

1 February, 1982

EVALUATION OF THE SOIL AND WATER MANAGEMENT UNIT (SWMU)
PROJECT - 635-0202
THE GAMBIA

SUMMARY/CONCLUSION/RECOMMENDATIONS

A. Background

USAID/GAMBIA requested a 3 person team to evaluate the Soil and Water Management Unit (SWMU) project in January 1982. The team consisted of:

REUBEN THOMAS - Director of Agriculture
GOTG/MANR

DAVID H. SCHAER - Deputy Division Chief
AFR/DR/ARD

JERRY HAMMOND - Director of International
Activities
USDA/SCS - WASHINGTON

The team would like to acknowledge with gratitude the excellent assistance provided by the Government of The Gambia (GOTG), USAID/G and all other parties. This evaluation builds upon and incorporates an interim evaluation performed in February 1981.

This is a long term institutional development project to create and develop a Gambian capability in the area of soil and water management. Very few people who know the Gambia and the project doubt the need for this project and the concept on which it is based. (Please see Attachment 5 in the evaluation for the project rationale). In January 1982 a University of Illinois team indicated in an independent evaluation that this project is appropriate to the needs and resources of The Gambia. There have, however, been questions as to the appropriate technical assistance mix, long term training for counterparts and particularly the time frame for the project.

The evaluation team feels that after 3 years of project implementation, the GOTG, USAID/G and other parties such as the U.S. Department of Agriculture Soil Conservation Service (USDA/SCS) PASA team know definitely what this technical assistance mix should be. Additionally they know who should be trained where, and for how long. The evaluation team also feels that the right people are in place or can be made available to carry the project to a successful conclusion.

The team held discussions with appropriate persons and visited key facilities (please see detailed evaluation). The following summarizes the evaluation report:

B. Review of the project to Date

1. The original project design concept is still sound, appropriate, attainable, high priority, and fully justified. The original implementation plan is behind schedule by about 18-24 months due primarily to a one year delay in arrival of the SCS/PASA team, difficulties in forming and staffing the SWMU, and difficulty in finding and sending participants for long term training in the U.S. and 3rd world countries.
2. Although it is too early to measure the project's technical or development impact, good progress toward the purposes has been made by:
 - a. Forming the SWMU in the Directorate of Agriculture (DOA) complete with a Financial Warrant and budget.
 - b. Assigning 9 technical, 10 field staff, and 6 support staff to the Unit.
 - c. Providing offices, vehicles, supplies and equipment.
 - d. Executing agreed upon work plans.
 - e. Sending 3 long term participants for training in the U.S. with 5 scheduled for 1982.
 - f. Completing soil surveys, a technical guide, a soils handbook and a check list of plants in The Gambia. (See Attachment II to the evaluation for detailed accomplishments.)

C. Problems to date

The project paper assumed that 3 long term professionals were needed at the beginning of the project and that 8 Gambian counterparts could be trained in the U.S. for 1 year and attain a B.S. degree. Three years of experience have shown that this was too much up front technical assistance. It was originally hoped the Gambians at the Diploma level or those with some university level training could be sent for 1-2 years of study to obtain B.S. degrees in their speciality. Experience has shown that excellent candidates are available but they generally have high school certificates and need 3-4 years to attain the B.S. level. In July of 1981 the T.A. was reduced from 3 long term U.S. team members to one. Shortly thereafter the first long term participants departed. The net effect has been a shift in the technical assistance mix, participant training time, and ultimately a slight cost increase. The original project paper envisioned 3 phases. Currently, however, the project has Phase I over-lapping with (see Table.I)Phase II.

D. Recommendations

- 1. The following changes should be made in the technical assistance participant training and the life of project should be extended through June 1986.

	<u>FROM</u>		<u>TO</u>	
T.A.	192 PM		148 PM	$\left. \begin{array}{l} \text{AT } 24 \text{ months} \times 10 = 240 \\ \text{4T} \end{array} \right\} \begin{array}{r} 384 \\ \underline{624} \end{array}$
P. Trg.	144 PM		558 PM	

Discussion:

This will involve an increase in the overall project cost of about 10-15% for Phases I and II which should be considered as one phase. Phase III should be considered separately after an evaluation of phase I & II in 1985.

The above essentially would provide one long term American professional from January 1982 through July 1986 with appropriate consultants and would permit all long term training to be completed about one

$$\begin{array}{r} 32 \\ 12 \overline{) 384} \\ \underline{36} \\ 24 \end{array}$$

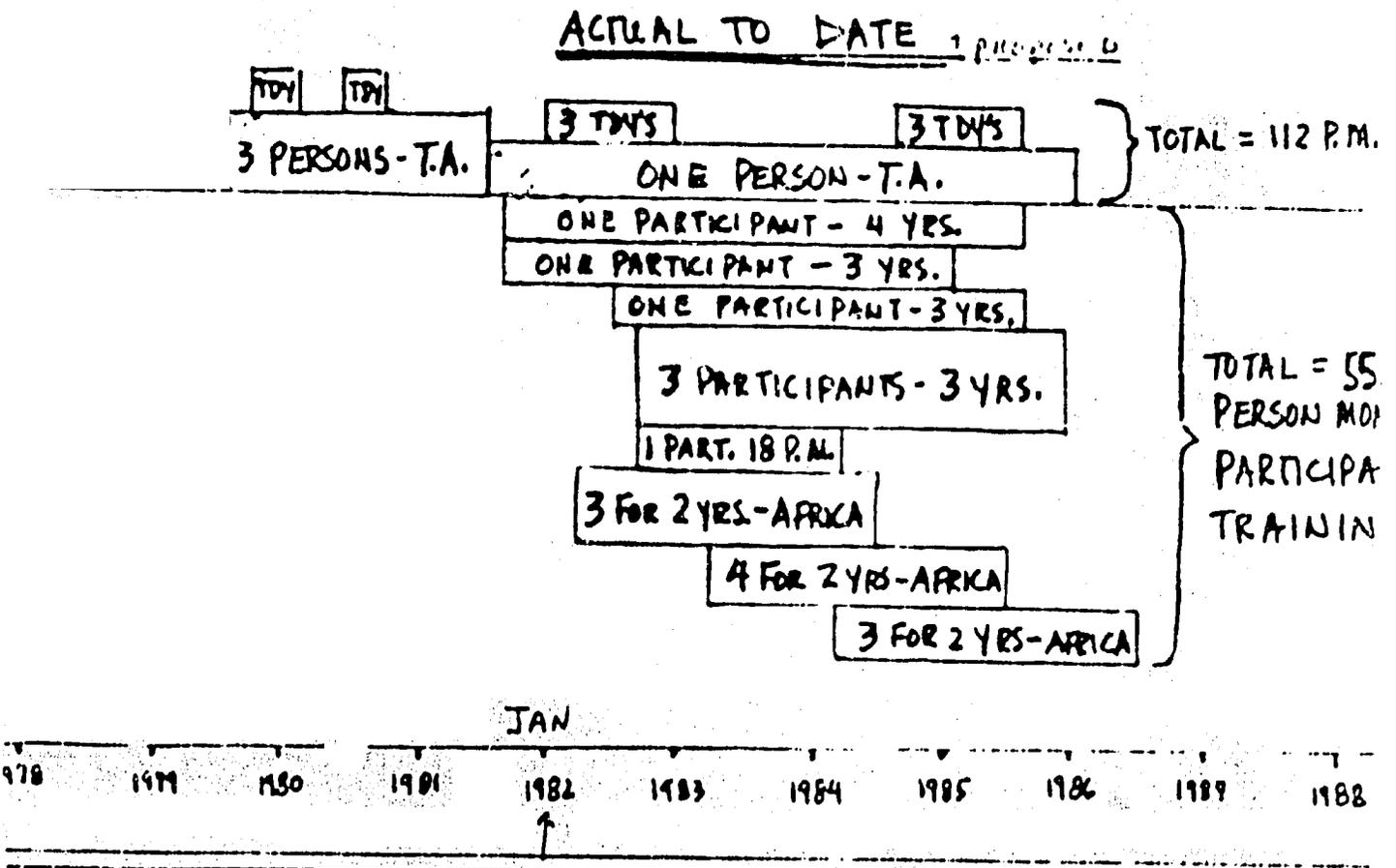
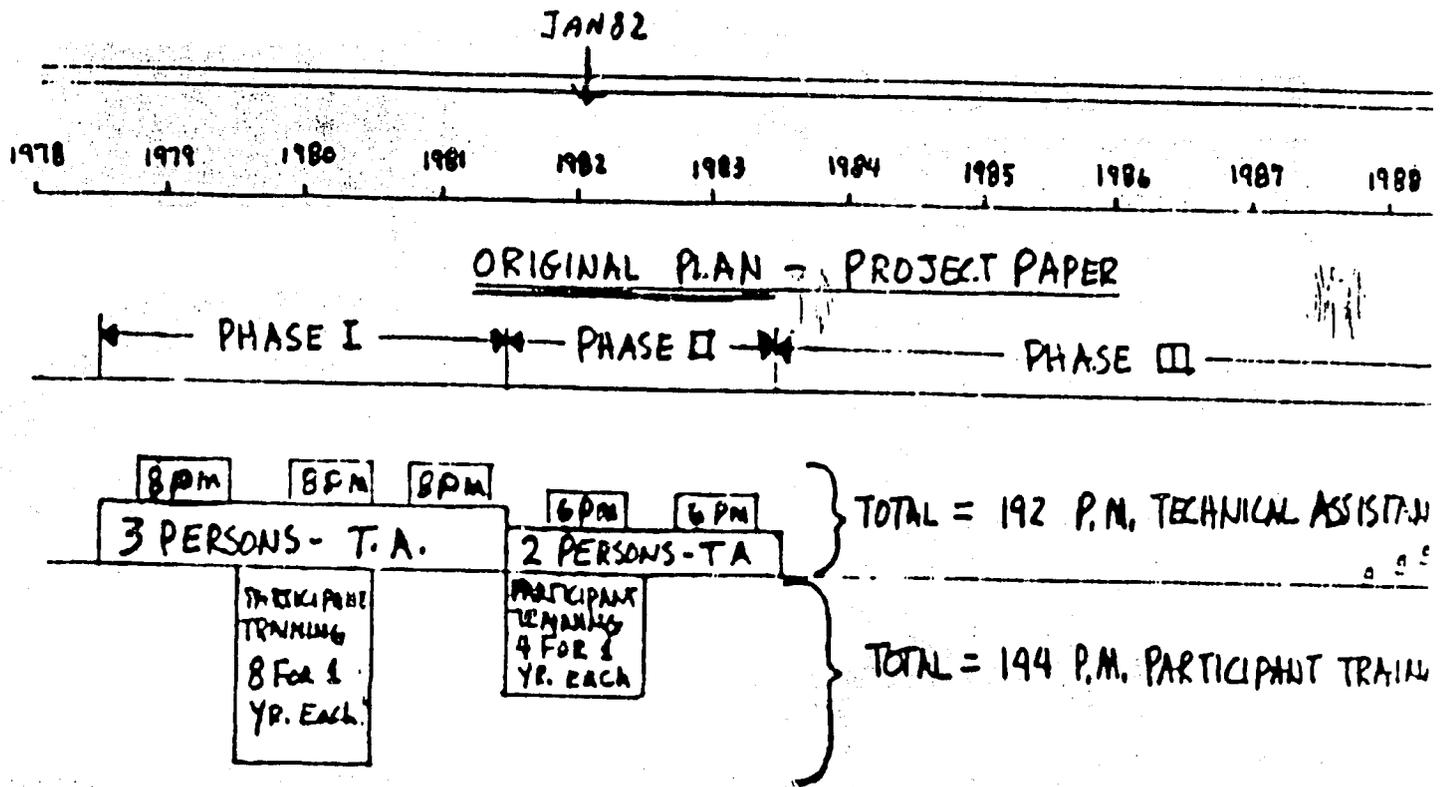
$$\begin{array}{r} 8 \text{ participants} \\ 4 \overline{) 32} \end{array}$$

$$\begin{array}{r} 32 \\ 1 \overline{) 25,000} \\ \underline{160,000} \\ 64 \\ \underline{800,000} \end{array}$$

year prior to the departure of the long term American professional. This would effectively accomplish the purpose of the project by turning SWMU over to the Gambians. The Evaluation team feels that the above is essential for successful completion of the project as envisioned in the project paper.

2. While the SWMU has been formed in the DOA, it should be formalized by appearing in the GOTG 1982/83 estimates.
3. The participant training schedule should be accelerated wherever possible.
4. Demonstration sites for soil and water management practices should be established near Banjul for training and understanding of the project concept. Incountry training should be emphasized. This training in Soil and Water Management should be made available to all appropriate units in the GOTG. Provision should be made for training agricultural assistants from the Directorate of Animal Production and Health, forestry and other units.
5. A set of project slides with an appropriate cassette tape explaining the project and its current status should be developed in the near future and made available to GOTG, USAID/G and other interested parties. Training aids such as extension leaflets, posters, brief radio messages should be developed and used whenever appropriate.
6. The USDA/SCS should provide consultants and backstopping as needed to assist in accomplishing recommendations 4 and 5 above. The in-country PASA personnel should be able to travel to the U.S. as required.
7. Linkages between the SWMU and other units (e.g. mixed farming, forestry, ADP II, OMVG, etc) should be strengthened where feasible.

SOIL AND WATER MANAGEMENT PROJECT ORIGINAL IMPLEMENTATION PLAN VERSUS ACTUAL TO DATE



8. Reporting by the SCS/PASA team should be streamlined.
(See attachment 6 for detailed format)
9. In order to carry out the above recommendations, USAID/G and the GOTG/MANR should formalize their working relationships with a project agreement amendment clarifying respective responsibilities.
(Attachment 3 to the evaluation)

SWMU PROJECT EVALUATION

Project 635 - 0202

1. Evaluation of progress toward attainment of the objectives/
purposes of the project.

Section 1.1 Evaluation Methodology

a) The reason for this evaluation is that the project is in a critical stage in its implementation. The Life of Project (LOP) is 10 years with 3 phases:

I - 3 years

II - 2 years

III- 5 years

At the present time, Phase I is in its 3rd year and USAID/G and the Government of The Gambia (GOTG) have anticipated the need for some adjustments in implementation. Two evaluators David Schaer and Jerry Hammond, were requested via cable (Banjul 3069), dated 30 October 1981 and Banjul 3362, dated 4 December 1981) to review the project's progress towards design objectives along with GOTG response to mission suggestions, and then delineate the project's implementation course.

b) This current evaluation follows the evaluation plan outlined in the project paper on page 97-98 and more specifically the plan in Section 5.1 of Project Agreement 635-78-2, page 4 dated 20 March 1978.

c) Based upon arrangements made by USAID/G Agricultural Officer, Quincy Benbow, Reuben Thomas of MANR/DOA was identified as the GOTG evaluation team member to assist in

the evaluation of project. The GOTG assistance and support was excellent and very much appreciated.

Discussions were held with the following individuals/ organizations:

Alieu Jagne, MANR
Sol Ceesay, MANR
Sidi Sanneh, Rural Development Project

SWMU GOTG Staff

Samuel H. W. Davis, Director in training
Jukung Ceesay, Conservation Trainee
Ousman Ceesay, " "
Mustapha Sonko, " "
Martarr A.M. Cham, " "
Keba Bojang, " "

U.S. and others

Larry J. Piper, U.S. Ambassador
Tony Funicello, USAID Acting AID Representative
Quincy Benbow, USAID Agricultural Development Officer
Marc Madland, USAID Agricultural Project Manager
Binta J. Sidibe, USAID Training Officer
Arnold Snowden, SWMU, USDA/SCS/PASA
Michael Bradley, USAID/Controller
John Braden - Economist, University of Illinois
David Chicione - Economist, University of Illinois

A complete study of the following documents was completed

Project files 1975 to date
UK/ODM/LRD Study No. 22 (1972-1975)
UK/ODM/LRD Report No. 12 (1975)
SWMU Project Paper and Agreements
Contractual and sub-obligating documents
Financial records and accounts
Reports (PASA Team) July 1979 to date
GOTG budget estimates 1979/80/81/82
Mixed Farming Project
2nd 5-year plan, 1981/82 - 1985/86
An Interim Evaluation of USAID's Soil &
Water Management Project in The Gambia (February 1981)

A checklist of Plants of The Gambia
The Soils Handbook of The Gambia
Technical Guide of The Gambia
Agricultural Development Project, 1982-1987
Gambia River Basin Development Project (OMVG)
"USAID/G Training schedule"

Visits were made to the Yundum area SWMU, the Directorate of Agriculture, and the Ministry of Agriculture and Natural Resources.

d) The following specific analyses were completed and are on file at USAID/G:

1. Consistency and appropriateness of project design at this point in time.
2. Implementation time frame.
3. Budget
4. Organization and staffing (MANR)
5. Project Inputs (Particularly Technical Assistance and long term training mix)

Section 1.2. The project inputs consist of U.S. technicians and consultants, long and short-term training, commodities (vehicles, equipment and supplies), housing construction, provision of office facilities, and GOTG staff.

Three U.S. technicians arrived in July 1979 (about 1 year later than planned) and moved into housing in November 1979. Two returned to the U.S. in August 1981 after completing full tours of duty. The team leader took home leave and has returned to The Gambia for a second tour. Two consultants (30 days each) have been provided to date. Vehicles have been adequate to date. Commodities and equipment arrivals required one year for delivery, but are now nearly complete. Replacement vehicles will be required in 1983/84. Office facilities took longer than anticipated to acquire but are now available and being used. However, modifications will be required to accommodate increased staff.

Provision of adequately trained and experienced GOTG staff has been difficult to accomplish. The first Gambians assigned to the SWMU arrived between August and October 1979. In April 1981 two (2) more were assigned, one of whom has a B.S. degree in Agronomy from the U.S. He was selected to be the Head of the SWMU (in training). The initial problem of provision of Gambian staff related directly to the need to formally establish the SWMU in the GOTG Approved Budget Estimates, thus giving Government Service stability to the positions and budget. A proposal to formally establish the SWMU did not materialize in the 1981/82 estimates, but cabinet approval has been given and a separate budget is available. A more explicit proposal has been put forward for approval in the 1982/83 estimates. (see Attachment I).

During 1981 the DOA made available the 25 staff required in the SWMU project. Fifteen of these were capable of entering long term training. From these 15, eight were selected for U.S. training, 3 have departed and 5 are being placed in 1982. The remainder are considered technical field staff and support personnel. Ten of these technical staff are programmed for Diploma training in Nigeria or Kenya.

8 LIT

10 s/ITg

Special mention is made here regarding staff availability and training. The Project Paper assumed 8 participants would be available within the first year and would require 1-2 years each to reach the B.S. level in the U.S. Only three have departed to date and it is estimated that potential candidates will require 3-4 years to attain B.S. degrees. Lack of Gambian staff reduced the amount of on-the-job (OJT) training during the first 2 years and no other short term (course type) in-country training has taken place.

Housing construction was completed 4-6 months later than anticipated and cost 15-20% more than budgeted. The result was that U.S. technicians and families stayed in hotels for 4 months. Housing vacated by the two SCS/PASA families who returned to the U.S. is presently being used by the Mixed Farming Project. Some consideration might be given to transferring some payment to SWMU for housing, furniture and appliances.

Section 1.3 Progress towards outputs, goals and purposes

a) The Project Paper recognizes that after only 3 years it is difficult to measure (quantify) progress. Nevertheless, good progress has been made by forming the SWMU at Yundum, assigning approximately 9 technical staff, 10 field staff, and 6 support staff, the provision of vehicles, equipment and supplies, and the execution of work plans. As a result, the PASA team leader and SWMU head are in the process of training the remaining conservation specialists in actual field practices. Soil surveys were completed in four villages.

A few soil conservation practices are in place on Mixed Farming Centers (MFC's) and villages in 3 locations. Work on plant data and a technical guide has been completed.

b) The outputs, goals, and purposes are stated below as a point of reference, and a detailed progress report is included as Attachment 2.

1) Outputs:

- a) Unit under Gambian direction comprising 10-15 trained specialists.
- b) Soil/water technical manual printed and adopted by MANR.
- c) Appropriate soil/water management training courses in operation within MANR training program.
- d) Village planning and action process developed and documented in training aids and technical manuals.

2) Goals:

- a) Halt/reverse environmental deterioration due to deliver educational, technical material services to rural population.

3) Purposes:

- a) Establish a soil and water management unit within Ministry of Agriculture and Natural Resources.
- b) Develop technology for improved agricultural/pastoral methods consistent with Gambian abilities and resources.
- c) Train Gambian soil and water management specialists and Agricultural assistants to functional levels of competence in developing solutions to soil and water problems.

c) Based upon analysis in Section 1.1 it was determined that the original project design concept is still sound, appropriate, attainable, high priority, and fully justified. The technical assistance and training mix should be modified. The project also should be extended with addition of a small amount of funds. (See detailed recommendations)

II. Identification and evaluation of problem areas or constraints which may inhibit attainment of the project objectives/purposes

Section 2.1

a) A main problem to date has been establishment of a permanent and functional SWMU with adequate positions, grades, budget etc., and assignment of adequate numbers of sufficiently trained and experienced staff to benefit from a 3 man team of U.S. technical assistance. The unit is now established and technical assistance has been scaled down to 1 person.

The delay in project start up and discovery that participants require 3-4 years to reach the B.S. degree level and return, has now led to the realization that a longer time frame will be required for Phases I and II. Additionally, inflation now makes the project slightly more costly. The original project also underestimated the training costs by at least US 300,000.

b) The U.S. technical assistance was provided as a 3 man team from the outset of phase I. However, there was no Gambian unit head or B.S. level counterparts. Consequently, a heavy load was put on the team with regard to forming the SWMU in the Gambian context.

c) The importance and difficulty of getting 8 qualified Gambians into 3-4 years of long term training is now recognized and plans have been made to correct the problem. However, it remains a delaying factor and it will be important to continually analyze the training pipeline in the future to assure return and overlap with the technical assistance element.

d) Virtually no short term in country (course type) training has been carried out to date for MANR and interested officials or Agricultural Assistants (extension personnel). During the evaluation it became clear that there was wide interest and support for the SWMU, but few understood exactly the role it would play in development. Short term training and increased information would strengthen the project. This training should be made available to appropriate persons in all areas of the GOTG and not confined to the DOA.

e) The usual start up problems of housing, office space, transport, equipment and supplies, etc., were also present. The GOTG, SWMU, PASA team, and USAID/G are to be commended for their patience and cooperation in resolving these problems.

III. Assessment of how such information may be used to overcome such problems.

Section 3.1: Although the project is delayed 18-24 months and budget constraints are evident, the project has made enough tangible progress at this time to request an extension of the time frame and to justify additional funds when required. With the proper modification of inputs, the project purposes can be achieved within about 2 1/2 years of the original time frame. This is not unreasonable given the nature of this institutional building project. This means that, Phase I and Phase II would end about mid CY 1986 as opposed to sometime in 1983.

Section 3.2: The following are specific conclusions and recommendations which flow from the evaluation:

1) The original project design concept is still sound, appropriate, attainable, high priority and fully justified.

2) The original implementation plan is behind schedule by about 18-24 months due primarily to a one year delay in arrival of the SCS/PASA team, difficulties in forming and staffing the SWMU, and the inability to locate and send participants for long term training in the U.S. and 3rd world countries.

3) Although it is too early to measure the project's technical or development impact, good progress toward the purposes has been made by:

- a) Forming the SWMU in the Directorate of Agriculture (DOA) complete with a Finance Warrant and separate budget.
- b) Assigning 9 technical and 10 field staff and 6 support personnel.
- c) Providing offices, vehicles, supplies and equipment.
- d) Executing agreed upon work plans.
- e) Sending three long-term participants for training in the U.S. with 5 more scheduled for mid 1982.
- f) Completing Soil surveys, a technical guide, a soils handbook, a checklist of plants of The Gambia. Please see attachment II for more detail on accomplishments.

Recommendations

- 1. The following changes should be made in the technical assistance and participant training and the life of project should be extended through June 1986.

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T.A.	192 PM	148 PM
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Discussion:

This will involve an increase in the overall project cost of about 10-15% for Phases I and II which should be considered as one phase. Phase III should be considered separately after an evaluation of phase I & II in 1985.

The above essentially would provide one long term American professional from January 1982 through July 1986 with appropriate consultants and would permit all long term training to be completed about one year prior to the departure of the long term American professional. This would effectively accomplish the purpose of the project by turning the SWMU over to the Gambians.

The Evaluation team feels that the above is essential for successful completion of the project as envisioned in the project paper.

2. While the SWMU has been formed in the DOA it should be formalized by appearing in the GOTG 1982/83 estimates.
3. The participant training schedule should be accelerated wherever possible.
4. Demonstration sites for soil and water management practices should be established near Banjul for training and understanding of the project concept. In-country training should be emphasized. This training in Soil and Water Management should be made available to all appropriate units in the GOTG. Provisions should be made for training agricultural assistants from the Directorate of Animal Production and Health, Forestry and other units.
5. A set of project slides with a developed and appropriate cassette tape explaining the project and its current status should be developed in the near future and made available to GOTG, USAID/G and other interested parties. Training aids such as extension leaflets, posters, brief radio messages should be used wherever appropriate.

6. The USDA/SCS should provide consultants and back-stopping as needed to assist in accomplishing recommendations 4 and 5 above. The incountry PASA personnel should be able to travel to the U.S. as required.
7. Linkages between the SWMU and other units (e.g. Mixed farming, forestry, ADP II, OMVG, etc) should be strengthened where feasible.
8. Reporting by the SCS/PASA team should be streamlined (See attachment 6 for detailed format)
9. In order to carry out the above recommendations, USAID/G and the GOTG/MANR should formalize their working relationships with a project agreement amendment clarifying respective responsibilities. (Attachment 3 to the evaluation)

IV. Evaluation to the degree feasible of the overall development impact of the Project.

As a point of reference for an impact evaluation at some future date the following pages of the project should prove useful.

Page 60 - Section 5, "A Word about Progress"

Page 97 - 98 Section 103, Evaluation and Baseline Data.

A comprehensive evaluation should be completed in late 1985 or early 1986 setting the stage for a refined design of Phase III, 1987 - 1992.

Soil and Water Management Unit
accomplishments through December 1981

The opportunity and prospect for increasing the rate of progress and achieving the project objectives are very good at this time. Significant progress has been made in the last few months, which have had a favourable impact upon project progress and make possible completing activities that are needed to achieve project success. This included the establishment of the SWMU in the Department of Agriculture with budget and Gambian staff with technical data available from the PASA Team's first tour.

The USDA/SCS PASA Team has finished the first two-year tour. The beneficial results are increased capability of the Gambian staff from on-to-job training and technical data generated by completing technical works.

Dr. David H. Schaer, AID/Washington made an intensive in-depth evaluation of the project during February 1981. The evaluation clearly described the major problems of the project. They were:

1. delayed start of the implementation plan,
2. inadequate establishment of a permanent functional Soil and Water Management Unit with adequate positions, grades and budget,
3. insufficient number of Gambian staff with enough education and experience to benefit from the U.S. technical assistance,
4. participants needing four years of training instead of one or two as originally planned,
5. the project has time frame and budget constraints.

The recommendations of the evaluation modified the course of action for achieving desirable progress for the project. It was recommended that:

1. the U.S. technical team be scaled down until sufficient Gambian staff are assigned to utilize the technical assistance.

2. the SWMU Unit should be formalized in the 1981/82 GOTG Budget Estimates or positive action be taken to establish the Unit temporarily in the Department of Agriculture,
3. participants should be entered into training by September of 1981,
4. short term in-country training should be increased, and
5. the USAID and GOTG/MANR should formalize working relationships with a formal agreement.

The USDA/SCS PASA Team, AID officials along with GOTG/MANR officials made changes to achieve the recommendations. Necessary written plans and documents were prepared to follow through with the recommended changes.

Two PASA team members have returned to their parent agency. One team member is continuing in a second tour with project activities.

The Ministry of Agriculture and Natural Resources (MANR) took positive action through the Cabinet toward establishing the Unit. Official recognition and guidance from the Cabinet has been given for establishing the Soil and Water Management Unit (SWMU).

The Unit is established under the responsibility of the Department of Agriculture (DOA) for staffing, facilities, and policy guidance in program development. The Unit is provided an adequate budget for the 1981-82 operations and the staff positions and budget will be in the GOTG Budget Estimates for 1982-83.

The DOA has taken action and provided the needed staff members as recommended. However, the assigned staff member's education and training level are such that they need three years of U.S. university education and two years of on-the-job training to achieve the capability level as planned in the project design.

The Director of DOA has provided names, agricultural experience and educational levels of twenty-three (23) people from which the project can select the SWMU Staff. Most of these candidates are

proven agricultural technicians and have six years or more field experience. About fifteen (15) can meet college entrance requirements. However, the candidates selected for university training are expected to take an average of three years to complete their course work.

Mr. Samuel H.W. Davis, a very qualified Gambian, has been assigned to head the Unit. He was recommended in the last appraisal report as the candidate for this position and assigned to the Unit by the Director of DOA. He began working for the Unit in April 1981.

Mr. Davis has completed and returned from Project sponsored management training in the U.S. He has had six weeks at Syracuse University, N.Y., and two months of technical field training at three locations with the USDA Soil Conservation Service. He has taken the lead in field operations and assisted in selecting elements of a Gambian Soil & Water Management Program.

Eight candidates have been selected, evaluated, and are assigned for the professional technical positions requiring university level training. These participants have gone to the U.S. for University training and are enrolled in a degree plan for Soil Science, Range Management and Agricultural Engineering. One other candidate is ready to enroll in a U.S. university to train in Woodland Management. The remaining four candidates are available and their credentials are being evaluated for entering university training. They are scheduled to enroll in a U.S. university no later than September 1982.

Personnel for the ten support positions are identified and available to work with the Unit as needed. Preparations are being made to train these staff members in West African institutions.

Ten SWMU Gambian staff members have received on-the-job training during the year. This training included Soil Science, Soil Mapping and Classification and Conservation Operations (Resource Evaluation Plan Development, Problem Identification and Solutions). A significant amount of soil and water management data have been gathered and are being processed to be available for those needing such data. These data are being assembled in a "Soils Handbook for The Gambia" and "Technical Guide for Conservation Planning". Detailed soil survey data (site mapping and classification) have been completed at four locations in The Gambia (about 3,050 hectares). These are the areas selected for initiating the Soil and Water Management Program. The detailed soil surveys range in size for the four sites from 2 to 11 square km.

Conservation plans have been made for three villages. Conservation practices are being installed at two of these villages. These practices are contour rows for farming on the contour. This practice retards rainfall water from running off the land, thus, holding the rain water on the land longer, providing more moisture for the crop and preventing erosion of the soil.

Tests of conservation practices were completed at two Mixed Farming Centers (MFC). These include contour farming and incorporating vegetative matter into the soil. Trials for selection of erosion retarding grasses was carried out for seventeen species of grass. Two species showed high erosion retarding capability and further tests will be made for further evaluation of these species.

Standards and specifications have been drafted for nine cropland conservation practices and seven for rangeland management. These practices are being tested at village farms and grazing areas. They will be evaluated and modified as needed to meet the needs of The Gambia.

Range sites descriptions identifying nine ecological communities have been prepared. These descriptions will be further refined as more data becomes available.

Crop production data were used to prepare a soil productivity rating for a soil series and land capability units identified in The Gambia.

" A checklist of Gambian Plants" has been prepared which provides information about specific plants found in The Gambia. This is an addition information to the second edition of a document by the same title produced by A.C.E. Jarvis, Science Advisor of the British Council.

Suggested Project Agreement FormatSWMU Project 635 - 0202I. The Agreement

This agreement sets forth the understandings, rights, and responsibilities of the Parties to the agreement with respect to the project described in Section II below.

II. The ProjectSection 2.1 Definition of the Project Time Frame:

This project, which began on 20 March 1978 by signature of the original project agreement is hereby extended to December 31, 1986.

Section 2.2 Definition of the Project Goals and Purposes:A. Goals

1. Halt/reverse environmental deterioration due to inadequacy of traditional agricultural/pastoral methods.
2. Increase/stabilize production of food forage/wood/cash crops; reduce susceptibility to drought, other weather variations.
3. Improve institutional capability of GOTG to deliver educational, technical material services to rural population.

B. Purpose

1. Establish a soil and water management unit within the Ministry of Agriculture and Natural Resources.
2. Develop technology for improved agriculture/pastoral methods consistent with Gambian abilities and resources.
3. Train Gambian soil and water management specialists* and agricultural assistants to functional levels of competence in developing solutions to soil and water problems.

Section 2.3 U.S. and GOTG Obligations and Responsibilities:

In order to accomplish the project purposes the respective parties will provide the following:

A. U.S.G.:

1. Technical Assistance - See Scope of Work - Annex A.
 - a. Long term 132 person months
 - b. Short term 16 person months
- 148

* This means specialists capable of planning a Gambian Soil and Water Management program and agricultural assistants capable of assisting the specialists by informing farmers about the benefits of the program.

2. Training

a. Long term out of country

1. U.S.

(1) One - 1.5 years (M.S.)

(2) One - 4 years (B.S.)

(7) Seven - 3 years (B.S.)

2. Third country (Nigeria/Kenya/etc.)

(10) Ten - 2 years - (Diploma)

b. On the job training (OJT) in country

1. One (1) Head of Unit

2. Two (2) B.S. level counterparts or equal

3. Six (6) Conservation Officers

4. Ten (10) Conservation Assistants

5. Selected Agricultural Assistants (DOA)

6. Other (as need arises)

(a) Special project linkages - (Mixed Farming, Forestry, OMVG, Jahally Pachar, etc.)

(b) Contingency and unforeseen opportunities

c. Short-term in-country

1. Intensive courses, as appropriate - Agricultural College

(a) Instructors and materials

(b) Two 30 day courses/year for agricultural assistants

(c) Instructors and materials

(d) Example topics: Soil and Water Management Principles

Note: The above training will be open to all appropriate GOTG staff and not confined to the DOA.

d. Short-term out of country (U.S. and third country)

1. Specialists

2. Observation

3. Commodities

(a) Four vehicles

- Two by 12/31/79

- Two by 12/31/83

(b) Field equipment and supplies

(c) Training materials

4. Housing - US Technicians

(a) Construction of 3 houses

(b) Maintenance/Repair

(c) Generators

(d) Security

(e) Furnishings

5. Contingencies

B. The GOTG will:

1. Formalize the establishment of the SWMU in the MANR. The unit will be considered formalized when it appears in the GOTG Approved Estimates with 25 positions and the corresponding budget in Annex B.

2. Officially assign the levels of staff in Annex B to the SWMU. All staff to be reviewed for experience and educational levels by the Director of the SWMU and agreed upon prior to placement.

3. Provide the following numbers and levels of personnel for training from Staff identified in Annex B.

a. Long-Term - out of country

1. U.S.A.

(a) Agricultural Science Disciplines

- (1) 2 Agronomists (B.S.)
- (2) 2 Soil Scientists (B.S.)
- (3) 2 Agricultural Engineers (B.S.)
- (4) 1 Range Management (B.S.)
- (5) 1 Forester (B.S.)
- (6) 1 Sr. Unit Manager (M.S.) Discipline
to be determined

(b) Time Frame

- (1) One - (4 years) by 9/30/81
- (2) Two - (3 years) by 1/31/82
- (3) Five - (3 years) by 9/30/82
- (4) One - (18 mo's) by 12/31/82

2. Third Country (Nigeria/Kenya/etc.)
 - (a) Four - (2 years) by 3/31/82
 - (b) Three (2 years) by 3/31/83
 - (c) Three (2 years) by 3/31/84

b. On-the-job training (OJT) in-country

1. One (1) Head of Unit
2. Two (2) senior level counterparts (These are also participants for long term training)
3. Six (6) Conservation Officers
4. Ten (10) Conservation Assistants
5. Selected Agricultural Assistants (DOA)
6. Other as agreed upon

c. Short-term in-country

1. Intensive course as appropriate Agriculture College
 - (a) Approximately 30 candidates
 - (b) All facilities
2. General courses - Provided by SWMU
 - (a) Appropriate MANR officials - 2 one/week courses/year or equivalent.
 - (b) 60 Agricultural Assistants for 14 day course (30 AA's X 2 courses)
 - (c) All facilities

Note: The above Trainees will come from all units in the GOTG and not confined to the DOA.

4. Provide the following general support:
 - a. Office facilities, operation and maintenance
 1. Space for 20 persons by 9-30-81
(about 200 M²)
 2. Space for 30 persons by 1985 date
(about 300 M²)
 3. Up country facilities as work begins
 - b. Vehicles
 1. Two vehicles
 - one by 12/31/79
 - one by 12/31/83
 2. Operation/Maintenance/REpair for
6 vehicles
 - c. Land
 1. Housing - 3 lots
 2. Office facilities - about 600 M²
 - d. Utilities (Office and 3 Residences)

III. Financing (\$US000)

Project Budget

	Phase I & II thru June 30, 1986	AID
A. Personnel (Technical Assistance) Including incountry support 1982-1986		1,102,000
B. Training		
1. Long Term (Participant out of country)		612,000
2. Short Term (Participant out of country)Diplomate		613,000
3. Other (in-country)		25,000
C. Commodities		150,000
D. Other costs (incl. construction)		285,000
	TOTAL	<u>2,787,000</u>

The annual operating budget from the GOTG for operations of the Unit is estimated to be Dalasis 150,000. An accumulation of this annual amount over a 5 year period will be equivalent to Dalasis 750,000.

IV. General Implementation Procedures

A. In order to implement the project in a timely manner, detailed annual work plans will be jointly developed (SWMU/PASA Team) and agreed upon in writing by USAID/G and the GOTG. This will be done within 30 calendar days of the beginning of the GOTG fiscal year.

B. The annual work plan will include at a minimum the following:

1. What will be done - (Tasks/Activities)
2. How it will be done (Method)
3. Who will do it (Responsibility)
4. How long it will take (Time Frame)
5. How much/many resources it will take (Cost)

Non-Obligating Pro-Ag Funding Summary (\$US000)

	78-2	Total to June 30 1981 78-2 79-1 w/Amends	Jul. 81 Amend III	Estimated total phase I & I thru June 30, 1983	
1. Personnel	556	634	1,149,000	1,102,000	
2. Training	96	166	453,000	800,000	
3. Commodities	100	118	150,000	150,000	
4. Construction	-0-				
		Const. } O.C. } 285	285,000	285,000	
5. Other Costs	190				
	<u>952</u>	<u>1,203,000</u>	<u>2,037,000</u>	<u>2,337,000</u>	15% over original budget

V. All other provisions of prior agreements remain in effect.

SCOPE OF WORK
USDA/SCS/PASA TEAM
SWMU PROJECT
THE GAMBIA

In February 1981 an interim evaluation was completed and a major recommendation was that based on approximately two (2) years of experience, USAID/G and the GOTG should modify the technical assistance mix slightly. It was proposed that the team be reduced from 3 to 2 long term professionals and supplemented with consultants with special skills as required. A finite evaluation in January 1982 recommended a further reduction of technical assistance to one full time professional with appropriate consultants and extension of the project through July 1986.

The project purposes remain the same. The main modification is to slow the input of long term technical assistance until it can be absorbed and utilized more efficiently by sufficient numbers of adequately trained and experienced Gambian staff.

The basic skills required of the PASA team are the following:

- 1) Soil Science
- 2) Plant Science
- 3) Agricultural Engineering
- 4) Crop Science
- 5) Plant Ecology
- 6) Range Conservation
- 7) Training and Information

From January 1982 - December 1983, work will continue on the following elements of the project:

- 1) Training
 - a) Unit Head
 - b) Senior counterparts when available
 - c) OJT - SWMU Conservation officers and assistants and selected DOA Agricultural assistants
 - d) Basic courses at the Agricultural College in soil and water management principles and conservation practices when appropriate
 - e) General courses for agricultural assistants and familiarization courses for selected MANR officials in the Principles of Soil and Water Management as required.
- 2) Development of supporting data for technology and methodology
- 3) Development of a technical guide and conservation practice standards and specifications
- 4) Soil surveys for conservation planning
- 5) Rough draft of a soils handbook

Because 6-8 Gambians will be studying in the U.S. to receive their B.S. degrees; and up to 10 Gambians will be in African universities it was decided to modify the in country technical assistance element at this time. One of the consultants should have training skills in addition to a soils/plant science/soil conservationist background.

Based upon the above, the following are illustrative job descriptions for long-term professionals and a mix of consultants. (No more than one long term professional would be in The Gambia at any one time). It is written with the assumption that the current PASA member will serve another 24 months and the second man and consultants will be tailored to his skills.

LONG TERM PASA:- JANUARY 1982 - DECEMBER 1983 (or somewhat longer)

This person must be administratively and professionally operational. He will have the responsibility for organizing the Gambian and U.S.

technicians into an effective functioning unit while training the Gambian Head of the SWMU. He must also be experienced in administrative, personnel management, and planning and provide basic engineering skills until sufficient Gambian staff are trained in the U.S. and return (a minimum of 2-3 years).

LONG TERM PASA:- 1984 - 1986

Given the above it is recommended that the follow on PASA professional be strong in soil science with skills in plant science, conservation and training. This person should be energetic and flexible as it will be necessary to accomplish a variety of tasks such as teaching and coordinating course work at the Agricultural College and MANR Training Unit and training Gambian staff members to recognize and treat erosion problems, make soil surveys and conservation plans. A considerable amount of this work will be done at the Division level and in the field.

CONSULTANTS

About 1-4 months of consultant services (divided appropriately) are anticipated from January 82 through July 1986. The actual mix will depend on the skills of the long term professional and could be reduced if necessary and used for bringing the second PASA team member out early to overlap with the current team member. It is probable that services will be needed in soil science for additional soil survey work, development of the technical guide, and soil classification, soil interpretations, and training.

A second area of services will be plant science, plant ecology and/or range conservation to help with actual planning at the village level, the management of vegetation and plant residues and further refinement of the technical guide.

One of the most important short term needs will be in development of training aids, materials and information. Short courses instructors will be an important augmentation to the team.

SOIL AND WATER MANAGEMENT UNIT
STAFF AND BUDGET NEEDS

<u>Number of Employee</u>	<u>Positions</u>	<u>Civil Service Grade</u>
1	Principal Soil Conservationist	16
1	Executive Officer	10
1	Typist	4/5
3	Drivers	4
1	Messenger/cleaner	3/4
1	Soil Conservation Officer	13/14/15
1	Senior Soil Conservation Assistant	10/11
6	Soil Conservation Assistants	8
10	Soil Conservation Demonstrators	4/5
25		
	Salaries	80,000
	Other support costs	70,000
		150,000

Grade with B/S degree staff to include two people with B/S degree and six people that can get B/S degree with univerversity training or equivalent.

1981/82 Estimates

Ministry of Agriculture	Personnel				Total	Budget Dollars
	0-3	4-8	9-12	13+		
01 Ministry	4	6	0	5	15	1,425,500
Accounts	0	22	12	4	38	
Stores	25	29	9	1	64	
Plan. & Program	0	2	0	6	8	
AUDIT	0	0	0	0	0	
02 Mech. & Trans.	9	385	6	5	405	1,201,070
03 Ext. AIDS UMT	3	7	6	4	20	151,240
04 Crop Protection	4	83	6	3	101	715,530
05 Directorate of Agri.	107	19	8	3	137	612,350
06 Ext. & training	45	530	27	32	634	2,353,880
07 Res. & Spel. Serv.	0	43	1	13	57	411,570
08 Agri. Engineering	10	61	6	2	79	372,630
09 Tractor Plothing Ser.	21	92	10	3	126	446,200
10 Animal Health Prot.	119	281	22	23	450	1,727,990
Total	347	1560	113	114	2134	9,418,010
Soil & water Mgt. Unit	5	16	3	1	25	150,000

1 - 16 |
 1 - 12 |
 2 - 10 | Extension and Training
 6 - 8 |

10 - 5/6 - Mech. + Trans

5 - 1/3 - Directorate of Agriculture

MINISTRY OF AGRICULTURE

(D 125/1,425,500)

PERMANENT SECRETARY

MECH & TRANS	EXTENSION AIDS UNIT	DIRECTORATE OF AGRICULTURE	CROP PROTECTION	DEPARTMENT OF ANIMAL HEALTH
(D 405/1,201,070)	(D 20/151,240)	(D 137/612,350)	(D 101/715,580)	(D 450/1,727,990)

EXTENTION & TRAINING	RESEARCH & SPEC. SERVICES	SOIL AND WATER MGMT UNIT	AGRI ENGINEERING	TRACTOR PLOUGHING
(D 634/7,353,880)	(D 57/411,570)	(D 25/150,000)	(D 79/372,630)	(D 126/446,200)

SOIL AND WATER MANAGEMENT UNIT
PROJECT RATIONALE

AID/W Food Sector Strategy

- Approved by AA/AFR
- High Priority
- Three Areas
 - *Policy Environment
 - *Institutional Development
 - *Farmer Organizations/Services



USAID/Gambia CDSS

- Comparative Advantage in Agriculture
 - *Mixed Farming
 - *forestry
 - *PVO's
 - *SWMU
 - *Health
 - *OMVG

GOTG 2nd 5-Year Plan

- Priority to Agri. Sector and Rural Development
- Food Sector Strategy CILSS/WFC
- Agricultural Price Policy
- Increased Output
- Develop Manpower
 - 80% of people receive livelihood from Agri.
- Update Extension Services
- Proper Soil and Water Management Techniques
- High Priority Projects
 - *OMVG
 - *Mixed Farming
 - *Forestry
 - *Jahally Pacharr
 - *Swamp Development
 - *Rainfed Rice Development

Agricultural Development and Productivity

1. Land Use Capability

--Optimum use for:

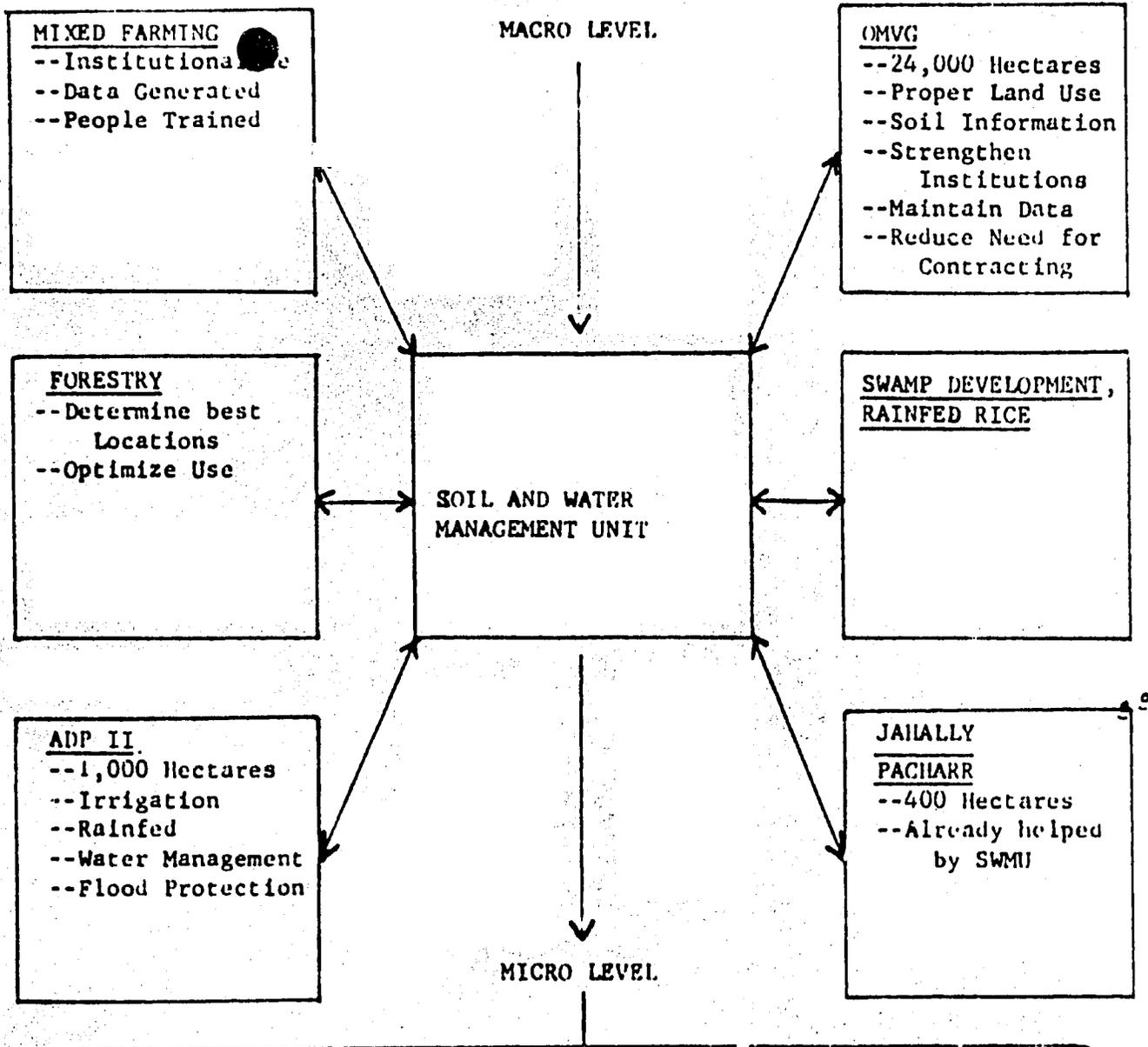
- a) Food Production
- b) Plant Production
- c) Forage Production
- d) Forest/Wood Production

--Need knowledge of:

- a) Soil Resource → Soil Survey
 - *Topsoil → Production Related
- b) Vegetation (Plant Data)
- c) Climate/Water Management
 - *Temperature/Light
 - *Rainfall
 - *Runoff
 - *Wind, Etc.
- d) Management Methods Currently Used

2. Socio/Economic Information

The Gambia has much of this data at the MACRO level through general studies and surveys conducted on a world-wide basis. These studies are made as the first step in a country's planning for agricultural development. To take it the next step, a minimal host country national capacity must be institutionalized.



Ability to go to specific locations and gather needed data to develop soil capability maps and recommend treatments or practices that optimize use of the land resource base. Also, allows The Gambia to use technology from other parts of the world, such as:

- a) International Centers
 -- IITA, ICRISAT, etc.
- b) Other Regional Centers
 -- WARDA/SAFGRAN
- c) National Centers
- d) CDA
- e) Benchmark Soils
- f) AGRO-ECOL (FAO)

IMPROVED FOOD PRODUCTION FOR THE GAMBIA

It is recommended that a standard reporting format for the PASA team be utilized (see below). This format would permit the USAID/G project manager to compare progress with work plans in a timely manner. This will become more important as USG/GOTG cooperation increases. Short (1-2 page) monthly reports are recommended, with technical reports attached as needed. Special reports with a final report would be separate as agreed upon by USAID/G and the GOTG. This report should satisfy GOTG/USAID/USDA requirements whenever possible and reduce the requirement for lengthy quarterly reports. The PASA team leader should not be required to do annual Project Appraisal Reports. If required at all, they should be done by persons outside the project.

USDA/SCS/PASA
MONTHLY REPORTS

(1-2 pages due
within 7 days
of end of reporting
period)

SWMU Project
No. 635-0202
PASA No. _____

Period covered _____ to _____
Submitted by _____

- I. Activities during period covered.
- II. Problems encountered
 - A. What is being done about them by SWMU
 - B. What others should do to help solve the problems
- III. What activities will be taking place during the next period.
- IV. Other
- V. Special/technical/informational attachments.

ANNEX A

SCOPE OF WORK
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Best Available Document