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PD-AAP-501
ISN 35492

An Evaluation Report of Project 649-0101

Agricultural Extension, Training, and Research

In the

Bay Region of Somalia

Somalia
649-0101

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MARCH 1980

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Acknowledgement

This part of the report was written last, as is the custom with all others I have written. However, now that the report is finished, I feel a sense of guilt. This feeling is not due to the fact that the report does not reflect my best effort, it does. Rather it is felt that I gained more from the experience than I could ever give to the project.

As one must on an assignment such as this, I came with a frame of reference shaped by what I had read, heard, or experienced. Then day-by-day, slowly but surely, that frame of reference was swept away and reshaped by the realitities of a people's struggle with the forces of nature. For help in rebuilding a sense of direction, appreciation is expressed to those whose patience helped as I searched to identify a realistic approach to the problems of the land.

Appreciation is expressed to the people of Somalia who are both warm and gracious and who made my stay an enjoyable experience. One must be touched when you are invited into a farmer's hut to sip tea or drink camel's milk and he calls you his friend. One will always remember the experience when a village chief calls at your residence in the evening to reassure his and his people's support for the task ahead.

To the people of Somalia, I am grateful.

There are others, of course, but appreciation is expressed specifically to Mr. Milton W. Lau, Agricultural Development Officer, USAID, and the Mission staff who helped me every way possible with this assignment.

Special thanks to Mr. Dukseyeh, Director of Agricultural Extension, (one who I would like to call an old friend because I had met him in Texas), Mr. Olad, and all the staff who helped from the Ministry of Agriculture. Particularly, those whom I visited in Mogadishu, Genale, Baidoa, and Bonka.

Special thanks to Ms. Marian Dini Raghe who so graciously worked overtime in order to prepare this report. Thanks a million, Marian!

Finally, I owe a special thanks to the USDA PASA Team, George Otey, Joe Lopez, and Shaheed Khan, for their help. Included, of course, is Lawrence McGary whose experience was helpful in dealing with my personal uncertainty regarding accepting this assignment.

To all, thanks.

General Summary and Recommendations

Given the need to implement an "immediate action program" designed to make an "immediate impact," the progress achieved during the first 4 months of this project should be rated very good. It should be noted that neither the PASA team nor the local GSDR Extension are completely staffed. From one point of view, this represents a strength for the project. It provides an opportunity for those involved to study and clarify staffing needs, develop working relationships, learn the area, and revise and develop a meaningful project approach.

The first 4 months experience has given the PASA team members an opportunity to become more familiar with the problems of the area, the agricultural production practices followed, the culture of the village farmers, and to work through the "Der" growing season. It has provided the team an opportunity to learn the organizational structure of the GSDR Extension organization and the duties and responsibilities associated with each organizational level. An understanding of the host country Extension organizational structure is relevant in developing appropriate training experiences for Extension personnel as well as the village farmers.

It should always be kept in mind that due to the tremendous technical advancement in agriculture, it is a challenge for highly trained technicians to adapt such knowledge in a way to serve the immediate needs of small farmers like those found in the Bay Region. There always exists the temptation to bring in massive new innovations that would greatly increase the production capacity of the farm. Yet such innovations would require other supportive institutions that do not currently exist in the area. These institutions would have to be created or services secured from external sources.

The PASA team appears to be handling the problem very well by blending local resources with the addition of limited outside innovations. However, a concern still exists. From evidence available, the PASA team could fall into the trap of trying to move the village farmers too fast by introducing too many new innovations at one time. The result of this approach would tend to be a high dependence on the part of village farmers on the service offered. A more practical approach is that of determining which so called traditional production practices currently in use by farmers have merit. Using this information as a starting point, a determination can be made as to what simple innovations should be added to make up the minimum technical package. Accordingly, the following recommendations are offered:

1. The PASA team should plan together, drawing upon all available information sources in the area, and develop a listing of simple recommendations, using any practical production techniques currently being used as a basis for a minimum technology package.

2. The PASA team should confer as a group on a regular basis, preferably at the beginning of the work week, to coordinate plans, schedules, and other work activities. The efforts of each individual must be supportive of the team and of the project if progress is to be achieved.

3. A team plan of work should be developed reflecting the individual member's efforts toward achieving a joint effort in support of the project. This

plan of work should reflect efforts planned for each growing season. This document should be on file in the Bonka Training Center for all Extension staff members to study. Also, copies should be made available for use by the Ministry of Agriculture, the Mission, and USDA personnel.

4. All field demonstrations should be viewed as teaching devices, both for village Extension agents, and farmers. Accordingly, they should be jointly planned by both PASA team members and village Extension agents. The village farmers should be actively involved in the actual field planning and implementation.

5. There is a need for an overall training plan for village Extension agents. Such a plan would insure that they are exposed to the appropriate Extension concepts and experiences.

6. The Bonka Training Center can make a real contribution to the overall success of the project and it should be supported.

7. A planned in-service training program for staff should be developed to guide all such activities.

8. Written plans and reports serve many useful purposes and should be required of all staff.

9. The mediator positions should be considered as key components of the organizational structure and should be maintained with a revised job description.

10. The minimum technology packages to be taught farmers should be divided into 3 phases, moving from a very simple base to a higher level of management skills.

11. The field demonstrations should be continued and expanded.

12. The best use of the PASA team can be obtained by limiting their work to the Bay Region.

13. Additional PASA personnel support is needed immediately, particularly a team leader and a livestock production specialist.

14. Short-term TDY support is needed in the following areas: staff training in planning and program development communications, integrated pest management, and a follow-up evaluation.

15. The Ministry of Agriculture should consider every way possible to staff the region with the proposed 25 village Extension agents.

16. A master plan for GSDR personnel training should be developed that would include participant training.

Evaluation Report on Project 649-0101
Agricultural Extension Training and Research
in the Bay Region of Somalia
March 1980

Introduction

The history of agriculture in the Bay Region of Somalia reflects a people's struggle to obtain from the soil the necessities to sustain life. This is achieved in a land that is arid to semi-arid, where the search for water and feed for animals has forced some 60 percent of the people in the country to remain nomadic.

An effort to find a solution to this problem was initiated in 1952 with the establishment of an Experiment Station near Baidoa. In 1954, a farmers training institute was established near the same location as a joint venture by the United States of America, Italy, and Somalia. Extension advisors were introduced in 1957 and the effort expanded in the 60's with the Wyoming State Project. These efforts were terminated in the late 60's and it was not until 1979 that renewed effort was initiated by USAID and Somalia with the signing of an agreement to initiate an Agricultural Extension Training and Research Project in the Bay Region.

In signing this agreement, AID agreed to undertake an immediate action program in the Bay Region. Such efforts would be supportive of the long-term goals of the GSDR to achieve self-sufficiency in food production and, secondly, to establish a viable, integrated, self-sustaining National Extension Service.

In accepting this responsibility, AID agreed to work in the Bay Region and assist the GSDR to:

1. Establish an Extension and applied Research Program.

2. Assist in training GSDR Extension staff.

3. Assist in training farmers.

4. Provide long-term participant training for 12 GSDR technicians.

5. Provide short-term participant training for 10 technicians.

Based on the above, it would appear that the overriding thrust of the project is institutional building, that of building a viable Extension model in the Bay Region that is capable of sustaining itself in the long run. Such a model could be duplicated in other regions of the country if desired. The second effort, while no less important than the first, is that of implementing an immediate action" program designed to make an "immediate impact" in the agricultural sector to increase food production. This latter responsibility involved the use of a "minimum technology" technical package that would utilize existing resources already available to the farmers.

While these two thrusts go hand-in-hand, the most critical effort should be viewed as that of building a self-sustaining institution that is capable of

providing the continued support needed in the long run. This support is needed to facilitate the continued adoption of improved practices by small farmers in the region.

Purpose

The purpose of this report is to examine only the Agricultural Extension and training components of the project. An attempt was made to determine:

1. The status of the project.
2. Any emerging problems.
3. Any adjustments needed.
4. Potential opportunities for consideration.

Specific Objectives

Given the dual thrust of the project, it was necessary to divide the effort into subcomponents for analysis purposes. Accordingly, the following specific objectives were delineated for guidance:

1. To analyze the educational delivery system being developed.
2. To analyze the training model developed for Extension personnel.
3. To analyze the training model developed for small farmers.
4. To determine initial project impact.
5. To examine project support needs.
6. To examine the question of participant training.
7. To examine project personnel needs.

Procedure

In order to determine the status of this project, the following procedure was used:

I. The following documents were reviewed prior to arriving in Somalia.

- AID-County Development Strategy Statement, FY 81, Somalia, Department of State.
- Somalia-Agriculture, Extension, Training and Research (Project 649-0101).

- Report on Project 649-0101, Agricultural Extension Training and Research in Bay Region, Somalia, by M. S. Khan and others.

- The PASA Agreement.

II. A list of questions was developed for conducting structured and unstructured interviews with project planners and field staff.

III. The questions were revised as appropriate to reflect informational needs of project planners and field staff upon arriving in country.

IV. Interviews were conducted with the following:

- M. W. Lau, Agricultural Development Officer.

- M. A. Dukseyeh and Olad Farah Dahir with the Ministry of Agriculture.

- Three joint sessions with the three members of the PASA resident team, including the Regional Project Manager.

- Individual interviews with team members George Otey, Agronomist/ Agricultural Engineer, Shaheed Khan, Plant Protection Specialist, Joe Lopez, Agronomist, and Abdulkadir, Regional Project Manager.

- Informal visits with the village Extension agents.

- Observations were made at the following places:

  The Agricultural High School

  Faculty of Agriculture

  Afgoi Research Station

  State Farm at Genale

  Farmers Training Centers at Genale and Bonka

  Six Villages

  Informal observations were made with each team member as they carried out their normal work activities.

- Lawrence McGary, Project Coordinator, USDA.

V. Formal survey was conducted with farmers using two trained interviewers. A prior goal of 72 farmers was set; however, due to distances, road conditions, transportation, and cultural requirements, only 27 interviews were completed during the four days allocated.

Interviews were conducted on the following dates in the villages shown:

Date	Village	No. of Interviews
2-18-80	Bulo Burudo	2
	Uusle	2
2-19-80	Luk Habar	2
	Moda Moode	2
	Gorisane	2
	Goof Gaduud	2
	Bulo Barako	2
2-20-80	Kansahdeere	2
	Ufurow	2
2-21-80	Gel Gel (Guruboy)	2
	Toosweyne	2
	Berdale	2
	Asho Farto	3
	Total	27

The interviews were conducted by Nuur Salad Abdi and Adam, both of whom were provided by the Ministry of Agriculture in Baidoa. The interview team was accompanied the first day by the writer to test both the questions and the procedure. Based on that experience, adjustments were made. Lawrence McGary and a village Extension agent assigned to the area traveled with the team to conduct the remaining interviews.

An Educational Delivery System

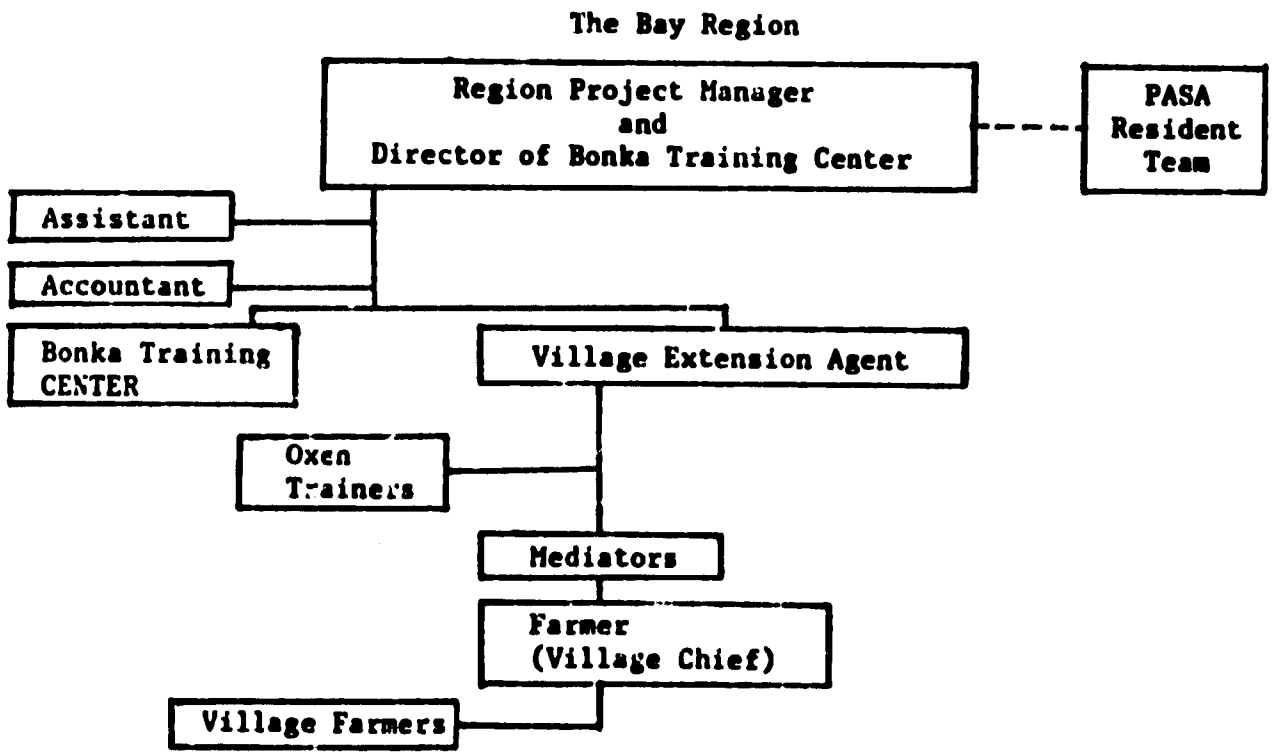
One of the main goals of the GSDR is to establish a viable National Extension Service that can serve as an effective educational delivery system. It is assumed that such a system would facilitate the national goal of self-sufficiency in food production. The Extension concept initiated in the United States in 1914 would suggest this notion as a viable assumption.

It must, however, be kept in mind that a viable National Extension Service must be created not in isolation but in connection with many other supportive institutions. There must be a source of trained personnel, technical information, and public support. The Extension educational delivery system draws from these institutions and provides a communication linkage to serve the informational needs of the clientele.

Given that each of the above supportive systems are in the development stage, the project is perceived as being designed to facilitate the development of a model regional Extension system, drawing on both internal and external support during the development stages. The challenges to the field staff become one of forging a viable Extension organizational structure that is staffed with trained personnel and a structure that is capable of sustaining itself in the long run.

Organizational Structure

The staffing pattern utilized by the GSDR in support of the project was reviewed. The following chart was drawn by a member of the local Extension staff and is reproduced here.



PASA Team: Given this staffing pattern, the PASA resident team was introduced to work at the regional level and provided both technical and support training for the local Extension staff. The PASA team, which is incompletely staffed at this time, is composed of:

Shaheed Khan, Plant Protection Specialist
George Otey, Agronomist/Agricultural Engineer
Joe Lopez, Agronomist

The staffing achieved thus far is consistant with the concept of initiating an "immediate action" program in the Bay Region. The experiences gained can be

utilized to further clarify the focus of the project and provide a basis for delineating more specifically the staffing needs.

TDY Teams: As of this time, there have been only two TDY teams involved in the project. The first team involved four people who were charged with designing a program in Extension training and research specifically for the Bay Region. The second team's effort is reflected by this report.

GSDR Extension Staff: Supporting this project at the present time are six Extension agents. These are:

Village	Village Extension Agents
Lub Habar	Abdullahi
Bulo Burudo	Mustapha Ibrahim Ali
Gel Gel	Mohamed Abdi Waare
Goorisane	Mahadalla
Kansahdeere	Awaale
Unassigned	Rabiile

Roles and Responsibilities

An attempt was made to determine the roles and responsibilities of both the PASA resident team and the GSDR Extension staff.

The PASA resident team is viewed as having the role and responsibility of providing both technical information and serving as trainers of GSDR Extension staff. The GSDR Extension staff associated with the project was seen as that of trainee charged with implementing an Extension program while being assisted by the PASA resident team.

The thrust to build an Extension educational delivery system requires the learning and implementation of a number of basic Extension concepts that are essential to the immediate project. It is also essential to achieving the long-term goal of building a regional Extension organization that is capable of sustaining itself.

Basic Extension Concepts

There are several basic Extension concepts that are considered useful for this project. When designing an Extension educational system, they should become goals which one hopes to achieve. When utilizing these concepts, one must keep in mind the cultural pattern, the resources available, and the stage of development of the Extension organization in the host country.

The following should not be considered as an all-inclusive list but rather a listing of some of the basic Extension concepts.

A. Philosophy of Extension

1. Extension is an educational function, not a service-oriented function.

2. Extension staff work with people, not for people.

3. Extension helps people to help themselves.

B. Extension Program Concepts

1. Program planning - the process of working with local people in determining needs, goals, and objectives, and developing a plan of action.

2. Program implementation - the process of involving local people in carrying out the plan of action.

3. Program reporting - The process of summarizing the work accomplished and results achieved which can be used for educational purposes and to inform the supporting institutions.

4. Program evaluation - The process of judging the results achieved and using the information to strengthen an on-going program.

C. Educational Teaching Methods and Techniques

1. The demonstrational - methods and result demonstrations.

2. Visual aids.

3. Individual and group contacts.

4. Mass media.

5. Other appropriate teaching methods for the area.

Summary

Both the PASA resident and local Extension teams have vacant positions which are assumed will be filled in due time. Because of the lack of staff and, more importantly, the time and effort required to work out the logistical problems associated with initiating a project of this scope, only limited progress has been made in this area.

Essentially, the following have been accomplished:

1. Three members of the PASA resident team are on site.

2. The Regional Project Manager and six village Extension agents are already assigned.

3. An organizational chart for staffing and operationalizing the Bonka Training Center has tentative approval and is being staffed.

4. There was no evidence available to indicate that supporting documents were being developed that are needed in training Extension personnel on how to sustain the Extension structure in the Bay Region.

The lack of formal plans or documents of the type mentioned in Item 4 above should not be considered a problem at this time. When a team leader is added to the PASA staff, immediate attention should be devoted to developing a plan of action in concurrance with the Mission and the Ministry of Agriculture.

Recommendations

In order to facilitate this thrust of the project, the following recommendations are made:

1. An organizational chart should be developed and made available to all members involved in the project. Such a chart would facilitate communicating the thrust of the project and would serve as a valuable teaching aid in training village Extension agents.

2. A handbook for GSDR Extension personnel should be prepared if one is not already available. Such a document should contain all relevant information about the National Extension Service, the Mission and objectives of the organization, operating policies, rules, and regulations.

3. The efforts of the PASA team should be devoted entirely to the Bay Region where they can build an Extension education delivery system and the other three components implied in the project. Extension agents located in other parts of the country that need training should be transported to the Bonka Training Center to participate in any scheduled training being conducted for agents in the Bay Region. Such an arrangement would increase the efficiency of the PASA team members time and effort.

4. The feasibility of rotating village Extension agents in and out of the Bay Region should be explored. Once a viable training program has been developed, agents could be assigned to the region for an appropriate period of time for on-the-job training. After completing a tour of duty, they could be assigned to other locations within the country.

5. Every effort should be made to strengthen the training capacity of the Bonka Training Center. The Center should be viewed as the supporting institution for the total project.

6. The capacity of the Bonka Training Center would be enhanced if the following activities were strengthened.

   a. The Record Keeping System - A system should be designed to facilitate the keeping of records for all activities. Such information would be highly valuable for planning, training, and as a reference source. Examples of records and reports which should be kept are:

      - Reports of work accomplished.

- Reports of demonstration results.
- Lesson plans used for training village Extension agents.
- Lesson plans used for conducting short courses and other training activities for village farmers.
- Plans of work prepared by village Extension agents.
- Any and all visuals prepared for training purposes.
- Other similar materials that would have reference value.

b. Translation Capacity - Emphasis should be placed on strengthening the capacity of the Center to translate materials into the official language of the country.

c. High priority should be given by the Ministry of Agriculture to achieving the staffing goal of 25 village Extension agents.

d. Consideration should be given to placing a team of GSDR agricultural specialists at the Bonka Training Center that could provide support and training for village Extension agents. These positions should be added during the last year of the project. At least the following positions should be considered:

- An agronomist
- Production livestock specialist
- An entomologist.

e. The use of mediators should be continued. It is believed that the mediators can make a real contribution to the achievement of the project and a viable National Extension Service. If their roles are properly defined and they are trained to perform their tasks, they can make a real contribution. Replacements for any current positions that become vacant should always be selected from the village in which they will be expected to work. Their main task or responsibility should be limited to teaching village farmer the skills needed to carry out practices recommended by the village Extension agent. They should be assigned to work with a specific number of village farmers each growing season.

Staff Training

Staff training is an essential element in building and maintaining an Extension organization. Organizational efficiency and effectiveness are enhanced when there exists a core of highly trained staff. Provisions must be available to assist staff in two major areas. They need assistance in maintaining and updating their technical capabilities and in further developing skills as

Extension teachers. This latter role requires an understanding of the philosophy of Extension education, and a mastery of the various Extension teaching methods and teaching techniques.

An important thrust of this project is to provide on-the-job training for the young village Extension agents. They must be assisted in expanding their technical knowledge and shown how to apply such to solve problems faced daily by farmers. In addition, they must be taught how to teach in an informal educational situation and assisted in learning the various teaching techniques.

According to the project, the responsibility for training rests with the PASA team. It is a major responsibility, one in which the PASA team should always keep foremost in mind.

As indicated earlier in this report, only six village Extension agents are currently assigned to the project. Five of these agents are located in villages in which they have been assigned to work. The remaining agent is unassigned at the present time. With this number of agents, the PASA team can almost work one-on-one in providing training. However, as the number of agents increases, a different system will be needed.

The village Extension agents are graduates of the Agricultural High School located at Afgoi. Their background training has been limited to classroom lectures with very little practical experience in farming provided. Accordingly, they must observe and learn from the PASA team member.

Summary

The current PASA team brings to the project a high degree of technical skill and an action orientation. Their efforts since arriving on site have been devoted almost entirely in trying to learn the needs of the area, determining a course of action, and getting a program in the field. It would appear that limited efforts have been devoted to thinking through a training process. Rather, their approach thus far has been to use what might be called the "apprentice" approach.

A PASA team member is doing a good job of working with village Extension agents on a one-to-one basis to solve whatever problems occur. If and when the number of Extension agents located in the Region increases, this approach could lead to a real problem. A more coordinated training approach will be needed in the future.

Recommendations

In order to enhance the training thrust of the project, two approaches might be considered. If the Bonka Training Center's capabilities are enhanced and the full staff of village Extension agents added to the project, a planned training program should be initiated. With this in mind, it is recommended that:

1. An orientation training program of a minimum duration of three weeks be planned. This activity should be a joint effort of the PASA team

and the GSDR Extension staff. All new Extension agents would be required to participate.

The content of such training should include at least the following:

a. Philosophy of Extension work.

b. Program planning, implementing, reporting, and evaluating appropriate for the country.

c. Practice in using various teaching methods.

- Illustrated lecture.
- Method demonstrations.
- Practice in performing practical skills.
- Designing visual aids.
- Other appropriate subjects.

2. On-the-job Training. The PASA resident team should continue on-the-job training for the village Extension agents. This training can be divided into two components:

a. Periodic training should be given at Bonka to provide the technical training needed and to plan work content and schedules for the next immediate work period. Weekly training of this type would be desirable but may not be possible. The frequency of such training should be designed to best fit the situation.

b. Field training is also important. It is very easy for the PASA resident team to do most of the work; however, they must at all times recognize that their role is that of a trainer. Their primary responsibility is to provide technical support and train the village Extension agents.

3. Job Descriptions. Village Extension agents should be trained to write job descriptions and position descriptions. This will provide them with a learning experience that will help clarify their duties and responsibilities.

4. Annual Plans of Work. Continued emphasis should be given to the requirement that each Extension staff member develop a personal plan of work on an annual basis stating:

a. What he plans to do.

b. How he plans to carry it out.

c. Who he is going to work with.

d. When the job is to be done.

e. Where the job is to be done.

5. Teaching Plans. Each village Extension agent should be trained and required to develop a teaching plan for every training activity designed for farmers. This includes group meetings, method and result demonstrations conducted, etc. This material should in the end become a part of the files at the Bonka Training Center. Such information would be an excellent reference for future training activities.

6. Reports. Continued emphasis should be placed on reporting by each Extension staff member.

   A minimum of two reports should be required, one after each growing season. More than two reports may be useful and, if so, should be required.

7. Demonstrations. Continued emphasis should be placed on written plans for each demonstration to be conducted. These plans should be as specific as possible identifying plot size, village, farmer, varieties, planting date, practice to be implemented, and any other relevant information.

8. Reports of Demonstrations. Continued emphasis should be placed on recording results achieved on each demonstration. This information should become a part of the permanent files at Bonka to be used for future planning and training.

9. Teaching Materials. Continued emphasis should be placed on developing and maintaining on file at Bonka all teaching materials used for training Extension agents and farmers.

10. Conferences. Regional conferences in Mogadishu should be continued and enhanced where possible. Conferences for all personnel located at Bonka should be held weekly on the first working day to set objectives and plans for the week's work.

Mediators

It is noted with considerable interest that there was no discussion of the role of the mediators in the project plans. Very little information could be obtained in discussion with PASA team members about the role of the mediators. It is understood that their role, as defined, is one of providing a communication link between the village Extension agent and the farmer. The impression was gained that these positions were a part of an older Extension organizational structure and that there is a question as to whether these positions will be continued.

Before a final decision is made about the role of the mediator, project planners should rethink possible contributions they can make to the total Extension

concept. It is believed that if the role of the mediator is structured correctly, they can play a key role and make a real contribution to the overall success of the project. This conclusion is based on personal experiences gained in conducting a small farm program using local farmers to assist Extension agents in carrying out an educational effort.

In structuring the mediator's role, the following points are critical:

1. They should be selected from the village in which they will live and work. This provides an automatic advantage for Extension.

2. They should be viewed as progressive or successful small farmers by the village farmers. This concept solves the problem of credability.

3. They should be able to communicate effectively with village farmers.

4. If there is evidence that they work well with other people, the problem of acceptance by the village is resolved.

5. Their specific and only job assignment should be to teach farmers the basic skills needed to carry out a recommendation of the village Extension agents. They should not be expected to do the work of the farmer, but they should work close enough with the farmer to know when a job needs to be done and be there to show him how to perform the task correctly.

Recommendations

It is highly recommended that:

1. The role of the mediator be continued.

2. Their job should be restructured if necessary so that their primary task is that of teaching farmers skills needed to implement technical recommendations.

3. Appropriate training activities be scheduled at the Bonka Training Center for mediators. Such training may be held as a part of ongoing training activities.

Training for Farmers

The second component of the training model involves that of training farmers. The project proposa sets forth two training concepts, those of field and group training at the Bonka Training Center.

Demonstrations are the principal teaching method planned for field training. This training method involves two basic components, teaching the appropriate technical recommendation and, secondly, teaching the skills required to implement the recommendation correctly. Too often the professional may fail to recognize the importance of teaching farmers, particularly small farmers, the skills

required to implement a new innovation. As a result, they fail to carry out the practice correctly and the expected results are not achieved.

Summary

It was quite evident that the greatest emphasis of the PASA team has been devoted almost entirely in gearing up and getting demonstrations in the field. Being action-oriented individuals, they are responding to the mandate of the project proposal with an all out effort. The number of demonstrations that will be established this growing (Gu) season will be limited only by the resources with which they have to work. Given an increased number of village Extension agents and adequate transportation, the number of field demonstrations established should more than satisfy the project requirements.

In their eagerness to get demonstrations in the ground, the team may not be giving adequate attention to teaching village Extension agents and farmers the skills required to plan and actually implement the practices required. A conclusive determination regarding this concern could not be made during the period staff members were observed. In order to make such a determination, it generally is necessary to observe the actual teaching process. Asking an individual to describe the process usually is less than satisfactory for judging purposes. In any case, the team leader should monitor the teaching process and offer supportive help if and when needed.

An impression was gained that training activities held for farmers at the Center were ongoing activities even before initiation of the Extension project. As the project gets geared up, the activities of the Center should be an integral part of the total Extension training project. This activity should be included in the annual plan of work of all individuals involved.

Recommendations

1. The list of technical recommendations and farming skills that will be taught farmers should be continually refined. It will be useful to divide the list into at least three phases:

    a. Phase I. This phase should represent the "minimum technology" package and contain only those practices that could be implemented by the farmer without bringing in any additional resources of any type. Such a package might include the following:

        - Crop rotation.

        - Use of animal manure for fertilizer.

        - Stalk removal to reduce insect infestation.

        - Other similar practices designed to conserve soil moisture, improve fertility, and control insect damage.

Phase II. The utilization of limited outside resources of the type that could be obtained by the farmer with his own resources. Such practices in this phase might include:

- Treating seed.
- Planting in rows.
- Use of simple plows.
- Other similar practices.

c. Phase III. This phase should be considered as the more advanced effort and it assumes the farmer has learned the importance of all the basic practices required. Additional outside resources can be made available in whatever amount the farmer has the capacity to use.

2. Educational Nature of Extension. The long-term objective of this project is to develop the production skills of the farmer. For this reason, all training should emphasize the educational concept of Extension. It is very easy for people to assume that Extension provides services for people. While certain services may be provided, the educational nature of such should always be pointed out.

3. Technical Training. The project should continue to use very simple visual illustrations containing one idea for training farmers.

4. Skill Training. The project staff should continue teaching farmers at Bonka and in the field the basic skills required to implement production practices. Recommended examples are:

- How to collect and spread animal manure.
- How to select seeds.
- How to check for insect damage.
- How to mark off rows in the field.
- Other similar practices.

5. Teaching Demonstrations. The field demonstrations should be continued and accelerated. To increase their effectiveness, the following points should be considered when setting up a field demonstration:

a. The village farmers should be involved in the planting.

b. The village farmers should select the farmer to carry out the demonstration.

c. The demonstration should be of simple design.

d. The demonstration should show the advantages of one basic practice, not more than two.

e. The farmer should be able to compare the demonstration results against his own practices.

f. The Extension agent or mediator or both should arrange to teach the farmer the basic skills needed to carry out the demonstration.

g. The mediator or Extension agent should arrange to visit the demonstration and see that the farmer implements the planned practices on schedule and correctly.

h. All village farmers should be involved at harvest time to see the result.

Impact

An attempt was made to verify the most common production practices used by farmers in the Bay Region by conducting a survey. Original plans were made to visit seven major villages and interview a total of 72 farmers using a sample technique appropriate for the area. However, due to language barriers, cultural patterns, distance between villages, transportation, and time allocated, only 27 interviews were conducted.

Survey Findings

The data collected from these interviews are presented in the following tables. The reader is warned not to draw conclusions about the region, but rather to view the findings as giving some indication of the practices followed by those interviewed.

Table I provides a profile of the 27 farmers interviewed. It confirms that they are small farmers relying on hand labor to produce sorghum which is their major crop. Sheep, goats, cows, and camels are raised for meat and milk.

Table II reflects the most common production practices used to grow sorghum. It is interesting to note that only two-thirds of the farmers indicated they practiced "bunding" which is generally viewed as a traditional practice of building small ridges with soil to conserve moisture. Forty-one percent did not know if they planted too early or too late to utilize the rain during the last growing (Der) season. Traditional practices were followed according to the data by all farmers in the survey except one. This farmer may have been one who conducted a demonstration. Generally, the farmers are unable or unwilling to quantify the amount of their total yield. Finally, it is not clear as to the number of so called traditional practices used by farmers that may be included in the minimum technology package to be developed.

Table III suggests there is some concern on the part of the farmers interviewed about implementing certain livestock production practices. They were only asked to respond "yes" or "no" as to whether they carried out a specific practice. No attempt was made to determine the quality or how a practice was

implemented. Prior to conducting the survey, an attempt was made to obtain a list of recommended practices for the area but, apparently, no such list exists or there was a breakdown in communication as to what was desired. For this reason, the questions could not be as specific as desired.

Questions regarding breeding quality of males and females, the quality of offspring, and feeding practices followed for livestock were omitted from the original survey plan This was done on the advice of village Extension agents who indicated no specific practices were followed. Observations made in the area would tend to support this conclusion.

If one could assume that these findings reflect what might be found in the Bay Region, that most farmers followed traditional production methods, then there appears be an opportunity to introduce appropriate innovations. One might assume that very little educational work has been implemented and there is a real need for a dynamic impact effort designed to improve livestock production.

Table 1

Profile of Farmers Interviewed

N = 27

Median age		44
Average number in family		7
Average number of family members working on farm		5.9
Average total hectares farmed		9.7
Source of farm power	**No. of Farmers**	**Percent**
Used hand power	27	100
Used animal power	4	15
Used motorized power	-0-	-0-
Crops Grown		
Sorghum	27	100
Cow peas	4	15
Peanuts	3	11
Corn	1	4
Livestock Raised		
Sheep	17	63
Goats	21	77
Cows	23	85
Camels	14	52

Table 2

Sorghum Production Practices Used By

Farmers Interviewed

N = 27

	Number of Farmers	Percent
Land preparation - Bunding	17	63
Planted at the right time - did not know	11	41
Planted local varieties	27	100
Seed planting rate - unknown	27	100
Fertilizer application - animal manure	1	4
Weed control - hoeing	27	100
Insect control	1	4
Traditional harvesting on storage methods	27	100

Table 3

Livestock Production Practices of Farmers Interviewed

N = 27

Sheep N = 17 (63 percent)	Number of farmers who said "yes"	Percent
Castrated	3	18
Vaccinated	10	59
Used identification methods	8	47
Controlled external parasites	13	76
Controlled internal parasites	14	82
Penned animals at night	10	59
Goats N = 21 (78 percent)		
Castrated	4	19
Vaccinated	14	67
Used identification methods	12	57
Controlled external parasites	18	85
Controlled internal parasites	18	85
Penned animals at night	15	71
Cows N = 23 (85 percent)		
Castrated	3	13
Vaccinated	14	61
Used identification methods	14	61
Controlled external parasites	20	87
Controlled internal parasites	19	83
Penned animals at night	22	96
Camels N = 14 (52 percent)		
Castrated	2	14
Vaccinated	8	57
Used identification methods	11	79
Controlled external parasites	13	92
Controlled internal parasites	13	92
Penned animals at night	14	100

Three other questions were asked farmers interviewed. The original intent was to ask the farmer's wife at least two questions. However, during the field testing of the survey instrument a decision was made to change the questions so either the man or the woman could respond. In both villages where the tests were made, the wife was not at home at the time of the interviews. In cases where the wife was unavailable, the farmer was asked to respond to the revised questions. At least three women were interviewed during the survey. However, the two interviewers did not adequately record who responded. Accordingly, all responses were listed below without trying to make any distinction as to whom was interviewed.

1. Where do you get technical information about farming?

Number	
25	From Extension or Ministry of Agriculture
1	Did not know
1	Did not respond
	Other comments
2	They bring tractors to plow our land
7	They train oxen for us
4	They teach us how to plow
3	They bring us insecticides

2. If you had more money, what would you do with it?

Number	Responses
13	Buy more livestock
9	Buy more livestock and clothes
6	Make a shop
4	Buy more land
3	Buy medicine
1	Dig a well
1	Build a house
1	Go on a pilgrimage

3. Do you have a radio?

Number	Responses
5	Yes
13	No
8	No response

Based on responses to the above three questions, a number of assumptions can be drawn. One could assume that:

1. The villages visited are aware of Extension and the Ministry of Agriculture.

2. The village residents do have aspirations.

3. The use of radio as a means of communicating with farmers may have some limitations.

Field Demonstrations

According to the information provided, the field demonstrations conducted suffered the same as all other crops from an unusually dry "Der" season. The demonstrations did not show any appreciable yield differences. Considering the dry season and the fact that the PASA team arrived just before the planting season with limited knowledge of production requirements in the area, the fact that demonstrations were established represented an achievement in creating awareness among village farmers.

However, it was difficult to determine the number of field demonstrations conducted. There were either seven or eight, most likely seven demonstrations. Part of the reason for the different responses may be contributed to the fact that in a number of cases, two or more crops were planted in the same area and were counted as one demonstration.

The village and number of demonstrations conducted during the "Der" season of 1979 are listed below:

Village	Number of Demonstrations	Sorghum	Cow Peas	Groundnuts
Luk Habar	1 or 2	x		x
Bulo Burudo	1 or 2	x	x	x
Gorisane*	2 or 3	x		x
Kansahdeere	1	x		x
Gel Gel	1	x	x	x
Total	7 or 8	5	2	5

The demonstrations conducted in Gorisane were the only successful ones.

Based on personal observations of the efforts of the PASA team, the number of demonstrations, given adequate transportation, will be much higher during the coming season. The team is currently working with village Extension agents seeking out farmers where demonstrations can be conducted.

Village Participation

From all apparent evidence, there is no reluctance from village farmers about participating in setting up demonstrations. It is understood that Extension agents always contact and work through the village chief. None of the staff mentioned being turned down by farmers in any village.

Farm Families Reached

Given the short time in which to collect data, there was no way to determine the number of farm families reached by the village Extension agents during the

last growing season nor was there a way to determi. the number of village farmers who saw the demonstrations. However one would get the impression that a large number of people were aware of the project and the village Extension agents.

Technical Packages

According to the project proposal, technical packages containing appropriate information are to be prepared in support of the project. However, due to the short time the PASA team members have been on the job and the amount of work which needed immediate attention, the technical packages are still to be produced. The task facing the PASA team is that of trying to make a determination regarding the basic content of such a package. It is highly possible that a number of the so called traditional farming practices may become a part of the first technical package to be produced.

Summary

There is a real need for educational assistance in the Bay Region. Small crop and livestock producers are totally dependent upon the land for their livelihood. Because of this fact, it is believed that a viable and aggressive Extension educational program will make an impact in the long run. The first step in achieving this goal must be that of educating the farmer regarding the best combination of practices and the sequence in which these must be applied. For this purpose, the field result demonstration is the best teaching method available. When local people are involved in setting up and carrying out these demonstrations, they not only hear and see what is done, they are able to prove to themselves that they can in fact implement the practices being taught. Learning the skills required to implement a practice has always been and will remain the basic Extension teaching method.

Recommendations

It is recommended that:

1. The minimum technology packages should be developed as quickly as possible.

2. The use of field demonstrations as a teaching method should be continued.

Project Support

In implementing a project of this magnitude, drawing upon a number of supporting institutions is like putting together a puzzle. It can be achieved in at least two ways. One way is to follow a sequential process adding additional components after the preceeding ones have been implemented. This procedure takes time. A second way is to initiate the establishment of a core staff that can begin testing various concepts of the project. The experience gained can be used to further refine the project plans. The latter approach was used in an effort to meet the urgent needs of the host country. This approach has strength as long as everyone recognizes that there is inherent risk involved. First, there is a natural tendency for staff to want to enlarge the scope and to move at a fast rate to satisfy preconceived expectations of superiors. Also, it is a natural expectation of young village Extension agents to desire additional academic training in order to further their personal careers. These two driving forces will sometime conflict with the goals established, resulting in a level of frustration higher than normal.

Because of the speed by which this project was implemented, one will note some evidence of low-level frustration on the part of field personnel. This is created by the slow speed by which supporting resources can be made available. This type of frustration should be recognized and accepted as a natural tendency of highly motivated people.

AID Mission Support

In visi ng with the field located at the Bonka Training Center, one would hear expressions ranging from poor to very good. It is believed that most of the reactions were based on problems related to both personal and project support. The major concerns seem to have been centered around the problem of providing logistical support. However, each individual interviewed indicated an awareness of the problem with which the Mission is faced.

GSDR Support

Ratings of excellent to good were expressed by the team members regarding support from the GSDR. It was the general opinion that the host country was doing everything possible to backstop and support the project. However, they would like to have the additional village Extension agents and the necessary transportation for them as quickly as possible. It should be noted that the Ministry of Agriculture had secured 25 vespas and they are awaiting shipment to the field after a minor repair has been made.

USDA Support

The responses regarding USDA support ranged all the way up the scale, from poor to excellent. Responses were more specific in regard to individual problems encountered by individual staff members. There appeared to be some confusion as to what support should be expected from USDA and what the Mission should provide.

Suggestions for Improvement

1. All team members agreed that a team leader based in Mogadishu would represent a major step toward eliminating many of the problems encountered. It was the general opinion of the field staff that the team leader would bring additional supportive skills needed to enhance the progress of the project.

2. There is also a need for on-site coordination in Baidoa. A question is raised as to whether the team leader located in Mogadishu can adequately provide the level of coordination currently needed. If the logistical problems can be resolved satisfactory, this approach will enhance the project's progress. However, one other alternative might be explored. One individual based at Baidoa may be given program leadership in addition to his regular job assignment. The program leadership role would involve chairing regular weekly conferences to plan and schedule work activities. This responsibility would not include supervision of any personnel.

Project Personnel Needs

The original project plan projected a need for eight technicians to be stationed in the Bay Region. According to the plan, the technicians were to be responsible for testing a technical package and modifying it where needed to achieve the goal specified. They also were given the responsibility of guiding the Extension program efforts in training the village Extension agents.

According to the plan, the following positions were to be established:

1. Chief of Part - Extension System Development.
2. Extension Specialist Training and Communication.
3. Extension Agronomist - Field Extension/Farm Manager.
4. Extension Agronomist - Adaptive Research.
5. Plant Protection - Farm Storage.
6. Extension Agronomist - Seed Production, Processing and Storage, including on-farm.
7. Extension Agronomist - Crop Production.
8. Animal Husbandry and Production Specialist.

Currently, there are three PASA team members in Baidoa working on the project. The first two members of this team arrived on September 26, 1979, with the last one arriving about a month later. The three positions are:

Plant Protection Specialist
Extension Agronomist - Crop Production
Extension Agronomist/Engineer

According to information obtained while visiting the site, only six of the projected total of 25 village Extension agents are assigned to the project at the present time.

Suggestions for Improvement

Based on observation and comments heard, there is an immediate need for someone to provide project coordination for the PASA team. In addition, this position should have the responsibility to begin developing the necessary plans to bring the entire project into focus building on the experiences gained thus far.

Accordingly, it is recommended that:

A team leader be identified as quickly as possible and added to the project's staff. (It should be noted that an individual has been identified and will be added to the staff in the near future).

Livestock production is a major activity in the Bay Region. The production of meat, milk, and other products is important to maintaining the basic requirements needed to survive in the region. Small livestock producers utilize what may be referred to as traditional production practices. However, the survey results indicated that they do attempt to implement a few practices designed to protect the animals and increase their productivity. Given the scope of the livestock activity in the region, it is recommended that:

> An animal husbandry position be filled as quickly as possible. The person filling this position should have general background and experience in planning and implementing an Extension educational program. County Extension experience would be highly desirable. (A person to fill this position has been identified).

Sorghum production in the region is the major crop grown. It is the main staple which village people depend upon for food. All of the farmers interviewed during the survey grew sorghum as their major crop. Accordingly, the two agronomists currently assigned to the project are justified. Given the dual objectives of the project, those of training village Extension agents and implementing an immediate action program, one Extension agronomist can work effectively with six to eight agents. Assuming this workload ratio, an additional Extension agronomist would be justified when the full staff of 25 village Extension agents are assigned.

For this reason, the following recommendation is offered:

> One additional Extension agronomist be added to the staff at the time when a full complement of village Extension agents will be working in the region.

One of the major problems in sorghum production is the stalk borer. While there are other insects and diseases which limit yields, it appears the stalk borer is the major insect which needs controlling. However, due to the very limited resources available to farmers in the area, it is impractical to believe that the use of modern technology can be brought to bear in any meaningful way in the near future to control the insect. The most appropriate approach would be to utilize practices consistent with the minimum technology concept stressed in the project proposal.

Accordingly, it is recommended that:

> The pest protection position be phased down. The informational needs of small farmers in the region regarding insect control can be met in one of two ways. A short-term TDY position could be created and filled by a county Extension agent type who has had experience in conducting an integrated pest management program. It is believed that sufficient information could be generated in one growing season to develop an integrated pest management program which would be implemented by the remaining PASA team and GSDR staff.

The other alternative would be to assign this responsibility to the third agronomist position when such is filled.

All of the above positions could be filled with individuals with county Extension agent types with B.S. or M.S. degrees or equivalent experience in the area of work to be emphasized.

TDY Requirements

There are a number of possibilities for short-term individuals and teams. The decision regarding kinds of assistance needed in support of the project must be made after a careful analysis of skills existing within the staff already assigned, or who will be assigned in a reasonably short time. With this in mind, some of the areas identified as needing attention may be handled with existing staff. The following should be given first priority:

1. Staff training in planning and program development.

2. Communication training.

3. Integrated pest management training.

4. Project evaluation.

The following should be considered as a secondary need at this time. However, as the project progresses, some of these areas may become primary in nature.

1. Seed selection.

2. Horticulture.

3. Animal health.

Recommendations

The following are recommendations:

1. Staff training in planning and program development. It has been indicated that the person who has been selected to fill the team leader role has the skills and experience required to fill this need. When that person comes aboard, immediate attention should be given to designing a staff development training plan.

2. Communication. A communication training session has been scheduled for March at the Bonka Training Center. However, it is understood that only a limited number of village Extension agents from the Bay Region will attend. If the project achieves the goal of 25 Extension agents located here, this training will need repeating.

3. Integrated Pest Management. If this skill does not already exist within the current staff, an individual should be secured to serve through at least one growing season to develop an integrated pest management program to be carried on by other members of the PASA team.

Project Evaluation A second progress report should be scheduled around July 1981. Such an evaluation should assist in sharpening the focus of the project to insure goal achievement.

GSDR Support

From all available evidence, the staff of the Ministry of Agriculture located both at Mogadishu and at Baidoa have been highly cooperative in supporting the project in whatever way possible. The Ministry of Agriculture recognizes the need to establish a viable self-sustaining National Extension Service. Such an educational delivery system is needed in order to facilitate the adoption of production practices by small farmers designed to increase the overall food supply for the country. The Ministry of Agriculture has currently six village Extension agents stationed in the area. However, in order to achieve the objectives of the project, the remaining positions should be filled. Accordingly, it is recommended that:

> The Ministry move as quickly as possible to fill the remaining 19 village Extension agent slots needed by the project.

From a long-run viewpoint, it would be well for the Ministry of Agriculture to begin thinking about sustaining the achievements of this project. Assuming that the minimum staff of village Extension agents for the Bay Region will be 25 or more, additional support staff will be needed. There would be a need for staff with certain types of training to be located at the Bonka Training Center to provide both technical and in-service training support for the village Extension agents. Given this proposition, it would be well to consider creating some specialist positions to be filled near the end of the project. Accordingly, it is recommended that:

> The Ministry of Agriculture initiate a study to determine the positions needed and the qualifications desired for specialist support in the Bay Region.

It is believed that the following positions would be appropriate:

1. An Agronomist.

2. A Production Livestock Specialist.

3. An Entomologist.

Participant Training

This project has provisions for providing participant training on both long- and short-term basis. It is the philosophy of the Mission and the Ministry of Agriculture that this is one way to increase the technical expertise of the GSDR Extension staff. This provision of the project should be implemented given the pressing need to increase food production and to strengthen the overall agricultural sector of the GSDR economy. In carrying out this provision of the project, an additional problem may be created. There is a critical need for field staff to initiate and support ongoing educational activities. If too many individuals are shifted from the project at any one time for participant training assignment, the progress of the project may be slowed considerably.

Recommendations

In regard to participant training, the following recommendations are made:

1. A master plan for training should be developed jointly by the Ministry of Agriculture and the Mission for training Extension personnel. The advantage of such a plan would be that a desirable mix of participant training and in-country on-the-job training could be achieved without reducing the effectiveness of either training approach.

2. All efforts should be made to fill both the long- and short-term participant training slots. However, care should be taken not to damage ongoing project activities when selecting participants to fill such training slots.

3. Considerations should be given to the possibility of training in nearby countries. While U.S. training is appropriate in some particular disciplines, oftentimes very high quality training may be obtained in nearby countries. Such training has many obvious advantages, including near alike cultural and farming patterns, knowledge, and methods that are usually readily adaptable, plus less cost for training.

General Observations

The following is a list of general observations made during the period of time the project was being evaluated.

1. There is a real need to involve women and youth in this project. However, there is some questions as to the current capacity of the field staff to make any major input into this area of work at the present time because of their current workload. As additional staff are added, ways should be explored as to how these two important groups can be involved.

2. Continued emphasis should be placed on using existing resources whenever and wherever possible.

3. The Extension symbol developed by the Minis ry of Agriculture should be widely used where possible. Its use will enhance the image of Extension and the awareness of farmers regarding the service. As an example, it could be used on demonstrations, on vehicles, equipment, etc.

Summary

Based on observations and personal interviews with project participants, it is believed that the project is sound and has the capability of moving toward the goals specified. An "immediate impact" can be achieved provided all supportive institutions fulfill their obligations on a scheduled basis.

There are indications that a level of increased food production can be achieved in the Bay Region. However, increases of any magnitude, beyond the current harvesting and/or storage capacity of the farmers, will require additional input from supporting institutions.

There appears to be a high level of awareness in the area of the village Extension agent, the project, and the efforts of the Ministry of Agriculture. There is evidence of a high level of acceptance on the part of the local people and farmers. This conclusion is supported by the fact that a chief of one of the largest villages in the area arranged to make a personal call at the residence of the writer to express appreciation for the project. Two other individuals also made such an effort.

It is highly possible that a number of the so called traditional production practices used by farmers in the area, may have a place in the minimum technology package to be developed. It would appear that the major problems affecting crop production in the area are water, insects, and the lack of available resouces.

Given these findings the project planners should give every effort to providing the required support to keep the project moving.

It is imperative that the PASA team view their role as trainers. In order to facilitate this perception, they must have personnel to train. Otherwise, there will be a tendency for the team to actually perform certain tasks in

an attempt to assure project success. While this response is desirable, it sets in motion certain patterns of operation which may be difficult to change at a later time.

This project is viewed as having four major thrusts which are interrelated and supportive. These are:

1. The designing and building of an Extension educational delivery system.

2. Providing training for the GSDR Extension staff.

3. Assisting GSDR Extension staff in planning and conducting training for farmers.

4. Packaging technical information that can be used to increase food production.

Part I

Follow-up Survey Number I
Program Design

A. <u>Project Objectives</u>

1. Number of villages participating in project _____

List Names of Villages	No. of Demonstrations	Corn	Sorghum	Others
a. _____	_____	_____	_____	_____
b. _____	_____	_____	_____	_____
c. _____	_____	_____	_____	_____
d. _____	_____	_____	_____	_____
e. _____	_____	_____	_____	_____
f. _____	_____	_____	_____	_____
g. _____	_____	_____	_____	_____
h. _____	_____	_____	_____	_____

2. Situation:

3. Problems Encountered:

4. Plans:

B. <u>Project Personnel Trained</u>

1. Number of Extension Agents:

   a. Currently assigned and working in the field: _____

   b. In training: _____

   c. Planned: _____

2. Situation:

3. Problems:

4. Plans:

C. Technical Packages

1. Number of Technical Packages:

	Number	Title
a. Planned	_____	_____
b. Completed	_____	_____
c. Partially Completed	_____	_____
d. To Be Started	_____	_____

2. Situation:

3. Problems:

4. Plans:

D. Outreach

1. Number of Families Reached:

Methods	Number
a. _____	_____
b. _____	_____
c. _____	_____
d. _____	_____
Total	_____

2. Situation:

3. Problems:

4. Plans:

Form No:_____

Part II

Follow-up Survey Number I

Individual Participants

1. Date:_____ 2. Village:_____

A. Characteristics of Participants:

1. Name:_____ 2. Age:____ 3. No. in Family:____

4. Number in family who work on farm:_____

5. Total hectare cropland farmed:_____

6. Source of farm power to cultivate land: (check all that apply)

a. _____ Hand Power

b. _____ Animal Power

c. _____ Motorized Power

B. Cropland in Use

Crop	Hectares	Last Season Yield/Hectare	This Season Yield/Hectare
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____

C. Crop Production Methods

Crops

Production Methods	Crop Numbers Refer to Crops Listed in Table B					
	Crop #1	Crop #2	Crop #3	Crop #4	Crop #5	Crop #6
1. Land Preparation						
2. Planting Date						
3. Variety Planted						
4. Seed Planting Rate						
5. Fertilizer Application						
6. Weed Control						
7. Insect Control						
8. Harvesting Date						
9. Harvesting Method						
10. Storage Method						

11. Improved Practices Adopted (List):

D. Livestock Production

Livestock Production Methods	Livestock			
	SHEEP	GOATS	OTHERS: _____	_____
1. Quality of Breeding Male				
2. Quality of Breeding Female				
3. Quality of Offspring				
4. Castration Practices				
5. Vaccination Practices				
6. Identification Method				
7. External Parasite Control				
8. Internal Parasite Control				
9. Feeding Practices				
10. Other:				

11. Improved Practices Adopted (List):

1. Where do you get technical information about farming?

2. If you had more money, hat would you do with it?

3. Do you have a radio?