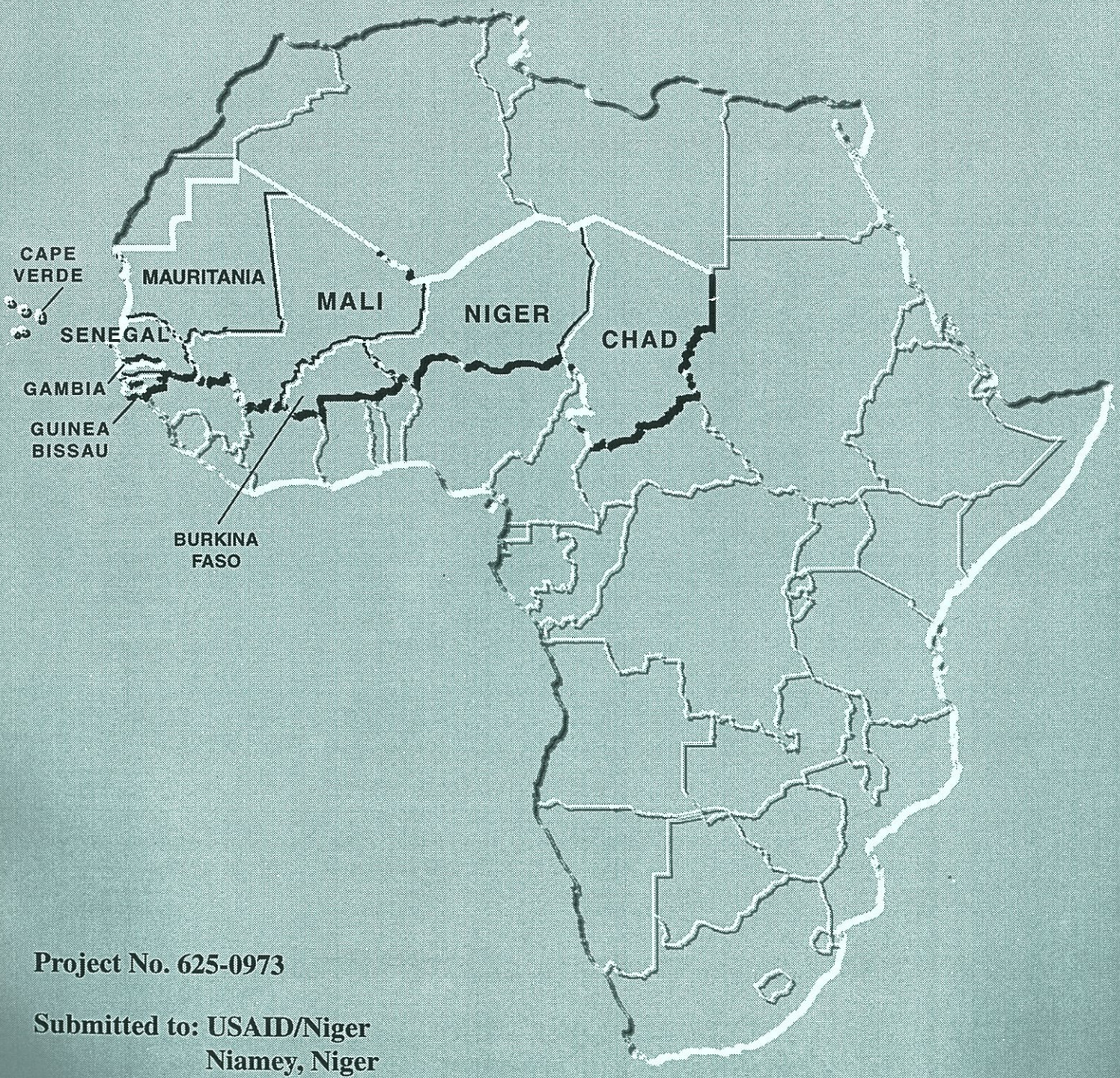
Final Evaluation

SAHEL WATER DATA & MANAGEMENT III PROJECT



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1.0 EXECUTIVE SUMMARY

1.1 Background

The Permanent Inter-State Committee on Drought Control in the Sahel (CILSS) was established by Burkina Faso, Mali, Mauritania, Niger, Senegal and Chad to combat the drought which has recurred in the Sahel since the mid-1960's, adversely affecting economic growth, including agriculture and livestock production. The original member countries of CILSS were joined by the Gambia in 1974, Cape Verde in 1975 and Guinea Bissau in 1986.

The AGRHYMET Program was established by CILSS in December 1974 to consolidate agrometeorology and hydrology services in Sahelian countries and to create a center of training and applications in operational agrometeorology and hydrology. The purpose of this multi-phased, multi-donor, regional program in the Sahel is to develop a regional system composed of a center in Niamey and national components to collect, process, analyze, and interpret timely and complete agricultural, hydrological, and meteorological data in the Sahel. These data are to be used to ensure food security and to improve natural resource management and protection of the environment.

Support of the AGRHYMET Program by the United States of America has been provided by the U.S. Agency for International Development (USAID) in three Sahel Water Data and Management (SWDM) projects, *i.e.* SWDM I (1975-1981, $6.3 million), SWDM II (1982-86, $7.7 million), and SWDM III (1987-91, $9 million). Further U.S. assistance was provided to the AGRHYMET Program in 1992-93 using a transitional Project Paper Supplement. Amendment 1 to the SWDM III Project Paper increased funding to $13.996 million and extended the Project Assistance Completion Date (PACD) from January 1, 1993 to January 1, 1994. Amendment 2 extended the PACD from January 1, 1994 to December 31, 1994 and added procurement provisions. Amendment 3 extended the transitional period from December 31, 1994 to July 26, 1997 and increased life-of-project (LOP) funding from $13.996 million to $19.25 million. Amendment 4 extended funding through December 1997.

The present report describes the findings of a final evaluation of the SWDM III project by a five-member evaluation team. The purpose of the evaluation is to: 1) determine how well the project's stated goals have been met; 2) evaluate implementation results against development objectives; 3) advise USAID/Niger and the West Africa Office of the Bureau for Africa of USAID (AFR/WA) in the follow-on design and in implementing future activities. The evaluation focuses on the following:

1) Determination of whether the SWDM III project has achieved the goals established by the Project Paper and subsequent amendments, namely a) contributing to food security in the Sahel and b) strengthening the capacity to perform agrometeorological and hydrological data collection and analysis in the Sahel.

2) Assessment of the progress to date with respect to: agrometeorological and hydrological data collection, analysis and archiving at the national and regional levels; strengthening of national interdisciplinary working groups; shift in technical responsibilities from expatriate to Sahelian staff and of responsibility for institutional sustainability from donor to CILSS governments, given the agreements in the CILSS Restructuring Program; and food security and crisis avoidance analysis (where AGRHYMET's information has been used versus where it has not).

3) Develop specific recommendations regarding USAID's contribution to the follow-on phase in terms of: I) supporting results achievement in the Sahel Regional Program Strategy; II) contribution to achieving the objectives of CILSS Three-Year Plan(s) and AGRHYMET's Second Triennial Plan; III) work with or in collaboration with other CILSS institutions like the Institute of the Sahel (INSAH), particularly in fulfilling its training and information mandates *vis-à-vis* other organizational units (national and regional within the CILSS system); and IV), addressing concerns of institutional sustainability. The aspects to be addressed include, but are not limited to: a) scientific and technical direction; b) nature and the type of inputs; c) funding level and d) length of time and level of effort.

The five-person, final evaluation team was comprised of a Team Leader, Agrometeorologist, Remote Sensing/Geographic Information System (GIS) Specialist, Computer Hardware/Software Specialist, and Public Administration/Outreach Specialist. The team traveled during a five-week period in September and October 1996 to Washington, D.C. to meet with USAID officials, Geneva, Switzerland to meet with WMO officials and the capitals of the nine CILSS countries to meet with AGRHYMET and USAID officials and others. The evaluation team reviewed documents, interviewed many individuals, and had a first-hand look at AGRHYMET facilities. The focus of the evaluation is on the effectiveness of contributions of the SWDM III Project. While some of the recommendations are for actions which can be taken in the short-term before the Project Assistance Completion Date (PACD) on December 31, 1997, most are for USAID to consider in planning development assistance for AGRHYMET over the long term, namely five to ten years.

1.2 Results of the Final Evaluation

The final evaluation team of the Sahel Water Data and Management III Project found the AGRHYMET Program to be useful in mitigating vulnerability of Sahelian populations to famine and in providing useful agronomic, hydrologic, and meteorologic data throughout the region. The evaluation team recommends further support of the AGRHYMET Program by the U.S. government after completion of the SWDM III Project on December 31, 1997. The following results of the evaluation and discussion of sustainability of the AGRHYMET Program support the recommendation for further U.S. support. More detailed recommendations for U.S. support are summarized in the

Recommendations Section, 2.0; listed in an index of recommendations in Annex 1; and specifically explained in Sections regarding function areas of the ARC (6.0) and the National AGRHYMET Components (7.0).

The team found evidence of the project contributing to the achievement of the goal of the project, food self-sufficiency in the Sahel. While the focus of the SWDM III project was on the collection and processing of data, there was evidence that such data were being made available to extension services, for example, in Burkina Faso and Mali; to news media, for example, in Chad, Mauritania, and Niger; and to other organizations, such as the Organization for Exploitation of the Delta in Senegal, which provide information and advice to farmers and livestock producers.

The sub-goal of the SWDM III Project is to strengthen the capacity to perform agrometeorological and hydrological data collection and analysis in the Sahel. Since inception of the SWDM III Project, its inputs have resulted in achievement of the sub-goal. Training, equipment, and operational expenses funded by the project were found to have contributed to the achievement of the sub-goal at the AGRHYMET Regional Center and at all of the National AGRHYMET Components. Among other inputs, the SWDM III Project has provided training in use of geographic information systems (GIS) and in operation and maintenance of computer equipment, computers for use in analysis of remotely sensed data and for GIS, and operational expenses which have assisted in meeting the need to employ technically qualified Sahelians at the AGRHYMET Regional Center.

The purpose of the SWDM III project is to support the development of a regional system, including national elements, which will record, process, interpret, transmit, disseminate and document timely, accurate and meaningful weather, climatic and hydrologic information on the Sahel. The team found evidence that the purpose of the project was achieved. Because of the widely varying conditions (climatological, geographical, infrastructural, and institutional) among the nine countries in which the SWDM III was implemented, the success in achieving the purpose of the project varied from country to country. Most of the support provided by the SWDM III Project has strengthened the ARC. By strengthening the skill level of employees at the ARC and by helping to build a strong infrastructure of hardware and software at the ARC, the SWDM III Project has helped provide a strong, technologically well-endowed center for the AGRHYMET Program. The AGRHYMET Regional Center, in turn, has begun to strengthen the National AGRHYMET Components (NACs) by providing training and technical assistance. The NACs have also received support from the SWDM III Project, for example, with the 286-class personal computers (PCs) supplied early in the SWDM III Project and the Pentium PCs which were supplied to all the NACs in 1996.

Sustainability of the AGRHYMET system will require continued commitment by the CILSS countries and by donors, since at present in the Sahel, various elements of the

regional system require further development. In order for the AGRHYMET system as a whole to be sustainable, the NACs need strengthening. Another element of the AGRHYMET system, the telecommunications infrastructure in the Sahel, is on the verge of significant improvements which will probably occur during the next ten years; improvements in telecommunications in the region will significantly improve the sustainability of the AGRHYMET Program. In addition, the economies of CILSS countries which provide the revenue to fund AGRHYMET activities (*i.e.* data collection, analysis, and dissemination) need to be strengthened in order to provide adequate operational funding over the long-term. Moreover, the commitment of the CILSS countries to fund the AGRHYMET Program needs to be increased over the next ten years in order to assure sustainability of the AGRHYMET systems. In order to take advantage of the investment of the CILSS countries and the donors who have supported development of the AGRHYMET system to date, some additional support will be necessary to assure the long-term sustainability of AGRHYMET. This evaluation identifies strengths and weaknesses of the AGRHYMET system which has been supported, in part, by the SWDM III project and makes recommendations to make AGRHYMET more sustainable.

The nine outputs of the SWDM III project for the system as a whole were, for the most part, achieved. Because of varying conditions among the CILSS countries, some of the outputs were achieved more completely in some countries than in others. The funding of the SWDM III Project since 1987 has greatly strengthened the ARC and has contributed substantially not only to Sahelianization of the workforce in AGRHYMET, but has also substantially strengthened the ability of the system to provide useful regional and national agronomic, hydrological, and meteorological data to users within and outside the region.

The final evaluation team found that the ARC has been strengthened by the SWDM III Project to a much greater extent than have the NACs. The ARC is truly a regional center of scientific and technological expertise which has benefitted and can continue to benefit all the CILSS countries. In order for the ARC to fulfill its role as a source of useful scientific information and training during the next phase of the AGRHYMET Program, however, a reorientation of its role is recommended. The ARC is now relatively rich in human resources, technological expertise, and hardware and software, compared to the NACs. The final evaluation team recommends that any further U.S. government support of the AGRHYMET Program increase the focus on strengthening capabilities of the NACs, while not ignoring the importance of assistance to the ARC, so that balance of capabilities can be achieved between the ARC and the NACs.

The ability of the AGRHYMET Regional Program (ARP) to gather and systematically organize environmental, regional data on climate, soils and vegetation can benefit international research programs on global change. The European Network for Research in Global Change (ENRICH) coordinates global change research in Africa to

which the ARP can make significant contributions in terms of environmental data and information. Through ENRICH, the ARP can be linked to the Asia- Pacific Network for Global Change and the Inter-American Institute for Global Change to develop and issue experimental seasonal-to-interannual climate predictions. This world-wide network will improve our understanding of the global climate system, to advance our ability to predict El Niño-related climate variability and to produce and systematically disseminate regionally tailored climate forecasts for economic and social planning activities. The ARP can benefit from the international commitment to build indigenous capacities for global change research which is reflected in the SysTem for Analysis, Research and Training (START), a joint effort of the Human Dimension Program, International Geosphere-Biosphere Program and World Climate Research Program.