PD-AAZ-722

MEMORANDUM

DATE: July 31, 1989

TO: Kenneth Rikard, A/DIR

FROM: Lalitha Jayaraman, ARD LJ

THRU: Michael Fuchs-Carsch, A/SADO

SUBJ: Project Assistance Completion Report (PACR): Agricultural Delivery Services Project (649-0112)

In accordance with Handbook 3, Project Assistance, (Appendix 14A), a Project Assistance Completion Report is due within six months after expiration of the Project Assistance Completion Date (PACD). This PACR is submitted for your approval prior to distribution within the Mission and to A.I.D./W. This report has been cleared by USAID/Somalia offices as noted on the last page of the report.

Approved: [signature]
Date: August 1, 1989

Distribution:

USAID/Somalia

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PROJECT ASSISTANCE COMPLETION REPORT

I. SUMMARY DATA

Project Title:	Agricultural Delivery Services
Project Number:	649-0112

Administrative

Implementing Agency:	Ministry of Agriculture (MOA)
Technical Assistance:	Utah State University
Final Evaluation	September 1986

Financial ($000)

Date of Authorization:	July 27, 1979
Authorized LOP:	$8,635 (original) $8,435
(revised)	
GSDR Contribution	$3,800 (L/C)
Date of Initial Obligation:	August 18, 1979
PACD:	September 30, 1988
Cumulative Obligation:	$8,365
Cumulative Commitments:	$8,364
Cumulative Accrued Expenditure:	$8,300

Planned AID Inputs

Technical Assistance	$4,026
Commodities	$2,377
Training	$1,705
Studies	$116
Electric Line	$59
FSU	$64
Other Costs	$18
Total	$8,365

Planned Project Outputs

1. Enhanced management of the extension services involving the National Extension Service (NES), the Agricultural Research Institute (ARI), the Faculty of Agriculture (FOA) and the farmers who are its intended beneficiaries;

2. Well-trained extensionists at Afgoi, Janale, and Jowhar in the Shebelli River Valley, and Bonka in the Bay Region;

3. Enhanced practicality of training activities consisting of adaptive and verification trials, demonstrations of recommended production and management practices, economic evaluations of these practices under farm conditions, investigations of existing production practices and systems and training of extension agents and farmers;

4. Program activities with on-going research, particularly the sorghum project supported by ARI and UNDP/FAO, and the maize project that is funded by ARI and UNDP/FAO;

5. An established research strategy and a permanent national undertaking in an applied research and extension program with the steady and timely allocation of human and financial resources; and

6. Trained Somali staff who will assume responsibilities to carry out an applied agricultural research and extension program.

II. PROJECT DESCRIPTION/PURPOSE

The objective of the project was "to increase the number of qualified extension agents in the Bay, Lower and Middle Shebelli Regions in Somalia and increase crop production through dissemination of improved cultural practices developed from research."

The purpose of this project was to strengthen Somali agricultural research and extension capabilities through trained agricultural technicians knowledgeable in developing and adapting improved technology to Somali conditions and delivery of improvements to small farmers in Somalia. This project was the AID-financed component of a larger set of GSDR activities with assistance from IDA, EEC, and ADF, under the title " Agricultural Extension and Farm Management Training Project" or "AFMET".

Donor Assistance to Various Components

ITEM	COMPONENT					
	NES	FMAS	FMETC	Ag.Sc	CSD	PMU
Civil Works	ADF	ADF	ADF	-	-	ADF
Technical Assistance	AID	IDA	AID	EEC	IDA	IDA
Training	AID	IDA	AID	EEC	IDA	IDA
Commodities	AID	ADF	AID	EEC	IDA	IDA
Local Costs	GSDR	GSDR	GSDR	-	-	GSDR

ADF - African Development Bank
IDA - International Development Agency
EEC - European Economic Commission

NES - National Extension Services
FMETC - Farm Management Extension Training Center
FMAS - Farm Management Advisory Service
Ag.Sc. - Agricultural Secondary School
CSD - Central Statistical Department
PMU - Project Management Unit

III. USAID FINANCED PROJECT COMPONENTS

Major activities financed by USAID were: 1) technical assistance for the development of an agricultural research strategy; and 2) training, commodities, machinery, equipment and technical assistance to strengthen the NES and FMETC.

IV. END OF PROJECT STATUS

1. General

Technical assistance was provided through Utah State University from August 1981 to September 1986. The TA team reported that most of the objectives of the project were attained.

There was substantial progress made in the training of extension agents and researchers in the 33 districts included in the project. The AID-financed final evaluation, conducted in September 1986, pointed out that the project had been extremely successful in increasing the ability of trained staff to carry out applied research and extension programs. Additionally, it noted that the problem-solving approach used by extension workers had been useful and accepted by Somali farmers. High quality technical assistance in research and extension methods, as well as needed procurements of commodities, equipment, and vehicles significantly strengthened the capability of the extension service. The extension service is now conducting field agent and farmer training. The serious shortage of trained agricultural extension workers is less acute now than when the project began. Extension agents trained under the project now plan and conduct seminars and workshops that address small farmer production problems and encourage policy makers to focus on strategies for small farmer production.

2. Commodities

A breakdown of the percentage amounts disbursed on commodities is given below.

Year	Amount	Percentage
1981	338,000	14
1982	420,000	18
1983	765,000	32
1984	149,000	6
1985	223,000	10
1986 Sept.	463,515	20
Total	2,358,515	100

It took an average of 11 1/2 months between the time the orders were placed and when they were received. Much of the agricultural machinery which was to be used for training at the 60 ha Afgoi farm arrived in July 1985, about the time when the machinery specialist was ready to return to the U.S.

3. Training

All training was related to specific agronomic practices and problems, and the appropriate technologies for Somalia. Courses were given in agricultural practices in major crops, i.e. sorghum, maize, sesame, cowpea, mungbean and groundnut.

A. In-country University Credit Courses

Utah State University offered four courses for credit to approximately 70 project staff members.

B. Overseas Long-term Academic Training

A total of 22 staff members received long-term training, (20 MS degrees and two Ph. D. degrees.

C. Short-term Training Courses

Nearly 50 staff members took part in short term courses ranging from a few weeks to six months in nearly 15 different programs.

The return rate for both short-term and long term training participants, average time in study and average cost per participant were 67%, 26.6 months and $46,568 respectively.

4. Technical Assistance (TA)

A total of 13 long-term and 22 short-term TA staff assisted the project. Because of the many obstacles inherent in this project in the beginning, the TA team, while initiating the project activities viewed themselves as one team and the PMU as another. Facing these challenges as well as other obstacles in program implementation, some contracts for technical assistance staff team members ended early. However, Project Amendment No. 2 reduced the potential for conflict and resulted in a more cordial work relationship between the PMU and TA team.

A wealth of information was generated with the help of the TA team. It has been shown that the maize yield can be doubled with changes in just a few management practices. The field staff obtained skills in designing and conducting field trials as well as conducting demonstrations and collecting, recording, analyzing and interpreting production and economic data. The counterpart field staff developed skills in problem-solving with farmers. The transfer of programming responsibility from the TA staff to the Somali personnel was effectively accomplished.

V. SUMMARY OF NON - U.S. CONTRIBUTION

1. Somali Government (GSDR) Contribution

The GSDR, through the Ministry of Agriculture, established a Project Management Unit consisting of a Project Director, a Project Technical Manager, a Financial Controller and all support staff. MOA established a technical coordinating committee, headed by the Director General, and consisting of the Project Director, Department Directors of MOA and representatives of marketing, credit and other agricultural service organizations and representatives of progressive farmers.

GSDR provided a total of US $3,800,000 equivalent in So. Shs. (generated by CIP and PL 480) for the LOP and the Ministry of Finance disbursed these funds on a quarterly basis.

2. Other Donor Contributions

In addition to the Agricultural Delivery System Project, AFMET received inputs from IDA/World Bank, EEC and the African Development Fund (ADF).

The ADF project component consisted of all civil works and part of capital works such as vehicles, machinery and equipment (a civil works supervising consultant). IDA and EEC provided technical assistance, consultancy and contract services and supplies.

Donors	Funding (in $000)
IDA/World Bank	11.67
ADF	7.96
EEC	1.66

VI. ACCOMPLISHMENTS VS. PLANNED OUTPUTS

1. Enhanced Management of Extension Services

The Project Management Unit (PMU) was established with a well-defined management role and a sound organizational structure. The PMU continues to function under assistance from the Africa Development Fund and the IDA (World Bank).

2. Well Trained Extensionists

A total of 67 extension agents were trained in-country while 45 received overseas training. Out of the 22 long-term trainees sent to the United States, 11 returned to Somalia after the completion of training. A total of 87 in-country short courses were conducted for field staff. In addition, farmers' training courses were carried out by extension agents each season for 1,200 contact farmers.

3. Enhanced Practicality of Extension Program

The training program for Field Extension Agents (FEAs) was well structured to cater to the needs of farmers. The success was due to: 1) well organized farmer visit schedule by the Field Extension Agents and monitored by the PMU; 2) regular in-country training programs organized by the FEAs; 3) provision of accommodation for FEAs at the village level and radio broadcast training and production of extension bulletins and crop leaflets.

4. Development of a Research Strategy

A research strategy was developed and consisted of an applied research approach. It was adopted with trials being conducted by the National Extension Training Centers at Ganale and Jowhar. An evaluation of the overall project, conducted by the African Development Fund in November 1987, stated that "in the Middle and Lower Shebelli Regions, yields have about doubled on a fairly consistent basis in the four years." The evaluation also states that "... a significant degree of the increase is attributed to the adoption of improved crop production technologies: that is, to the efforts of the National Extension Services."

VII. PROJECT RESULTS:

When the project started there was very little technology transfer from research/extension to the farmers. The FEAs had no practical training in field plot work. Because of lack of "hands-on" experience in laying out, conducting, and evaluating trials, the FEAs were unable to do outreach and help farmers. The project has succeeded in training the FEAs in applied agronomic research. The farmers are members of the extension team which identifies field problems. With the assistance of extension officers and research staff, the on-farm problems are being solved. However, most of the basic problems requiring research intervention remain unsolved due to the poor link between research and extension.

VIII. LESSONS LEARNED

1. Multi-Donor Coordination

Multi-donor project implementation is extremely difficult for the AID mission and the contractor and should be avoided whenever possible. The implementation of a training program for extension agents, when facilities and local support costs are funded by other donors and not provided on a timely manner, is extremely difficult and delays project implementation.

2. Project Planning

During the initial phase of the project's life, the need for more advanced solutions to crop production problems involving purchase of expensive inputs and a higher level of FEA skill is not urgent.

The low-technology improvements in themselves will have a marked impact on yields if effectively adopted, and they are simple enough for the relatively young and inexperienced FEA force to understand and explain to farmers.

3. Agricultural Research

Though a research strategy has been formulated, an adequate formal linkage between the agricultural research institutes and the extension service under the MOA has yet to materialize. Coordination between research and extension is necessary to carry out adaptive research and extension programs. The farmers must also be involved in the planning and carrying out of verification trials, demonstrations of recommended production and management practices.

Long-term (more than 10 years) continued support for agricultural research and extension is needed to significantly increase productivity of the small farmers and the project plan was short-sighted in terms of limiting the duration to 5 years.

A strong research program is necessary before an extension service could be effective in the field. There is a scarcity of research information on topics such as intercropping, pest control, etc., to take to farmers. Pertinent research information is available from other areas of the world, but the results should be verified before extending to the farmers.

It has been shown that maize is more productive when one or two plants are allowed to grow on a hill with hills close together than with three or four plants per hill that are twice as far apart. For (widely used) Somtax maize, there seems to be a limit of yield with increased population and increased application of nitrogen fertilizer. It is suggested that research should look at maize varieties that respond to high population densities and high soil fertility.

In the weeding experiments where nitrogen was added, it was found that the nitrogen overcame some of the adverse effects of the weeds. For instance, 100 kg urea/ha and no weeding gave a yield of 1200 kg/ha as contrast to 800 kg/ha for no nitrogen and no weeding.

4. Animal Traction

Although animal traction seems to be a viable resource for power in Somalia, many problems off-set the advantage. From a survey in Lower Shebelli, it was learned that if equipment and training could be furnished, a projected 39.9% of the farmers would adopt the practice of animal traction.

5. Field Irrigation Water Management

Two of the most striking conditions observed in irrigated fields were the use of small basins containing furrows and the extreme unlevelness of the fields.

The unlevel field conditions were the result of improper primary tillage and the use of closely spaced cross ditches and dikes to make the small basins. The use of the cross ditches and dikes, and lack of maintenance before each season, have apparently created an undulating field surface. As a result, furrow or border irrigation, on a scale to fit mechanized cultivation is out of the question, even though the soils are particularly well-suited for these methods.

The maintenance of the irrigation canals is mostly done by the private sector. The canals maintained by the private sector are better than those of the public or government.

6. Credit and Labor

Credit is usually available in one form or the other. Suppliers of production inputs often advance credit in the form of inputs. Only a few farmers use fertilizer and pesticides. It is important that farmers are informed about the credit facilities in the form of inputs - how to get them and how to pay for them.

Lack of labor is also a major constraint. Attempts should be made to more clearly quantify the amount of labor available within the family for the various cropping activities. Other available sources of labor available to farmers should also be clearly identified.

7. General

When attempting to identify a technology that can be recommended to farmers, one has to consider all production seasons in a given production cycle. Applied research should be planned and conducted on farms of cooperating producers during GU and Der seasons.

IX. RECOMMENDATIONS FOR FUTURE AGRICULTURAL RESEARCH EXTENSION ACTIVITIES

1. The needed facilities and staff housing should be completed prior to the arrival of long-term technical assistance staff in country.

2. Commodities should be purchased and received in a more timely fashion prior to the arrival of the long-term technical assistance team so they are useful during their assignments and in the implementation of the project. In-country service availability must be strongly considered when purchasing commodities.

3. Participants should be trained as early in the project as possible to increase their effectiveness and additional effort should be made to increase the return rate of long-term participants.

4. The long-term technical assistance team should be limited at the beginning of a project and gradually increased as needed.

5. The Agricultural Research Institute, the Faculty of Agriculture and the National Extension Service must pool available resources in a cooperative manner to address the needs and problems of the food crop producers and agropastoralists.

6. Livestock production as a part of the farming system in the crop production area should be given much more attention in research and extension work. Animal traction should be tried in both rainfed and irrigated areas.

7. More emphasis should be placed on problem-solving as a means of addressing farming problems, by both research and extension, instead of the traditional on-station "top-down" approach.

8. The extension agents should observe the effects of the imposed treatments on plant growth during the entire growing season. The treatments should be randomized and replicated to visually note the tremendous variations caused by inherent soil characteristics as well as poor management practices.

9. There is an urgent need to control stalk borers in maize. Though this can be controlled with chemicals, the supply and distribution of the chemicals are great problems. There is very limited data on the application of chemicals and treatment for stalk borers.

10. Field Extension Agents should introduce intercropping to the farmers after sufficient intercropping trials.

11. A familiarization effort with mechanical devices should start in agricultural school by locating some practical equipment to let the students become familiar with its purpose.

12. An effective procurement policy for agricultural tools and machinery should be developed. Monopolistic control of available parts should be minimized and alternative distribution channels used.

13. Training should be emphasized and a small nucleus of trained individuals should identify the type of agricultural equipment (hand tools, animal traction, implements and mechanized power equipment) for various soils, crops and conditions in Somalia.

14. National guidelines should be established for purchasing equipment as to their type and use. Farmer inputs are necessary for establishing national guidelines. Equipment that is not available for farmers should not be promoted.

15. An agricultural machinery training center with equipment should be established.

16. Continued effort must be maintained in helping the small farmer of Somalia in three areas - hand labor, animal power and economical tractor powered implements and mechanical equipments.

17. Farm budgets for the major crops need to be prepared and refined, especially cost estimates. Applied research should be planned and conducted on farms of cooperating producers during both GU and Der seasons. The reasons for low yield should be identified and documented.

18. Dry land research and extension should be given equal importance as adequate water is not always available.

X. Pending Actions for Project Close-out

A. Financial

1. Obtain a statement from the GSDR that the contract has been completed.

Action Agent	Time Frame
ARD/GSDR	August, 1989

2. Send a letter requesting the Utah State University to submit a final voucher to GSDR/USAID.

Action Agent	Time Frame
ARD/CONT	August, 1989

3. After careful reconciliation among the USAID ARD Division Chief and Controller, AID/W and the GSDR, a total of approximately $49,792 undisbursed funds be deobligated and returned to the U.S. Treasury.

Action Agent	Time Frame
CONT	August 1989

4. Close the project files and prepare for forwarding to appropriate storage.

Action Agent	Time Frame
ARD/MGT	October 1989

5. Prepare a contract/project completion statement.

Action Agent	Time Frame
CO	September 1989

References

1. Somalia and Utah State University End of Project Report, 1988.

2. Utah State University/GSDR Project 649-0112 Agricultural Extension Delivery Systems, Final Report, 1987.

3. Recommendations of Training/Development Specialist, November 1985.

4. Recommendations of Agricultural Economist, July 1986

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6. Recommendations of Agronomist, July 1983.

7. End of Tour Report by Jay D. Karren.

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9. End of Tour Report by R. L. Smith.

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12. Planning On-farm Research with Farming Systems Perspectives, 1986.

13. Farming systems in the Lower Shebelli Region, 1987.

14. End of Tour Report by Michael Y. Boating, 1986.

15. End of Tour Report by Dr. Hill, May 1986.

16. End of Tour Report by Keith W Hatch, 1983.

17. A review of the AFMET project by Information Technology and Agricultural Development (ITAD), February 1989.

18. Somali Agricultural Delivery Systems Project (649-0112), Final Evaluation, September 1986.

19. Project Performance Audit Report, African Development Fund, November 1987.

20. Project Paper (649-0112)

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