MEMORANDUM

DATE: February 24, 1994

FROM: Omar A. Jallow, USAID/Banjul

SUBJECT: Project Assistance Completion Report: The Gambia Soil and Water Management Unit (SWMU) Project (635-0202)

TO: SWMU Project Files

THRU: Bonnie A. Pounds, AIDREP

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1. Introduction:

The Gambia is located on the fringes of the Sahel zone, a zone characterized by periodic droughts and erratic rainfall patterns. Under such conditions, one of the basic production constraints is inadequate moisture. The steady decline in rainfall that has been prevalent throughout the Sahel from the late 1970s has had a negative impact on land use by reducing fresh water recharge within the Gambia. The consequence has been salt water intrusion into estuaries and aquifers which has rendered productive rice lands sterile and has destroyed important wetland habitats.

USAID/Banjul Mission's country development strategy in the late 1970s and 1980s emphasized assistance to the agricultural sector in order to help increase production and create the conditions for sustainable growth. 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 Unit (SWMU) project.

The project was authorized in March, 1978 with a Project Assistance Completion Date (PACD) of September 30, 1982. This PACD has been extended three times from the original date of September, 1982 to September 30,1983, the second from September 30, 1983 to December 31, 1987, and the third extension from December 31, 1987 to March 29, 1988. It underwent its last extension and revision in April 1988. A USAID grant of $5,130,350 provided commodities, training and technical assistance. The USDA Soil Conservation Services (SCS) provided technical assistance to the Ministry of Agriculture (MOA) under a Participating Agency Service Agreement (PASA) with USAID.

The sector goal to which this project contributes was 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 environmental problems. The project purpose was to increase the ability of the MOA to develop the institutional capability to develop and disseminate educational, technical and material services to the rural population. The conditions that were to indicate that the purpose has been achieved are: (1) a Soil and Water management Unit established within the MOA; (2) Gambians trained in soil and water management practices staffing the SWMU; and (3) the SWMU staff able to develop and disseminate appropriate soil and water management practices to farmers.

The project was implemented in three phases over eights years. Phase I (three years) provided for three SCS specialists, commodities and training and was to have established the SWMU as a functioning, effective and integrated part of the MOA. Long-term participants were to have been identified and trained, technical manuals in soil and water management developed; soil, water and vegetation surveys completed; field activities begun in villages; and assistance provided to the Gambia College in agricultural training. Phase II (two years) was to have marked a shift from expatriate to Gambian supervision of SWMU activities. The actual activities to be undertaken in Phase III were to be determine by the second formal evaluation scheduled for 1983 but actually conducted in 1985. In this phase short term technical and other support were to have melded the Gambian staff into a cohesive, effective service agency. This timetable proved to be unrealistic. The major reasons for some of the early delays were difficulties in finding qualified long-term participants, placement of participants and academic difficulties.

Work on the project formally started in June 1979 with the arrival of the Project Director and two other technicians from the U.S. Soil Conservation Services. They worked with the SWMU for about three years. The Project Director was replaced by technicians from the SCS who provided the primary technical assistance until April 1991.

The activities of the Soil and Water Management Unit centered around the construction of water retention and anti-salinity control structures in the floodplains as well as contour berms in the uplands. These activities resulted in reduced salt water intrusion, improved water availability, and reduced erosion and loss of top soil. Reduced salt water intrusion in combination with improved water availability reduces the amount of salt deposited in the rice-growing areas as well as help the leaching of the salt, thus bringing the salinity to a level that the plants can tolerate. Erosion control measures protect the top soil and enhance soil fertility. However, the scale at which the SWMU operates does not show significant effects on the protection of forest areas.

2. Project Status as of June 30, 1991:

The last PASA soil conservation specialist in the project departed from the country in April 1991. The final evaluation of the Project was conducted in June 1991 by a two-man team from REDSO/WCA with contributions from USDA's Soil Conservation Services. Nearly all

the project activities as stated in the project document and subsequent extension documents have all been completed.

3. Summary of Contributions:

USAID agreed to provide technical assistance ($2.0 million), training ($2.0 million, commodities ($0.7 million), construction ($0.2 million) and other costs ($0.3 million) for a total LOP grant of $5.2 million for the 13 years of the Project. The actual obligated amount was about $4.9 million made up of technical assistance ($2.2 million), training ($1.7 million), commodities ($0.7), and other costs ($0.3 million). GOTG agreed to provide counterpart's salaries, operation and maintenance, allowances, and office space and furniture for an estimated total of 0.2 million during the 13 years. The GOTG's contribution increased steadily from under ($823 per annum) in 1978 to over ($40,000 per annum) in 1990 and 1991 with an estimated total contribution of about $145,000. Although the GOTG support to the unit was not adequate, it has provided the salaries of all unit staff.

During the life of the project, the SWMU has also received major assistance from the German aid organization, Gessellschaft fur Technische Zusammenarbeit (GTZ), under its "Small Watershed Areas in Western Gambia" project. GTZ provided 6.4 million DMs, or approximately U.S.$3.5 million, for inputs predominantly in the form of technical assistance advisors and operational funds. Other sources of operational funds have been the NGOs, particularly Action Aid, and other donors such as FAO, World Bank and the EEC.

4. Project Achievements:

Project achievements will be highlighted with regards to purpose/goal level achievements and planned outputs.

As stated above, the SWMU project had three discrete but interrelated goals: environmental, agricultural and institutional. The three goals aimed to: 1) reduce, halt or reverse environmental degradation due to inadequate traditional agricultural and pastoral practices; 2) increase and stabilize production of food, forage, wood, and other cash crops, and reduce susceptibility to drought and other weather variations; and 3) improve the institutional capability of GOTG to deliver educational and technical services and materials to the rural population.

Despite the slow start by the project, the project purposes have, for the most part, been successfully accomplished. The SWMU has been established within the MOA and it is providing services to more villages than before the project. Also, Gambian Soil and Water Management Specialists and agricultural assistants have been trained and integrated into the SWMU. Several soil and water conservation structures and measures have been constructed and implemented since SWMU started involving farmers in practical field-oriented activities

in 1984. The unit also developed a farmer training program in which conservation techniques are being disseminated to farmers through the formation of resource conservation committees and conservation districts.

The SWMU attempted to increase its potential to reduce, halt or reverse environmental deterioration in the areas where conservation and rehabilitation techniques have been applied. Approximately 780 hectares of lowland rice growing area and 1631 hectares of upland conservation area was rehabilitated and reclaimed during the project. The project created watersheds at Omorto, Arangallen, Kundam, Sere N'gai, Wassadu, Sintet, Kwinella and Bambako villages. Ten years ago, rice was produced on many of these hectares, but the land had to be abandoned because decreasing rainfall allowed saltwater intrusion. Much of this land therefore had not produced rice or other crops for several years. Dikes and diversion dams were built to reclaim these lands. Following the construction of the dikes, the rice crop harvested increased significantly. A four-fold increase in the land under cultivation has been reported in villages with SWMU activities. In Sare N'gai, the village was on the brink of starvation and the village head even contemplated relocating the village because of severe erosion damage. With diversions built and contour farming initiated through the construction of berms, the harvest of upland crops was so good that the village now has a food supply in storage, and not a single house has suffered flood damage up to now.

The final evaluation team in 1991, utilized indicators such as vegetation cover, soil quality, and increase in yields to measure the effectiveness of SWMU's activities in solving environmental and natural resources management problems. The evaluation report showed that SWMU activities do have a positive effect on natural resources conservation. Project activities reduced or eliminated drought conditions by increasing fresh water infiltration through rehabilitation methods. In the SWMU activity zones, where upland soil and water conservation have been implemented, significant reduction of siltation can be observed in the areas of soil moisture and higher yields. Economic, environmental and social analyses done by the USDA indicates that project activities did indeed, increase production of food while protecting the natural resources base. The combined benefits of all these endeavors not only resulted in increased yields, but have increased the total production area without undue damage to the environment. The Unit also conducted research trials in screening rice varieties adapted to saline conditions, and established tree nurseries in 10 villages.

Project measures to control erosion and saltwater intrusion and the introduction of improved varieties and agronomic practices have resulted in substantial increases in returns to Gambian farmers. Over 20,000 farmers in 78 villages have benefitted from lowland and upland rice cultivation rehabilitation work. Their food productivity has increased by well over 50%. The majority of villages involved in the project reported doubling in overall production. This has been the most important benefit of the project and was due to increased yields on land that was already being cultivated as well as an increase in total land under cultivation.

The distribution of benefits for the villages with SWMU interventions for the most part were equitable. Because of the distribution of field work between men and women, women

benefitted most in lowland rice projects while men benefitted most from upland conservati Moreover, when upland conservation reduces sedimentation in lowland rice fields, women also benefit from upland conservation efforts.

In order to give the Unit a legislated mandate, strengthen its position in the GOTG, and provide the Government with a course of action to follow in the proper management of the natural resources of the Gambia, the SWMU initiated the development of a National Natura Resources Policy (NNRP). This was prepared by a task force which consisted of five ministries and several NGOs. The document was supposed to be tabled in cabinet for approval by the Ministry of Natural Resources and the Environment (MNRE). This did no happen because the paper did not cover issues in all the areas of environment and natural resources outside soil and water conservation. Therefore it could not be passed as a nationa natural resources policy document. However, most parts of the NNRP document was used in the preparation of the Gambia Environmental Action Plan (GEAP) which has been approved by parliament.

The Unit has also hosted a number of international and national seminars, made an effort to expand its environmental education and information program, and published three supplemental readers on topics on the environment and natural resources conservation for primary schools. Five operational manuals have been prepared and are being used by the Unit extension staff.

The Unit has undertaken soil surveys on 24,000 hectares of land in the country. A soil and water conservation program has also been developed for the Gambia Technical College. An information video to illustrate the history of SWMU project and its successes has been developed. The Unit also sponsored an exhibition entitled, " Our Natural Resources".

Under a PASA arrangement with the USDA, long-term TA and short-term TA was provided. Approximately 70 person-weeks of short-term TA was provided, falling short of the 112 person-weeks envisioned in the Project Paper. The short fall was due to the higher than anticipated cost for short-term TA and Training. Short-term TAs were not provided in soils, agro-forestry, range management and monitoring and evaluation. In the areas of monitoring and socio-economic impact research, very little TA was provided in developing and using a computerized system for data collection and analysis. This prevented the Unit from providing more economic and social impact data on the Project than is available. Generally, the TAs provided have helped increased the sense of pride and professionalism in the SWMU.

Gambians trained in soil and water management practices are now staffing the SWMU and are developing and disseminating appropriate soil and water management practices to farmers. The project design called for nine persons to receive BS degrees, eight to receive AA degrees, and 150 weeks of short-term training. Eight persons have received BS degrees, six persons got Associate Degrees, and 13 SWMU staff (including a woman) attended 19 U.S. training programs for approximately 90 weeks in total. This training was phased to

avoid undue disruption of the work flow and resultant decrease in SWMU productivity. The training provided was generally, highly effective. The long-term training provided the theoretical and academic foundations needed for the young staff to effectively take up their duties. All long-term training was combined with field experience in which participants worked with various units of the Soil Conservation Service. Apart from providing technical training, the important benefit of short-term, off-shore training has been its motivational and incentive value. This field work was effective in providing the participants with practical experience and a sense of professionalism. Short-term, academic training is estimated to have been about 75% effective in helping SWMU staff do a better job. Nearly 75% of all participants trained under the project returned to the country and are working at the Unit.

When U.S. and German technical support is withdrawn and SWMU's activities decrease in a village or watershed, will there be sufficient incentive for the villages to maintain or expand their conservation achievements? The technologies introduced are sustainable in so far as the dikes, bunds and other structures will last up to 25 years with proper maintenance. Maintenance requires labor which all villages are willing to provide as they value the benefit of the water control structures. Also, once the people had seen the benefits of yield increases and the increase in hectares under cultivation, they started constructing more dikes on their own initiative. The activities of the SWMU not only enhance increased agricultural productivity in the project areas, but also brought about several social benefits to these rural communities. Farmers started to feel good about themselves, knowing that through their own labor they had made a positive change in their food production capabilities. This brought a revival of the community spirit among and between villages; i.e., more enthusiasm to work together. A major reason for The Gambia's success in this endeavor is that the project operates within the labor and capital constraints of Gambian farmers and rural communities. The cost of constructing the upland and lowland conservation practices are absorbed in part by the village and there is a penalty for not sharing in the work. It appears, therefore that conservation achievements during the project could be maintained and expanded by Gambian farmers.

The GOTG has not maintained its contribution to the project. This leads directly to the question of sustainability of the SWMU without donor aid. The project design anticipated that the Government would cover all personnel and operating costs for the unit. This contribution was to be a key element of the sustainability of the SWMU. The biggest limitations on the SWMU are the lack of fuel for its vehicles, lack of equipment, staff and funds for maintenance of programs. In fact, the government has provided the salaries of all professionals in the Unit and little else. Recurrent cost items such as fuel and vehicle maintenance has been provided by other donors since mid-1989 when the project stopped providing it. While this has enabled the Unit to carry on effectively in the areas in which they work, it makes the Unit subject to other agencies' agendas and not able to follow its own mandate. There is no possibility of having a sustainable SWMU without adequate Government support. The Government's support for the Unit is clearly inadequate and is the major reason the Unit has not been able to effectively decentralize and expand its operations nationwide.

The SWMU wanted to create five operational offices in the country but this attempt was stymied by the GOTG not providing operational funds and bureaucratic/political reasons. Only two operational field offices in the country have been established; Sapu and Basse. Only by decentralized expansion of its operations will the SWMU be able to respond more successfully to the large number of requests for assistance from all over the country.

5. Extent to Which the Project Solved the Original Problem:

The SWMU Project has managed to solve most of the original problems it was designed to address. Considerable progress has been made in achieving the goal of halting and reversing environmental deterioration caused by inadequate, and/or poor cultivation practices and has stabilized and increased the production of food and cash crops by reducing susceptibility to drought and environmental problem in some areas of the country. The MOA's technical ability to develop and disseminate educational materials and technical services to farmers has also been improved.

The final evaluation of the project (June 1991) concluded that the SWMU project was successful in its work with farmers to improve soil and water conservation methods, the process of institutionalizing the capacity of the SWMU to continue these activities is not yet complete. However, the SWMU 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 SWMU was the commissioning of a Soil Conservation District in the Gambia. Today there are over 50 villages demanding services from the SWMU and farmers are willing to contribute their own labor and resources to accomplish conservation activities.

6. Project Final Adjustments:

Much of the original anticipated project inputs have been delivered. There are no changes in the project's design recommended by the final evaluation. The project conditions and covenants have all been met and the Borrower/Grantee is not required to submit any report(s) after the PACD of June 30,
1991.

7. Appropriateness of Remaining Conditions and Covenants:

None.

8. Remaining Reporting Requirements:

None.

9. Continuing/Post-Project USAID Monitoring:

USAID will not be directly monitoring activities of the SWMU per se. However, USAID/Banjul will monitor SWMU recurrent budget through Program Budgeting System (PBS) implementation in the Ministry of Agriculture under the ANR project to see that the unit's activities are adequately funded.

10. Review of Data collection Results and Evaluation:

There are no more evaluations remaining to be undertaken at this point in time. The projec was evaluated four times between 1978 and 1991; the first in 1982, the second at the end of phase II of the project in 1985, third in January 1988, and the final in June 1991. The fourth and end-of-project evaluation was undertaken to determine the overall achievements of the project and provide suggestions and recommendations for the future of the Soil and water Management Unit.

11. Summary of Lessons Learned:

a)Farmers will readily adopt appropriate technologies once their relevance has been visibly proven to them and that appropriate incentives exist.

b)Farmer problems should be identified through a collaborative and participatory mode.

c)Regarding the institutionalization of SWMU, it was learnt that high level support and involvement of many actors at various levels of the GOTG is needed.

d)Training is an important element in capacity building provided that the training is relevant and appropriate; i.e. off-shore followed by on the job.

e)For an agriculture and natural resource project to succeed,it should operate within the labor, time and capital constraints of the Gambian farmers in rural communities.

f)Once the farmers have seen the benefits of yield increases and increases in hectares under cultivation, they will start using the technology on their own initiative or request technical assistance.

g)There is a high community spirit amongst and between villages to work together for their social well being when they get the right message.

h)The benefits of conservation technology can be achieved and sustained only if the users of the technology have continued access to technical advice. Institutions once developed, must be provided adequate financial and human resources on a regular basis so they can provide technical advice at the local level.

i)Technical institutions at the national level, which are essential for designing

technically complex conservation infrastructure, require a long time to develop and mature.

12. Project phase-out activities:

A house, vehicles (seven tractors, ten vehicles, 13 motorbikes) and commodities (two computers, one concrete mixer, one damper, and various soil and engineering study equipment) were transferred to the Ministry of Agriculture at the end of the project.

<u>Clearance:</u> GCohen, ADO

FWitthans, PROG

MLew, Cont