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Quarterly Reports
Nos. 5, 7, & 8

THE GAMBIA AGRICULTURAL RESEARCH
AND DIVERSIFICATION PROJECT
(GARD)

January, 1987-March, 1987
and
July, 1987-December 1987

THE
GAMBIA
AGRICULTURAL
RESEARCH
AND
DIVERSIFICATION
PROJECT
(GARD)

QUARTERLY REPORT NO. 5
January-March, 1987

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I. OVERVIEW

The Fifth Quarterly Report of the Gambian Agricultural Research and Diversification Project (GARD) covers the period January through March 1987. Highlights under the period under review include:

1. Favorable review of a memorandum to be submitted to Cabinet establishing the National Agricultural Research Board (NARB) and the Technical Secretariat by the Ministry of Agriculture, Ministry of Economic Planning & Industrial Development, Ministry of Water Resources and Environment, and the Ministry of Finance.
2. Analysis of 1986 On-Farm and On-Station trials and commencement of report preparation.
3. Finalization of District Agricultural Profiles for two FSR/E pilot areas in the western portion of the country and preparation of profiles for the two pilot areas in the east.
4. Meetings of Research Task Forces on Upland Cereals, Resource Management, Grain Legumes, Rice, Animal Traction and Horticulture.
5. Issuing of report of Livestock Planning Workshop which contains proposals for research in poultry, small ruminants, forages, feed management and animal traction.
6. Holding of a two-week workshop on Agricultural Data Analysis.
7. Missions by short-term training advisors (STTA) in Agricultural Statistics, Horticulture and Horticultural Marketing.
8. Short-term training visits by Gambian researchers to Wisconsin and other universities.
9. Continuation of housing construction at Sapu and awarding of contract for construction of office facility at the Cape.
10. Completion of data collection; near completion of data analysis for the water control studies and commencement of draft report preparation.

II. PROJECT ADMINISTRATION

Construction of the three Sapu houses continued, but was slowed by delays in arrival of materials. The third of five payments was delayed from February to March. It is now estimated that completion will be in July, two months behind schedule. The FDKC architect supervising the construction is satisfied with the quality of the work. Some adjustments to work already completed are being negotiated.

Final plans for the Cape Office complex were not approved until the end of the quarter because of delays by the architect in supplying the plans and changes requested by the contractor. Selection of a building contractor will not take place until later in the year because of the lengthy plan approval process and potential budget overrun.

All of the major improvements and renovations at the Yundum Station were completed during the quarter. Requests for new construction at the station are anticipated in the next quarter.

Major purchases included a Bedford truck to replace the one received from the MFP Project and receipt of a quantity of operational spares for Project vehicles.

Follow-up to the FAKMS report continued with efforts focused on the format design of the financial reporting program. This will be integrated with the ISNAR d-base program budgeting format and used to record and analyze research expenditures and donor contributions.

At the end of March the Chief of Party visited UW and the University of Michigan as part of a brief personal trip to the U.S.

III. AGRICULTURAL RESEARCH MANAGEMENT SYSTEM (ARMS)

A. ARMS Working Group:

The draft Cabinet memorandum establishing the National Agricultural Research Board (NARB) and the Technical Secretariat was favorably reviewed by the Ministry of Agriculture, the Ministry of Economic Planning and Industrial Development, the Ministry of Water Resources & Environment and the Ministry of Finance. A few modifications in the memorandum were suggested which will be incorporated during the coming quarter.

While awaiting Cabinet action on the memorandum which is anticipated will take place after designation of the new Cabinet in April, considerable progress has been made at the research program level in assessing past progress and defining future directions for

the research system. The Research Task Forces formed during the previous quarter with interdepartmental and interdisciplinary membership held several meetings during the quarter in preparation for the Agricultural Research Advisory Board (ARAB) meetings scheduled for mid-April.

B. AGRICULTURAL STATISTICS

Cobe Johnson and John Rowe completed a six-week STTA mission from February 13, 1987, to March 28, 1987. During that period, they conducted a two-week workshop on "Data Analysis." The workshop included 16 mid-level technicians from various departments in the Ministries of Agriculture, Water Resources/Environment and Planning/Industrial Development (MEPID) as well as participants from Central Statistics.

They also continued work with PPMU on the improvement of the National Agricultural Sample Survey (NASS). Their activities included: reviewing the final 1986 NASS data; advising PPMU on future sample designs; assisting with development of publication formats for agricultural data; and reviewing the progress of the Gambia Agricultural Data System (GADS), the Market Price Survey and the Horticultural Marketing Study.

At the request of the GARD Chief of Party, they also reviewed the computer facilities at Mile 7, coordinated a meeting of the agricultural socioeconomists, researched the problems of running the current GADS computer software, and discussed the possibilities for a computerized data library.

C. RESEARCH SUPPORT AND COMPUTER FACILITIES

1. ARMS - Socioeconomic and Research Support Services

An implementation plan was designed to extend computing facilities to Sapu and Yundum Agricultural Stations. Preparation of the physical site at Sapu and ordering of hardware and supplies for both sites has begun. The Sapu facility will be staffed by Brad Mills, agricultural economist/computer specialist and Peace Corps Volunteer. Mohammad Kabay will function as his counterpart. At the Yundum site GARD will provide one computer operator, Momodou Konteh, but no counterpart has yet been identified.

Compilations of the data base library continued throughout the quarter and efforts have been made to identify workable data base library formats at other institutions.

2. Farm Gate Costs of Production

Data from the Detailed Data Collection from Demonstration Farmers' Own Fields was used to generate reports on farm gate costs of inputs to production. These will be used as one source of input cost information in the data base library.

3. Component Research

A significant portion of computer support went toward the data processing of past and current year on-station agronomic trials for the time series analysis of experiments. Informal trainings were held for researchers and their assistants in data organization, file manipulation and MSTAT software use. Field data from the Water Control Studies were processed and edited.

IV. TRAINING AND NETWORKING

The Training Committee in its January 16th meeting reported limited progress on training priorities due in part to the poor response of researchers to Phase II of the Research Manpower Survey. When the Technical Secretariat of NARB is formed, it will be asked to further refine training priorities as its first task. In addition, the Committee felt a comprehensive manpower assessment must await the outcome of the Ministry's reorganization study. In view of the above, the Committee decided to suspend long-term training with a few exceptions discussed in the Long-term Training section below.

A. Long-term Training

Mohammed Cole, Masters degree candidate in Agronomy at the University of Wisconsin-Madison resumed course work in January after being absent for one semester for health reasons.

Musa Mbenga continues to do well in his agronomy program for a Masters degree at Cornell University.

Three B.S. candidates (Ebrima Camara, Amadou MBallo and Kemoring Trawalley) started their second semester in January at UW.

The Training Committee selected M.O.S. Jammeh for a M.S. degree program in rural sociology at its 16/1/87 meeting. During a review of previous actions, it reaffirmed its selection of G.O. Gaye for a Master's in horticulture, and agreed to provide support for Ebrima Kunjo at the University of the Philippines to complete a B.S. degree in Weed Science.

B. Short-term Training and Networking

In January-February, Albert Cox, Thomas Senghore and Solomon Owens from the Department of Agriculture participated in short-term external technical training, and Mallick Jallow from PPMU enrolled in a one-semester course in computer/software usage. Mr. Jallow will complete his training in April, 1987.

Albert Cox started his program with a visit to Cornell University for discussions with Musa Mbenga and his advisor. Mr. Cox continued

on to UW where he was joined by Thomas Senghore for a program in data analysis and the development of research proposals for the 87-88 cropping season. In addition, a research management component was included in Mr. Cox's program. At the end of his stay at UW, Mr. Senghore visited the University of East Anglia to confer with Prof. Willey (STTA in Cropping Systems). Solomon Owens made a 12-day visit to UW to participate in developing research proposals for the 1987 season with Messrs. Cox and Senghore. Mr. Owens is presently studying at Colorado State University under the sponsorship of a Hubert Humphrey Fellowship.

A group composed of representatives of DOA, GARD and CRS visited locations in Senegal to assess animal-powered water-lifting and grain-milling devices for possible use in The Gambia.

C. In-country Training

Sixteen people from nine departments/projects participated in a two-week workshop in February - March on agricultural data analysis. The workshop was conducted by Cobe Johnson and John Rowe, STTAs from the University of Wisconsin.

V. ON-STATION/COMPONENT RESEARCH

A. Agronomy and Soils

Most of the data from the on-station and on-farm trials were entered on computer during this quarter and analyzed in preparation for the April ARAB meeting. In the field, only the horticulture trials continued. These researcher-managed trials focused on variety selection and fertilizer rates at Yundum and on irrigation schedules on a private farm at Faraba Banta. It is hoped that in 1988, the irrigation system at the station will be functioning and these types of experiments can be carried out at Site 3.

John Caldwell, STTA in Horticulture, spent four weeks in The Gambia in February/March to work with the Horticultural Unit on the following tasks: i) Reviewed status of 1986 dry season horticultural trials and advised on the analysis of results; ii) Assisted in the formulation of research plans for on-station and on-farm trials for the coming year; iii) Reviewed and updated unit plans for training, marketing and future technical assistance; iv) Evaluated research capability of unit personnel.

A major activity during this time has been the deliberations of the Task Forces. Six Task Forces were convened including Upland Cereals, Grain Legumes, Rice, Horticulture, Cropping Systems/Resource Management and Animal Traction. Three day-long meetings were held by each Task Force during the quarter for the purpose of reviewing past

data and developing proposals for the ARAB meetings. Much of the data from previous years was entered on computer at the Mile 7 computer center and preliminary analysis has been conducted by Gambian researchers and technical assistance personnel. A portion of the analysis was carried out as part of training visits by Gambian scientists to UW and the University of East Anglia (see Section IV). In addition to reviewing 1986 and other past data, the Task Forces are developing research proposals which will be reviewed by ARAB in April.

At Yundum, station management committee meetings were held and it was decided to make a soil and land use map of Site 3, on a 163 ha. plot that the Agronomy Unit shares with DAHP. In addition it was decided to acquire a "Tendaco" forest site to complement the cleared uplands site already held by DOA. An area of 12 hectares has already been located in the nearby village of Old Yundum and negotiations have begun.

Unfortunately the Soils Lab is still not functioning correctly due to lack of needed supplies. It is hoped that the lab will be operational by the time that site selection for the trials begins in May.

B. Livestock

As follow-up to the December visit to The Gambia by Drs. Pope, Wentworth, Dentine, Bosu, Ezekwe and Homan from the Universities of Wisconsin and Virginia State, a report was prepared and submitted to The Gambia in February. This extensive report reviewed the findings of the December Livestock Workshop; presented component research proposals for village and commercial poultry production, duck and pigeon production, sheep and goat development, supportive nutritional and forage components; and suggested further study of research needs in animal traction. Associated needs in socioeconomic analysis and facilities development were also considered. The report detailed the technical assistance and training requirements and recommended support to the component research. The report was reviewed in The Gambia by the Department of Animal Health and Production and resident GARD Project staff.

C. Water Control Studies

Collection and data entry of detailed production data in 12 case study households located in villages served by the four projects being covered by the Water Control Studies was completed during the quarter. Preliminary analysis of the data commenced. Project descriptions were prepared and circulated to representatives of the four projects for review. The assignment of the Research Associate in Rural Sociology, Chris Elias, was extended through May to facilitate further interactions with the participating projects and the preparation of the report on the study.

Agreement was reached on the Terms of Reference for an irrigation engineer who will work on the irrigated rice component of the water control studies. A consultancy mission in this area will commence during the coming quarter.

D. MARKETING

Ms. Lisa Daniels, Research Associate in Horticultural Marketing and her advisor, Dr. Gerald Campbell of the Department of Agricultural Economics, U.W., completed their assignment in The Gambia in early January. Their report presented detailed plans for the study of marketing systems and improvement measures to be carried out during 1987/1988 by the Horticultural Unit in collaboration with PPMU.

The report was reviewed in The Gambia in February/March with the result that greater emphasis will be placed upon assessments of improvement measures during the 1988 season. In addition, an inventory of horticultural gardens is planned for the current season. Ms. Daniels and Prof. Campbell will refine the proposed methodology and carry out a literature review of horticultural marketing in Africa during the coming quarter, prior to the return of Ms. Daniels on a long-term basis in June.

VI. ON-FARM RESEARCH

A. West

The only active field work during the quarter involved the on-farm vegetable trials in Serrekunda, Sagajor-Giramba and Kassagne. These trials examined the effects of mulching, date of planting and intercropping on yield. A final visit to the participating farmers in the groundnut/millet survey was made in order to obtain production estimates and observe seed storage techniques. The final report has been completed and is being reviewed for possible publication as a Gambian Agricultural Research Paper (GARP). In addition, the two District Agricultural Profiles were completed for Foni Bintang-Karenai/Foni Brefet and Central Baddibu Districts. These are also being considered for publication in the GARP series.

B. East

Collection of secondary data on the district of Fulladu West was pursued, followed by processing of the data. A draft of the District Agricultural Profile of Fulladu West was prepared and will be edited for publication. Field visits to the two pilot area sites in MID (south) and URD were continued. A questionnaire was developed which will aid in collecting information on cereal crop production systems in the two pilot areas to be administered in the coming season. On-the-job training on the concept and practice of FSR/E was provided on an informal basis in one of the pilot districts by the Resource Extension Liason Officer based at Sapu.

VII. PROMOTION ACTIVITIES

Following a planning meeting by the promotion committee, composed of the Principal Agricultural Officer (Cape), and the Research Extension Liaison Officer (RELO) at Sapu, steps were taken to initiate a cowpea promotion campaign during the 1987 season. The proposal for the campaign will be submitted by the Grain Legume/Oil Seeds Program to the April ARAB meeting for consideration.

The search continues for new technologies appropriate for promotion at the village level. Consideration is being given to water-lifting devices operated by animal power. A group consisting of representatives of DOA, GARD and CRS visited Senegal in February to assess experiences with water-lifting and animal-powered grain mills.

VIII. PROSPECTIVE ACTIVITIES FOR THE COMING QUARTER

1. Project Administration: Sapu housing should near completion and the plans for the Cape Office should be finalized. Major attention during the quarter will be focussed upon budget preparation for the research activities for the coming year. The Second Annual Workplan for the Project will be prepared in May/June. This will be preceded by an internal evaluation of the Project involving representatives of GOTG, USAID and the participating universities. Procurement of supplies for the coming season will continue.

2. ARMS/FARMS: A memorandum establishing NARB and the Technical Secretariat is scheduled to be submitted to Cabinet. ARAB will hold its annual meeting at Sapu to review the results of the past year's research and decide on the research programs for the coming season. The participation of DAHP, PPMU, CPS and NGOs will be sought. The discussion draft of the ODA consultant's report on MOA structure will be received and reviewed with special reference to the implications for ARMS/FARMS. A workshop on program budgeting (PBS) will be held for research program leaders by ISNAR consultants as the first step in the development of an improved budgeting system in line with the recommendations of the ARMS and FARMS reports.

3. Agricultural Statistics: A committee will be formed to review alternatives for improving GADS. It is anticipated that PPMU will issue a comprehensive report on crop production for the 1986/87 season.

4. Research Support and Computer Facilities: Establishment of computer facilities at Yundum and Sapu will commence. Existing and potential users and computer staff at these locations will be trained. Analysis of on-station and on-farm trials data from 1986/87 and earlier years will continue.

5. Training and Networking: The training committee will meet in June to review long-term training proposals for the coming academic year. Short-term external training and networking is planned in agricultural policy and animal science. A workshop on Program Budgeting will be conducted in-country in April by consultants from ISNAR.

6. Crops and Soils: The annual ARAB meetings will be held in April to review the submissions of the various research program Task Forces and decide on the research activities for the coming season. Research priorities will be drawn up and budgets prepared. Sites will be selected and supplies procured. Planting may commence in June, depending on the rains. An STTA visit by Prof. R. Willey of the University of East Anglia is scheduled for early June to review the progress and plans in research on intercropping. Musa Mbenga, MSc candidate at Cornell in Agronomy, will return to The Gambia for the 1988 season to commence field research for his thesis. Jeff Wright, RA in Agronomy from UW, will return to The Gambia for a one-year assignment to assist the Resource Management program at Sapu.

7. Livestock: Review of the Livestock Research Planning Workshop report will continue. DAHP will present proposals for research to the ARAB meeting for discussion. Research budgets for the 1987/88 season will be prepared. An STTA mission by Mr. Steve Lawry, from the Land Tenure Center at U.W., to participate in an assessment of the deferred grazing sites is planned for late June.

8. Water Control Studies: The draft report on non-pump irrigation will be completed and circulated for review. An STTA mission by an irrigation engineer to cover the irrigation component of the Water Control Studies is planned for May.

9. Marketing: A survey of horticultural gardens in the Western portion of the country will be carried out by research assistants and Peace Corps Volunteers. Lisa Daniels, RA in horticultural marketing, will return to The Gambia in late June to begin a one-year assignment.

10. On-Farm Research: The program for on-farm research will be finalized during and after the ARAB meetings in April. The field sites will be visited and arrangements made with the resident extension staff for the trials and surveys at the Mixed Farming Centers and on-farm. Arrangements will be made with PPMU to provide field staff at the field sites to assist with socioeconomic research activities. On-farm dry season horticultural trials will be completed and analysis of results will commence. Monitoring of small ruminants in selected villages will continue.

11. Promotional Activities: A pilot promotional program for cowpeas will be initiated in collaboration with CRS and the DOA extension service. Further progress is anticipated in programs focusing on water lifting and animal powered grain mills.

ATTACHMENT A - GARD PROJECT STAFF

A. Technical Assistance Staff:

1. Dr. Elon Gilbert - Chief of Party, Farming Systems Economist (Cape).
2. Mr. David Gibson - Project Administrator (Mile 7).
3. Dr. Ibrahim Diallo - Research Extension Liaison Officer (Sapu).
4. Dr. Joshua Posner - Cropping Systems Agronomist (Yundum).

B. Research Associates:

1. Ms. Christine Elias - Rural Sociologist/Water Control Studies (Department of Water Resources, Banjul).
2. Mr. Tom Remington - Rice Agronomist (Yundum).
3. Ms. Lisa Daniels - Agricultural Economist, Horticultural Marketing.

C. Support Staff:

Mile 7 Office

1. Lawrence Bruce - Administrative Assistant
2. Max Njie - Facilitator
3. Ibrahima Jarboh - Accountant
4. Manochehr Timajchy - Computer Facilities Manager
5. Ousman Jobe - Vehicle Coordinator
6. Leon Prom - Maintenance Manager
7. Abdoulie Ndoye - Assistant Accountant
8. Penda Carrol - Secretary/Typist

Cape Office

1. Bintu Nying - Administrative Secretary
2. Connie Tucker - Training Coordinator
3. Deborah Touray - Secretary
4. Bunjah Sanyang - Office Clerk

Kanifing (Warehouse):

1. Matarr Touray - Warehouse Manager
2. Pa Jobe - Motor Mechanic
3. Baboucar Gai - Motor Mechanic
4. Tims Thomas - Motor Mechanic

Yundum Office:

1. Abdul Aziz Samba - Administrative Assistant

Sapu Research Station:

1. Jainaba Saïdy - Secretary
2. Ebrima Njie - Administrative Assistant
3. Ebou Ceesay - Storekeeper

D. Peace Corps Volunteers:

1. Mr. David Gaines - Research Assistant (Giroba Kunda, URD).
2. Mr. Glen Langan - Agricultural Economist/On-Farm Trials Supervisor (Sapu).
3. Ms. Patricia O'Neil - Agricultural Economist/Computer Specialist (Mile 7).

The following four new volunteers arrived in The Gambia in January and underwent language and technical training during the quarter.

1. Bradford Mills - Agricultural Economist/Computer Specialist (Sapu).
2. Howard Ubile - Farm Manger (Sapu).
3. Judith Wilcox - Research Assistant (Bakindik, NBD).
4. Steve Cockfield - Trials Supervisor (Yundum).

E. Short-Term Training Advisors/Consultants:

1. Dr. Gerald Campbell - Horticulture Marketing, University of Wisconsin (December 26, 1986 - January 10, 1987)*.
2. Ms. Lisa Daniels - Horticulture Marketing, University of Wisconsin (December 26, 1986 - January 16, 1987)*.
3. Mr. John S. Rowe - Agricultural Statistics, University of Wisconsin (February 17 - March 27, 1987).
4. Dr. Aaron C. Johnson - Agricultural Statistics, University of Wisconsin (February 17 - March 27, 1987).
5. Dr. John Caldwell - Training Advisor, Horticulture, Virginia Polytechnic Institute and State University (February 15 - March 27, 1987).

*Supported by Title 12 Program Support Grant

ATTACHMENT B - REPORTS

GARD Project Reports:¹

"Horticulture: Technical Assistance Report" by John S. Caldwell, based on visit of 15 February - 14 March, 1987. In collaboration with G.O. Gaye and Isatou Jack.

"Agricultural Statistics Report" by Aaron C. Johnson and John S. Rowe, 12 February - 28 March 1987.

"Technical Report-Horticultural Marketing Mission" by Gerald Campbell and Lisa Daniels, based on visit of December 25, 1986 - January 18, 1987.

"Report on Animal Research Planning Workshop" by A. Pope, B. Wentworth, G. Dentine, W. Bosu, M. Ezekwe, T. Remington, J. Homan, November 30 - December 22, 1986.

"Toward A National Program for Agricultural Library Information Service in The Gambia" by Mary Bailey, November 18, 1986 - December 9, 1986.

Recent Reports from Other Sources:²

"The Republic of The Gambia, Department of Agriculture and Cotton Development Project - Annual Report," March 1987.

"Workshop on NGO-sponsored Vegetable Gardening Projects in The Gambia," March 1987, by J. Sumberg and C. Okali.

"Second Agricultural Development Project (ADP II) Progress Report No. VI," by the Ministry of Agriculture.

¹ Copies of final reports are available upon request from the secretary to the GARD Project, Department of Agriculture, Cape. Preliminary reports have a restricted circulation, but requests can be made for copies of the final versions when these are available.

² The list of recent reports from other sources is not intended to be exhaustive. Information on additional reports of relevance to agricultural research in The Gambia would be most welcome and should be addressed to the Chief of Party, Department of Agriculture, Cape.

ATTACHMENT C - TRAINING AND NETWORKING

GARD Participant - Quarterly Report
 January - March, 1987
 Technical Training - U.S.

NAME of Participant	PIO/P Number Sex	Date of Birth	Employer in The Gambia	Field of Training	Starting Date of Training	Ending Date of Training	Location of Training
COX, Albert	635-50049 M	5/12/46	DOA	Agronomy	1/15/87 1/17/87	1/16/87 2/19/87	Cornell University Ithaca, New York
SENGHOR, T.	635-50050 M	4/30/51	DOA	Agronomy	1/17/87	2/7/87	University of Wisconsin Madison, WI
OWENS, SOLOMON	635/5005 M	3/9/50	DOA	Agronomy	1/22/87	2/2/87	University of Wisconsin Madison, WI
JALLOW, Malick	635-50048 M	7/12/54	PPMU	Computer	1/17/87	4/23/87	University of Wisconsin Madison, WI

GARD Participant - Quarterly Report
 January - March, 1987
 In-Country Training Activities

<u>Name of Trainee</u>	<u>Sex</u>	<u>Employer</u>	<u>Field of Training</u>	<u>Starting Date of Training</u>		<u>Ending Date of Training</u>	<u>Name of Institution Providing Training</u>
CEESAY, Baboucar	M	Central Stat.	Data Analysis	3/23/87		4/6/87	GARD/UW-Madison/PPMU
DANSU, Abdoulie	M	Forestry	"	"	"	"	"
LOYD-EVANS, Anna	M	Fisheries	"	"	"	"	"
GAI, Baboucar	M	PPMU	"	"	"	"	"
JABANG, Lamin	M	PPMU	"	"	"	"	"
JAGNE, Cherno	M	ADP 11	"	"	"	"	"
JALLOW, Bubu	M	DWR	"	"	"	"	"
JALLOW, MAMODOU	M	PPMU	"	"	"	"	"
JANNEH, E.K.	M	DAHP	"	"	"	"	"
NDIAYE, Issa	M	CILSS	"	"	"	"	"
NJAI, Sidi	M	DOA-EXT	"	"	"	"	"
SANYANG, Jereh	M	DOA-EXT	"	"	"	"	"
SANYANG, L.A.D.	M	DOA	"	"	"	"	"
SANYANG, Manga	M	MEPID	"	"	"	"	"

<u>Name of Trainee</u>	<u>Sex</u>	<u>Employer</u>	<u>Field of Training</u>	<u>Starting Date of Training</u>	<u>Ending Date of Training</u>	<u>Name of Institution Providing Training</u>
SEY, Abdoulie	M	PPMU	"	"	"	"
SONKO, Bakary	M	Jahally Pacharr Project	"	"	"	"

GARD Participant - Quarterly Report
 January - March, 1987
 Degree Training

<u>Name of Participant</u>	<u>PIO/P Number</u>	<u>Sex</u>	<u>Employer in Gambia</u>	<u>Field of Training</u>	<u>Starting Date of Training</u>	<u>Est. Date of Degree</u>	<u>Location of Training</u>	<u>Degree Goal</u>
CAMARA, Ebrima	635-50037	M	PPMU	Agr. Econ.	8/12/86	5/90	Univ. of Wisconsin	B.S.
COLE, Mohammed	635-50028	M	DOA	Agronomy	1/09/86	12/88	Univ. of Wisconsin	M.S.
MBALLO, Amidou	635-50035	M	DOA	Agronomy	8/12/86	12/90	Univ. of Wisconsin	B.S.
MBENGA, Musa	635-50027	M		Agronomy	1/09/86	5/89	Conell University Ithaca, New York	M.S.
TRAWALLEY, K.	635-50036	M		Agronomy	8/12/86	6/90	Univ. of Wisconsin	B.S.

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QUARTERLY REPORT NO. 7
July-September, 1987

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I. OVERVIEW*

Major developments during the period July-September, 1987 included:

1. Initiation of the 1987/88 rainy season on-farm and on-station trials program.
2. Completion of the report of the Water Control Studies under the auspices of the Department of Water Resources.
3. Short-Term Training Advisors' (STTAs) visits in agronomy, horticultural marketing, and feed management (deferred grazing).
4. Review of research results and plans in horticultural agronomy and marketing at a special ARAB meeting in September.
5. Training and networking visits by Gambian researchers and administrators to Wisconsin (agricultural statistics and pest management), East Africa and Nigeria (livestock).
6. Completion of the three staff houses at Sapu.
7. Installation of the new budgeting system for the research service.
8. Initiation of a pilot Cowpea Promotional Program involving the Catholic Relief Service (CRS) and the Department of Agriculture (DOA), Research and Extension Services.

The Minister of Agriculture Mr. Saihou Sabally, accompanied by Mr. Amadou Taal, the Permanent Secretary, and Mr. Sankung Janneh, the Director of Agriculture, made a one-day visit to Sapu in July and were briefed on research activities. The U.S. Ambassador, Mr. Herbert Horowitz, and the new USAID Representative, Mr. James Stone, visited the Cluster Site research trials near Somita in the Western Division in August, and reviewed research activities at Sapu and vicinity. In September, His Excellency, the President Alhaji Sir Dawda Kairaba Jawara, visited Sapu and reviewed the research program there as part of the Annual Presidential Tour.

* Quarterly Report No. 6, covering the period April-June, 1987, was incorporated into the 1986/87 Annual Report for the GARD Project. An overview of activities during April-June, 1987 is included as Attachment D of this report.

II. PROJECT ADMINISTRATION

The three staff houses at Sapu were completed and formally handed over for occupation by the contractor. Two of the houses are occupied by resident technical assistance staff and the third serves as a guest house for visitors. Final payments will be made following an inspection by an engineer from Regional Economic Development Services Organization (REDSO) of USAID, and the U.K.-based FDKC architectural firm during the next quarter. Plans for Cape office construction were sent to REDSO for approval and returned for corrections/clarification. The plans will be finalized during the next quarter.

No major commodity purchases were made, although several agricultural implements are on order. Two Suzuki jeeps and six Suzuki motorcycles were purchased for Yundum, Abuko, and Sapu stations.

The Project Administrator visited the University of Wisconsin (UW) in August while on leave, to review budget and administrative issues.

III. AGRICULTURAL RESEARCH MANAGEMENT SYSTEM (ARMS)

A. ARMS

There was continuing review of the Cabinet memorandum establishing the National Agricultural Research Board (NARB) during the quarter. Approval by Cabinet is anticipated during the next quarter.

Drafts of the Overseas Development Agency (ODA) Consultants' Report on Ministry of Agriculture (MOA) structure and functions were received and reviewed. Recommendations in the report are generally in line with those in the ARMS and FARMS (Financial Administration and Research Management) Working Group Reports. It is envisaged that a Department of Research and Special Services (DRSS), encompassing the research services currently under DOA and the Crop Protection Service (CPS), will be created in 1988 as part of the new structure. The report also contains detailed discussions and recommendations on training and budgeting. The final report is expected during the coming quarter.

Budgets were completed for most research programs and were analyzed and entered in the computer for monitoring. New accounting systems were implemented for the monitoring of budgets and reporting of expenditures on research from all sources. The new system will also ensure better inventory control.

B. AGRICULTURAL STATISTICS

Agricultural statistics activities during the quarter centered on the design of a computerized summary system for the Program Planning

and Monitoring Unit's (PPMU) National Agricultural Sample Survey (NASS). Lamin Jabang, PPMU Computer Analyst, travelled to U.W. in September to work with Cobe Johnson and John Rowe of the Department of Agricultural Economics to prepare a series of summary modules that handle survey data from the time of sample selection, through the final evaluation of the survey. The major portions of the system were finalized and a draft Procedures Manual was prepared. The system will be finalized as the programs are used during the next several months.

Discussions were also held at U.W. with Farm Management Specialist, Rick Klemme, concerning the Gambian Agricultural Data System (GADS). The problems of using the current GADS programs were discussed, and an alternative suggestion of designing a data base system was proposed.

C. RESEARCH SUPPORT/COMPUTER FACILITIES

Progress is being made toward the decentralization of research support services. The Computer Center at Sapu station is now equipped with two micro computers (one supplied by ODA), and trained support staff. At the Yundum station, construction of the computer room has been completed, and the installation of equipment is expected to be completed in October.

In addition to support for ongoing analyses, research support has focused on three primary areas since the onset of the rainy season: data collection formats and analytical framework designs, research manpower training, and adaptation of an abbreviated form of ISNAR's Programming Budgeting System (PBS) to meet short-run research budgeting needs.

Quantitative design activities at Mile 7 focused primarily on the analysis components of the Rice Production Package Evaluation and Constraints Analysis, the Small Ruminants Survey, and to a lesser extent the Groundnut Survey, and Equines Study. At Sapu, attention was focused on the Soil Fertility Management Survey, and Cropping Systems Agronomy Trials.

Two one-week computer training courses were held at Mile 7 and Sapu, introducing a total of 23 research assistants to methods of coding and entering agronomic trial results. Both locations are continuing training activities for the DOA computer specialist counterparts, Sainey Keita (Yundum), and Basirou Marong (Sapu).

In addition, computer programming classes are being held twice weekly at Mile 7. A new staff member, Abdou Sanneh, is undergoing orientation and will be responsible for refining the PBS system prior to the next budget cycle.

IV. TRAINING AND NETWORKING

A. LONG-TERM TRAINING

The Master's degree candidate in Agronomy from Cornell University started his thesis research at Sapu on yield prediction for maize in the Upland Crop Improvement Program. Five researchers are continuing their academic work at U.W. These degree programs include two Master's degrees—one each in Agronomy and Animal Science—and three B.S. degrees—two in Agronomy and one in Agricultural Economics. Another candidate is pursuing a B.S. degree in Poultry Science at the University of Maryland-Eastern Shore.

Continued support was provided for a long-term program in Weed Science at the University of the Philippines-Los Banos, which was initially funded by the Integrated Pest Management Project.

Admission applications during the quarter have been initiated for three candidates. These include a Master's degree program in Rural Sociology at U.W., and two B.S. degrees—one in Agronomy at the University of the Philippines, and the other in Vocational Education (emphasis on Agronomy/Agricultural Education), at U.W. The head of DOA's Horticultural Unit will commence a one-year program at the University of Florida's Agricultural Research and Education Center in Homestead. A suitable M.S. degree program in Agro-forestry is being identified for a research officer of the Forestry Department. The three DAHP candidates selected for B.S. degree training in Animal Science at Egerton College, Kenya, have received sponsorship from GTZ.

B. SHORT-TERM TRAINING AND NETWORKING

Two researchers from DAHP attended an International Workshop on Goat Production at the University of Ife, Nigeria, while a third from DOA attended the Semi-Arid Food Grains Research and Development (SAFGRAD) On-Farm Testing Workshop in Cameroon. Project support enabled Dr. Sidney Quartey, Director of DAHP, to visit Egerton College, Kenya, in order to discuss the programs of the B.S. candidates from The Gambia with College officials. Dr. Quartey was also able to make a site visit to the Small Ruminant Collaborative Research Support Project (SR-CRSP) to observe their project activities and develop cooperative links.

U.S.-based, short-term training included programs for PPMU personnel in Rice Policy at the International Food Policy Research Institute (IFPRI), and Statistical Analysis at the International Statistical Programs Center (ISPC) in Washington, D.C.

Short training programs at U.W. included Soils Classification/Correlation and Mapping, and Entomology, Plant Pathology, and Integrated Pest Management. A PPMU staff member spent 5 weeks finalizing a computerized summary system for NASS. (For details on the above activities, see Attachment C.)

Related Activities:

The discussion draft of the ODA report on the structure and functions of MOA was distributed. The report includes detailed recommendations on training and will be reviewed by the Government during the next quarter.

A report on the possible development of a Higher Diploma/Bachelor's Degree Program at The Gambia College prepared by John Murdock, STTA from U.W., was received and is being reviewed by College officials. A formal response to the report is expected next quarter.

V. ON-STATION/COMPONENT RESEARCH

A. AGRONOMY AND SOILS

On-station research began somewhat late this year due to the compounding problems of introducing a new budgeting system to the research services, and the initiation of several new research themes based on the 1987 ARAB meetings. The surprisingly early start of the rains (June 7th) further complicated matters. At Sapu, most trials were planted during the first two weeks of July, and at Yundum most planting was completed by August 1.

A large on-station program is being conducted by the Grain Legume/Oil Seeds Program and the Cropping Systems/Resource Management Program (CS/RM). The major themes for Grain Legumes/Oil Seeds are variety trials (groundnut, cowpea, sesame), date of planting studies (cowpea, sesame) and pest control (seed dressing and cercospora on groundnut, minimum insecticide on cowpea). With CS/RM a number of intercropping combinations (cereal/groundnut; early cereal/late cereal; cereal/cowpea) are being studied, as well as soil fertility maintenance (fertilizing the rotation), improving forage production (dual purpose cowpea, fallow improvement) and tied ridging. Jeff Wright, a research associate from U.W. based at Sapu, is participating in all aspects of this program. The Upland Cereals Program is conducting mostly maize variety trials, and Musa Mbenga, who is currently working on a M.Sc. degree at Cornell, returned this summer to do his dissertation research on maize genotype/environment interactions. The Agricultural Engineering Unit is studying a modified furrow opener for the super-eco seeder, and a fertilizer applicator.

An additional activity during the quarter has been station development. At Yundum, a new paddock was opened up for research trials, and approximately 4 ha of multiplication plots were planted in order to permit better blocking for next year's trials. In addition, a 10-ha forested area was leased at Old Yundum to serve as a study site for the upland swidden rice system, locally called Tendako. In Sapu, an effort is being made to permanently block-out the research

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plots and map the existing irregularities in the fields, in order to reduce within-trial variation.

In August, Dr. Earl Gritton, STTA in Agronomy from U.W. made a return visit to the Yundum and Sapu stations. He felt that progress had been made over the past year, but thought that the program was perhaps still too large, relative to available resources.

B. HORTICULTURE

The Horticultural Unit focused its attention on the analysis of the 1986/87 dry season trials, and the preparation of research proposals for the 1987/88 season. These efforts were reviewed at a special ARAB meeting at the end of September and the program for the coming dry season was finalized. In addition, the Unit planted variety trials for mangoes, eggplants, cabbages, and tomatoes.

The Horticultural Marketing Research Project was initiated in July by Lisa Daniels, Research Associate from U.W., and the staff of the Horticultural Unit. Dr. Gerald Campbell from U.W. also assisted this effort through a one-month STTA mission in July/August. Based on discussions with PVOs, commercial enterprises, and MOA staff, it was decided to focus research on three areas: the identification of market windows for selected crops; an economic analysis of onion storage; and a study of the market structure for vegetables in The Gambia.

Evaluation techniques and the methodology for data collection were developed which will include a cost of production analysis, price-quantity data collection in four markets, and interviews with market participants for the market structure study. In addition, four different types of onion stores will be constructed at Yundum for the onion storage analysis.

Additional activities during the quarter included: presentation of the preliminary results of the village garden inventory undertaken during the 1987 dry season by the Horticulture Research Task Force; development and testing of topic guidelines for the market structure study; organization of enumerators and resources for the data collection; and the distribution of a bibliography for a resource library on horticulture marketing located at Yundum.

C. LIVESTOCK

In accordance with the recommendations of the Livestock Research Planning Workshop held in December 1986, a review of the four deferred grazing sites established by the Mixed Farming Project was carried out by a team from DAHP and DOA, assisted by Mr. Steve Lawry, STTA from the Land Tenure Center at U.W. In a report submitted at the conclusion of his mission, Mr. Lawry raised questions about the viability of the deferred grazing approach given current land tenure patterns, and management arrangements. Recommendations were made for

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further studies in feed and water management which would formally commence in 1988. In the interim, DAHP/DOA researchers will prepare detailed plans for such studies.

Two Gambian Animal Scientists who recently completed their training abroad, were engaged on a temporary basis to work with DAHP, pending decisions on their applications for regular positions in the Department. As indicated in the Training section, there were a number of short-term training and networking visits by DAHP staff to Nigeria and East Africa to participate in workshops and review research activities in those areas.

DAHP researchers and the GARD Chief of Party commenced work on a study of equines in The Gambia, with a review of existing statistical data and the preparation of a set of questionnaires which will be administered throughout the country in late 1987 or early 1988. The equine studies form part of the Animal Traction Research Program (ANTRAC) and aim at improving the productivity of equine species through better management and nutrition. Collaboration with ITC researchers is envisaged.

Lisa Grobar, a research associate from the University of Michigan, completed a ten-week stay in The Gambia in mid-September with support from the Center for Research on Economic Development (CRED). She conducted research on the supply and demand for poultry products in an effort to determine the possibilities for expansion of the commercial poultry industry in The Gambia. Her research involved interviews with Gambian poultry farmers, as well as the collection of data on poultry consumption and income from 250 households in the Banjul/Kombo St. Mary area. A preliminary version of her report, covering poultry supply and costs of production, was presented at a meeting of DAHP staff in September. The full report will be submitted in October.

D. WATER CONTROL STUDIES

The final report for the Water Control Studies prepared by Christine Elias, Research Associate from the University of Michigan, under the auspices of the Department of Water Resources, was completed in September and will be available for distribution to interested parties in the coming quarter. The report reviews the experiences with non-pump irrigation in four projects including the Soil and Water Management Unit (SWMU), the German Technical Assistance Agency (GTZ) Project, the Freedom From Hunger Campaign (FFHC), and the tidal irrigation component of the Jahally-Pacharr Project. In addition to reviewing the histories of each of these projects, the report details the results from case studies of individual farm families participating in each of the four projects.

The Report reached the following conclusions:

1. For future rice development, a key factor will be whether or not village participation is solicited for construction; the terms of this participation are also important.

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2. Incentive payments to village laborers had a negative impact on both the speed of development and the exploitation of improved land.
3. Projects requiring villages to provide all requisite unskilled labor should consider providing some basic equipment (i.e., tractor, trailer, and plow) to lessen the burden of manual labor.
4. Where the water regime in the rice-growing areas has been changed with the construction of dikes, advising farmers on the use of the improved land should be a vital component to the projects. To date, this has received less attention than the actual construction. In particular, more work is needed to develop a series of water management and crop husbandry packages appropriate for different levels of the toposequence.
5. In developing water management and crop husbandry packages, the existing pattern of intra-household resource allocation must be taken into account.

E. SOCIOECONOMIC STUDIES

Socioeconomic researchers primarily from PPMU and DOA continued with the monthly meetings which were initiated during the previous quarter. The meetings are useful in providing researchers with a forum for exchanging views on research in progress. Presentations at meetings during the quarter included: Supply and Demand for Poultry (Lisa Grobar, DAHP); the PPMU/IFPRI studies of the impact of the Jahally Pacharr Project (Ken Johm, PPMU); Farmer Strategies for Fertility Maintenance (Duncan Boughton/ Mohammed Kabay, DOA); and Research on Horticultural Marketing Improvements (Lisa Daniels, DOA).

VI. ON-FARM RESEARCH

Off-station research activities were focused in four "Cluster Sites" (Kuntaur, Giroba Kunda, Bakendik, Somita). Each area had been selected on the criteria of rainfall pattern, soil type, and dominant upland farming system in an effort to include a range of ecologies typical of The Gambia.

A number of multilocational upland trials were conducted in the Cluster Sites, including variety trials (cowpea, groundnut, sesame, maize, sorghum), intercropping trials (cereal/groundnut; early cereal/late cereal; cereal/cowpea) and soil fertility trials. The major survey work included studying farmers' soil fertility maintenance strategies, and groundnut stand establishment problems.

In order to insure the careful execution and close monitoring of the trials, a research assistant was assigned to each Cluster Site.

Each location was provided with motorcycles, improved fencing, tape line, scale, donkey or oxen, seeder and sine hoe, and weekly visits were made by senior scientists. Although some management problems remain, the increased quality of the "clustered" trials is encouraging.

Due primarily to lack of suitable rice land on-station, rice work in the West was carried out on-farm under the direction of Tom Remington, a Research Associate in Agronomy from U.W. Three valleys were selected--one where direct-seeding is common (Bakalaar, in NBD), and two where transplanting is common (N'Demban and Somita in WD). Earthen fresh-water retention dikes have recently been constructed in all three valleys by SWMU and GTZ.

Activities were divided between replicated trials, and unreplicated demonstrations (Production Package Evaluations). The trials evaluate varieties, time and frequency of weeding, post-emergence herbicide application, and time of application of nitrogen and phosphorus.

For the demonstrations, each site was analyzed as to soil type and hydrology before developing a package of inputs and practices. The packages aimed at high yields through use of improved varieties and fertilizer, and markedly reduced labor input through use of the single mouldboard plow, mechanical seeder, and in some cases, herbicide. Women farmers were involved in all stages of the demonstrations which were closely monitored by Andrew Jones, an ODA Agricultural Economist in DOA. Women's attitudes towards the various innovations were assessed and methods of relieving the numerous constraints to their adoption are being studied. An example of this is the constraint to the use of urea on rice: although women are responsible for rice production, men are responsible for all fertilizer purchases. Numerous visits have been arranged to the demonstration fields for groups of men who are shown that where the hydrology is favorable, good returns to fertilizer use are possible.

VII. RESEARCH EXTENSION LIAISON AND PROMOTIONAL ACTIVITIES

The Cluster Site Program as described in the previous section, included participation by extension staff at the divisional and district levels. District Extension Supervisors (DESS) worked as members of the teams implementing the trials programs, and Divisional Agricultural Coordinators (DACs) participated in the supervision and monitoring of the research activities. The GARD Research Extension Liaison Officer (RELO) based at Sapu focused his efforts on the Cluster Sites in the East at Giroba Kunda and Kuntaur.

The Cropping Systems Agronomist based at Yundum, and the Research Associate attached to the Rice Agronomy Program, interacted with the extension service and the conservation activities in the West, notably the SWMU and the Department of Water Resources GTZ Project.

There were two station-trial visits to Sapu during September. The first involved extension staff, with the objectives of acquainting them with research designs and methodologies, and improving the channels of communication between researchers and extensionists. The second visit involved contact farmers from three Divisions (URD, MID[s], and MID[n]), operating within the framework of the Training and Visit System (T&V). The objectives of this visit were to expose farmers to research objectives and rationale, and to facilitate a 3-way communication among researchers, farmers, and extensionists. Similar visits by extension staff and farmers to Yundum station are planned for October.

The RELO continued to arrange for researcher participation in the DOA bi-monthly workshops for extension staff. The RELO was used as a resource person, presenting two papers on field data management and research design.

The Cowpea Promotion Campaign, which is a collaborative effort involving CRS and DOA extension and research staff with partial support from the GARD Project, was implemented during the quarter. Field demonstrations were set out at several locations in WD and MID (south) on farmers' fields to illustrate the benefits of improved planting techniques and insecticide applications. The RELO assisted the Divisional extension staff in the implementation of the program in the East. Initial responses from farmers have been favorable and a full assessment of the program will be undertaken following the harvest next quarter. Depending on the results of the assessment, CRS and the extension service might undertake an expanded campaign in 1988.

VIII. PROSPECTIVE ACTIVITIES FOR THE COMING QUARTER

1. PROJECT ADMINISTRATION: Plans for the Cape Office will be finalized and the final inspection of the Sapu houses by REDSO and FDKC will take place. Major renovations to the Yundum station will be completed with the finishing of the computer room, and computers will be installed. Construction and renovation at Sapu and the Cluster Sites will commence.

The transfer of selected research support services from the Project to MOA will commence.

2. ARMS: Cabinet approval of the memorandum establishing NARB is anticipated. The final ODA Consultants' Report on MOA structure and functions will be received and reviewed. A visit by the Assistant Director of Agriculture (Research), to ISNAR and U.W. is envisaged.

3. AGRICULTURAL STATISTICS: An STTA mission is planned for November/ December to work with PPMU on the current NASS procedures and assist in the training of PPMU staff in the use of the NASS Summary System.
4. RESEARCH SUPPORT AND COMPUTER FACILITIES: Laboratory equipment, management, and staffing will be the focus of an STTA mission anticipated during the coming quarter.
5. TRAINING: The Training Committee will meet in October to consider additional candidates for B.S. and M.S. degree training. In-country training plans through June, 1988, will be finalized, and short-term training programs in Soil and Water Management, and Computer Science will be completed.
6. AGRONOMY AND SOILS: Activities for the next quarter will include harvesting of trials at Sapu, Yundum, and Cluster Sites, and commencement of analysis of results. An STTA mission in Soil Physics is planned for October/November.
7. LIVESTOCK: An STTA mission is planned for October/November in Feed Management and Small Ruminant Research. The full report on The Supply and Demand for Poultry will be distributed during the next quarter.
8. HORTICULTURE: Dry season trials will commence and marketing research will be well underway with data collection in four markets, on-farm data collection, and interviews for the market structure research.
9. ON-FARM RESEARCH: Harvesting of trials will be completed and data analysis will commence. A visit by a farming systems research team from Mali to The Gambia is anticipated.
10. RESEARCH EXTENSION LIAISON AND PROMOTIONAL ACTIVITIES: Cowpea demonstration trials will be harvested, and a review initiated of 1987 season results involving CRS and DOA research and extension staff. Visits by extension workers and farmers will be made to Sapu, Yundum, and Cluster Site trials.

ATTACHMENT A - GARD PROJECT STAFF

(i) Technical Assistance Staff:

1. Elon Gilbert Chief of Party, Farming Systems Economist, (Cape)
2. David Gibson Project Administrator, (Mile 7)
3. Ibrahim Diallo Research Extension Liaison Officer, (Sapu)
4. Joshua Posner Cropping Systems Agronomist, (Yundum)

(ii) Research Associates:

1. Lisa Daniels Agricultural Economist, Horticultural Marketing, (Yundum)
2. Lisa Grobar* Economist, Poultry Studies, (Abuko)
3. Tom Remington Rice Agronomist, (Yundum)
4. Jeff Wright Agronomist, Cropping Systems/Research Management, (Sapu)

*With support from the Center for Research Economic Development, University of Michigan

(iii) Peace Corps Volunteers:

1. Steve Cockfield Research Assistant, (Yundum)
2. David Gaines Research Assistant, (Giroba Kunda, URD)
3. Bradford Mills Agricultural Economist/Computer Specialist, (Sapu)
4. Patricia O'Neil Agricultural Economist/Computer Specialist, (Mile 7)
5. Howard Ubile Farm Manager, (Sapu)
6. Judith Wilcox On-Farm Trials Supervisor, (Bakendik, NBD)

(iv) Short-Term Training Advisors/Consultants:

1. Steve Lawry - Feed Management Studies, (Deferred Grazing)
University of Wisconsin (June 20 - July 3, 1987)
2. Gerald Campbell - Horticultural Marketing; University of
Wisconsin (July 18 - August 19)
3. Earl Gritton - Agronomy; University of Wisconsin
(August 11 - August 29)
4. Petra Mueller-Gloddle - Economic Analysis for Water
Control Studies (May-July, part-time)

ATTACHMENT B - REPORTS

GARD Project Reports:

- #23. Report of an Assessment of Deferred Grazing Schemes in The Gambia, by Steven Lawry, based on visit of June/July, 1987.
- #25. Horticultural Exports from The Gambia to the EEC; An Overview of Issues and Concerns, by Gerald Campbell and Lisa Daniels, from visit of July/August, 1987.
- #26. Horticultural Marketing Mission to The Gambia (preliminary report), by Gerald Campbell and Lisa Daniels, based on visit of July/August, 1987.
- #27. A Review of the Cropping Systems/Resource Management Research Program in The Gambia (preliminary report), by Earl Gritton, based on visit of August 11-26, 1987.
- #31. Supply and Demand for Poultry in The Gambia (preliminary report), by Lisa Grobar, from visit of July/September, 1987.
- #32. Study of Water-Controlled Rice Production in The Gambia, by Christine Elias, July, 1987.
- #34. District Agricultural Profile of Central Baddibu, NBD, by Joshua Posner and Elon Gilbert, June, 1987
- #35. District Agricultural Profile of Foni Brefet and Foni Bintang-Karenai, WD, by Joshua Posner and Elon Gilbert, June, 1987.

ATTACHMENT C - TRAINING AND NETWORKING

GARD PARTICIPANT - QUARTERLY REPORT
July - September, 1987

Technical Training - Third Country

Name of Participant	Sex	PIO/P Number	Employer in The Gambia	Field of Training	Duration of Training	Training Site
Lamin Jaiteh	M	50069	DOA	On-Farm Testing	9/21-23/87	SAFGRAD, Cameroon
Memodou BBakeh	M	50056	DAHP	Goat Production	7/19-24/87	Univ of Ife, Niger
Omar Njai	M	50056	DAHP	Goat Production	"	"

ATTACHMENT C - TRAINING AND NETWORKING

GARD PARTICIPANT - QUARTERLY REPORT

July - September, 1987

DEGREE TRAINING

Name of Participant	PIO/P Number	Sex	Employer In Gambia	Field of Training	Starting date Of Training	Est Date of Degree	Training Site	Degree Goal
ANDREWS, Patricia	50065	F	DAHP	Animal Science	8/22/87	9/90	UW - Madison	M.S.
CAMARA, Ebrima	50037	M	PPMU	Agric. Economics	8/12/87	5/90	UW - Madison	M.S.
COLE, Mohammed	50028	M	DOA	Agronomy	1/09/86	12/88	UW - Madison	M.S.
MBALLO, Amidou	50035	M	DOA	Agronomy	8/12/86	12/90	UW - Madison	B.S.
MBENGA, Musa	50027	M	DOA	Agronomy	1/09/86	5/89	Cornell Univ.	M.S.
SECKA, Ellen	50067	F	DAHP	Poultry Science	9/28/87	6/91	U of Maryland /Eastern Shore	B.S.
TRAWALLEY, Kemoring	50036	M	DOA	Agronomy	8/12/86	6/90	UW - Madison	B.S.

ATTACHMENT C - TRAINING AND NETWORKING

GARD PARTICIPANT - QUARTERLY REPORT
 July - September 1987
 Technical Training - UNITED STATES

Name of Participant	Sex	PIO/P Number	Employer in The Gambia	Field of Training	Duration of Training	Training Site
CANTEH, Momodou	M	50070	CPS	Crop Protection	7/19-24 /87	UW - Madison
JABANG, Lamin	M	50068	PPMU	Computer Stat. S.ware	9/5-10/10/87	UW - Madison
JALLOW, Momodou	M	50066	PPMU	Statistical Analysis	8/27-12/11/87	ISPC, Washington, DC
JOHM, Ken	M	50052	PPMU	Rice Policy	5/10 - 7/5/87	IFPRI, Washington, DC
FYE, John	M	50057	SWMU	Soils	8/8-10/31/87	UW-Madison
NJIE, Mustapha	M	50070	CPS	Crop Protection	7/19-24/87	UW - Madison

ATTACHMENT D

An Overview of Activities during the period April-June, 1987.

The First Annual Report for the GARD Project will incorporate Quarterly Report No. 6. The following is a summary of the major activities during that period.

1. The ARAB meetings were held at Sapu in mid-April to review past research results and discuss proposals from the Research Task Forces for the 1987/88 season.
2. An editorial board was created under the auspices of ARAB to oversee the production of research papers and annual reports. An Editor was engaged to assist with this process.
3. The First Internal Evaluation of the GARD Project was held in April/May.
4. The Second Annual Workplan for the GARD Project was prepared in May/June.
5. Research programs and station budgets for 1987/88 were prepared and submitted for review. This activity was initiated by a workshop on program budgeting led by two consultants from ISNAR.
6. Research plans for the 1987/88 cropping season were finalized and research protocols prepared. Equipment and supplies required for the trials was assembled in anticipation of the commencement of the season in July.
7. Two research associates in Agronomy and Horticultural Marketing respectively, arrived to begin one-year assignments.
8. Researchers in DAHP prepared and submitted research programs covering feed management, and small ruminant research. They also participated in the Animal Traction Research Task Force.
9. An assessment of deferred grazing sites initiated under the Mixed Farming Project was carried out by researchers from DAHP and DOA assisted by an STTA from the U.W. Land Tenure Center.
10. There were several STTA visits during the quarter, associated with i) the internal evaluation; ii) annual plan preparation; iii) soil surveys; iv) program budgeting; v) irrigation; vi) The Gambia College; vii) feed management/deferred grazing; and viii) cropping systems.

11. A draft of the report for the water control studies was completed, and reviewed by representatives of the Department of Water Resources, and the four projects covered in the report.
12. Four new Peace Corps Volunteers assigned to the GARD Project completed their training and were posted to Sapu (2), Bakendik (1), and Yundum (1).
13. Construction of the staff houses at Sapu neared completion.
14. Additional B.S. and M.S. candidates were selected for long-term training in Agro-forestry, Animal Science, and Agronomy. Short-term training and networking visits were made by staff members from PPMU and DAHP to IFPRI in Washington, D.C., Nigeria, Ethiopia (International Livestock Center for Africa [ILCA]), and Kenya.

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THE GAMBIA AGRICULTURAL RESEARCH
AND
DIVERSIFICATION PROJECT [GARD]

QUARTERLY REPORT NUMBER 8

October - December, 1987

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I. OVERVIEW

Major developments during the period October-December, 1987, included:

1. Approval of a Cabinet Memorandum establishing the National Agricultural Research Board (NARB).
2. Completion of the Department of Agriculture's (DOA) on-station and on-farm trials program and the Cowpea Demonstration Program for the 1987 rainy season [1].
3. Short-term training advisor (STTA) missions in Agricultural Statistics, Laboratory Management, Livestock, and Soil Physics.
4. Initiation of the dry season horticultural agronomy and marketing research programs by the Horticultural Unit.
5. Visit by a farming systems research team from Mali to The Gambia, and by a Gambian team to Djebilor Research Station in Senegal.
6. Visits to Cowpea Demonstrations, Cluster Sites and Research Stations at Yundum and Sapu by extension staff and farmers.
7. The establishment by the Department of Animal Health and Production (DAHP) of a research section whose activities included: refining research plans; and commencing or continuing research activities in feed management, small ruminants, and draught animals.
8. Selection of a new GARD Chief of Party, John Rowe, who will begin his assignment in March, 1988.
9. Approval by the Training Committee of B.S. programs in Horticulture and Forestry, and one M.S. in Agricultural Economics. Commencement of one short-term training program in Agricultural Statistics at the International Statistics

¹ In Western Gambia, the Catholic Relief Service [CRS] is running the cowpea program in collaboration with the divisional extension staff.

Programming College (ISPC) in the U.S; short-term training programs in Agricultural Statistics at the University of Wisconsin (U.W.) and on-farm testing at the Semi-Arid Grains Research and Development Center (SAFGRAD) in Cameroon.

10. Review and approval by DOA of a proposal from Save the Children (USA) to support pilot promotional activities in North Bank Division on rice, animal traction, and millet with support from the promotional component of the GARD Project.

II. PROJECT ADMINISTRATION

A new GARD Chief of Party, John Rowe, was nominated and formally approved during the quarter. He will begin his assignment in March, 1988. Elon Gilbert, on completion of his assignment as current Chief of Party, will continue with the GARD Project as Socioeconomist.

Modifications were made in the plans for the Cape Office construction in accordance with the comments of the Regional Economic Development Services Organization (REDSO) of USAID, and returned for review to the REDSO office in Abidjan. Approval of the plan is expected during the next quarter. Construction should begin during the first half of 1988.

A general review of the GARD Project budget was initiated in view of heavier than expected expenditures in some categories (in-country expenses, equipment and construction) and under spending in other areas (technical assistance). It is expected that when the budget review is completed during the coming quarter, formal proposals will be made to GOTG and AID for amendments to the contract to incorporate these and other changes. The decline in the U.S. dollar will also significantly increase non-dollar expenditures in the future.

Initial steps were made to separate internal project administration from the research support services supplied by the Project, as recommended in the May 1987 report of the internal evaluation team. Both functions have been performed by the same GARD, locally-hired support staff under the direction of the Project Administrator. Internal Project administration includes the overseeing of in-country expenditures, including construction, major expenditures for supplies and equipment, and administration of participant training to ensure that these are in conformity with USAID and U.W. regulations. In addition, the GARD internal project administration provides support services for long- and short-term technical assistance personnel.

A new secretary, Annie Jensen, was hired for the Cape Office to replace Deborah Touray who resigned in September. Abdou Ketta Sanneh was hired to work on Project and research service accounting.

III. AGRICULTURAL RESEARCH MANAGEMENT SYSTEM (ARMS)

A. ARMS

The Cabinet approved a Memorandum establishing the National Agricultural Research Board (NARB) during the quarter. The main duties of the Board will be to:

- a. Advise the Minister on all matters concerning the organization and conduct of research in agriculture, livestock production, fisheries, forestry, and agro-industry.
- b. Formulate national agricultural research policy and priorities to support national development objectives, and advise the Ministers on the financial, manpower, and physical resources required to carry out approved research programs efficiently and effectively.
- c. Recommend the allocation of resources to high priority areas for research and review the research programs developed in response to these priority guidelines before recommending approval for implementation.

It is expected that the NARB membership will be formally designated during the coming quarter. A seminar/workshop organized with the assistance of the International Service for National Agriculture Research (ISNAR) is planned for early March, to inaugurate the operations of NARB. In addition, ISNAR is expected to provide a specialist to assist with improvements in the budgeting system.

The modified program budgeting system, designed to monitor expenditures on research from all sources, completed its first six months. At the end of December, discussions were held with program leaders on the status of their budgets and recommendations were made for shifts in amounts between line items where appropriate. In general, the research programs appear to be operating within the approved budgets. Expenditures for fuel and spare parts however, are considerably higher than anticipated.

The final report on Ministry of Agriculture (MOA) Structure and Functions, prepared with support from the Overseas Development Agency (ODA), was received and reviewed during the quarter. The staff of the GARD Project formally commented on the report in response to a request by the Permanent Secretary. GARD staff were generally in agreement with the recommendations of the report which include the establishment of the Department of Research and Special Services (DRSS) encompassing the research services currently under DOA and the Crop Protection Service (CPS). At the same time, questions were raised about the adequacy of the numbers of researchers and administrative/

managerial support staff proposed in the report. A further strengthening of research/extension linkage activities was also proposed to offset the effects of separating research and extension functions for crops into two Departments. The report proposes that the Department of Livestock Services (DLS), currently the Department of Animal Health and Production, continue to perform both research and extension responsibilities until the proposed privatization of veterinary services has been completed in approximately in five years time.

Implementation of the recommendations in the MOA Structure and Functions Report will have major implications for the agricultural research service and the GARD Project. The research activities which are currently spread among seven Departments and two Ministries will be largely concentrated in two Departments, DRSS and DLS, under one Ministry.

Forestry and Fisheries Research will remain the responsibilities of those Departments in the Ministry of Water Resources, Forestry & Fisheries. The NARB will oversee agricultural research activities in both Ministries and hopefully facilitate interdepartmental collaboration where appropriate. Consolidating responsibilities for research in fewer Departments and making research the primary function of one Department (DRSS) should greatly facilitate the attainment of the principal objective of the GARD Project, namely the institutionalization of an improved agricultural research management system. This in turn, should greatly improve both the quality and the utility of agricultural research.

B. AGRICULTURAL STATISTICS

Lamin Jabang, Computer Analyst from the Planning, Programming, and Monitoring Unit (PPMU), was at U.W. from September 6 to October 8, 1987. The purpose of the trip was to work with John Rowe and Cobe Johnson in designing and writing a new summary system for the National Agricultural Sample Survey (NASS). John Rowe traveled to The Gambia for a five-week STTA mission in November/December, to assist with the installation of the summary system. Rowe also reviewed the NASS data collection procedures and assisted with the summarization of the 1987-88 NASS data.

PPMU Director Sambou Kinteh took advantage of a previously planned trip to the International Food Policy Research Institute (IFPRI) in Washington D.C., to travel to Virginia State University, the University of Michigan, and the U.W. He conferred with Socioeconomists at all three institutions concerning possible areas of cooperation.

Training continued for PPMU statisticians during the quarter. Momodou Jallow attended classes in Agricultural Statistics Survey Methods at ISPC in Washington, D.C., from August-December, 1987.

C. RESEARCH SUPPORT

Neal Wolfe from the Instrumentation Center at U.W. spent four weeks in The Gambia in November/December to review laboratory management, including equipment operation and maintenance and staff development, and make detailed proposals for their improvement. At the conclusion of his visit, Wolfe led a seminar in which he proposed that i) all laboratory activities within the MOA be combined into a comprehensive laboratory management system, and ii) the laboratory facilities be combined to create a single, multi-use laboratory complex. Wolfe also conducted a workshop on the maintenance of equipment in the laboratories, which was attended by 14 MOA laboratory staff.

Capital improvements during the quarter included near completion of the Sapu stores and construction of two storage sheds at Yundum. A new plumbing and water system was also installed at the Horticulture gardens.

The new budgeting and accounting system was finalized and the expenditures by program were distributed to program leaders for review.

D. COMPUTER FACILITIES

The computer facility at the Yundum Station is completed and operational. One micro-computer and printer were installed and a second set is on order. The facility is operated by Momodou Conteh who, in addition to providing research support, serves as trainer and advisor to computer users such as the research assistants. The primary activities this quarter have been in support of administrative documentation, analysis of trials and surveys, and the training and supervision of personnel on computer use.

The computer facility at Mile 7 is moving out of the area of research support as the station centers absorb these functions. While some support has been provided for ongoing research and continues to be available for STTA's, the primary focus of activities has been on refinements to the FARMS data systems and budgeting procedures. One new portable computer is used exclusively for account processing.

Manpower development activities are also scaling down at Mile 7, with the completion of training for the FARMS coordinator this quarter, and the completion of computer training for the DOA counterpart Sainey Keita. A continuing activity has been the twice-weekly computer programming course, which began in October.

One new project, the indexing of selected data sets, has been undertaken at the Mile 7 facility in cooperation with the PPMU librarian, and members of the Extension Service. The purpose of this activity is to help researchers readily locate relevant data sources pertinent to socioeconomic research.

At Sapu, the computer operator, Basiru Marong, is working with several programs to input data and analyze the results of Sapu Station trials. Researchers have also begun to familiarize themselves with word processing programs to facilitate report writing. In the coming quarter, plans have been made to increase computer productivity through a secondary electrical supply.

IV. TRAINING AND NETWORKING

A. LONG-TERM TRAINING

The six participants pursuing degrees at U.W. and University of Maryland-Eastern Shore completed the Fall semester.

Musa Mbenga from Cornell University completed his initial research for his thesis on yield prediction for maize. He returned to Cornell to complete course requirements for a Masters Degree in Agronomy.

Ebrima Kunjo, the Weed Science candidate at the University of Phillipines - Los Banos, received that University's approval for his undergraduate research proposal entitled "Mechanical and Chemical Methods of Weed Control and their Combination on Yield and Yield Components of Sweet Corn."

The Training Committee met and approved B.S. Programs in Horticulture and Forestry, and an M.S. program in Agricultural Economics. Ousman Jarju and Mohammed Kabay were selected for Horticulture and Agricultural Economics respectively.

B. SHORT-TERM TRAINING AND NETWORKING

Four short-term programs that were successfully completed during the quarter included: i) Agricultural Statistics at ISPC, (Washington. D.C); ii) Soil and Water Management [U.W.]; iii) Computer Science [U.W.], and iv) a combination program in Project Administration and Socioeconomics at the Universities of Michigan and Wisconsin, and Virginia State and Harvard Universities. Two new six-month programs in Agricultural Statistics commenced at ISPC.

Two in-country training activities were conducted: i) 11 participants from three Departments attended a one-day workshop conducted by STTA Neal Wolf on Laboratory Instrumentation; and ii) 5 Research Assistants (RAs) made a 2-day visit to the Institute Senegalais de Recherches Agricoles (ISRA) Station in Djebilor to consult with Senegalese counterparts and visit ISRA research trials.

V. ON-STATION/COMPONENT RESEARCH

A. AGRONOMY AND SOILS

The generally favorable distribution of rain throughout The Gambia during the 1987 rainy season resulted in high average groundnut yields (check plots in excess of 1500kg/ha) and adapted cowpea varieties producing over 1000kg/ha. Upland cereal trial yields were good with early sorghum and early maize yields in excess of 3000kg/ha. Stemborer and blister beetle attacks caused important losses in many of the millet trials.

Most of this quarter has been spent in harvesting and processing the experiments. Approximately 30 on-station trials were conducted at Sapu and Yundum. With the presence of the computer centers at the stations, data entry has already begun and most trials and surveys should be analyzed by late February.

During this quarter Dr. Birl Lowery of the U.W. Soil Science Department worked with DOA Soil Physicist Katim Touray, to establish a soil physics research project within the Cropping Systems and Resource Management Program. It was felt that priority areas for investigation were the management of the heavier "datto" soils, residual moisture management on the uplands, and the effects of contour berms on soil erosion and water run-off control.

Harvesting of all rice trials was completed during the quarter. Analysis of the trials is ongoing.

Activities continued at the Cluster Sites, albeit at a reduced level. Mouldboard plowing was carried out on three farmers' fields to observe the effect on moisture retention and weed infestation, and to attempt to eliminate the inevitable competition for oxen and equipment at the beginning of the rainy season. An irrigation trial on sweet potatoes was initiated following the lowland rice harvest.

B. LIVESTOCK

The Director of the Department of Animal Health and Production (DAHP) created a Research Section within the Department which will assume responsibility for animal production and veterinary research activities. The Research Section, which is being coordinated by Dr. Omar Touray, is staffed by 7 full- and part-time researchers who will be based at Abuko.

Jim Sumberg completed a 10-week STTA mission during the quarter, focusing on the Department's research activities in feed management, small ruminants, and equines. Terms of reference for a senior technical advisor in livestock production were developed, submitted, and approved for January 1988.

DAHP staff, in collaboration with DOA researchers, presented proposals for two dry season feed management studies, which evolved from the July, 1987, evaluation of MFP's experience with deferred grazing. The new studies, which are due to begin in January 1988, will examine the management and economy of groundnut hay, a commonly used, highly valued crop residue in The Gambia. In addition, the management of 2 floodplain grazing areas -- which are a key dry season feed resource for cattle -- will be studied as possible models for the control and management of deferred grazing areas.

The National Equine Survey was conducted during December in close collaboration with PPMU. Using PPMU's NASS sample frame and field staff, 620 dabadas throughout the country were identified. The survey sought to estimate foaling and mortality rates for horses and donkeys, and thus provide a better understanding of the dynamics of the equine population. The results of this survey should highlight key issues and geographical areas where activities can be concentrated during the second phase of the equine studies.

Field activities related to the Village Small Ruminant Survey, initiated in October 1986, were terminated after the October weighing. A report was prepared after limited computer analysis of the data. Future small ruminant research activities will be closely coordinated with the Department's pending UNDP Small Ruminant Project.

The Department was pleased to receive the preliminary report, The Supply and Demand for Poultry, by Research Assistant Lisa Grobar. This analysis contributed to the work of the Department's ongoing Task Force on the future of the poultry industry. In the light of its limited number of research staff, the Department is re-evaluating its potential research contribution related to either commercial or backyard poultry activities.

C. HORTICULTURE

Results of the 1986/87 dry season trials and research proposals for the 1987/88 season were presented at an ARAB meeting held on October 1, 1987. Trials on water use, time-of-planting, onion storage, and variety tests were approved for the coming season in addition to a marketing study. One component of the marketing study will focus on the costs of production and yield variation for the time-of-planting trials. These trials were initiated in October as on-farm trials at Giramba and Sukuta in Western Division. Topic guidelines for the market structure interviews were tested at the Farafenni market in October. These have been refined for use during the next quarter as key informants for the study are identified.

Data collection on prices and quantities of vegetables in four markets will complement the time-of-planting trial analysis. This was initiated through baseline surveys in the markets during November. A sample of traders was selected in the Brikama and Serrekunda markets for a weekly collection of prices and quantities of vegetables. A

complete census of vegetable sellers will be conducted in the Sibanor and Bwiam markets in Western Division. Enumerator training for the data collection was completed during the month of December.

Onion store designs were reviewed with the Centre Pour le Developpement d'Horticulture (CDH) in Dakar, Senegal. In addition to different types of onion stores, several methods for obtaining a year-round supply of onions were recommended. These will be incorporated into a literature review on onion storage along with any further discussions with CDH.

VI. ON-FARM RESEARCH

Off-station research activities were focused in the four "Cluster Areas" (Kuntaur, Giroba Kunda, Bakendik, Somita). Trial and survey management at the Mixed Farming Centers was good and reliable data has been collected. The Grain Legume Trials (cowpea, sesame, and groundnut variety trials, and groundnut cercospora control and seed dressing) have been harvested and the initial analysis is nearly completed. The survey data on farmers' groundnut stand loss has been put on the computer. The Cropping Systems and Resource Management Program have harvested all their trials and the considerable task of processing (especially intercropping trials) has begun. The small Upland Cereals Variety Program was conducted on-farm, and all the trials have been harvested and analyzed.

VII. RESEARCH EXTENSION LIAISON AND PROMOTIONAL ACTIVITIES

As a result of previous discussions between the GARD COP, the GARD Regional Liaison Extension Officer (RELO) and DOA officials, two counterparts for the RELO were nominated. The Divisional Agricultural Coordinator (DAC) based at Sapu for MID South was selected to collaborate directly with the GARD RELO for the eastern part of the country. The Principal Extension Aids Officer (PEAO) of Extensions Aids Unit (EAU) was nominated to serve as RELO for the west. The three RELO's are expected to work as a team to cover the entire array of Research/Extension linkage activities. A draft work program outlining the linkage structure and process was prepared for submission for 1988 and later years.

Implementation of the Cowpea Promotion Campaign continued with field demonstrations on spraying techniques in MID South. In Western Gambia, CRS is running a Cowpea Promotional Program in collaboration with the divisional DOA extension staff. A cowpea promotion field tour in MID South and a field day in URD supported by GARD, revealed a renewed interest in this crop by farmers. A preliminary assessment of the Campaign showed that two varieties (Moungé and CB-5) were the most acceptable to farmers due to their early maturity and high yields.

The seed color of CB-5 was cited as another reason for attraction to this variety. A full assessment of the program will have to await statistical analysis of the yield data.

The Campaign entered its final phase with cooking demonstrations organized in 4 villages of MID South. The Food and Nutrition Unit of DOA implemented the demonstrations with the promotion of 10 recipes that farmers could choose from. The program was aired over Radio Gambia in all major languages for two consecutive days.

The DOA reviewed and approved a proposal by Save the Children Fund [SCF] (USA) for pilot promotional activities for rice and millet seed multiplication and animal traction to be supported with funds from the GARD Project. The proposal now awaits final approval by the Ministry of Agriculture.

VIII. PROSPECTIVE ACTIVITIES FOR THE COMING QUARTER

1. PROJECT ADMINISTRATION: The new Chief of Party for the Project is scheduled to begin his assignment on March 1st. The process of separating Internal Project Management from research support services will near completion. Plans for the Cape Office will be finalized. Construction and renovation at Sapu and the Cluster Sites will continue.
2. ARMS: The NARB will be established and will hold its initial meetings. A workshop/seminar for the NARB is planned for March which will be organized by consultants from ISNAR. An STTA mission in budgeting is also planned.
3. AGRICULTURAL STATISTICS: An STTA mission is planned for January/February to work with PPMU on NASS. The terms of reference include: reviewing the final 1987 NASS data; advising PPMU on future sample designs; assisting with the publication formats for the annual NASS report; and reviewing the progress on the Horticulture Marketing Study.
4. RESEARCH SUPPORT SERVICES: The full report on Laboratory Management will be received and reviewed. Further refinement will be made in the budgeting/accounting system.
5. COMPUTER FACILITIES: Primary emphasis will be placed on analysis of research trials for 1987 season in preparation for April ARAB meetings.
6. TRAINING: A one-year technical training program in horticultural research will commence for the head of the Horticulture Unit. Two in-country workshops will be held on Animal Traction.

7. AGRONOMY AND SOILS: The Research Task Forces will resume their meetings in January to review the results of last year's research and make plans for the coming season. The analysis of trial results and the preparation of reports will continue.
8. LIVESTOCK: A long-term training advisor (LTTA) in Livestock will commence his assignment in early January to work with DAHP Research Programs.
9. HORTICULTURE: Dry season trials and marketing research will continue. Costs of production data will be monitored for the on-farm time-of-planting trials. An onion storage literature review and interviews with PVO's which have built onion stores will be initiated. Key informants for the market structure study will be identified and interviewed.
10. ON-FARM RESEARCH: Data analysis and writeup of the last season results will continue. A review will be made of the management options for the Cluster Sites.
11. RESEARCH/EXTENSION LIAISON AND PROMOTIONAL ACTIVITIES: An evaluation will be made of the Cowpea Demonstration Trials carried out during the 1987 season, in collaboration with CRS and DOA research and extension staffs. A detailed plan of research and extension liaison activities will be formulated following the appointment of counterpart RELO's for the eastern and western parts of the country.

Preparations for the 1988 ARAB meeting will begin. Inputs from extension staff to the Task Forces discussions will be actively sought.

ATTACHMENT A - GARD PROJECT STAFF

(i) Technical Assistance Staff:

1. Elon Gilbert Chief of Party, Farming Systems Economist, (Cape)
2. David Gibson Project Administrator, (Mile 7)
3. Ibrahim Diallo Research Extension Liaison Officer, (Sapu)
4. Joshua Posner Cropping Systems Agronomist, (Yundum)

(ii) Research Associates:

1. Lisa Daniels Agricultural Economist, Horticultural Marketing, (Yundum)
2. Tom Remington Rice Agronomist, (Yundum)
3. Jeff Wright Agronomist, Cropping Systems/ Research Management, (Sapu)

(iii) Peace Corps Volunteers:

1. Steve Cockfield - Research Assistant (Yundum)
2. David Gaines - Research Assistant (Giroba Kunda, URD)
3. Bradford Mills - Agricultural Economist/Computer Specialist (Sapu)
4. Patricia O'Neil - Agricultural Economist/Computer Specialist (Mile 7)
5. Howard Uible - Farm Manager (Sapu)
6. Judith Wilcox - Research Assistant, (Bakendik, NBD)

(iv) Short-Term Training Advisors/Consultants:

1. Jim Sumberg - Livestock Research; University of Wisconsin (October 6 to December 12, 1987).
2. Birl Lowery - Soil Physics; University of Wisconsin (October 20 - November 11, 1987)
3. John Rowe - Agric. Statistics; University of Wisconsin (November 3 - December 4, 1987)
4. Neal Wolfe - Laboratory Management; University of Wisconsin (November 21 - December 19, 1987)

ATTACHMENT B - REPORTS

GARD PROJECT REPORTS:

- No.28 A Review of Cropping Systems Research in The Gambia, by Professor R.W. Willey, from visit of June 2-13, 1987
- No.32 Study of Water Controlled Rice Production in The Gambia by Christine Elias, July, 1987.
- No.33 Laboratory Management, Equipment, and Maintenance (preliminary report), by Neal E. Wolfe, based on visit of November - December, 1987.
- No.36 Soil Physics and Soil & Water Management Research, (preliminary report), by Birl Lowery, from visit of October - November, 1987.
- No.37 Agricultural Statistics Short-Term Technical Assistance (preliminary report), by John S. Rowe, from short-term mission of November-December, 1987.
- No.38 The Department of Animal Health and Production and Livestock Research in The Gambia, by James Sumberg, based on visit of October-December, 1987.

ATTACHMENT C - TRAINING AND NETWORKING

GARD Participant - Quarterly Report 8
 October - December, 1987
 Technical Training - U.S.

<u>Name of Participant</u>	<u>PIO/P Number</u>	<u>Sex</u>	<u>Date of Birth</u>	<u>Employer In The Gambia</u>	<u>Field of Training</u>	<u>Starting Date of Training</u>	<u>Est. Duration of Training (Months)</u>	<u>Ending Date of Training</u>	<u>Name of Institution Providing Training</u>	<u>Location of Training</u>
JABANG, Lamin	50068	M	/ /54	GARS	Date Processing	9/5/87	1.1 (Mos.)	10/8/87	UW-Madison	Wisconsin
FYE, John S.	50057	M	1/1/46	GARS	Soils Classification	8/8/87	1.7 (Mos.)	10/29/87	UW-Madison	Wisconsin
JALLOW, Momodou	50066	M	2/16/53	GARS	Agricultural Statistics	8/23/87	3.5 (Mos.)	12/13/87	ISPC	Washington, DC
Kinteh, Sambou	50070	M	5/25/44	Director, PPMU	Research Methods	12/6/87	.2 (Mo.)	12/7	Virginia State University	Petersburg, Va
					Research Methods	12/7		12/10	Center for Research on Economic Development	Ann Arbor, MI
					Market Survey Study	12/10		12/13	University of Wisconsin	Madison, WI
					Program Planning & Statistical Forecasting				U.S. Dept. of Agriculture	Madison, WI
					Research Programs on Marketing	12/13		12/14/87	Harvard	Boston, MA

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ATTACHMENT C - TRAINING AND NETWORKING

GARD Participant - Quarterly Report 3
 October - December, 1987
 Third-Country Training Activities

<u>Name of Participant</u>	<u>PIO/P Number</u>	<u>Sex</u>	<u>Employer In Gambia</u>	<u>Date of Birth</u>	<u>Field of Training</u>	<u>Starting Date of Training</u>	<u>Ending Date of Training</u>	<u>Institution Providing Training</u>	<u>Location of Training</u>
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NONE

ATTACHMENT C - TRAINING AND NETWORKING

GARD PROJECT
LONG-TERM DEGREE TRAINING SUMMARY
October - December, 1987

<u>Name of Participant</u>	<u>Employer in Gambia</u>	<u>Field of Training</u>	<u>Starting Date of Training</u>	<u>Est. Date of Completion</u>	<u>Location of Training</u>	<u>Degree Goal</u>
ANDREWS, Patricia	Dept. of Animal Health & Production	Poultry Science	8/23/87	5/89	University of Wisconsin Madison, WI	M.S.
CAMARA, Ebrima	PPMU GOTG	Agricultural Economics	8/12/86	5/90	University of Wisconsin Madison, WI	B.S.
COLE, Mohammed	Dept. of Agriculture GOTG	Agronomy	1/9/86	12/88	University of Wisconsin Madison, WI	M.S.
MBALLO, Amidou	Dept. of Agriculture GOTG	Agronomy	8/12/86	12/90	University of Wisconsin Madison, WI	B.S.
*MBENGA, Musa	Dept. of Agriculture GOTG	Agronomy	1/9/86	5/89	Cornell University Ithaca, NY	M.S.
SECKA, Ellen	Dept. of Animal Health	Poultry Technology & Management	9/3/87	9/91	University of Maryland Eastern Shore	B.S.
TRAWALLEY, K.	Dept. of Agriculture GOTG	Agronomy	8/12/86	6/90	University of Wisconsin Madison, WI	B.S.

*Returned to the U.S. from The Gambia after collecting research data - November 28, 1987

ATTACHMENT C - TRAINING AND NETWORKING

GARD Participant - Quarterly Report 8
 October - December, 1987
 In-Country Training Activities

<u>Name of Trainee</u>	<u>Sex</u>	<u>Employer In The Gambia</u>	<u>Field of Training</u>	<u>Starting Date of Training</u>	<u>Est. Duration of Training (Months)</u>	<u>Ending Date of Training</u>	<u>Name of Institution Providing Training</u>
Essa Drammeh	M	DOA	Networking	10/20/87	2 days	10/21/87	ISRA/DJebilor
Babou Jobe	M	DOA	Networking	10/20/87	2 days	10/21/87	ISRA/DJebilor
Momodou Sanneh	M	DOA	Networking	10/20/87	2 days	10/21/87	ISRA/DJebilor
Momodou Sambou	M	DOA	Networking	10/20/87	2 days	10/21/87	ISRA/DJebilor
Basirou Marong	M	DOA	Networking	10/20/87	2 days	10/21/87	ISRA/DJebilor
Musa Ann	M	DOA	LIW*	12/17/87	1 day	12/17/87	GARD/UW STTA
Momodou Lemon	M	DOA	LIW	12/17/87	1 day	12/17/87	GARD/UW STTA
Samuel Jobe	M	DOA	LIW	12/17/87	1 day	12/17/87	GARD/UW STTA
Kutou Cham	F	DOA	LIW	12/17/87	1 day	12/17/87	GARD/UW STTA
Willie Mendy	M	DOA	LIW	12/17/87	1 day	12/17/87	GARD/UW STTA
Omar Padijo	M	DOA	LIW	12/17/87	1 day	12/17/87	GARD/UW STTA
Abdou Coesay	M	CPS	LIW	12/17/87	1 day	12/17/87	GARD/UW STTA
Momodou Mboob	M	DAHP	LIW	12/17/87	1 day	12/17/87	GARD/UW STTA
Tilda Bojang	F	DAHP	LIW	12/17/87	1 day	12/17/87	GARD/UW STTA
Fredrica Andrews	F	DAHP	LIW	12/17/87	1 day	12/17/87	GARD/UW STTA
Bakary Dampha	M	DAHP	LIW	12/17/87	1 day	12/17/87	GARD/UW STTA
Biram Fye	M	DAHP	LIW	12/17/87	1 day	12/17/87	GARD/UW STTA

*Laboratory Instrumentation Workshop