PD-AAZ-724

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): Bay Region Agricultural Development Project (649-0113)

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 _____

Date September 9, '89

Distribution:

USAID/Somalia

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PROJECT ASSISTANCE COMPLETION REPORT

I. SUMMARY DATA

Project Title:	Bay Region Agricultural Development Project (BRADP)
Project Number:	649-0113

Administrative:

Implementing Agency:	Ministry of Agriculture
Technical Assistance:	University of Wyoming
Final Evaluation:	May, 1988

Financial ($000)

Date of Authorization:	August 4, 1978
Authorized LOP:	$11,171 (original) $10,671 (revised)
GSDR Contribution:	$ 5,610
Date of Initial Obligation:	August 4, 1980
PACD:	9/30/85 (original) 9/30/88 (revised)
Cumulative Obligation:	$10,612
Cumulative Commitment:	$10,612
Cumulative Accrued Expenditure:	$ 9,476

Planned AID Inputs:

Technical Assistance:	$6,269
Commodities:	3,880
Training:	435
Other Costs:	28
Total:	$10,612

Planned Outputs:

Increased sorghum and pulse production
Increased livestock offtake
Improved transport system
Trained national staff
Improved supply of potable water (financed through another USAID project)

II. PROJECT DESCRIPTION/PURPOSE

The BRADP was a five year, integrated, multi-donor, rural development project, supported by USAID, IDA (the World Bank), the International Fund for Agricultural Development (IFAD), the African Development Fund (ADF) and the Somali Government (GSDR).

The goal of this project was to assist the GSDR in achieving self-sufficiency in food production. The purpose was to increase the agricultural production in the Bay Region through development of necessary institutions, personnel, and infrastructure. There were three objectives:

A. Increase crop and livestock production in the Bay Region by increasing production on cultivated land and expanding cultivation into new lands;

B. Integrate extension operation and livestock interventions in a farming systems approach; and

C. Establish a basis for decentralized integrated development planning and implementation through a Project Management Unit (PMU).

III. USAID FINANCED PROJECT COMPONENTS

Major activities financed by USAID were: 1) technical assistance for technical services and studies; 2) participant training; 3) equipment and supplies for agricultural research; and 4) support to veterinary services.

IV. END OF PROJECT STATUS

1. General

The goal of increased food production via identifying improved varieties of sorghum or introducing improved agronomic techniques such as seed treatment, or increasing production by using animal traction to till more land has not been met. But the establishment of a functioning crop research station at Bonka is a major step toward attaining that goal. The adjunct project of road building to increase access to markets has indirectly resulted in increased area planted. The construction of wells and wars have presently made life easier but, on the longer term, it is important to be alert to evidence of overgrazing in the project vicinity. The building of a research capability to develop programs and management procedures that assure priority, relevance and efficiency will obviously take a long time. Considering the GSDR's starting point, this process may take at least 10 to 20 years.

Since there is no baseline information available from the beginning of the project, it is difficult to fully assess the impact of this project. The final evaluation conducted by USAID recognized that the objectives of the project could not be achieved without an additional two years of technical assistance. The World Bank decided to provide this by continuing technical assistance for two more years.

2. Technical Assistance

Technical assistance was provided through a host country contract between the University of Wyoming and the Ministry of Agriculture (MOA). It consisted of 27 person years in agronomy, seed production, entomology, soils, farming systems, farm management, veterinary services, and general services. It had the following components:

A. Adaptive On-Farm Research

The Bonka Research Station was the center of this activity. The activities at this station included: 1) establishing a fully functional crop research station - a major step towards increasing agricultural production, and 2) agricultural research in varietal testing and screening, developing soil moisture conservation practices, selecting and improving farm tools and implements, promoting the use of animal traction, production of certified seed, and identifying crop and crop/pasture rotations.

Progress at the Bonka Research Station and the Seed Farm was slow because the TA team arrived only in 1983, and full scale operations did not start until the 1984 Gu season.

A baseline study was conducted and the results were published. However, this study was not done as a start-up activity and agricultural data was not collected to assess the impact of the project. In 1987, efforts were begun to obtain essential crop and livestock data through continuous systematic surveys of the farming operations, marketing practices, personal preferences for crops and variety of crops, differences among the districts of the region in terms of area planted, seasonal labor supply, year-to-year variations in yield and acceptance of new recommendations.

Due to the late arrival of the TA team, there are no results available on the largest section of the agricultural component, the improvement in sorghum production. Currently, under the IBRD interim funding, sorghum variety trials and work on plant nutrition and soil science continue. Sorghum variety (including hybrid) trials are being conducted in an efficient manner with greater assurance for selecting the most suitable varieties for the Gu and the Der seasons. Also, agronomic variables such as seed treatment effects on seedling emergence, effects of stem removal from fields on rainfall infiltration and nutrient recycling, and borer control are being studied in an effort to enhance sorghum production.

Research conducted on varietal testing of different types of pulses and other legumes for drought tolerance led to the release of an early maturing variety of mung bean.

In the area of plant nutrition and soil science, phosphorus deficiency was identified as a major constraint to higher yields. Work continues on plant nutrition and phosphorus requirements.

In support of the objective to increase livestock offtake, preliminary efforts were made in improving production of two forage species.

Use of animal traction was demonstrated by the Extension Service in the Bonka area, and through the on-farm work supported by the World Bank. People are now using animal traction more frequently for farming operations and transportation, particularly in the form of donkey carts.

B. Seed Multiplication

The project provided the staff and equipped the seed farm near Bonka to multiply improved seeds of sorghum, groundnuts, pulses and pasture grasses. Equipment was provided for mechanical production, harvesting, cleaning, treatment, and storage of seeds. An expatriate seed production specialist was also provided. As a result of these efforts, an estimated two hectares of the newly released mung bean, Filsan, is being increased.

Safflower has been yielding well at Bonka and is being seed increased on the 100 ha farm. Spacing trials have been initiated during early 1988 by Somali researchers to determine optimum population density. Progress to date in plant breeding may lead to the development of a high yielding variety.

In addition to seed increase, seeds of local varieties of sorghum, oilseeds and pulses are being treated to prevent damage caused by insects, bacteria and viruses. An efficient planting system has been developed for the 100 ha farm and the plan is to expand into an additional 50 ha.

3. Veterinary Services

The project was to staff and equip two mobile vaccination teams, train staff in the districts, establish and stock 13 new dispensaries and provide laboratory facilities. Three mobile teams were equipped to vaccinate approximately 242,000 cattle per year. Fourteen dispensaries were built. These, plus those established in each of the district veterinary offices and one in Baidoa, make a total of 20 dispensaries in the region that have treated an average of 553,000 animals annually. All of the dispensaries could not be fully staffed because of the shortage of veterinary assistants willing to work in the remote areas of the Bay Region.

4. Training:

Sixteen participants received long-term training: 14 at the M.S. level, one at the B.S level, and one in a non-degree program. Of these 16 participants, only five have returned to Somalia and to the project. The whereabouts of others are not known. All short-term training participants (11) returned and are working in research.

5. Construction

The construction of offices for project management and the research station, staff housing, laboratories, and equipment maintenance facilities was completed.

6. Vehicles and Equipment

Vehicles, equipment and spare parts to be procured for the research station, seed farm, and the Project Management Unit (PMU) have been purchased and handed over to the project.

7. Improved Transport System

The project was to provide for construction of 350 km of feeder roads and 250 km of access roads. Althcugh a breakdown of feeder roads and access roads is not available, 300 km of feeder and access roads were constructed.

V. SUMMARY OF NON-U.S. CONTRIBUTIONS

A. Somali Government (GSDR) Contribution:

The GSDR, through the Ministry of Agriculture (MOA), established a Project Management Unit (PMU) consisting of a Project Director, a Project Technical Manager, a Controller and all support staff. A total of US $5,600,000 equivalent in So Shs (generated by CIP and PL 480) was provided by GSDR to cover all local costs. These funds were included in the GSDR's development budget for each calendar year and were allocated in accordance with a local currency budget process that began with requests prepared each year by the Somali and the USAID Project Managers for the Ministry of Finance's Domestic Development Department (DDD). These requests were used to make up the Annual Program Budget Plan (APBP), prepared by the USAID Program Office and the DDD, and signed by the Minister of Finance and the USAID Mission Director.

Releases under the budget were then approved by the USAID/GSDR Generated Shillings Proceeds (GSP) Committee and advances were made on a quarterly basis.

B. Other Donor Contributions:

The BRADP received inputs from IDA, IFAD and the ADF. The IDA and the IFAD co-financed technical assistance, consultancies, contract services, equipment and water supply. The ADF funded the access road component.

Inputs	Donor	Funding (US$ 000)
TA to project management, operating costs & construction	IDA/World Bank	12.0
Operating costs for veterinary services & construction	IFAD	8.0
Access road Construction	ADF	8.9

VI. ACCOMPLISHMENTS VS. PLANNED OUTPUTS

A. General

The project constructed facilities at the Bonka Research Station for proper maintenance and operation of equipment for tillage, planting, weeding, pest control, transportation, and seed processing for the entire project. An efficient planting system has been developed, particularly for large scale operations such as seed increase. The "100 ha farm" is fully plantable and the plan is to expand to an additional 50 ha.

B. Increased Sorghum and Pulse Production

The project's planned output, over a five-year period, was to achieve an incremental production for sorghum and pulses of 1,525 and 450 MT, respectively.

It was expected that before completion of the project, one or more high yielding varieties of sorghum would be released to farmers so as to appreciably enhance food and feed production. Two factors contributed to the failure in meeting this major objective of the project: 1) drought during the two years of USAID technical assistance, and 2) inefficiencies and lack of dedication by the USAID funded TA team leader of this section. One important finding has been that low rainfall was previously viewed as a prime limiting factor for sorghum production in the Bay Region. However, the constraint of low phosphorus availability is now being viewed as being more important.

In the area of crop protection, stalk borers were identified as a factor of major importance in sorghum production. However, it was recognized that borer-resistant sorghum varieties were an unlikely solution because these insects are not host-specific and may survive in other large stemmed grasses as well as in sorghum.

In the pulse improvement program, 70 mung bean varieties were tested. One particularly early maturing variety called 'Filsan' was released and found acceptable by the local farmers. Also, soybeans were field tested and identified as an alternative cash crop for the region. Data on increases in legume production are not available.

Results on variety, plant population, date of planting, mulching, and intercropping trials in sorghum, cowpeas, mung beans, safflower, soybeans, peanuts, and sunflowers produced new information that can be used in future research activities.

Weeds were identified as a serious constraint in all cropping systems present in the target area. However, technical assistance to this component was not provided.

Since no improved crop varieties of sorghum were available from the research station, the introduced sorghum varieties, Dabar and GPR 148, were bulked for distribution to farmers as they were believed to be superior to the local sorghum. Since these introduced varieties did not significantly increase the yield these were rejected by the farmers. The role of the seed farm then shifted primarily to training staff in mechanized crop production.

Several technical reports on different aspects of crop research were prepared by the TA team members to assist the research component. These are listed under references.

The two Somali sorghum breeders who were trained at ICRISAT contributed to the strengthening of the Sorghum Improvement Program. Also, the seed farm was combined with the research station to form the Bonka Research Complex (BRC). BRC staff are now implementing a vigorous and effective work plan with more researchers, improved facilities, and more equipment at Bonka financed by IDA and GSDR.

C. Increased Livestock Offtake

A 4% increase in cattle by the third year and a 4% increase in sheep and goats by the sixth year was planned. However, since there was no baseline survey at the beginning of the project, any impacts on the livestock offtake could not be measured.

Though veterinary inputs resulted in a region-wide, low-cost dispensary system and innoculation program, staffing of the remote dispensaries was difficult. In future, local people should be trained to fill these positions. In order to sustain this program, user fees must be introduced.

The project identified that animal traction is one of the best means of alleviating the constraints of weeding in crop production. Therefore, in support of the livestock activity, preliminary efforts were made to increase production of two leguminous forage species i.e., leucaena (Leucaena leucocephala) and alfalfa (Medicago sativa). Since research of rangeland management was eliminated from the scope of the project at mid-term, the rangeland survey data were not obtained.

D. Training

In order to assist with other project outputs, the contractor was to provide 26 person years of long-term training. This target was met in that 14 individuals were sent to M.S. programs, one to a B.S. program, and one for non-degree training.

However, the return rate for the long-term participants was about 30 percent. After the mid-term review, steps were taken to remedy this problem. In-country English language training was provided at Baidoa for students to secure a minimum TOEFL score, and the University of Wyoming required graduate students to return to Somalia and complete their thesis work in the Bay Region. Unfortunately, several students doing course work in the U.S. left without completing their thesis work. BRADP also sent several participants to training courses offered at ICRISAT in India.

E. Improved Transport System

The project, as originally designed, seriously underestimated the cost of various components - especially road construction and well drilling. This resulted in the reduction of the road construction target from 500 km to 300 km. The project failed to construct more feeder roads to the farming areas in order to facilitate donkey cart transport used for field-to-homestead conveyance.

VII. RECOMMENDATIONS FOR FUTURE RESEARCH IN THE BAY REGION

1. A long term varietal and hybrid screening program for sorghum and other traditional crops, including legumes, in the region should be established.

2. Poor availability of soil phosphorous to plants has been identified as a major constraint to increased yields. Future work should involve fine tuning phosphorus recommendations and nutrient interactions.

3. The need for an on-going research program in dryland agronomy, including farming and cropping systems aimed at developing cultural practices for conservation of soil moisture, has been established.

4. Research on insect (stalk borers) and weed control should be given higher priority.

5. Animal draft power should be thoroughly researched as it has the potential to relieve the labor constraints experienced by farmers during soil preparation, planting and weeding times.

6. Good links forged between the research and the extension staff during implementation of the on-farm research should be fostered by other similar activities in the region.

7. Incentives to personnel in terms of salary and accreditation are necessary to attract new trainees to the Bonka Research Station. Investments that provide Somalis with technical agricultural skills will significantly increase the nation's economic potential for agricultural goods and services output.

8. Present research should be expanded into livestock nutrition and production. A glaring deficiency in the research program is that no work is being carried out on animal production.

9. An animal health surveillance system in the region, based on feeding information from the rural dispensaries to a regional diagnostic laboratory, should be established. This system would provide early warning to the veterinary services of the disease problems and their likely effects.

VIII. LESSONS LEARNED

1. Project Design

The project was designed without sufficient information. The design included ambitious goals and too many assumptions about natural resources and farming systems in the Bay Region. Future project design activities should involve careful research, planning and consultation with the personnel in the project target area before the final design of the project.

2. Multi-Donor Coordination

It was assumed that a multi-donor, multi-sector project could be started in one year, but it took three years. The coordination and implementation of a multi-donor integrated rural development project is extremely difficult because it complicates the administration of the project. In the future, each donor should jointly plan their projects or project components but each component should stand alone and not be interdependent.

3. Multi-Disciplinary TA Team

Increasing agricultural production in Somalia requires a multi-disciplinary effort to establish a sound agricultural research program. All future projects in agricultural research should be designed to have a full complement of researchers if appropriate technology is to be forthcoming in a reasonable amount of time.

4. Baseline Study

The baseline survey was done too late to affect project planning or to enable measurement of progress. It provided valuable insights into the attitudes and behavior of the rural families but it did not provide quantitative data on agricultural and livestock production. In designing a baseline study of a new area, it is crucial to do it at the start of the project and establish priorities for information to be collected. This helps avoid collection of irrelevant data.

5. Project Planning

The TA team was expected to arrive at the beginning of 1981 and did not arrive until mid-1983, consequently delaying all the planned activities. Also, a limited supply of fuel constrained project activities. These problems can be avoided by collection of all the relevant information before arriving at a realistic project implementation strategy and schedule for Somalia. It should be kept in mind that inadequate information leads to poor planning.

6. Communication with Farmers

At the time of the socioeconomic survey, most village people did not know of BRADP. Any agricultural development project which aims at working on farms and with farmers should strive to develop a locally suitable approach to communicate with farmers.

7. Participant Training

The well known problems of patronage in selection of trainees, relevance of the course to the country's needs, low return rate, and trainee failure rate should be carefully addressed while implementing a training plan for the counterparts.

IX. PENDING ACTIONS FOR PROJECT CLOSE-OUT

A. Financial

1. Send a letter requesting the University of Wyoming to submit a final voucher to GSDR/USAID.

Action Agent	Time Frame
ARD/CONT	August, 1989

2. Deobligate a total of $149,815 undisbursed funds after careful reconciliation

Action Agent	Time Frame
CONT	August, 1989

B. Technical

1. Obtain the end of project report from University of Wyoming and GSDR.

Action Agent	Time Frame
UW/GSDR/ARD	August, 1989

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

Action Agent	Time Frame
ARD/MGT	October, 1989

3. Prepare a contract/project completion statement.

Action Agent	Time Frame
CO	September, 1989

References

1. Project Paper -- Bay Region Agricultural Development Project (649-0113), August 21, 1980.

2. A.I.D. Evaluation Summary, Bay Region Ag. Dev. Project, August, 1988.

3. Bay Region Agricultural Development Project, Mid-term review, Interim Report, September 1983.

4. Final Report, Bay Region Agricultural Development Project, September 1988.

5. Cumulative Implementation Report, BRADP, December 31, 1986.

6. Socioeconomic Baseline Study of the Bay Region, December 1984. Volumes I & II., December 1984.

7. A Summary of the Socioeconomic Baseline Study of the Bay Region, September, 1985.

8. Bay Region Agricultural Development Project Stage II, Project Preparation Study, Project Completion Report, July 1988.

9. Final Report of the Pesticide Specialist, August-September 1988, Technical Paper No. 13.

10. Obtaining representative yield samples in crop research, June 1988, Technical Paper No. 14.

11. Controlling variability in crop research plots, June 1988, Technical Paper No. 14.

12. Oral presentations of agricultural research results, May 1988, Technical paper No. 16.

13. Control of insects on Bonka Dryland Agricultural Experiment Station, Recommendations of the Entomologist, Technical Paper No. 17.

14. Statistical design and interpretation of crop studies, July-August, 1988.

Clearances:

PDS:TLofgren_____
PROG:RMDepp_____
CONT:TJohnstone_____
MGT:SBellows_____

Drafted:ARD:LJayaraman