusted for a rate of inflation of 12% for 1989, 10% for 1990, and 8% for 1991 thru 1994. Adjustment was also made to reflect the expected fluctuations of the exchange rate when purchasing LE with AID dollars. Rates used are 1988: LE 2.42, 1989: LE 2.64, 1990: LE 2.90, and 1991 thru 1993: LE 3.00. These L.E. adjustments were made for both AID and GOE cash contributions. For dollar purchased items, a compound annual inflation rate of 5% was used. These inflation and exchange rate

adjustments are included in the inflation line item of all tables. A contingency line item of 5% is also included in all tables.

C. Financing Methods:

Chart V.3 lists the methods of financing for the project. The only financing method requiring justification under this project is the use of Letters of Commitment (L/Comm) as the payment mechanism for the host country contracts. These are proposed because the GOE does not have adequate foreign exchange available to first pay and then wait for reimbursement. Direct rather than Bank L/COMMs will be utilized, except in the case of commodity procurements by PSAs which require a bank to monitor payments to the numerous suppliers. Local currency payments under the project will be made through PILs which establish an initial advance for 90 days of cash needs. The advances will be replenished monthly by the GOE submitting actual expenditure reports and estimated cash needs for the next 90 days.

The contracting and accounting capability of the ARC was assessed and approved in 1985. Arrangements have been made to update that assessment in 1988 and to include the U/AES. Since both implementing agencies are presently successfully implementing AID projects, no problems in areas of contracting and accounting are expected; however, if necessary, the proposed methods of financing could be revised based on the results of the updated assessment.

D. Financial Reviews and Audit

Approximately $1.8 million in project funds have been provided for audits and evaluations. This is sufficient to fund the estimated $450,000 in audit services required by the project (see Table) as well as the planned project evaluations.

Estimated Audit Services Budget
Based on FM Bulletin 04/88

Contract Description	Duration Over 4 Years	Duration Under 4 Years	Contract Amount ($000,000)	Pre-Award Survey Cost($)	No. of Audits	To Audit Cost($)
Res. Prime TA	x		18.7	Executed	2	80,000
Other Res. TA		x	0.5	Executed	1	10,000
Tech. Trsfr-Prime	x		25.5	8,000	2	80,000
Start Up TA		x	0.3	5,000	1	10,000
Policy-Prime TA	x		16.0	8,000	2	80,000
Offshore Training	x		19.0	8,000	2	80,000
Rice - IRRI	x		4.0	Executed	2	40,000
Contingency						41,000
Sub-total				29,000		421,000
Grand-total						450,000

Audits will be conducted by qualified accounting firms under AID-direct contracts. The project will not finance GOE salaries or salary incentives. In accounting for, controlling and monitoring host country contributions required under the project, the guidelines and procedures of Mission Order 3-31 (Controlling, Monitoring and Accounting for Host Country Contributions Required under Project Agreements) will be followed.

TABLE V. 1

NATIONAL AGRICULTURAL RESEARCH PROJECT
(263-0152)
AMENDMENT NO. 2

PROJECTION OF EXPENDITURES AND OBLIGATIONS BY FISCAL YEAR
($000)

FISCAL YEAR	AID $	GOE $	TOTAL $	OBLIGATION SCHEDULE
THRU FY 1988	11,620	3,050	14,670	100,000
FY 1989	36,723	7,520	44,243	50,000
FY 1990	81,808	7,365	89,173	60,000
FY 1991	49,358	8,107	57,465	50,000
FY 1992	32,760	9,432	42,192	20,000
FY 1993	19,562	10,615	30,177	20,000
FY 1994	14,633	10,622	25,255	0
	246,464	56,711	303,175	
CONTINGENCIES	11,742	2,683	14,425	
INFLATION	41,794	15,606	57,401	
TOTAL	300,000	75,000	450,001	300,000

TABLE V 2

NATIONAL AGRICULTURAL RESEARCH PROJECT
(263-0152)
AMENDMENT NO 2

SUMMARY COST ESTIMATES AND FINANCIAL PLAN
($000)

COMPONENTS	RESEARCH			TECHNOLOGY TRANSFER			POLICY ANALYSIS			SEED TECHNOLOGY			NEW INITIATIVES			TOTAL			GRAND TOTAL $
	AID		GOE (LC)	AID		GOE (LC)	AID		GOE (LC)	AID		GOE (LC)	AID		GOE (LC)	AID		GOE (LC)	
	$FX	$LC	CASH	$FX	$LC	CASH	$FX	$LC	CASH	$FX	$LC	CASH	$FX	$LC	CASH	$FX	$LC	CASH	
TECHNICAL ASSISTANCE	14,845	2,940	720	4,200	402	0	8,472	1,044	0	1,361	287	0	4,072	480	0	33,030	5,232	720	39,000
LONG TERM	13,720	2,940	288	2,810	432	0	4,872	1,044	0	1,316	287	0	2,282	480	0	24,130	5,172	288	29,590
SHORT TERM	1,125	0	432	2,290	60	0	3,600	0	0	105	0	0	1,790	0	0	8,900	60	432	9,392
TRAINING	14,540	7,600	1,400	2,200	9,617	300	2,151	960	150	2,627	0	307	604	72	164	22,194	18,249	2,361	42,850
LONG TERM	11,515	678	488	1,340	0	75	886	0	75	2,340	0	77	360	0	82	16,520	678	795	17,975
SHORT TERM	3,025	6,922	910	860	9,617	225	1,266	960	75	187	0	230	246	72	82	5,904	17,640	1,522	24,775
COMMODITIES	29,647	1,151	1,700	9,221	2,040	550	1,061	174	250	27,060	0	500	76	96	200	67,204	4,105	2,250	74,562
OFFICE EQUIPMENT/SUPPLIES	1,624	233	0	807	2,040	0	646	174	250	0	0	0	76	96	200	3,146	3,176	550	6,872
VEHICLES (VANS,TRUCKS,&MOTORCYCLES)	8,167	0	0	5,590	0	0	1,142	0	0	0	0	0	0	0	0	14,908	0	0	14,908
AQUACULTURE EQUIP./SUPPLIES	388	0	0	0	0	0	0	0	0	0	0	0	0	0	0	388	0	0	388
LIBRARY EQUIPMENT	2,818	682	0	0	0	0	0	0	0	0	0	0	0	0	0	2,818	682	0	3,500
FARM EQUIPMENT	3,016	236	0	0	0	0	0	0	0	0	0	0	0	0	0	3,016	236	0	3,252
LAB EQUIPMENT AND SUPPLIES	12,834	0	1,700	0	0	0	0	0	0	0	0	0	0	0	0	12,834	0	1,700	14,534
MEDIA PRODUCTION EQUIPMENT	0	0	0	2,815	0	550	0	0	0	0	0	0	0	0	0	2,815	0	550	3,365
INFORMATION DISSEMINATION	0	0	0	0	0	0	59	20	0	0	0	0	0	0	0	59	20	0	79
FIELD EQUIPMENT	0	0	0	0	0	0	140	0	0	0	0	0	0	0	0	140	0	0	140
SEED TECHNOLOGY EQUIPMENT	0	0	0	0	0	0	0	0	0	27,060	0	500	0	0	0	27,060	0	500	27,560
SERVICES	29,222	45,100	30,400	425	11,067	6,575	0	2,785	3,345	2,000	2,100	6,000	1,062	2,004	3,200	32,709	63,056	49,420	145,075
TRAVEL	0	0	462	0	1,254	148	0	487	74	0	0	151	0	0	73	0	1,787	508	2,315
MAINTENANCE	2,900	3,600	308	0	576	210	0	100	148	0	0	227	0	0	147	2,900	4,276	1,060	8,236
ADMINISTRATION	0	0	365	0	226	5,845	0	100	2,073	0	0	6,044	652	1,474	2,033	652	1,800	16,160	20,632
RENOVATION	0	9,532	3,078	0	2,000	365	0	200	148	2,000	2,100	578	0	0	147	2,000	13,832	4,117	19,949
LAND IMPROVEMENT	1,000	7,000	0	0	0	0	0	0	0	0	0	0	0	0	0	1,000	7,000	0	8,000
COMMUNICATIONS	0	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,000	0	1,000
RICE RESEARCH	3,372	628	0	0	0	0	0	0	0	0	0	0	0	0	0	3,372	628	0	4,000
RESEARCH SUPPORT PROGRAM	0	12,600	26,167	0	0	0	0	0	0	0	0	0	0	0	0	0	12,600	26,167	38,767
RESEARCH GRANT PROGRAM	4,050	10,500	0	0	0	0	0	0	0	0	0	0	0	0	0	4,050	10,500	0	15,750
INTL COLLABORATIVE RESEARCH	10,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,000	0	0	10,000
CONTRACT TECHNICAL STUDIES	0	0	0	0	0	0	0	1,900	0	0	0	0	0	0	0	0	1,900	0	1,900
DEMONSTRATION	0	0	0	0	4,000	0	0	0	0	0	0	0	0	0	0	0	4,000	0	4,000
TECHNOLOGY TRANSFER GRANTS	0	0	0	425	3,075	0	0	0	0	0	0	0	0	0	0	425	3,075	0	3,500
PRINTING	0	0	0	0	350	0	0	0	0	0	0	0	0	0	0	0	350	0	350
MEDIA	0	0	0	0	400	0	0	0	0	0	0	0	0	0	0	0	400	0	400
EVALUATION AND AUDIT	0	0	0	0	0	0	0	0	0	0	0	0	1,270	530	0	1,270	530	0	1,800
SUB-TOTAL	88,474	58,810	34,220	10,200	24,754	7,425	12,694	4,061	3,745	32,068	2,387	7,007	9,075	2,000	3,714	154,013	91,561	56,711	303,175
CONTINGENCIES 5%	4,062	2,567	1,556	810	1,238	371	630	248	187	1,636	110	351	906	100	186	7,467	4,276	2,663	14,425
INFLATION	12,530	11,529	9,222	2,047	5,948	2,204	1,816	1,252	1,068	4,002	421	2,012	1,144	895	1,100	22,139	19,066	15,606	57,409
TOTAL	105,066	73,014	45,000	13,060	31,940	10,000	15,140	5,461	5,000	39,006	2,904	10,000	9,127	3,275	5,000	184,618	115,402	75,000	375,009

TABLE V. 3

NATIONAL AGRICULTURAL RESEARCH PROJECT
(263-0152)
AMENDMENT NO. 2

PROJECTION OF EXPENDITURES BY FISCAL YEARS
AID FUNDS
($000)

	ACTUAL THRU FY88		FY89		FY90		FY91		FY92		FY93		FY94		TOTAL		
	US$	LC	US$	LC	US$	LC	US$	LC	US$	LC	US$	LC	US$	LC	US$	LC	TOTAL
TECHNICAL ASSISTANCE	3,904	798	5,418	726	5,946	756	5,228	756	4,748	756	4,295	720	3,495	720	33,035	5,232	38,268
RESEARCH	3,226	672	1,965	360	2,403	396	2,028	396	1,863	396	1,680	360	1,680	360	14,845	2,940	17,785
TECHNOLOGY TRANSFER	0	0	861	132	876	72	676	72	696	72	516	72	471	72	4,296	492	4,788
POLICY ANALYSIS	0	0	1,962	144	1,740	180	1,410	180	1,305	180	1,215	180	840	180	8,472	1,044	9,516
SEED TECHNOLOGY	238	51	196	36	213	36	198	36	166	36	166	36	186	36	1,351	267	1,618
NEW INITIATIVES	440	75	432	54	716	72	716	72	716	72	716	72	336	72	4,072	489	4,561
TRAINING	1,069	747	1,622	2,976	5,426	3,051	5,400	2,915	4,017	2,905	3,349	2,902	1,201	2,727	22,104	18,225	40,329
RESEARCH	1,069	747	674	1,145	2,900	1,244	2,900	1,144	2,960	1,144	2,900	1,144	937	1,000	14,560	7,568	22,128
TECHNOLOGY TRANSFER	0	0	320	1,629	675	1,629	555	1,599	375	1,597	225	1,596	110	1,567	2,260	9,617	11,877
POLICY ANALYSIS	0	0	357	192	596	166	660	160	398	152	90	150	50	148	2,151	968	3,119
SEED TECHNOLOGY	0	0	0	0	1,124	0	1,154	0	163	0	33	0	33	0	2,527	0	2,527
NEW INITIATIVES	0	0	71	12	131	12	131	12	101	12	101	12	71	12	606	72	678
COMMODITIES	270	0	6,302	2,202	39,712	1,309	14,595	146	3,795	146	265	148	265	153	67,204	4,108	71,312
RESEARCH	270	0	5,575	1,066	17,194	83	5,008	0	300	0	250	0	250	0	28,847	1,151	29,998
TECHNOLOGY TRANSFER	0	0	2,052	1,124	5,957	1,124	1,212	110	0	110	0	110	0	110	9,221	2,688	11,909
POLICY ANALYSIS	0	0	0	0	1,981	87	0	23	0	23	0	23	0	18	1,981	174	2,155
SEED TECHNOLOGY	0	0	675	0	14,565	0	8,360	0	3,460	0	0	0	0	0	27,060	0	27,060
NEW INITIATIVES	0	0	0	10	15	15	15	15	15	15	15	15	15	25	75	95	170
SERVICES	317	4,495	3,277	12,198	8,100	17,506	6,025	12,291	6,425	9,966	3,895	3,986	2,530	3,542	32,569	63,986	96,555
RESEARCH	250	4,070	2,462	7,627	7,630	11,417	7,580	9,632	4,380	7,614	3,570	2,340	2,330	1,860	28,222	45,160	73,382
TECHNOLOGY TRANSFER	0	0	75	3,225	75	3,046	125	1,715	100	1,461	50	1,230	0	1,280	425	11,957	12,382
POLICY ANALYSIS	0	0	0	631	0	665	0	449	0	384	0	316	0	318	0	2,765	2,765
SEED TECHNOLOGY	0	0	500	100	0	2,000	0	0	1,500	0	0	0	0	0	2,000	2,100	4,100
NEW INITIATIVES	67	425	220	415	395	378	320	295	445	307	275	100	200	84	1,922	2,004	3,926
COMPONENT SUB-TOTAL	5,580	6,040	16,619	18,104	59,186	22,622	33,248	16,110	18,985	13,775	11,804	7,758	7,491	7,142	154,913	91,551	246,464
RESEARCH	4,635	5,469	10,696	10,400	30,127	13,140	17,516	11,372	9,503	9,354	6,400	3,844	5,197	3,220	86,474	56,819	143,293
TECHNOLOGY TRANSFER	0	0	3,308	6,110	7,583	5,871	2,768	3,496	1,171	3,240	791	3,008	581	3,029	16,202	24,754	40,956
POLICY ANALYSIS	0	0	2,319	967	4,317	1,096	2,070	612	1,703	739	1,305	671	890	664	12,604	4,951	17,555
SEED TECHNOLOGY	238	51	1,373	136	15,902	2,036	9,712	36	5,331	36	201	36	201	36	32,956	2,367	35,325
NEW INITIATIVES	507	500	723	491	1,257	477	1,182	394	1,277	406	1,107	199	822	193	6,675	2,660	9,335
CONTINGENCIES 5%	0	0	931	905	2,959	1,131	1,662	806	949	689	590	388	375	357	7,467	4,276	11,742
RESEARCH	0	0	545	520	1,506	657	876	569	475	468	420	192	260	181	4,082	2,567	6,648
TECHNOLOGY TRANSFER	0	0	165	306	379	294	138	175	59	162	40	150	29	151	810	1,238	2,048
POLICY ANALYSIS	0	0	116	48	216	55	104	41	85	37	65	34	45	33	630	248	878

TABLE V. 3

NATIONAL AGRICULTURAL RESEARCH PROJECT
(263-0152)
AMENDMENT NO. 2

PROJECTION OF EXPENDITURES BY FISCAL YEARS
AID FUNDS
($000)

	ACTUAL THRU FY88		FY89		FY90		FY91		FY92		FY93		FY94		TOTAL		TOTAL
	US$	LC	US$	LC	US$	LC	US$	LC	US$	LC	US$	LC	US$	LC	US$	LC	
SEED TECHNOLOGY	0	0	69	7	795	102	466	2	267	2	10	2	10	2	1,636	116	1,752
NEW INITIATIVES	0	0	36	25	63	24	59	20	64	20	55	10	31	10	306	108	416
INFLATION	0	0	931	1,991	6,067	3,964	5,241	3,375	4,091	4,006	3,261	2,937	2,548	3,382	22,139	19,656	41,794
RESEARCH	0	0	545	1,144	3,086	2,303	2,761	2,382	2,046	2,720	2,321	1,455	1,767	1,524	12,530	11,529	24,059
TECHNOLOGY TRANSFER	0	0	165	672	777	1,029	436	732	252	942	219	1,139	198	1,434	2,047	5,948	7,996
POLICY ANALYSIS	0	0	116	106	442	192	326	170	367	215	361	254	303	314	1,915	1,252	3,167
SEED TECHNOLOGY	0	0	69	15	1,630	357	1,531	8	1,149	10	56	14	66	16	4,502	421	4,924
NEW INITIATIVES	0	0	36	54	129	84	166	63	275	116	306	75	212	91	1,144	505	1,649
COMPONENT TOTAL																	
RESEARCH	4,835	5,469	11,966	12,064	34,721	16,100	21,153	14,323	12,026	12,542	11,141	5,492	7,224	4,905	103,086	70,914	174,000
TECHNOLOGY TRANSFER	0	0	3,639	7,086	6,739	7,193	3,343	4,403	1,462	4,344	1,049	4,297	606	4,614	19,060	31,940	51,000
POLICY ANALYSIS	0	0	2,551	1,122	4,975	1,345	2,500	1,023	2,155	991	1,731	959	1,237	1,012	15,149	6,451	21,600
SEED TECHNOLOGY	238	51	1,510	158	18,327	2,495	11,726	45	6,746	46	267	51	279	56	39,096	2,904	42,000
NEW INITIATIVES	507	500	795	570	1,449	584	1,427	496	1,616	544	1,468	264	665	294	6,127	3,273	11,400
GRAND TOTAL	5,580	6,040	20,461	21,001	68,212	27,717	40,151	20,291	24,026	16,469	15,655	11,083	10,413	10,681	184,518	115,482	300,000

TABLE V. 4

NATIONAL AGRICULTURAL RESEARCH PROJECT
(263-0152)
AMENDMENT NO. 2

PROJECTION OF EXPENDITURES BY FISCAL YEARS
GOE CASH CONTRIBUTION
($000)

	THRU FY88	FY89	FY90	FY91	FY92	FY93	FY94	TOTAL
TECHNICAL ASSISTANCE	100	100	100	100	100	110	110	720
RESEARCH	100	100	100	100	100	110	110	720
TECHNOLOGY TRANSFER	0	0	0	0	0	0	0	0
POLICY ANALYSIS	0	0	0	0	0	0	0	0
SEED TECHNOLOGY	0	0	0	0	0	0	0	0
NEW INITIATIVES	0	0	0	0	0	0	0	0
TRAINING	200	350	350	352	352	355	362	2,321
RESEARCH	200	200	200	200	200	200	200	1,400
TECHNOLOGY TRANSFER	0	50	50	50	50	50	50	300
POLICY ANALYSIS	0	25	25	25	25	25	25	150
SEED TECHNOLOGY	0	50	50	50	50	50	57	307
NEW INITIATIVES	0	25	25	27	27	30	30	164
COMMODITIES	250	2,300	700	0	0	0	0	3,250
RESEARCH	250	750	700	0	0	0	0	1,700
TECHNOLOGY TRANSFER	0	550	0	0	0	0	0	550
POLICY ANALYSIS	0	250	0	0	0	0	0	250
SEED TECHNOLOGY	0	500	0	0	0	0	0	500
NEW INITIATIVES	0	250	0	0	0	0	0	250
SERVICES	2,500	4,770	6,215	7,655	8,980	10,150	10,150	50,420
RESEARCH	2,500	2,600	3,500	4,400	5,300	6,050	6,050	30,400
TECHNOLOGY TRANSFER	0	450	775	1,050	1,300	1,500	1,500	6,575
POLICY ANALYSIS	0	400	400	545	600	700	700	3,345
SEED TECHNOLOGY	0	1,050	1,150	1,150	1,150	1,150	1,150	6,800
NEW INITIATIVES	0	270	390	510	630	750	750	3,300
COMPONENT TOTAL	3,050	7,520	7,365	8,107	9,432	10,815	10,622	56,711
RESEARCH	3,050	3,650	4,500	4,700	5,600	6,360	6,360	34,220
TECHNOLOGY TRANSFER	0	1,050	825	1,100	1,350	1,550	1,550	7,425
POLICY ANALYSIS	0	675	425	570	625	725	725	3,745
SEED TECHNOLOGY	0	1,600	1,200	1,200	1,200	1,200	1,207	7,607
NEW INITIATIVES	0	545	415	537	657	780	780	3,714
CONTINGENCIES 5%	0	376	368	405	472	531	531	2,683
RESEARCH	0	183	225	235	280	318	318	1,559
TECHNOLOGY TRANSFER	0	53	41	55	68	78	78	371
POLICY ANALYSIS	0	34	21	29	31	36	36	187
SEED TECHNOLOGY	0	80	60	60	60	60	60	380
NEW INITIATIVES	0	27	21	27	33	39	39	186
INFLATION	0	827	1,291	1,698	2,743	4,019	5,029	15,606
RESEARCH	0	402	789	985	1628	2408	3011	9,222
TECHNOLOGY TRANSFER	0	116	145	230	393	587	734	2,204
POLICY ANALYSIS	0	74	74	119	182	274	343	1,068
SEED TECHNOLOGY	0	178	210	251	349	454	571	2,012
NEW INITIATIVES	0	60	73	113	191	295	369	1,101
COMPONENT TOTAL								
RESEARCH	3,050	4,234	5,514	5,920	7,508	9,086	9,689	45,000
TECHNOLOGY TRANSFER	0	1,218	1,011	1,385	1,810	2,214	2,361	10,000
POLICY ANALYSIS	0	783	521	718	838	1,036	1,104	5,000
SEED TECHNOLOGY	0	1,856	1,470	1,511	1,609	1,714	1,839	10,000
NEW INITIATIVES	0	632	508	676	881	1,114	1,188	5,000
GRAND TOTAL	3,050	8,723	9,024	10,211	12,646	15,164	16,182	75,000

CHART V. 1

ESTIMATED PROJECT EXPENDITURES
By Component

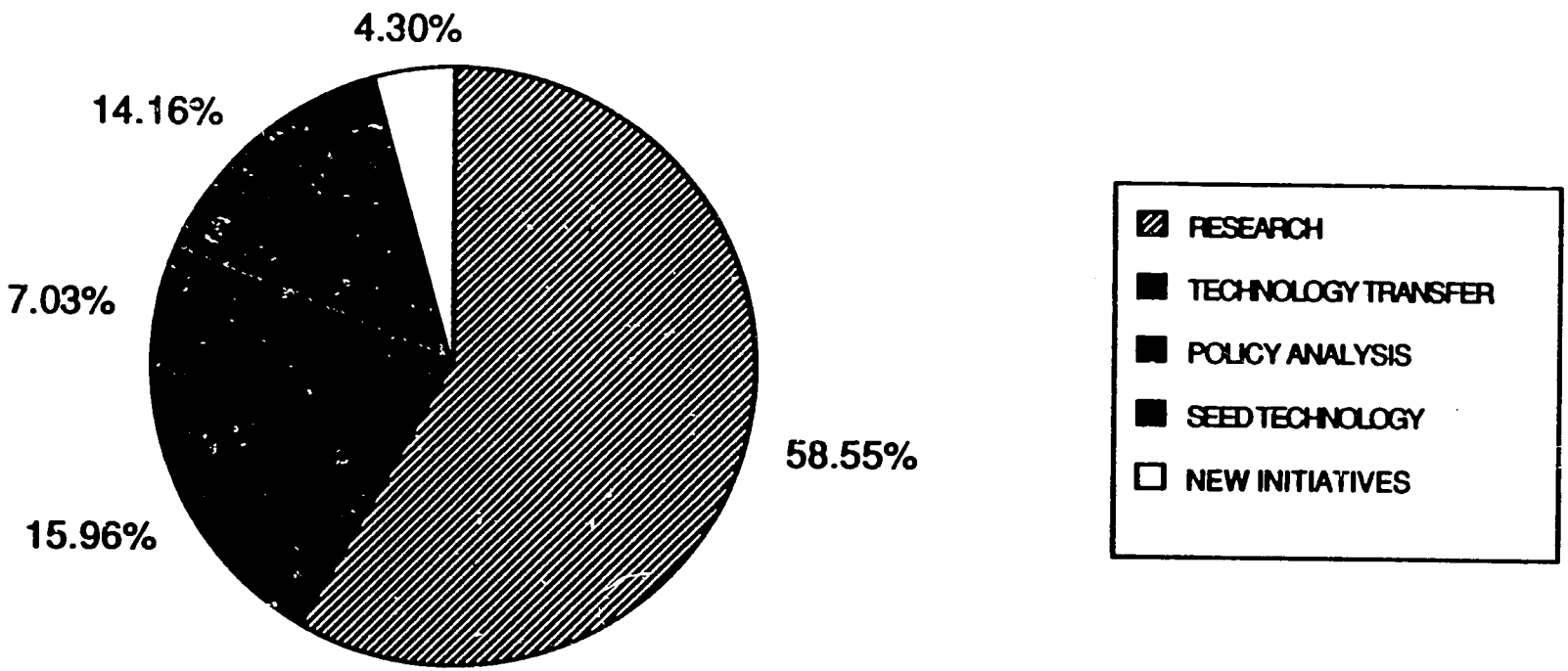


CHART V. 2

ESTIMATED PROJECT EXPENDITURES
By Expenditure Category

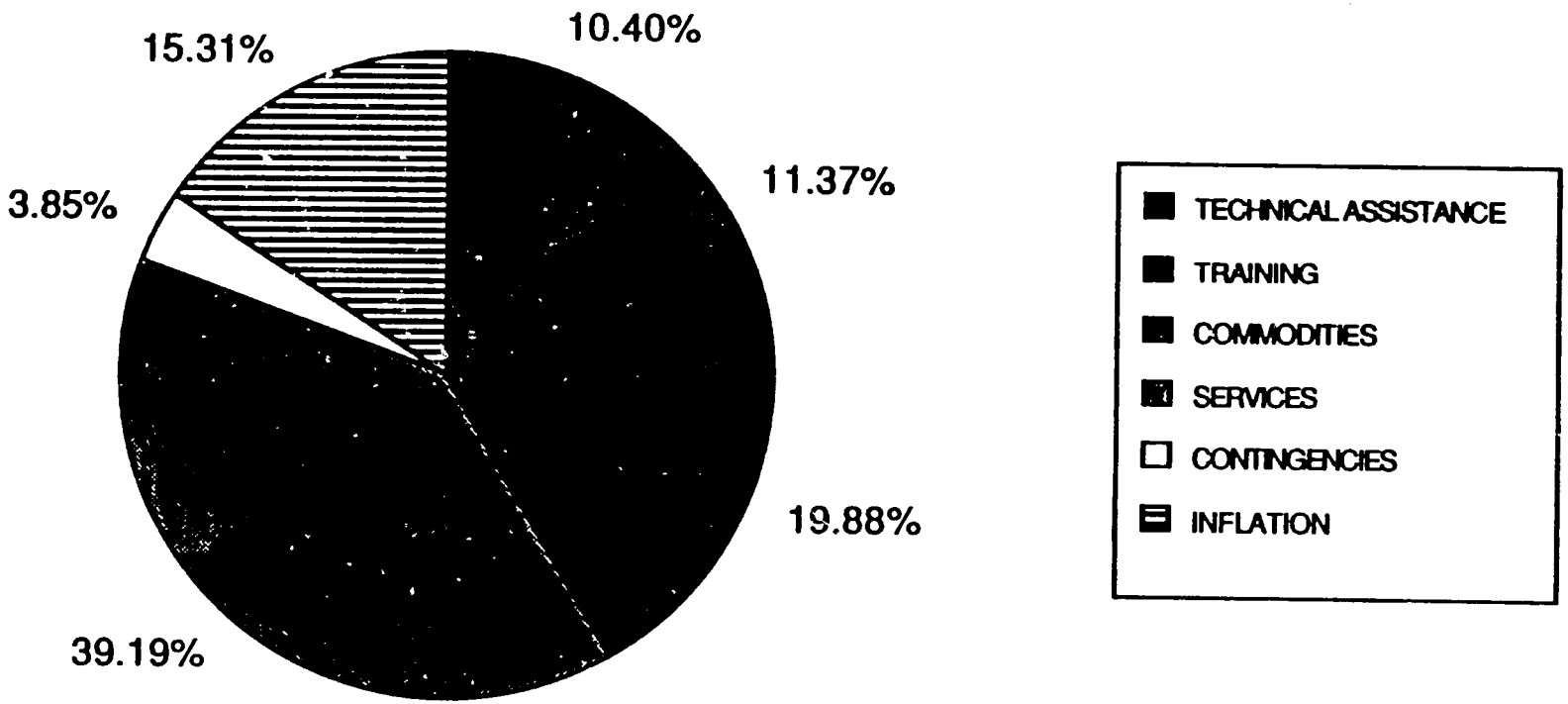


CHART V. 3

IMPLEMENTATION & FINANCING METHODS - LOP AID FINANCING ONLY

Activity	Implementing Method	Financing Method	Approx. Cost (000)	Contract Method	Implementing Agency
I. TECHNICAL ASSISTANCE					
Research					
Short & long term	HCC	Direct L/Com	17785	HC	MALR
Technology Transfer					
Short & long term	HCC	Direct L/Com	4788	HC	MALR
Policy Analysis					
Short & long term	HCC	Direct L/Com	8108	HC	MALR
Econ. & Statistic Adv.	HCC/PSC	Direct L/Com	408	HC	MALR
Data Proc. Advisor	PASA w/USDA	Direct Pay	1000	AID	-
Seed Technology					
Short & long term	HCC	Direct L/Com	1618	HC	MALR
New Initiatives					
Short-term	AID Direct Contract	Direct Pay	1790	AID	-
Long-term	AID and/or HC contract	Direct Pay&L/Com	2771	AID/HC	MALR
II. TRAINING					
Out-of-country	HCC	Direct L/Com	22104	HC	MALR
In-country	PIL	Direct Reim.	18225	HC	MALR
III. COMMODITY					
Off-shore proc.	HCC	Direct L/Com	56454	HC	MALR
PSA	HCC	Bank+Dirct L/Com	10000	HC	MALR
Books & Journals	AID Direct Contract	Direct Pay	750	AID	-
Local Procurement	PIL	Direct Reim.	4108	HC	MALR
IV. SERVICES					
Maint. - Equip & S.P.	HCC	Direct L/Com	2900	HC	MALR
Maint. Renovation	Modified FAR	Direct Reim.	600	HC	MALR
Admin - travel	Travel Auth	Direct Pay	1707	AID	-
Renovation	Modified FAR	Direct Reim.	15832	HC	MALR
Land Impr.-Pump proc.	HCC	Direct L/Com	1000	HC	MALR
Rice Research	HCC	Direct L/Com	4000	HC	MALR
Research grant program	CRSPS/buy-in	Direct Pay	4950	AID	-
Int'l Collab-IARC	HCC	Direct L/Com	16000	HC	MALR
Services - Others	PIL	Direct Reim.	47766	HC	MALR
Evaluation/Audit	AID Direct Cont.	Direct Pay	1800	AID	-

VI. MONITORING AND EVALUATION PLAN

A. Introduction and Background

The NARP is a large project with five major components, each with a large number of sub-activities. An important consideration in designing this monitoring and evaluation plan was practicality: special data collection systems and studies are kept to a minimum. Information for project implementation monitoring will be provided from a variety of sources: counterpart conferences, technical assistance teams' quarterly and annual reports, site visits, informal interviews, project records and reports.

Despite efforts to make monitoring and management as simple as possible, the complexity of the project and the large number of components and sub-components make this an extremely difficult task. Long-term technical assistance is being provided to ARC to assist in project administration. In addition, project funds have been allocated for specialized computers and software for the use of project directors and USAID staff. A standardized system will allow an easy exchange of data and frequent and constant feedback between MALR project officers, consultants, and USAID staff. Without such a system, tracking of all physical and financial activities would be an almost impossible task. Such a tracking system was initiated under the original NARP agreement. Under the amendment it will be expanded to all components.

B. Annual Workplan/Annual Review

The primary vehicle for Project Managers to measure the NARP's progress in achieving its objectives will be the development of an Annual Workplan for each project component, followed by an Annual Review of Progress. Incremental obligations will, in part, be based on progress towards meeting project outputs as projected in the Annual Plans. The Annual Review process is intended to focus attention on project achievements, and to establish the NARP as a performance-based project.

The basic model for this Annual Plan/Annual Review process has already been set in motion for the research support portion of the research component. The Agreement between USAID and the MALR, as spelled out in PIL No. 11, calls for an Annual Review each March, at which progress on the research management benchmarks established the previous year are examined, and new benchmarks are agreed to for the upcoming year. The rate of progress on jointly-developed benchmarks determines in part the funding level required for the next year.

With this Amendment, a similar arrangement will be established for the project as a whole. The March research support review process will continue as agreed to. A larger annual review will cover the remaining components. The staff of all components will submit implementation workplans in May to ensure that adequate provision for their activities will be made in the GOE budget for the fiscal year which begins July 1. Annual project reviews will be scheduled in May to coincide with development of workplans and budgets for the coming year.

The basic output measure and targets for the project components have been quantified and are found in Table S-1, "NARP Output Schedule" at the end of the Recommendations and Summary section. This will be the basis for the more detailed Annual Plans. The output indicators in the Table in some cases lack benchmarks which indicate quality of performance or measure purpose-level achievements. Benchmarks of this nature will be added when the detailed workplans are established.

The Annual Review will include the MALR implementing agencies, USAID, and the technical assistance teams.

To keep USAID Management up to date on project progress and to set USAID's negotiation position for the next year's performance benchmarks, USAID will hold an internal review prior to the joint Annual Review.

C. Information Sources

The NARP already has in place a number of methods of generating data needed to assess progress on output and achievement benchmarks. Routine implementation information can be obtained from counterpart conferences, the technical assistance team's quarterly reports, site visits, and other project records. The technical assistance team will compile baseline and comparative data needed in their specialized areas. They have already completed a survey of research stations and assembled data on research projects throughout the ARC system. Planning is well underway to track progress on both participant and in-country training. The policy analysis component already collects data on cropping patterns and yields that will enable us to observe change over time.

Some project components may require additional data collection or survey work to establish baseline status and compare later progress, particularly to measure beneficiary impact.

The AERDI has already undertaken several studies to provide baseline data on where farmers now receive their information, and the current role of various public and private extension providers. An early TA task will be to

determine if these studies provide an adequate baseline for later comparison, and if not, to design simple, low-cost studies to fill the gaps. Once the technology transfer component has had some implementation experience, follow-up studies will need to be done to determine changes in information reaching the farmer. Wherever possible, information on both providers and receivers of new technology will be disaggregated by gender.

D. Other Studies and Evaluations

Routine data collection and analysis and the annual review process will not answer all questions that arise about progress, problems, and impact over the course of the project. The NARP contains adequate flexibility and funds to finance special studies, analyses, or mini-evaluations as needed.

In addition, it will be useful to have at least one formal, external evaluation of most project components within the next three or four years.

The technology transfer component is innovative and envisions a substantial shift in authority to governorate level, as well as a change in attitudes and practices of extension workers. This component will be evaluated after two years (early FY 91), to determine whether changes are needed before continued expansion of the program.

The policy analysis component may need an evaluation in the third year (late 1991) to assess institutional progress and the role of the unit in providing relevant analysis to policy makers.

Because the seed component consists primarily of commodity procurements and construction/renovation activities, which will require several years for completion, it will not be possible to evaluate its impact on quality of seeds reaching the farmer, or enhancement of private sector activity until at least the fifth year (1993). At that time, an external evaluation may be desirable.

The best timing for formal evaluations of the research and project management components, if needed, is not apparent at this time. This should be determined, when appropriate through the annual review process. Similarly, a final evaluation may well be in order, but can not be planned with much confidence at this time. At the end of the project, we will want to assess institutional growth of the MALR in undertaking relevant research, in getting research results to the farmers, in providing strong seed support services, and in undertaking policy analyses. We will also want to examine the growth of non-governmental involvement and its impact in technology transfer, research, and seed production.

It is important to keep in mind that the NARP is only part of a larger assistance program to the sector, which also includes agricultural credit and wide-ranging sectoral policy reforms. NARP's ability to reach its goals depends upon progress in these areas as well. USAID's agriculture and economics staff monitor progress on both policy and production issues quite closely. This constant scrutiny by USAID staff in some respects obviates the need for separate evaluations. USAID's sectoral approach in agriculture might make a sector assistance assessment more appropriate than a final evaluation of the NARP alone.

VII. LOGICAL FRAMEWORK

Life of Projects
From FY 85 to FY 94
Total U. S. Funding $ 300,000
Date Prepared: July 23, 1988

Project Title and Number: NATIONAL AGRICULTURAL RESEARCH PROJECT (263-0152)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: (A-1) To improve agricultural productivity by improving the quality of technologies available to farmers.	Measures of Goal Achievement: (A-2) Increased agricultural yields at the demonstration stage of at least 25 percent. Increased agricultural yields of at least 10 percent	Means of Verification: (A-3) - Continuous, accurate sampling of demonstration results by ARC. - MOA annual production data reports.	Assumptions for Achieving Goal Targets: (A-4) -No major negative shocks to Egyptian agriculture economy. - Continuous movement by GOE towards liberalization of agriculture/economy. - Production and transfer of appropriate technologies and supportive policy environment increase agricultural productivity.
Project Purposes: (B-1) To improve Egyptian capability to provide farmers with a continuous flow of productivity increasing technologies in a supportive policy environment.	End-of-Project Status: (B-2) - ARC capability to generate, both in-house and through other public /private institutions, technologies strengthened - Increased number of technology production/ adaptation activities are problem focused on national priorities and farmer needs. - GOE and private sector capability to provide quality seeds to farmers increased. - Technology and transfer activities are based on local farmers needs, planned and implemented with active participation of farmers, public and non-public extensions service agencies. - Farmers knowledge and effective use improved technological practices significantly increased. - A policy analysis unit within the MOA (U/AES) is effectively functioning and contributing to the formulation of sound agricultural policies. - Improved statistical analysis and data processing services aiding in preforming policy analysis. -An increasing number of emerging problems of agricultural development are being studied, analyzed and resulting in new programs and projects.	(B-3) - GOE/MALR reports; - Annual project review; - Interviews with beneficiaries - Project Evaluations; - Special studies.	Assumption for Achieving Purpose: (B-4) -Willingness and commitment of concerned participant in resolving relevant development problems -GOE's ability to involve the private sector and beneficiaries in the development process. - Project specific conditions/covenants are met

Project Title and Number: NATIONAL AGRICULTURAL RESEARCH PROJECT (263-0152)

NARRITIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Outputs: (C-1)	Magnitude if Outputs: (C-2)	(C-3)	Assumptions for achieving outputs: (C-4)
Agriculture Research Capability Strengthened	- ARC Administrative and operational improvements instituted. - Competencies of ARC professional, technical and support staff enhanced. - ARC Research and Support facilities equipped, renovated and/or improved. - A comprehensive maintenance program established.	- Project Progress reports - Contractors reports - Site visits	-Timely availability of GOE human and other resources in support of and commitment to the objectives of the project. - Timely availability of USAID financial resources.
Seed Processing and Research Capability Strengthened	- Competencies of seed researchers, technical and support staff enhanced. - GOE seed processing and research support facilities equipped and renovated and/or improved. - Linkages between public and private sector seed industry improved. - Private sector seed industry investments encouraged.		
	- The quality of ARC conducted research significantly improved. -At least 30 improved and appropriate productivity-increasing technologies generated.		
Technology Transfer System Strengthen	- Governorate level extension councils, with adequate farmer representation, in all 20 agricultural governorates, established and effectively functioning. - Service delivery capability of the decentralized public extension service strengthened		
	- A large number of non-public extension agencies actively participating in the technology transfer process.		
	-Linkages between and among public extension, non-public extension service entities, research community and farmers strengthened. - ARC/Extension Affairs Division's ability in support of the technology and transfer system strengthened.		
Policy Analysis Capacity Strengthened	- Economic and policy analysis function improved. - A mechanism to engage farmers, consumers, traders and the GOE decision-makers in policy dialogue established - Improvements in the area of data collection, statistical analysis and data processing instituted. - A well staffed and fully equipped information center effectively function.		
ARC Program Management capability strengthened	- Program management office established in ARC and capable of planning, budgeting, coordinating, monitoring and evaluating agricultural development activities.		

Project Title and Number: NATIONAL AGRICULTURAL RESEARCH PROJECT (263-0152)

NARRITIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS		MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Inputs (D-1)	Implementation Target (Type and Quality) (D-2)		(D-3)	Assumptions for providing inputs: (D-4)
-All Components Technical Assistance Training Commodities Renovation Services Studies/Grants Audit, Monitoring and Evaluation Contingencies Inflation	AID See Financial Plan	GOE	Project Documents	- Availability of inputs. - Timely procurement. - Costs do not exceed estimates.