

PD-ABC-050
ISN 68954

PROJECT PAPER SUPPLEMENT

FOR THE GAMBIA

SOIL AND WATER MANAGEMENT PROJECT

(635-0202)

OAR/BANJUL

APRIL 8, 1988

Project Paper Supplement

For

The Gambia Soil and Water Management Project
635-0202

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PD-ABC-050

AGENCY FOR INTERNATIONAL DEVELOPMENT

1. TRANSACTION CODE

DOCUMENT CODE

PROJECT DATA SHEET/SUPPLEMENT

A

A = Aid
C = Charge
D = Debt

Amendment Number

3

COUNTRY/ENTITY

GAMBIA

2. PROJECT NUMBER

635-0702

3. REGIONAL OFFICE

AFRICA

4. PROJECT TITLE (maximum 40 characters)

GAMBIA SOIL AND WATER MANAGEMENT

5. PROJECT ASSISTANCE COMPLETION DATE (FACD)

NOV 30 1979

6. ESTIMATED DATE OF OBLIGATION

(Under "E" items, enter 1, 2, 3 or 4)

A. Fiscal FY 178

B. Quarter 3

C. Fiscal FY 1819

B. COSTS (\$000 OR EQUIVALENT \$) -

A. FUNDING SOURCE	FISCAL FY			LIFE OF PROJECT		
	B. FY	C. LC	D. Total	E. FY	F. LC	G. Total
AID Approved Total						5,170
Grant						5,170
Other						
U.S.						
Host Country						
Other Donor(s)						
TOTALS						5,170

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROXIMATE RELATIONSHIP PURPOSE CODE	C. PRIMARY YEAR CODE	D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
11 EN		2,970		2,200		5,170	
21							
31							
41							
TOTALS		2,970		2,200		5,170	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

11. SECONDARY PURPOSE CODE

12. SPECIAL CONCERN CODES (maximum 7 codes of 4 positions each)

A. Code
B. Amount

13. PROJECT PURPOSE (maximum 400 characters)

1. Establish a Soil and Water Management Unit within the MANR.
2. Develop technology for improved agricultural/pastoral methods consistent with Gambian abilities and resources.
3. Train Gambian Soil & Water Management Specialists and Agricultural Assistants to apply solutions to Soil & Water problems at national and village levels.

14. SCHEDULED EVALUATIONS

MM YY MM YY MM YY

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 91 Local Other (Specify) 935

16. AMENDMENTS/NATURE OF

PROPOSED (This is page 1 of 1 page 27 (continued))

17. APPROVED BY

Signature

J.M. STONE
AID REPRESENTATIVE

Date Signed
MM DD YY

18. DATE DOCUMENT RECEIVED BY AID/W. OR FOR AID/W DOCUMENTS. DATE OF DISTRIBUTION

MM DD YY

ACTION MEMORANDUM TO THE AID REPRESENTATIVE

Date: April 19, 1988
From: Frank Egi, Program Officer
Subject: Extension of the Soil And Water Management Project
(635-0202)

Problem:

Your approval is required to authorize an extension of the Project Assistance Completion Date (PACD) for the Soil and Water Management (S&WM) Project, (635-0202). From March 29, 1988 to June 30, 1991 and to increase the LOP funding by \$2,200,000 from \$2,970,350 to \$5,170,350. With this proposed extension, the LOP would exceed ten years.

Authority:

Section 4A(2) of DOA 551 states that the AID Representative, NAR/Banjul is delegated the authority to amend project authorizations with the prior concurrence of the REDSO/WCA Director, if the Project Authorization Amendment: (1) will not result in a total life-of-project funding of more than \$30 million; (2) does not present significant policy issues and does not deviate from the original project purpose; (3) does not require issuance of waivers that may be approved only by the Assistant Administrator for Africa or the Administrator; and (4) will not result in total life-of-project in excess of ten (10) years. The A/AID approved the Mission's request to extend this project beyond ten years (ref: State 077965). Therefore, in accordance with DOA 551, you are authorized to issue a Project Authorization Amendment.

Rationale For Proposed Action:

The S&WM project was authorized by the AA/AFR in March 1978 to: 1) halt and reverse environmental deterioration due to traditional cultivation practices; 2) stabilize and/or increase production of food, forage, wood and cash crops; and reduce susceptibility to drought and other weather variations; and 3) develop the institutional capacity of the Government of The Gambia (GOTG) to deliver educational, technical and material services in soil and water management to the rural population. The project has several specific purposes:

1. To establish a Soil and Water Management Unit (S&WM Unit) within the Ministry of Agriculture;
2. To develop technology for improved agricultural and pastoral methods consistent with Gambian abilities and resources; and
3. To train Gambian Soil and Water Management Specialists and Agricultural Assistants to apply solutions to soil and water problems at national and village levels.

To date an AFD grant of \$2,970,350 has provided commodities, training and technical assistance. The USDA Soil Conservation Service (SCS) has provided technical assistance to the Gambian Ministry of Agriculture (MOA) under a PASA. The S&WM Unit has been established within the MOA. Also, several Gambian soil and water management specialists and agricultural assistants have been trained and integrated into the S&WM Unit.

Several soil and water conservation structures and measures have been constructed and implemented since the S&WM Unit started involving farmers in practical field-oriented activities in 1984. A total of about 1,400 hectares of land have been improved by such measures.

The third project evaluation completed in January 1988 concluded that although the S&WM project has been successful in its work with farmers, the process of institutionalization has only started and the Unit lacks the capability to deliver educational, technical and material services at a level sufficient to maintain credibility with farmers. This is because the project has been implemented during years of drought and financial hardship in The Gambia. Severe budgetary constraints, a hiring freeze and the retrenchment of the GOTG civil service being accomplished under the ERP made it difficult to staff adequately the S&WM Unit in the MOA. Occasional failure to provide support created uncertainties which impeded development of the Unit. It was not until mid-1987 that the GOTG overcame the worst of its financial and budgetary difficulties and committed itself to providing the resources necessary to staff and maintain a S&WM Unit. At the same time, the S&WM Unit has created a political base by demonstrating its value to its client group - rural farmers. A symbol of both the success and popularity of the S&WM Unit is the recent (December 3, 1987) commissioning of a Soil Conservation District in The Gambia by President Jawara himself. Today there are 50 villages demanding services from the S&WM Unit and farmers are willing to contribute their own labor and resources to accomplish conservation activities. But the S&WM Unit will be unable to meet this demand if the project is ended as scheduled on March 29, 1988. Thus, additional time is needed to complete the process of institutionalizing the S&WM Unit within the MOA, to provide additional technical assistance and training, especially more on-the-job training of S&WM Unit personnel, and to provide additional vehicles, equipment and tools to the Unit so as to increase its operational capacity to a level that will meet farmers' demands, and thereby maintain its credibility and farmer acceptance of the soil and water management philosophy that is just taking hold in The Gambia.

The Project Extension:

The project extension will enable the S&WM project to achieve fully its goals and purposes. Project outputs will remain substantially the same as those designated in the original project paper, i.e., (1) a functioning, trained S&WM Unit with staff at the headquarters and in the field; (2) a soil and water management manual to document technology and action processes; and (3) resource inventories (soil,

vegetative, hydrologic surveys) for selected villages as a basis for soil and water management planning. Another output of the proposed extension will be a national conservation policy, which will be developed for approval at the Cabinet level by the Director of the S&WM Unit and his staff with support from the SCS. In addition, procedural manuals to guide the Unit's work will be completed, tested and revised during the three-year period of the extension.

During these last three years of the S&WM project financed by this extension, Gambian farmers will see an additional 350 hectares of rice lands reclaimed. In addition, there will be demonstrations of upland conservation techniques affecting ten villages and 600 hectares of land. The most important aspect of the physical outputs in the short-term is not the actual area affected, but the demonstration effect and the additional experience available to the staff. To achieve the greatest impact from demonstrating responsible soil and water management techniques, it is vital that the inexperienced Gambian technicians have on-site backing from the USDA SCS for an additional three years.

Project inputs will include: technical assistance, training, and commodities. Continued long and short-term technical assistance will help guide the S&WM Unit staff through a critical growth period during the next three years as its operations expand to meet farmers' demand for soil and water management services. Vehicles, tractors and their appropriate implements, motorized bicycles and important field equipment (augers, rain gauges, neutron probes and tensiometers) will be purchased to facilitate the expansion of the S&WM Unit operations. A blanket vehicle procurement waiver approved by the Deputy Administrator on July 27, 1987 will be utilized when necessary. Additional training will be offered to S&WM Unit technicians who will be assuming responsibility for the planning, design and implementation of soil and water conservation methods throughout The Gambia. The Project Paper Amendment provides a full description of these outputs and inputs.

It is estimated that additional funding of \$2.2 million over the three-year extension will be needed to ensure that the project accomplishes its goals and purposes successfully. A detail budget is contained in the Project Paper Amendment. As an indication of GOTG support for and commitment to the S&WM Unit, all operating expenses for the Unit will be financed by the GOTG through its regular budget process. Moreover, the GOTG will assume all recurrent costs for the Unit as recommended in the January 1988 evaluation.

The Advice of Program Change for the increased life of project funding was forwarded to the Congress on March 1, 1988 and the waiting period expired without comment on March 16, 1988.

Section 121(d): On January 27, 1988, the Deputy Assistant Administrator for Africa concluded that the Determination set forth in Section 121(d) of the FAA is not required as no funds from the Development Fund for Africa will be made available to the Government of The Gambia for this project.

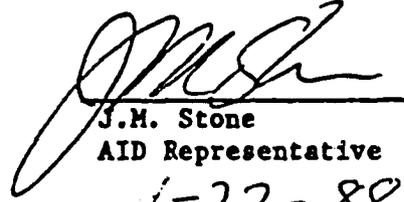
Recommendation: That you sign: (a) this Action Memorandum; and (b) the attached Project Authorization Amendment and thereby approve an increase in the authorized amount of grant funding from \$2,970,350 to \$5,170,350 and an extension of the Project Assistance Completion Date to June 30, 1991.

Concurred in by:

Approved by:

Arthur M. Fell
Director, REDSO/WCA

14 April 1988
Date



J.M. Stone
AID Representative
4-22-88
Date

Ref: Abidjan 07967

Clearances: DADrga, Agr.

FREgi, Prog.

PROJECT AUTHORIZATION AMENDMENT

Country: The Gambia
Project: Soil and Water Management (S&W)
Project No.: 635-0202

Pursuant to Part 1, Chapter 1, Section 121 of the Foreign Assistance Act of 1961, as amended (the "Act"), and the authority delegated to me under Africa Bureau Delegation of Authority No. 551 dated December 23, 1986, I hereby authorize a Grant to the Government of The Gambia, (GOTG), the "Cooperating Country", of not to exceed two million, two hundred thousand United States Dollars (\$2,200,000) to assist in financing the foreign exchange and local currency costs of goods and services required for the S&W project as described in the following paragraph. This will bring the total life of project funding level up to \$5,170,350 and the Project Assistance Completion Date to June 30, 1991.

The S&W project consists of providing technical assistance, training and related goods and services for the establishment of a Soil and Water Management Unit (S&W Unit) within the Ministry of Agriculture (MOA). The S&W project supports the S&W Unit by: assisting in the development of national policies and programs for improving soil and water management procedures; providing basic soil and water management expertise and support to the MOA; developing operating procedures through which technical services are provided to farmers in installing improved soil and water management systems; training personnel of the MOA to carry out the processes of resource evaluation, problem identification, planned development and solution implementation; training a wide spectrum of agricultural assistants to recognize and advise farmers on the solution of simple soil and water management problems; and developing a technical Soil and Water Management Manual.

I hereby authorize the negotiation and execution of the S&W Project Grant Agreement amendment by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and Delegations of Authority, subject to the following terms, together with such other terms and conditions as A.I.D. may deem appropriate:

A. Source And Origin Of Goods And Services

Goods, services and ocean shipping services financed by A.I.D. shall have their source and origin in the cooperating country and in countries included in Code 941 except for motor vehicles provided under the project which will include AID Geographic Code 935 countries.

B. Covenants

1. Effective July, 1988 and at the beginning of each GOTG fiscal year thereafter, the Cooperating Country shall furnish to A.I.D. in form and substance satisfactory to A.I.D. evidence in writing of a budgetary commitment to provide funds for the payment of all recurrent costs under the S&WM project including, salaries, per diem, office equipment and supplies, fuel, vehicle and other maintenance, and all other administrative costs incidental to the project.
2. The GOTG agrees that the MOA will be authorized to hire and staff the S&WM Unit with qualified personnel as required to operate the unit. The positions will be specified and hiring authorized before June 30, 1989.
3. The GOTG agrees to apply fully its rules requiring government service from the participants, especially long-term participants, trained under this project.

Concurred in by:

Arthur M. Fell
Director, REDSO/WCA

14 April 1988
Date

Approved by:


J.M. Stone
AID Representative

4-22-88
Date

Ref: Abidjan: 07967

Clearances: As shown on Action Memorandum

PROJECT PAPER SUPPLEMENT

TO

The Gambia Soil and Water Management Project 635-0202

The following text describes changes in the project which will be implemented over a three-year extension in order to achieve the original goal and purpose of the project. The extended project will consolidate the gains already made to institutionalize the capacity of the Soil and Water Management Unit (S&WM Unit) to deliver educational, technical and material services to the rural population. Specifically, the project will continue to pursue initiatives in local and overseas training and technology development so as to strengthen the capacity of the S&WM Unit staff to develop and disseminate improved agricultural conservation methods and resource utilization strategies.

I. Background

The Gambia, a small country of approximately 785,000 people, is the smallest country in Africa but it has one of Africa's highest population densities. The economy of The Gambia is predominantly agricultural (58 percent of GDP) with groundnuts the major product comprising between 30 and 40 percent of GDP and providing 90 percent of the country's export earnings. Local production provides only about 70 percent of the population's food requirements and about 50,000 tons of rice are imported commercially each year.

Because of its position astride the Gambia River and its open trade policy, The Gambia has served as a commercial entrepot for much of the region, importing goods for re-export to Senegal, Mali, Guinea-Bissau and Mauritania. Its small size, substantial trade openness and heavy dependence on a single export crop gives The Gambia an inherently vulnerable economy, highly sensitive to changes in terms of trade and to shortfalls in agricultural production.

During the late 1970s the Gambian economy began to decline because of a combination of internal and external factors. External sources of disruption were the Sahelian drought, the collapse of international groundnut prices, the rise in international real interest rates, the decline in foreign assistance, and escalating petroleum prices. More important, however, were the internal sources of disequilibrium. Large government investments failed to diversify the economy and generate growth. To operate and manage this investment program the Government dramatically increased public sector employment: the civil service doubled in size from 1977 to 1981, and more than ten new parastatal corporations were created. To finance these investments the Government borrowed heavily,

depleting the reserves of the financial system and accumulating debts. Consequently, by 1981 the Government had a chronic fiscal imbalance, the nation had a structural trade deficit, and the economy was in decline. It was during this period of drought and financial crisis that the Soil and Water Management (S&WM) Project was initiated by USAID.

To address its macroeconomic problems in 1985 the GOTG, with technical assistance from the IBRD and USAID, drafted an action plan for economic realignment. The result of the Task Force's efforts is the Economic Recovery Program (ERP), a comprehensive and courageous program of policy measures to redress the economy's structural imbalances and to return the economy to a sustainable growth path. The ERP became the official government strategy when the Ministry of Finance and Trade began its implementation in June 1985.

A. The Gambia's Economic Recovery Program (ERP)

Major initiatives have been taken under the ERP and progress has been substantial. Of particular relevance to this project are the following:

Agricultural Sector Measures: Significant increases in the production and marketing of groundnuts, rice, and coarse grains were realized as a result of higher official producer prices and more favorable rainfall distribution patterns during both the 1985/86 and 1986/87 seasons. Decontrolling retail rice prices has also helped to encourage domestic cereal production by making coarse grains more competitive in price with imported rice. Since June 1985 commercially imported rice is sold at market determined prices that are significantly above wholesale coarse grain prices. The Gambian Government has also privatized the commercial rice trade, eliminated fertilizer subsidies, and opened the fertilizer trade to private entrepreneurs in its efforts to increase the role of the private sector in agriculture.

Public Sector Measures: First, in June 1985 the GOTG froze all public sector wages and salaries, banned any increases for three years, and froze staff levels through 1990. Second, the GOTG began to reduce and reorganize the civil service. Immediate lay-offs of daily and temporary laborers (2300 people) and employees in established posts (460 persons) resulted in a 24 percent reduction by March 1986. Another 17 percent cut occurred in August 1986 through termination of 750 officials in established posts, lay-offs of 340 temporary and daily workers, and the closing out of 750 unfilled positions.

The ERP's emphasis on rainfed agricultural production complements the S&WM Project's activities, while the ERP's actions to trim government employment have constrained efforts to staff fully the S&WM Unit.

Under the ERP considerable progress has been made towards complete structural reform, and the GOTG is committed to further reform measures during the next several years. For the 1987/88 fiscal year, the GOTG has announced several new reforms, including the following which are relevant to this project:

1. Reduce the number of civil service grades and begin a general salary review in order to make pay grades and pay commensurate with duties and responsibilities under the restructured civil service system. (Note: wages and salaries are not scheduled to be changed in 1988.)
2. Make further adjustments in the producer prices of agricultural commodities including a reduction in the price paid for groundnuts to reflect lower world market prices, a significant increase in the producer price of cotton and a slight reduction in the official producer price for rice paid by the Gambia Produce Marketing Board.

These measures should enable the S&WM Unit to retain qualified staff, and to encourage farmers to adopt the low-cost soil and water management practices being disseminated by the S&WM Unit.

B. History of the Project:

In order to assist The Gambia to address its problems of soil depletion, environmental damage, and loss of agricultural productivity, USAID designed the Soil and Water Management (S&WM) Project. The Project was authorized in March, 1978 with a Project Assistance Completion Date of September 30, 1983. A USAID grant of \$2,970,350 provided commodities, training and technical assistance. The USDA Soil Conservation Service (SCS) provided the technical assistance to the Gambian Ministry of Agriculture (MOA) under the PASA.

Formal work on the project began in June, 1979 with the arrival of the Project Director and two other technicians from the U.S. Soil Conservation Service (SCS). They worked with the S&WM Unit for about three years and in 1983, the Project Director was replaced by another technician from the SCS who has provided the primary technical assistance until the present time.

The project was designed to be implemented in three phases. Phase I (three years) provided for three SCS specialists, commodities and training and was to have established the S&WM Unit as a functioning, effective and integrated part of the Ministry of Agriculture (MOA). Long-term participants were to have been identified, trained (1 year to a BS level), and returned for on-the-job training. Technical manuals in soil and water management were to have been developed, soil, water and vegetation surveys completed, and field activities begun in villages. Assistance was to have been developed for the Gambia College in Agricultural Training. At the completion of Phase II (two years), all Gambian staff were to have been integrated into the S&WM Unit. This phase was to have marked a shift from expatriate to Gambian supervision of S&WM Unit activities. The

actual activities to be undertaken in Phase were to be determined by the second formal evaluation which was scheduled for 1983 but was actually conducted in 1985. In the third phase, short term technical and other support were to have melded the Gambian staff into a cohesive, effective service agency.

Between 1979 and 1983 the S&WM Unit was established and 19 participants were sent for long-term training. Nine received degrees (one MS and eight BS) and ten received diplomas after a two year technical program of academic and practical training. While participants were in training, the SCS technicians established the S&WM Unit and began the development of technical manuals to guide the activities of the S&WM Unit once the participants returned.

In mid-1983, when the first group of participants were returning, an evaluation was conducted that recommended technical assistance be reduced from three long-term experts to one and that the project be extended. An SCS engineer with a very practical orientation arrived in November 1983 and organized the S&WM Unit for field activities. The project was extended to December 31, 1987 and subsequently extended to March 29, 1988. Since 1983 the S&WM Unit has been applying practical solutions to problems of soil deterioration. The S&WM Unit is actively conducting soil and water conservation activities with the direct participation of farmers throughout The Gambia.

Several soil and water conservation structures and measures have been built and implemented since the S&WM Unit started involving farmers in field-oriented activities in 1984. A total of about 1,400 hectares of land have been improved by such measures, a little more than one-third of which is in saline affected ricelands, the remainder being on the uplands. The S&WM Unit has also undertaken soil surveys on 24,000 hectares of land, of which 13,400 were done since the 1985 evaluation. Moreover, a soil and water conservation program has been developed for the Gambia College, with regular lectures being provided by the S&WM Unit professional staff. Community participation accounts for most of the farm level inputs required for the works of the project, and on-farm demonstration of the benefits of conservation practices have created a high level of demand for the services of the S&WM Unit.

It is the judgment of USAID/Banjul, the USDA's SCS Advisor in The Gambia and the December 1987 evaluation team that to achieve a lasting institutionalization of the unit's capabilities it is essential that its newly trained personnel have an additional period of practical field work with experienced SCS personnel to reinforce their formal training. A continued SCS presence will also see the S&WM Unit through an unforeseen period of change, as it becomes responsible for irrigation management which was previously handled by another unit in another Ministry. This additional technical assistance is also required so as to avoid needless errors that could discredit soil conservation and reclamation practices at a critical time in their history in The Gambia.

C. Results of the Project Evaluation:

The most recent project evaluation (December 1987 - January 1988) concluded that although the S&WM Project could be considered successful in its work with farmers to improve soil and water conservation methods, the process of institutionalizing the capacity of the S&WM Unit to continue these activities is not yet complete. This is because the project has been implemented during years of drought and financial hardship in The Gambia. Severe budgetary constraints, a hiring freeze and the retrenchment of the GOTG civil service being accomplished under the ERP made it difficult to staff adequately the S&WM Unit in the MOA. It was not until mid-1987 that the GOTG overcame the worst of its financial and budgetary difficulties and committed itself to providing the resources necessary to staff and maintain a S&WM Unit. By then the S&WM Unit had created a political base by demonstrating its value to its client group - rural farmers. A symbol of both the success and popularity of the S&WM Unit is the recent (December 3, 1987) commissioning of a Soil Conservation District in The Gambia by President Jawara himself. Today there are 50 villages demanding services from the S&WM Unit and farmers are willing to contribute their own labor and resources to accomplish conservation activities. But the S&WM Unit will be unable to meet this demand if the project is ended as scheduled on March 29, 1988. Additional time is needed to complete the process of institutionalizing the S&WM Unit within the MOA, through additional technical assistance and training, especially more on-the-job training of S&WM Unit personnel, and to provide additional vehicles, equipment and tools to the unit so as to increase its operational capacity to a level that will meet farmers' demands, and thereby maintain its credibility and farmer acceptance of the Soil and Water Management philosophy that is just taking hold in The Gambia.

II. Project Description

A. Goal and Purpose

The goal and purpose statement for this three-year extension remain unchanged from those in the original Project Paper. The sector goal to which this project contributes is to halt and reverse environmental deterioration caused by inadequate traditional cultivation practices and to stabilize and increase the production of food and cash crops by reducing farm susceptibility to drought and other environmental problems. The project purpose is to increase the ability of the Ministry of Agriculture (MOA) to develop the institutional and material capability to develop and disseminate educational, technical and material services to the rural population. The conditions that will indicate that the purpose has been achieved (i.e. the End-of-Project status) are: (1) a Soil and Water Management (S&WM) Unit is established within the MOA; (2) Gambians trained in soil and water management practices are staffing the S&WM Unit; and (3) the S&WM Unit staff are able to develop and disseminate appropriate soil and water management practices to farmers.

An extension of the S&WM project fits into the Mission's country development strategy which emphasizes assistance to the agricultural sector in order to help increase production and create the conditions for sustainable growth. Moreover this project is in agreement with the GOTG ERP which emphasizes support for rainfed agricultural production and conservation of The Gambia's natural resources.

B. Project Outputs

Project outputs will remain substantially the same as designed in the original project, i.e., (1) a functioning, trained S&WM Unit with staff at the headquarters and in the field; (2) a soil and water management manual to document technology and action processes; and (3) resource inventories (soil, vegetative, hydrologic surveys) for selected villages as a basis for soil and water management planning.

A new output of the proposed extension will be a national conservation policy, which will be developed for approval at the Cabinet level by the Director of the S&WM Unit and his staff with support from the SCS. In addition, procedural manuals to guide the unit's work will be completed, tested and revised during the three year period of the extension.

A three-year extension of the project will allow the MOA to institutionalize the S&WM Unit and to disseminate widely some of the technologies that are proving successful in preserving The Gambia's soil and water resources. Specifically, the S&WM project will expand its operations by helping the S&WM Unit to establish two additional principal field stations (Units), like the present station at Yundum, and three secondary field stations. The two additional principal stations will be located at Sapu in McCarthy Island Division (MID) and at Kerewan in North Bank Division (NBD); the three secondary stations will be at Jenoi in Lower River Division (LRD), at Basse in Upper River Division (URD) and at Kuntaur (MID). One engineer, one agronomist (resource conservationist), one soil scientist and three highly trained technicians will staff each principal S&WM Unit station (i.e., Yundum, Sapu and Kerewan); and an agronomist or resource conservationist and two highly trained technicians representing a broad range of conservation skills will staff the secondary stations at Jenoi, Basse and Kuntaur. One additional soil scientist and one additional agronomist will be needed to concentrate on the national soil survey activities and assist with countrywide organization and administration of soil and agronomic programs. Therefore, a total of four soil scientists, seven agronomists, three engineers and fifteen technicians will be needed to satisfy the requirements of the decentralized expansion plan. Seven of these requirements can be filled from positions that exist at Headquarters, the remaining 15 positions will be recruited from other GOTG positions.

By decentralized expansion of its operations will the S&WM Unit be able to respond more successfully to the large number of requests

for assistance as received from all over The Gambia. The station at Sapu will be established during the project extension, towards the end of 1988. It will handle the majority of requests for assistance coming from the eastern part of the country. Sapu personnel will receive on-the-job training from the project technical assistance team to improve its administration. Based on this training and experience, the S&WM Unit will be expected to be self-starting in opening additional substations in other sites in The Gambia. During the extension the technical advisor will only assist the S&WM Unit in the proper selection of additional sites and continue training staff who will administer the future sites, resolve technical problems in the target area, and further expand the promotion of sound soil and water management conservation practices into geographical areas. The new sites will not require any additional construction for office space. The three to five persons at each site will share existing available office space with the MOA's agricultural research and extension agents.

It is anticipated that the S&WM Unit sub-station at Basse and the principal station at Kerewan will be established starting in 1990. However, the substations at Jenoi and Kuntaur will be opened after the project extension PACD. Adequate time will be allowed after the establishment of the station at Sapu to permit familiarization with organizational and administrative problems before establishing the other stations.

C. Project Inputs

Project inputs will remain essentially the same as designed in the original project, with some appropriate increases. These are as follows:

1. Technical Assistance: The S&WM Unit will need continued guidance from both long-term and short-term consultants to guide it through the critical growing period of the next three years as it faces challenging organizational and administrative questions at the same time that its core professionals and technicians will be seeking additional technical experience. A long-term technical advisor will be provided for two years by the USDA under the existing PASA. This will have to be a highly experienced conservationist with particular concentration in agronomy, forestry, hydrology and soils. He/she must also be applications-oriented and have strong organizational and administrative skills. In this way there will be some assurance that the two agronomists who returned in July 1986 (S&WM Unit Conservation Planners) will have continuous on-the-job (OJT) training opportunities especially in agronomic matters which will become more important as applied agronomic research questions come into focus.

The SCS advisor will counterpart the S&WM Unit Director, consulting as necessary on a wide range of operational, managerial and technical matters. The Advisor will assure that the Director and other appropriate MOA officials understand the purposes of the

Project Agreement, as amended, and will assist the AID project manager in monitoring project progress. He/she will play a major role in selection and processing of participant trainees. Most importantly the SCS advisor will be a continual presence in the field, available to consult with S&WM Unit personnel at every stage as they design, implement and evaluate each intervention. In this way the technician will conduct informal OJT and will develop and present more formal training in concert with unit leadership using, as necessary, short-term SCS technicians. On-the-job training requirements will be identified by observing the performance of Unit personnel and, if necessary, will be satisfied on an ad-hoc basis. To accommodate this reality, one of the first duties of the long-term advisor will be to assist the Unit Director to develop a rolling plan for on-the-job and in-country training of Unit staff. The plan will then be used for reference in monitoring project outputs.

Technical assistance also will be needed with respect to development of a conservation policy related to soil and water within the framework of a National Conservation Policy for Natural Resources in The Gambia. A short-term environmental advisor will be required to coordinate with responsible individuals in the MOA and the Ministry of Health, which has responsibility for the country's environmental matters, in order to assure that there is adherence to the guidelines outlined in the 1987 National Environmental Management Act for The Gambia.

Short-term assistance also will be required to consult on special engineering problems that may arise. Short-term consultancies are anticipated for a soil scientist, a resource conservationist planner and an agricultural economist. The agricultural economist will assist the S&WM Unit with the development of a monitoring system as discussed below in Section VI, and with the analysis of benefits resulting from increased yields as a result of applied conservation measures and improved cultural techniques.

Phasing out the long-term technician while the Gambian staff assumes full responsibility is an important but relatively simple feature of this extension. At the beginning of the project in 1978, U.S. technicians were performing most of the S&WM Unit's functions in the absence of trained Gambian staff. When the number of long-term U.S. technicians was reduced to one and the inflow of newly trained Gambians began in 1985/86, progressively less of the actual work of the Unit was done by U.S. personnel. Presently, the lone long-term technician is engaged in on-the-job training of the Gambian staff and acting as a consultant and advisor, calling on short-term specialists as necessary to help with exceptional problems and assisting the Unit Director with matters related to long and short-term training. The long-term advisor will be resident over the next two years in order to give trained Gambians additional seasoning as conservation practitioners in the presence of a long-standing professional who can help them avoid the costly mistakes that can be made by trained people who lack experience. In short, all of the Unit's functions will be done by Gambians in the

presence of an experienced U.S. professional from the very beginning of the extension. In the last year of the extension only short-term technical assistance will be provided according to a schedule developed by the Unit Director, based on residual needs perceived before the departure of the long-term advisor.

During the extension, additional personnel will be trained for the Unit and will be hired for newly created positions. In the main, they will be joining the Unit as the long-term SCS professional is preparing to leave or after she/he has done so. By that time, seasoned Gambians will be running the Unit within a revised ministry structure and newcomers will be assigned to work for and with trained, experienced Gambians. OAR/Banjul foresees the necessity of continuing to provide, through PD&S, occasional consultances to underwrite a continuing relationship between SCS and the Unit after the project ends, just as we expect to make some training opportunities available to the Unit after the PACD.

The benchmarks indicating whether or not the Unit is fully institutionalized will be:

- a. The extent to which Gambians are providing on-the-job training of the Unit staff and other MOA staff without U.S. assistance.
- b. The establishment of a fully operational field office staffed and managed by trained, experienced Gambians but also incorporating newly trained, newly hired personnel, without the presence of full-time expatriate personnel.

2. Commodity Procurement: Six vehicles, three tractors and their appropriate implements, seven motorized bicycles and important field equipment such as augers, rain gauges, neutron probes and tensiometers, will be purchased to facilitate the needed expansion of the S&WM Unit operations. A blanket vehicle procurement waiver will be utilized as necessary.

3. Training: The project will provide 27 academic years of long-term (Master's and Bachelor's degree) training, 16 person years of medium-term (diploma) training, and 150 weeks of short-term training in the United States. The medium-term training was not envisioned in the original project paper. This medium-term training will be in farm-oriented conservation/management methods. It will be offered to S&WM Unit technicians who will be assuming responsibility for the planning, design and implementation of soil and water conservation methods. By training these additional technicians, the institutionalization and decentralized expansion of the S&WM Unit operations can take place. The Soil Conservation Service of the USA will sponsor the field training in the US and design sessions where these technicians can relate theory to field practice.

With respect to medium and short-term training, several of the participants - professional staff and technicians alike - will come from existing S&WM Unit personnel. Training will be phased to avoid undue disruption of the work flow and resultant decrease in S&WM Unit's productivity.

In the case of the long-term training, it is anticipated that some individuals will extend beyond the three year limit of the extension period. Any training costs beyond the PACD will be assumed under the Mission's general training programs.

Nos. Of Trained Staff Needed For Decentralized Expansion

	AGRONOMISTS	SOIL SCIENTISTS	ENGRS.	CONS. TECHS.
Principal Stations(3)	3	3	3	9
Secondary Stations (3)	3	-	-	6
National Soil Survey		1		
Total No. Needed	7	4	3	15
No. Already Trained	2	2	1	7
No. Requiring Training	5	2	2	8

Funding is also provided to permit attendance at professional seminars, participation at conferences, and familiarization tours for appropriate S&WM Unit staff.

4. Other Costs: During the life of the project extension an internal interim evaluation of the project will be conducted by OAR/Banjul with assistance from REDSO/WCA as needed. A final evaluation is scheduled to take place near the end of the PACD, which will involve REDSO/WCA staff as well. Funds have been programmed to help pay for the final evaluation. If an audit is deemed necessary at any time during the project extension's implementation, arrangements will be made for either the RIG/Dakar or a contractor to conduct one. Funds have been allocated to pay for such an audit. A contingency factor of about 3.4 percent has been included to cover unexpected costs.

III. Economic and Financial Justification

The economic benefits of these project activities have been proven conclusively through economic analyses done during the 1985 and 1987 evaluations. Moreover, a study of water-controlled rice production in The Gambia also assessed the rate of return of water conservation/management methods on crop production. Using the most conservative set of assumptions, these analyses demonstrate rates of return of between 20 and 42 percent for swamp rice improvement activities undertaken by the S&WM Project.

To date more than 600 hectares of swamp rice lands have been reclaimed for 27 villages. Much of this land had not produced any rice or other crops for several years. Moreover, an additional 850 hectares of upland farming areas have been preserved or restored to agricultural productivity. It is important to note that most of the lands which have been recovered are now being farmed by women.

During the three years of the project extension, an additional 350 hectares of rice farming areas will be reclaimed. In addition there will be demonstrations of upland conservation techniques affecting 10 villages and 600 hectares of land. The most important aspect of these activities over the medium to long-term is not the actual area affected, but the demonstration effect which will encourage other villages to adopt similar practices and the additional field experience which the S&WM Unit staff will acquire.

Project Beneficiaries: The direct beneficiaries will be Gambian farmers who will be able to increase their crop and livestock productivity by utilizing the improved farming and conservation practices disseminated by the S&WM Unit. Farmers will also benefit from the use of proper land management practices which will be initiated through soil surveys. Proper water and soil management practices will also benefit fishermen as mangrove swamps (breeding grounds for fish) are preserved and river and stream pollution and siltation are reduced. Utilizing appropriate water management techniques will increase the available water supply by increasing the number of reservoirs and raising the water table, which will make wells function longer into the dry season. This will benefit not only farmers but also local wildlife. National benefits will accrue to The Gambia as appropriate soil and water management practices increase agricultural productivity. First, it will increase the food self-reliance of The Gambia at the village and regional level. Second, it will improve rural incomes and help retard the rural to urban migration. Finally, it is important to note that while these activities benefit all farmers and rural dwellers, women farmers especially have benefitted from the S&WM project's work to date. Much of the S&WM Unit's work has focused on recovering swamp farmland from salinization. Traditionally women have cultivated swamp rice. Hence, the recovery and/or rehabilitation of swamp rice farmland directly benefits women.

IV. Revised Implementation Plan

A. Project Management

The project will continue to be managed in its present form. The responsibilities of the GOTG, the USDA/SCS PASA and USAID/Banjul are as follows:

1. The GOTG: At the Ministry of Agricultural level, the Department of Agriculture (DOA) will continue to play a central role by providing Gambians to staff the S&WM Unit, at both its headquarters and in the field. Office space will also be provided by the DOA.

The DOA also coordinates the S&WM Unit's activities so that they coincide with the national Development Plan, which has as one of its major objectives the attainment of self-sufficiency in rice. The DOA and S&WM Unit also collaborate with: (1) the Hydrometeorological Department, sharing hydrologic and meteorological data; (2) the Extension Aids and Training Unit (EATU), producing videos and slide/cassette shows of Gambian soil and water conservation improvement practices; (3) the Program Planning and Monitoring Unit (PPMU) collecting statistical data for crop and livestock production and acreage fluctuations; (4) the soils laboratory, testing and analyzing soil samples; (5) the Gambian Agricultural Research and Diversification Project (GARD), coordinating crop and horticultural activities in areas where water retention or anti-salinity barriers are constructed; (6) the Agricultural Development Program II (ADP II), working with the agricultural extension service to promote agricultural production at the village level; (7) the Gambian River Basin Development Organization (OMVG), obtaining soil survey data for the alluvial flood plain areas in The Gambia; and (8) PVO's, NGO's, and other donors (see below) who have signed agreements with the GOTG.

2. The USDA/SCS PASA: The USDA/SCS PASA will be responsible for the full support of the long-term advisor (e.g., shipment of household effects and personal vehicles, international travel, housing, furniture and appliances, utilities, etc.) and all necessary support for the short-term consultants. All aspects of the placement, monitoring, support and return of the trainees will be the responsibility of USDA/OICD in conjunction with the GOTG. The USDA/SCS PASA will also be responsible for a small amount of specialized commodity procurement. These commodities will be purchased in the U.S. or purchased "off-the-shelf" in The Gambia (e.g., office and other supplies).

3. AID/BANJUL:

The AID/Banjul Agricultural Office will oversee the project. Any additional support not available within the Mission (e.g., legal and contracting services) will be requested from REDSO/WCA. Funds for vehicle and equipment, procurement, evaluations, audit, contingencies and inflation will be outside the contract and managed

by AID/Banjul together with the MOA. AID/Banjul's Training Office (a part of the Program Office) will provide assistance to the program by assisting in selection of participants and issuing PIO/Ps. Vehicles and other heavy equipment and motorcycles will be procured by AID/Banjul using a PIO/C with the appropriate waiver as required.

B. Revised Budget and Financial Plan

The following table presents the additional funding needed for the three-year extension:

U.S. - Financed Project Costs
(\$000)

<u>Input</u>	<u>Original Budget</u>	<u>Increase in LOP Required</u>	<u>Revised Total</u>
Technical Assistance	1,550.75	472.00	2,022.75
Training	819.00	1,225.50	2,044.50
Commodities	382.40	267.00	649.40
Other Costs	194.50	0	194.50
Miscellaneous	23.70	87.50	111.20
Audit	0.0	25.00	25.00
Evaluation	0.0	50.00	50.00
Subtotal	<u>2,970.35</u>	<u>2,127.00</u>	<u>5,097.35</u>
Contingency	<u>0</u>	<u>73.00</u>	<u>73.00</u>
Grand Total	2,970.35	2,200.00	5,170.35

The table on the next page presents a detailed cost breakdown of the additional expenditures required to complete the project.

Project Extension
Summary Cost Estimates
(FX: \$000, LC: 0000)

1. <u>Training</u>	<u>USAID</u>		<u>GOTG</u>	<u>TOTAL</u>	
	<u>FX</u>	<u>LC</u>	<u>LC</u>	<u>FX</u>	<u>LC</u>
A) Long term: 9 persons @ \$27,000/yr. X 3 yrs.)	\$ 729.0	0	0	\$ 729.0	0
B) Medium term: (8 persons @ \$48,000/yr. X 2 yrs)	\$ 384.0	0	0	\$ 384.0	0
C) Short term: (15 persons X 10 wks. X \$750/wk)	\$ 112.5	0	0	\$ 112.5	0
Subtotal	<u>\$1,225.5</u>	0	0	<u>\$1,225.5</u>	0
2. <u>Technical Assistance</u>					
A) Long term Tech. Advisor (Agr. Conservationist for 2 yrs)	\$ 220.0	0	0	\$ 220.0	0
B) Short-term T.A.					
(1) Engr. Tech. (16mw/yr. X 2yrs. + transp. & per diem)	\$ 70.0	0	0	\$ 70.0	0
(2) Agr. Engr. (6 mw/yr. X 2yrs + transp. & per diem)	\$ 30.0	0	0	\$ 30.0	0
(3) Soil Scientist (10 mw/yr X 2yrs. + transp. & per diem)	\$ 46.0	0	0	\$ 46.0	0
(4) Res. Cons. Plann. (6 mw/yr. X 2 yrs. + transp. & per diem)	\$ 30.0	0	0	\$ 30.0	0
(5) Env. Planner (20 mw + transp. & per diem)	\$ 46.0	0	0	\$ 46.0	0
(6) Agr. Econ. (6 mw/yr. X 2 yrs + transp. & per diem)	<u>30.0</u>	0	0	<u>30.0</u>	0
Subtotal	\$ 472.0	0	0	\$ 472.0	0

Project Extension
Summary Cost Estimates
(FX: \$000, LC: D000)

	<u>USAID</u> <u>FX</u>	<u>LC</u>	<u>GOTG</u> <u>LC</u>	<u>TOTAL</u> <u>FX</u>	<u>LC</u>
3. <u>Field Equipment & Vehicles</u>					
A) 3 tractors for Sapu	\$ 75.0	0	0	\$ 75.0	0
B) 6 vehicles (3 for Sapu plus 3 replacements)	\$ 90.0	0	0	\$ 90.0	0
C) Hydrometers, transits & other survey equipment	\$ 70.0	0		\$ 70.0	0
D) 200 wheelbarrows	\$ 14.0	0	0	\$ 14.0	0
E) 200 shovels & pails	\$ 6.0	0	0	\$ 6.0	0
F) 20 rain gauges	\$ 1.5	0	0	\$ 1.5	0
G) 7 motorbikes	\$ 7.0	0	0	\$ 7.0	0
H) 7 mopeds	\$ 3.5	0	0	\$ 3.5	0
Subtotal	<u>\$ 267.0</u>			<u>\$ 267.0</u>	0
4. <u>Seminars & Professional Participation In Conferences, Familiarization Tours etc.</u>					
Total	<u>\$ 87.5</u>	0		<u>\$ 87.5</u>	0
5. <u>Other Costs*</u>					
Audit	25.0	0	0	25.0	0
Evaluation	50.0	0	0	50.0	0
Contingency	73.0	0	0	73.0	0
Salaries and Wages for S&WM Unit	0	0	102.64	0	102.64
Operation & Maintenance	0	0	84.13	0	84.13
Allowances	0	0	34.32	0	34.32
Office Expenses	0	0	<u>18.17</u>	0	<u>18.17</u>
Subtotal	148.0	0	239.26	148.0	239.26
Grand Total	2200.0	0	239.26	2200.0	239.26

*1 US Dollar = 6.5 Dalasis

The last table presents a summary of the methods of financing for the major project actions envisioned.

C. Methods of Financing

(\$000)

<u>Element</u>	<u>Contracting Method</u>	<u>Type of Contract</u>	<u>HC/Direct</u>	<u>Financing Method</u>	<u>Est. Value</u>
1. Technical Assistance	PASA	Cost Reimbursement	Direct	Letter of Commitment	472.0
2. Commodities	Fixed Price	Cost Reimbursement	"	Letter of Commitment	267.0
3. Training	OICD/ITD	Cost & Fixed Fee	"	Letter of Commitment	1,225.5
4. Miscellaneous	Fixed Price	Cost Reimbursement	"	Letter of Commitment	87.5
5. Audit/Evaluation	Fixed Price	-	"	Letter of Commitment	75.0
6. Contingency/Infation	-	-	-	"	<u>73.0</u>
				TOTAL	2,200.0

D. 121 (d) Certification

Section 121(d): No AID funding has previously been provided to the GOTG. The Mission provided a recertification on August 12, 1987 verifying that procedures will not change.

E. Revised Implementation Schedule

Note: This schedule assumes that the AA/AFR will approve the project extension before the current PACD of March 29, 1988.

<u>Activity</u>	<u>Start Date</u>	<u>Completion Date</u>
Amend & sign ProgAg	March 30, 1988	N/A
Recruit/replace L.T. Tech. Adv.	April 1, 1988	July 1, 1988
Recruit, screen & select participants for training	April 1, 1988	
Develop data collection & monitoring system	May 1, 1988	Aug. 1, 1988
Develop training plan	May 1988	June 1988
Prepare procurement plan	June 1988	
Publish engineering manual	July 1988	
Publish national soil survey manual	July 1988	
Procure vehicles	Aug. 1988	April 1991
Procure first tranche of field equipment	Aug. 1988	

Mor r & collect soils, rainfall, hy.ologic data etc.	Aug. 1988	Continuous
Commence S.T. training in U.S.A.	June 1988	
Commence M.T. training in U.S.A.	Sept. 1988	
Commence L.T. training in U.S.A.	Sept. 1988	
Establish sub-unit at Sapu	Sept. 1988	Dec. 1, 1988
Initial env. consultancy re development on env. policy guidelines		Dec. 1, 1988
Conduct mid-term evaluation	Sept. 1, 1989	Oct. 1, 1989
Attend seminars, professional mtgs, familiarization tours	Continuous, as appropriate	
Soil surveys	Continuous	
Organize village conservation committees		Continuous
Plan, design and construct water conservation measures	Continuous	
Produce additional educational material	Continuous	
Prepare draft of National Conservation Policy for natural resources	June 1989	
Establish units at Basse & Kerewan	Jan. 1990	June 1990
Cabinet approves National Conservation Policy	Jan. 1990	
Conduct Final Evaluation	Jan. 1, 1991	Feb. 1, 1991
Establish units at Jenoi and Kuntaur	Jan. 1992	June 1992

F. Coordination With Other Donors

The S&WM project works with both the FAO and The Gambia River Basin Development Organization (OMVG) to undertake soil surveys for the OMVG project with partial funding being provided by FAO (vehicles, fuel and maintenance allowances) and partial funding by OMVG for labor costs. This arrangement started in 1985 and is beneficial to all the parties concerned because the S&WM Unit's involvement allows the most cost effective provision of needed soil data to both the FAO and the OMVG while the S&WM Unit obtains soil survey data for those alluvial flood plain areas in which the OMVG is interested at no extra cost to the S&WM project. The working arrangement between the S&WM Unit and the OMVG and the FAO is likely to continue for many years to come because the OMVG requires soil data for all of the Gambia River Basin and the S&WM Unit is charged with completing a National Soil Survey, in each case a continuous long-term activity.

The S&WM Unit has also coordinated its work with that of the USAID Gambia Agricultural Research and Diversification (GARD) Project, which started in mid-1985. The GARD Project's objective is to test and adapt improved crop and livestock technologies and promote these technologies in The Gambia through collaboration with the GOTG extension service, with Private Voluntary Organizations (PVO's) and with the commercial and private sector. Hence collaboration will continue between the GARD project and S&WM Unit.

To date, the S&WM Unit has performed soil surveys in locations where the GARD project has field experiments and the GARD project has monitored and collected data on salinity and soil moisture conditions behind S&WM project structures where the GARD project conducts or plans to conduct on farm-trials. There are several areas where a more systematized research and data collection program could be very useful to both projects, (e.g. before and after construction data on salinity, ground water levels, and yields on various crops).

The S&WM Unit will also train Village Extension Workers (VEWs) under the World Bank sponsored Agricultural Development Program II (ADP II). Training will include an initial course which outlines methods for village workers to promote improved soil and water management practices. Thereafter, periodic specialized on-the-job training will be provided to VEWS. Ten to fifteen agricultural VEWS will be trained during the first year. The following year, another 10-15 agricultural VEWS will receive their formal training while the first group receives additional of on-the-job training. In the third year, yet another 10-15 VEWS will be trained with more follow-up on-the-job training provided to the first and second groups. This process is expected to continue as the S&WM Unit expands its activities throughout the country.

Non-Governmental Donor Coordinated Activities with the S&WM Unit are as follows:

1. Freedom From Hunger Campaign (FFHC): - This organization's purpose is to increase food production by working at the village level. It has a cadre of about 30 to 50 expatriate and Gambian specialists working only in the Lower River Division. The S&WM Unit provides the FFHC with soil surveys and engineering services (site selection, spill way design, hydrology, water yields), while the FFHC does its own construction of dikes, water retention and causeways. With S&WM Unit assistance the FFHC will commence work on salt intrusion barriers this year.
2. The International Union for Conservation of Nature and Natural Resources (IUCN): IUCN provides independent international leadership for promoting effective conservation of nature and natural resources. They have established an environmental education program which will be administered through local conservation clubs. The S&WM Unit is assisting the IUCN in the exchange of conservation information and in the establishment of conservation clubs throughout The Gambia. During the first year of this project extension it is expected that three conservation clubs will be established, and thereafter, five additional clubs will be established on an annual basis.
3. Save the Children (SC): Save the Children's activities are focused in a small area of 18-20 villages on the north bank of the Gambia River. Their purpose is to increase agriculture production by promoting agricultural interventions at the farm level. SC recently signed a NGO grant agreement with USAID to increase production of rice and millet. The S&WM Unit will continue to help SC develop a large salt intrusion barrier and water retention dike system in the North Bank Division. It is expected that over the next three years about 20,000 farmers in the impact area will be using the improved methods of rice and millet cultivation.
4. Catholic Relief Services (CRS): Its primary purpose is to provide food aid so as to improve the nutritional status of undernourished children in rural areas. Recognizing that farmers could increase their family's nutritional status by cultivating crops high in oil content, and financed by a USAID Operational Program Grant, CRS began to experiment with sesame seeds in 1985. Two years later, they were astonished at the strong positive response from farmers: sesame seed farming increased from 2400 hectares to over 12,000 hectares. The S&WM Unit assisted the CRS in developing the proper planting procedures for this dry season crop. In order to maximize the use of the rainfall, sesame crops were planted on the contour. The S&WM Unit has trained twenty-five CRS village extension workers in the use of this system. During the project extension the S&WM Unit and the CRS will institutionize a training program for farmers.

5. Peace Corps: The Peace Corps provides volunteers (PCV's) to the S&WM Unit including a graphic-artist and extension field demonstrators. PCVs have organized farmers to collaborate with S&WM Unit officials in implementing improved soil conservation schemes. The S&WM Unit has generally used three PCV's on a yearly basis who are assigned directly to the unit. One is stationed at the headquarters and the others are stationed in villages. The S&WM Unit also assists in training Peace Corps volunteers upon their arrival in the country. This training consists of providing soil and water conservation practices that PCV's should use while in the Gambia.
6. German Technical Assistance To The Gambia (GTZ): In The Gambia, GTZ works with the Ministry of Water Resources, Forestry and Fisheries Dept. providing village farmers with salt water intrusion barriers systems and providing forestry services to the public. They have established three forestry nurseries which propagate the species of trees required by the S&WM Unit for river bank stabilization, watershed improvement, future use of wind breaks, and fruit trees.

V. Issues

A. Ensuring Institutionalization

One common problem which USAID has encountered in similar projects is how to ensure the institutionalization of the capacities developed under training projects/programs. Common difficulties experienced by similar projects in other countries include problems with retention of trained staff because of poor salaries and working conditions, and inadequate budgets, training, staff and equipment to perform their activities.

Two particular problems that have been or may well be encountered by the S&WM Project are: (1) appointment of sufficient staff to the S&WM Unit; and (2) staff retention or motivation.

1. Staff Appointments to the S&WM Unit: The 1988 GOTG budget shows 22 positions approved for the S&WM unit. Only 14 have been filled to date. (The discrepancy of numbers is due to 8 S&WM Unit employees assigned to other agencies. However, within those agencies they carry out soil and water management functions). This staffing process has been slow because of the budgetary constraints noted above, but adequate staff levels are essential to the institutionalization goals of the project. Hence it will be a covenant of the new project agreement that the MOA is authorized to hire the remaining professional staff for the unit by the end of the first year of the project extension. Given the ongoing reorganization of MOA, it should be able to accommodate the necessary staff in its reorganizational plan.

2. Staff Retention and Motivation: Staff that have been trained by the project might be in demand, particularly as the level of private sector activity in agricultural services increases in The Gambia. The better qualified individuals may be able to command higher salaries and benefits outside the MOA and the GOTG. The salary freeze in effect since 1985 has made government employment less attractive. However, it is still desired because of the security and perquisites it brings. While no salary raises per se are expected in 1988, the severe reduction in civil servants and a marked improvement in revenues will enable the GOTG to be more generous in succeeding years. Meanwhile reclassification adjustments hold some promise. The upshot is that civil servants are trying to keep their jobs if they can. Nevertheless, the project implementors, including the GOTG, will need to give considerable attention to working conditions for host country staff, including not only financial incentives but also questions of prestige and professional satisfaction. A related point concerns bonding of participant trainees, that is the requirement that individuals sent for long-term training be required to work in their home institution for at least two years after their return. This is a normal requirement of the GOTG, and it will be fully enforced for people trained under this project by means of a covenant.

B. Participant Training Selection

The possibility of training opportunities is one of the major incentives that the S&WM Unit can offer to existing staff or to individuals the unit hopes to recruit. Who receives training and who does not, is an important consideration in African countries. To date, selection of participant trainees has been handled informally, with the MOA Permanent Secretary and the expatriate Project Advisor having the major voice in selection decisions, and OAR/Banjul officials having final veto authority in as much as participants must meet minimum academic qualifications. Although the flexibility inherent in such an informal process has some advantages, a more regularized approach that is understood by potential trainees will be put in place during this extension. A project training committee, consisting of the chief expatriate advisor, the USAID ADO, and two or three (MOA) host country officials will be established in the early stages of implementation to enforce this criteria.

The S&WM Unit has developed the following long-term training criteria: (1) Participants are required to have diplomas and all participants that will study overseas for a B.S. degree will be required to have at least 2 years of higher diploma study outside of The Gambia; and (2) Participants must be GOTG employees.

The Medium-term Training criteria are that: (1) Participants are required to be diploma graduates of The Gambia College or have additional academic training in an African Institution; and (2) Participants must be GOTG employees.

The Short-term training criteria are that: (1) Participants be high school graduates; and (2) Participants must be GOTG employees.

Additional criteria will be developed by the management of the S&WM Unit, the SCS technical assistants advisor and OAR/Banjul representatives. OAR/Banjul's S&WM Project Committee in conjunction with the OAR/Banjul Training Committee will monitor the implementation of the selection criteria developed under the S&WM Project. All aspects of the placement, monitoring, support and return of the trainees will be the responsibility of USDA's Office of International Coordination and Development/International Training Division (OICD/ITD) in conjunction with the GOTG and OAR/Banjul's training office.

C. Adoption of a National Conservation Policy

During the past ten years of the project, four major types of soil and water conservation and management techniques have proven to be the most effective given the environmental and socio-economic conditions of The Gambia. These are: (1) water retention structures; (2) contour berms with contour cultivation; (3) water diversion structures; and (4) anti-salinity barriers. (See Annex 4.) The S&WM Unit and personnel in the MOA are aware of the success of these methods, which will become part of a national conservation policy.

Short-term technical assistance will be needed with respect to the development of the National Conservation Policy in The Gambia. The short-term technical advisor will be required to coordinate with responsible individuals in the Ministries of Water Resources and Health, in order to ensure that there is adherence to the guidelines outlined in The Gambia's National Environmental Management (NEM) Act which was signed into law in March 1987.

The S&WM project has already begun activities to comply with the NEM Act. For example, Article IV of the NEM Act requires fighting erosion and misuse of the soil by:

- (1) establishing plans based on scientific investigation (ecological, pedological, sociological and economic) and in particular, classification and land use capability;
- (2) improving soil conservation and introducing improved farming methods, which ensure long-term productivity of the land; and
- (3) controlling erosion caused by various forms of land-use which may lead to loss of vegetation cover.

The S&WM Unit activities address these concerns directly and they form the core of an action-oriented policy.

To ensure that the National Conservation policy is developed, approved by the Cabinet and implemented, the following benchmarks have been developed.

1. October 1988 - Agreed terms of reference for technical assistance in conservation policy formulation.

2. January 1989: arrival of a consultant to begin working with the Ministries of Agriculture, Water Resources, and Health on policy formulation. The draft will be prepared by June 1989.

3. July 1989: Draft policy submitted to Cabinet.

4. January 1990: Cabinet approval of the policy document.

VI. Monitoring and Evaluation Plan

A complete Monitoring and Evaluation plan has purposely not been developed for this PP Supplement. This is because over the next few months, AID/Banjul intends to restructure its entire set of Monitoring and Evaluation activities at both the program and the project level, using the services of an IQC firm specializing in this area. The S&WM project will be included in this review. Accordingly, the following M & E plan is defined only in very general terms.

Monitoring of the extended project will be carried out at two levels. The first set of M & E activities will look at the development and institutionalization of the S&WM Unit in the MOA, which is the essence of the project outputs and purpose. The second set of monitoring activities will attempt to assess the broader impact of the project, by examining practices that have been implemented and the effect they are having on agricultural production. In addition to regular monitoring, two evaluations are planned for the extended project.

A. Monitoring Project Outputs and Purpose

The sources of information for this set of monitoring activities are contractor reports, MOA reports, training records and reports, interviews and meetings, and whatever special reports may be required. In addition, soil and water conservation and management projects implemented in the field, their quality, and the level of Gambian participation in their implementation studies will be indicators of progress toward the overall project objective of institutionalizing a S&WM Unit. By the end of the first year of the extension, the SCS advisor will have withdrawn completely from providing technical inputs and will only offer advice.

B. Project Evaluations and Audits

Two project evaluations will be carried out during the project extension. The first will occur in September 1989, or approximately 18 months after the extension begins. It will review mid-extension progress in meeting project goals and purpose and recommend any necessary actions to ensure achievement of project objectives by the new PACD. The final evaluation will be executed near the end of the project in January 1991. Provision is made for an audit, in the event one is deemed necessary. A line item has been included in the budget to cover the anticipated costs of the evaluation and audit.

VII. Conditions and Covenants

The conditions and covenants in the original project agreement will remain in effect during this extension. In addition, two covenants will be added to the project agreement via a Grant Agreement Amendment.

A. Covenants

1. The GOTG agrees that the MOA will be authorized to hire and staff the S&WM Unit with qualified personnel as required to operate the unit. The positions will be specified and hiring authorized before June 30, 1989.
2. The GOTG agrees to apply fully its rules requiring government service from the participants, especially long-term participants, trained under this project.

ANNEX 1

REVISED LOGICAL FRAMEWORK

Estimated Project Completion Date June 1992
Date of this Summary March 1988

Project Title & Number: Soil and Water Management Project (635-0202)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal:	Measures of Goal Achievements:		Assumptions for achieving goal targets
<ul style="list-style-type: none"> a) Halt/reverse environmental deterioration due to inadequacy of traditional agricultural /pastoral methods. b) Increase/stabilize production of food/ forage/wood/cash crops; reduce susceptibility to drought, other weather variations. c) Improve institutional capability of GOTG to deliver educational, technical material services to rural population. 	<ul style="list-style-type: none"> a) Reduced soil compaction, surface run-off and erosion on cultivated lands. b) Adoption of techniques to utilize animal manures, crop residues etc., to improve soil conditions. c) Reduction of burning of animal manures and plant residue. d) Aggregate agricultural production increases or decreases less than previously anticipated under adverse conditions. e) Villages and farmers recognize value of the services provided and request assistance from the unit. 	<ul style="list-style-type: none"> a) Field observations by specialists. b) Observations of field AA's. c) National production estimates. d) Requests for services received from villages and farmers. 	<ul style="list-style-type: none"> a) Proper soil/water management is an essential foundation of overall agricultural development program and desired environmental quality. b) Appropriate soil/water management technology can be developed in the The Gambia cultural context c) Soil/water management is and will remain a high priority of GOTG.

NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

Project Purpose:

Conditions that will indicate purpose has been achieved: End-of-Project status.

Assumptions for achieving purpose:

- a) Establish a soil and water management unit within Ministry of Agriculture.
- b) Develop technology for improved agriculture/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.

- a) Unit under Gambian direction comprising 36 trained specialists.
- b) Soil/water technical manual printed and adopted by MOA.
- c) Appropriate soil/water management training courses in operation within MOA training program.
- d) Village planning and action process developed and documented in training aids and technical manuals.

- a) MOA budget.
- b) AID evaluation of unit's activities and effectiveness.
- c) Technical reviews of soil/water management by MOA-SCS.
- d) Interviews with graduates of training programs.

- a) MOA and GOTG will provide adequate policy direction, budgetary support and coordination to enable unit to operate effectively.
- b) Soil/water management technology developed will be achievable within the financial, physical, (mechanization and cultural means of Gambian farmers.
- c) Appropriate techniques and concepts will be accepted by Gambian farmers as being in their own best interests.

NARRATIVE SUMMARYOBJECTIVELY VERIFIABLE INDICATORSMEAS OF VERIFICATIONIMPORTANT ASSUMPTIONS

Project Outputs:

- a) Functioning, trained soil/water management staff, both at headquarters and in field.
- b) Soil/water management manual to document technology and action process.
- c) Resource inventories, (soil, vegetative, hydrologic surveys) for selected villages as basis for soil/water management planning.

Magnitude of Outputs:

- a) Manual printed and distributed in quantity for users.
- b) 58 villages assisted with village planning and action process.
- c) 4 administrative leaders trained. 10 technical specialist trained in third country. 26 specialist completed academic training in U.S. 100-125 Agricultural Assistants trained in general concepts.

- a) Visit cooperating villages to evaluate extent of acceptance.
- b) Feedback from Agricultural Assistants on value and utility of technical manual.
- c) Training certificate received training records, student's evaluation of courses.

Assumptions for achieving Outputs:

- a) Technical capability for development of manual will exist in unit staff as supplemented by short-term consultants.
- b) Village planning and action process can gradually overcome the conservatism and reluctance to adopt new techniques characteristic of Gambian villagers.
- c) Agricultural Assistants will find soil/water management technology a useful and valuable addition to their technical skills.

NARRATIVE SUMMARY

ACTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

Project Inputs:
Activities and Types
of Resources

Level of Effort/Expenditure for
each activity (\$000)

Assumptions for providing
Inputs:

- a) Expatriate team of interdisciplinary specialists (conservation planner, soil scientist, plant ecologist).
 - b) Short-term consultants.
 - 1) Long-term training abroad.
 - d) Local training.
 - e) Commodities and misc. supplies.
 - f) Housing of U.S. team.
- a) 14.7 p/y long-term U.S. tech. advisor \$1,200.
 - b) 10 p/y short-term consultants \$822.00.
 - c) Funding for 36 Gambians to be trained abroad \$2,044.
 - d) On site efforts of U.S. team to produce local on-the-job training in-puts.
 - e) Commodities, vehicles, office and lab. equipment, household furnishings, technical library, \$649.
 - f) Other cost: construction, contingencies, inflation, miscellaneous \$455.
Total \$5,170.

- a) AID Controller records.
- b) Project records and reports.
- c) GOTG/MOA Budgets/ Reports.

- a) MOA will recruit and assign qualified staff to SMWJ.
- b) U.S. TEAM leader and MOA officials can select qualified candidates and arrange appropriate training program basis.
- c) Adequate supplies, commodities, and equipment can be scheduled, purchased and delivered on-site on a timely basis.
- d) GOTG can and will provide in-puts (including personnel, maintenance and support) as shown in project description and financial plan.



Ministry of Agriculture

The Quadrangle

Banjul, The Gambia

Ref: MA/3854^C

10th March, 1988

EXTENSION OF USAID ASSISTANCE TO THE SOIL
AND WATER MANAGEMENT

I wish to refer to my previous correspondence on the above-mentioned request that is the extension of USAID assistance to the Soil and Water Management Unit of this Ministry for a period of 2 years.

It is however the view of this Ministry that an extension period of 3 years could ensure a more effective transfer of responsibilities and operations.

Accordingly we now wish to formally request for a 3 year extension period instead of 2 years as stated in my previous correspondence.

Grateful for your reaction.

Handwritten signature
for: Permanent Secretary

The Director
USAID
Leman Street
Banjul

THE REPUBLIC



OF THE GAMBIA

Ministry of Agriculture

Central Bank Building

Buckle Street

Banjul, The Gambia

MA/3854^C/Vol.2/(79-YJ) 18th November, 1987

FORMAL REQUEST OF USAID FUNDING FOR THE
SOIL AND WATER MANAGEMENT UNIT

The extension of USAID involvement and support of the Soil and Water Management Unit for a period of 2 years will to a large extent assist government in the realisation of its objectives regarding the conservation of our soil and Water Resources. While appreciating the goodwork already accomplished through USAID collaboration, government once again wishes to formally request for a 2 years extension of the project together with the necessary financial and technical assistance.

Concerning the strengthening of the Unit, I wish to inform you sir, that the Ministry of Finance has recently approved a warrant for the creation of additional posts so that the unit will be staffed to the maximum. The process of filling the posts created is now in the final stages and with a revitalised unit, the efforts being deployed by your agency will certainly make a considerable impact on the agricultural environment.

Along the same lines, it is government's intention to adequately look into the operating expenses of the unit during the course of fiscal year 88/89. This Ministry is already making the preliminary negotiations with the Ministry of Finance and Trade.

While looking forward to your support for our request I wish to express the assurances of my highest consideration.

for: *Lyndon B. Johnson*
Permanent Secretary

The Director
USAID
Banjul

Annex 3: Staffing Pattern of the S&WM U

HEAD: 15 MINISTRY OF AGRICULTURE
 SUBJECT: 12 SOIL AND WATER CONSERVATION UNIT
 ITEM: 610 SALARIES

ITEM	NUMBERS		DETAILS	GRADE	1988/89 ESTIMATE
	1987/88	1988/92			
1.	1	1	Principal Soil Conser- tionist	16	D10,482
2.	-	1	Senior Soil Conservation Officer	15	9,012
3.	5	5	Soil Conservation Officer	14	41,685
4.	5	5	Asst. Soil Conservation Officer	13/14	30,477
5.	1	1	Soil Surveyor	12	6,720
6.	-	2	Senior Soil Conservation Assistant	12	13,176
7.	4	3	Conservation Assistant	8/11	9,144
8.	-	4	Conservation Field Survey Assistant	4/5	10,620
9.	3	-	Conservation Demonstrators	4/5	-----
10.	-	13	Soil & Water Conservation Trainees	3	25,740
11.	-	3	Tractormen	4/5	7,020
12.	-	2	Tradesmen	8/11	11,787
13.	-	1	Executive Officer	10	5,268
14.	1	1	Clerk/Typist	4/5	2,640
15.	1	1	Messenger/Caretaker	3/4	2,370
16.	---	---1	Night Watchman	3/4	---1,980
TOTAL	21	44	VARIOUS		D188,481

An 4: Soil & Water Management Conservation Techniques

Four major types of soil and water conservation and management techniques were found to be most successful when adapted to the physical and socio-economic conditions in The Gambia. These are: (a) Water retention structures; (b) contour berms with contour cultivation; (c) diversion structures; and (d) anti-salinity barriers.

Water Retention Structures: There are many long, narrow, flat-bottomed, natural drainage ways in The Gambia. These drainage ways, which may be several kilometers long and hundreds of metres wide have long been principal areas of traditional rice production.

If rainfall is adequate in timing and intensity, the bottoms retain enough moisture to produce a rice crop and a vegetable crop. Production, however, is usually limited or fails due either to extended drought or to excessive water velocity after heavy rains. The excessive velocity does not allow the soils to become saturated with water. The S&WM Unit solution is to construct earth filled dams across the drainage ways at key locations so as to reduce the velocity of the runoff, capture and retain water and top soil, and make them available for crops. Moreover, increased infiltration raises the water table below the dam.

Anti-Salinity Barriers: In the western half of The Gambia small watersheds intersect the tidal flats of The Gambia River. Salt water extends for 250 kilometers up the river with the rising tides. With declining rainfall and extended dry periods, salt water has intruded into swamps that were previously used for rice production. Over the years, dozens of villages have lost their fertile rice fields to salt intrusion. Here, also, the S&WM Unit builds small earthen embankments that prevent saline water from moving into cropped land at high tide and retain fresh water to leach salt out of soils behind the barrier and dilute and flush salt during heavy rains. Infiltration of rainwater raises the water table and flushes salts from the soils.

Water Diversions: During the rainy season many villages are flooded regularly by runoff from croplands. The problem is exacerbated by tracks or paths leading to villages that serve to collect and channel runoff. The S&WM Unit has created diversions to guide water around villages. These diversions are graded swales or grassed waterways that prevent erosion and decrease flooding by intercepting the water conveying it to safe outlets.

Contour Berms: During heavy rains, sheet erosion removes top soil and nutrients from upland fields. Adequate infiltration of water for crops and forage is not possible with rapid runoff. The S&WM Unit constructs contour berms to protect the soil on such slopes, using natural drainage ways, while assessing actual and potential erosion. Small berms or ridges are built along existing contours and spaced at

intervals at 30 to 100 meters, depending on the slope and soil conditions. The berms slow runoff, retain top soil and increase infiltration of water. When rainfall is intense, excess water is conveyed at a nonerosive rate along the contour berm and emptied into a wooded area or an uncropped drainage way stabilized with permanent vegetation. The contour berms are also used as guides to allow farmers to practice contour plowing between them. This method of cultivation also reduces runoff and erosion and increases water infiltration. The results are less erosion, more moisture in the soil, plants experiencing less stress between rains, and higher yields. The contour berms also protect lowlands (i.e., rice fields) from siltation.

ANNEX 5: THE S&WM PROJECT TRAINING PLAN

LONG TERM TRAINING (3 and 4 years)

PARTICIPANT	DISCIPLINE	88	89	90	91	92
* T.B.S. SGT6 employees,	Agronomy		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			
T.B.S. "	" , Agronomy		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			
T.B.S. "	" , Agronomy			XXXXXXXXXXXXXXXXXXXXXXXXXXXX000000		
T.B.S. "	" , Agronomy			XXXXXXXXXXXXXXXXXXXXXXXXXXXX000000		
T.B.S. "	" , Agronomy			XXXXXXXXXXXXXXXXXXXXXXXXXXXX000000		
T.B.S. SWMU	" , Soil Sc.		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			
T.B.S. "	" , Soil Sc.		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			
T.B.S. "	" , Ag. Eng.		XXXXXXXXXXXXXXXXXXXX*		XXXXXXXXXXXX000000	
T.B.S. "	" , Ag. Eng.		XXXXXXXXXXXXXXXXXXXX		XXXXXXXXXXXX000000	

Medium-Term Training (2 years)

PARTICIPANT	DISCIPLINE	88	89	90	91	92
T.B.S. SWMU employees,	Conserv.			EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE		
T.B.S. SWMU	" , Conserv.			EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE		
T.B.S. SWMU	" , Conserv.			EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE		
T.B.S. SWMC	" , Conserv.			EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE		
T.B.S. SGT6	" , Conserv.			EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE		
T.B.S. SGT6	" , Conserv.			EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE		
T.B.S. SGT6	" , Conserv.				EEEEEEEEEEEEEEEEEEEE000000	
T.B.S. SGT6	" , Conserv.				EEEEEEEEEEEEEEEEEEEE000000	

Short-Term Training And Guided Tours To The United States (4 wks. and 10 wks.)

PARTICIPANT	DISCIPLINE	88	89	90	91	92
Minister Senior Administrators						
Dir. Ag.	"					
Per. Sect.	"					
PPMU T.B.S.	"					
T.B.S.	"					
T.B.S.	"					
T.B.S.	"					
T.B.S. Div. Ag. Coord.						
T.B.S.	"					
T.B.S.	"					
T.B.S.	"					
T.B.S.	"					
T.B.S.	"					
T.B.S.	"					
T.B.S.	"					
T.B.S.	"					

*T.B.S. = To be selected

(XXXXXXXXXXXX) Long-term training
 (EEEEEEEEEEEE) Medium-term training
 (|||||) Guided tours to the United States
 (PPMU) Training funded by S&WM III Project

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LONG TERM TRAINING

PARTICIPANT	DISCIPLINE	81	82	83	64	85	86	87	88
Samuel Davies	Resource Mgt.								(XXXXXXXXXXXXXXXXXXXX) (//) M.S.
Sidi N. Jarju	Ag. Eng. (Mech.)								(XXXXXXXXXXXXXXXXXXXX) (////////) B.S.
John S. Fye	Soil Science								(XXXXXXXXXXXX) (////////) B.S.
Sissano S. Gassama	Range Science								(XXXXXXXXXXXXXXXXXXXX) (////////) B.S.
Matar Chao	Forestry								(XXXXXXXXXXXXXXXXXXXX) (////////) B.S.
Ebrima O. Sonko	Ag. Eng. (S & W)								(XXXXXXXXXXXXXXXXXXXX) (////////) B.S.
Sulayman Secka	Agronomy								(XXXXXXXXXXXXXXXXXXXX) (////////) B.S.
Kabir S. Sonko	Agronomy								(XXXXXXXXXXXXXXXXXXXX) (////////) B.S.
M. Bojang	Soil Science								(XXXXXXXXXXXXXXXXXXXX) (////////) B.S.
Alfa S. Badjie	General Ag.								(XXXXXXXXXXXXXXXXXXXX) 2yr. diploma (Nigeria)
Nyada Baldeh	General Ag.								(XXXXXXXXXXXXXXXXXXXX) 2yr. diploma (Nigeria)
Babou Camara	General Ag.								(XXXXXXXXXXXXXXXXXXXX) (////////) 2yr. diploma (Nigeria)
Dembo Jaithe	General Ag.								(XXXXXXXXXXXXXXXXXXXX) 2yr. diploma (Nigeria)
Dodou Jallow	General Ag.								(XXXXXXXXXXXXXXXXXXXX) (////////) 2yr. diploma (Nigeria)
Sheriff Kolley	General Ag.								(XXXXXXXXXXXXXXXXXXXX) 2yr. diploma (Nigeria)
Kebba Manka	General Ag.								(XXXXXXXXXXXXXXXXXXXX) (////////) 2yr. diploma (Nigeria)
Ebrima Saïdy	General Ag.								(XXXXXXXXXXXXXXXXXXXX) (////////) 2yr. diploma (Nigeria)
Yaya Sarr	General Ag.								(XXXXXXXXXXXXXXXXXXXX) (////////) 2yr. diploma (Nigeria)
Ebrima Senghore	General Ag.								(XXXXXXXXXXXXXXXXXXXX) (////////) 2yr. diploma (Nigeria)

(XXXXXXXXXXXXXXXXXXXX) Long-term training.

(////////) DJT received.