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**AGRHYMET's 1993-94 Transition Phase:
A Concept Paper**

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This discussion paper is prepared by Center staff and collaborators. WRI takes responsibility for choosing the topic and guaranteeing authors and researchers freedom of inquiry. Unless otherwise stated, all the interpretations and findings are those of the authors.

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I. The AGRHYMET Program

AGRHYMET was established in 1975 in the aftermath of the catastrophic 1968-73 drought as a multi-donor funded program linked to the nine member countries of the Comité Inter-états pour la Lutte contre la Sécheresse dans le Sahel (CILSS). AGRHYMET has three principal objectives:

- A. To provide early warning about incipient agricultural production within the CILSS member countries.
- B. To increase food production and contribute to food security within the CILSS member countries.

These objectives were to be accomplished by the development of a meteorological and hydrological data collection network, and by the establishment of a regional network of interministerial working groups comprised of representatives from the meteorological, hydrological, and agricultural services. Each working group was to be responsible for providing national planners and researchers with timely meteorological and hydrological data, and with better information on their impact on food production and security. These country-level data were to be communicated to, and compiled by, the AGRHYMET Regional Center (ARC) in Niamey. Within each country, this information network was to be managed by the National AGRHYMET Center (NAC). ARC was to provide training and technical support to NAC staff.

A third objective was added in 1991:

- C. To improve natural resource management within the CILSS member countries.

AID support for AGRHYMET began in 1976 through the Sahel Water Data Management (SWDM) Project Phase I (1976-81) and has continued through Phase II (1982-86) and Phase III (1987-91). Since 1992, AGRHYMET has been supported through the Phase III transition phase. The first period of the transition phase will end January 1, 1994.

II. AGRHYMET's Accomplishments

The overall conclusion of the Phase III evaluation is that the AGRHYMET program is one of the more successful projects in Africa.¹ AGRHYMET's accomplishments over the first three Phases have permitted considerable advances in crop yield forecasting and early warning. These accomplishments include:

- A. Strengthening of the national agrometeorological and hydrological data networks.
- B. Training of over 375 staff (320 from CILSS member countries and 55 from other African and Asian countries) in agrometeorology, hydrology, instrumentation and equipment maintenance, computer science, GIS, and remote sensing. 80% of the graduates remain at the NACs.
- C. Establishment of a Système Regional de Banque de Données (SRBD), a standardized, regional database at ARC.²
- D. Installation of a ground receiving station at ARC for Meteosat

¹SWDM Phase III Program Evaluation. Derrick J. Thom, Andrew Stancioff, Douglas Brown, Andres Ravelo. May 1991.

²The database layers include: agrometeorological variables, soils, Cropland Use Intensity (CUI), roads, drainage, rainfall, transhumance, forestry, and administrative boundaries.

and Advanced Very High Resolution Radiometer (AVHRR) data.³ AVHRR data are increasingly regarded as an essential source of environmental information, especially for those attributes requiring repetitive global or regional coverage. Numerous studies have demonstrated their value in the estimation of various attributes of vegetation cover, including leaf area index, green leaf biomass, net primary productivity, and photosynthetic capacity. Estimates of evapotranspiration have been made as well as surface temperature and the extent of bush fires.

- E. Strengthening of cooperation between meteorological, hydrological, agricultural, and livestock ministries through the Groupes de Travail Pluridisciplinaire (GTP) that meet every ten days during the growing season to review AGRHYMET data used to produce national early warning and food production bulletins.
- F. Because of its regional mandate and technical capacity, ARC is increasingly becoming the repository of socioeconomic and biophysical information for the Sahel. These include:
 - 1. The imminent arrival of the French-financed Diagnostic Permanent (DIAPER), the CILSS agricultural statistics office currently located in Bamako, will strengthen ARC's capacity to monitor yields and predict agricultural production.
 - 2. Phase III of the Fonds Européens de Développement (FED) funded Projet Surveillance des Ressources Naturelles Renouvelables au Sahel (PSRN) will also be based at ARC. Earlier phases have successfully mapped agricultural land use potential at 1:100,000 from SPOT XS data for twelve test sites across the Sahel.
 - 3. If AID withdraws support from the Institut du Sahel (INSAH) in Bamako, INSAH's research functions may, by default, be taken over by ARC.

Yet despite these achievements, a series of evaluations and interviews suggests that after 18 years, three 5-year plans, and \$114 million of multi-donor assistance (of which AID has contributed \$27 million), AGRHYMET has not yet matured into an effective monitoring center.

The idea of environmental monitoring, as used in this paper, implies an active, continuing, and institutionalized collection and analysis of time series data to assess current conditions and trends of key environmental variables. Monitoring means more than just the collection and archiving of data. It also implies an active outreach, dissemination, and educational role to develop new applications and identify and cultivate new clients. Because outreach and education have not been priority activities for AGRHYMET, users throughout the region, as well as many AID mission staff, remain either ignorant or skeptical of the value of AGRHYMET. At the same time, the need for AGRHYMET's data and services has never been greater.⁴ In Niger, for example, 90% of government revenue goes

³As the 1 km spatial resolution AVHRR Local Area Coverage (LAC) data can only be acquired within line of sight of High Resolution Picture Transmission (HRPT) ground receiving station or through on-board tape records, ARC's HRPT station is effectively the sole source of these data for the Sahel.

⁴AGRHYMET's relatively weak outreach and reporting role is characteristic of many international organizations. For example, data compilation and reporting is just a small component of the activities of the U.N. Food and Agricultural Organization's (FAO) almost 7,000 employees,

to paying civil service salaries leaving little to support data collection or research studies. The basic data needed for development planning are thus often absent or unreliable. A recent study of Niger's agricultural and natural resource statistics observed that at the arrondissement level sampling errors of greater than 45% have been recorded and are never below 21%.⁵ Yet, for countries with recurring food emergencies, a reasonably accurate picture of production is essential for both national planning and international cooperation to intercede in times of famine.

To fulfill its environmental monitoring objectives, AGRHYMET - and ARC in particular - needs to identify new clients and develop a range of new products, services, and collaborative relationships. This paper identifies specific activities that could be implemented over the next 2-3 years in support of these goals. It is intended to serve as a background document for the forthcoming Project Paper Supplement that will define AID's support for AGRHYMET during the continuation of the Phase III transition phase.

III. New Users

AGRHYMET should serve three different groups: the NACs and other in-country organizations, donor projects, and a range of potential international clients.

A. NACs and In-Country Organizations

The NACs are both the users and producers of agrometeorological data. Support for the NACs is thus a precondition for an effective AGRHYMET system. Most national-level funding has been provided by UNDP, but UNDP has recently cut funding from 75% to 15% of the NAC budgets. Contributions from AID missions to local early warning systems, whether through sending local staff to training at ARC, or procuring data for the NAC, would be an appropriate use of funds.

ARC should also seek to diversify the market for its products from reliance on the NACs to include other in-country users, in particular NGOs. NGOs carry out many field-based development projects in the Sahel, but they often lack the technical capacity and information to support larger projects. ARC should be prepared to provide data, training, and technical support to suitably qualified NGOs.

NGO staff, post-doctoral fellows, and professors from member country universities, and other GIS, remote sensing, and natural resource specialists should be encouraged to visit ARC, become familiar with ARC's activities, and conduct research in collaboration with ARC staff. This would provide an exposure to new techniques and technologies that could ultimately be implemented within AGRHYMET, and strengthen the ties between ARC and other in-country institutions.

B. Donor Projects and Programs

With the exception of Mauritania, AID missions in the CILSS countries support numerous agricultural development and natural resource management projects, many of which could benefit from the data and services that ARC has to offer (see attachment). ARC's data and services are currently not readily available to AID missions, and, as the SWDM Phase IV Project Identification Document (PID) team recently observed, there is widespread ignorance among mission staff about

and only 5% of its 2-year 1990-91 budget of about \$560 million.

⁵Agricultural Data and Databases in Niger. Agricultural Policy Analysis Project (APAP) II. Technical Report No. 122. November 1992.

what ARC could do to support AID projects.⁶

The Projet Pilot (Pilot Project) in Mali is an example of what can be achieved when AGRHYMET's resources are used to meet the information needs of project activities at the national level. This project is a Swiss-funded intervention aimed at increasing crop yields by optimizing a farmer's labor input on the basis of up-to-date agrometeorological information provided by ARC. The Pilot Project was set up to take advantage of AID's Opération Haute Vallée (OHV) project that is aimed at strengthening agricultural support services and infrastructure in the Haute Vallée region.

The collaborative approach between AID and ARC has been recommended to AID/Niger as the most efficient way to support three bilateral projects - Agricultural Sector Development Grant (ASDG) II, Disaster Preparedness and Mitigation (DPM), and Family Health and Demography (FHD) - that collectively represent over \$90 million of LOP funding.⁷ All three AID projects have an emphatic need for the products and services that ARC can offer. AID can play a crucial role in supporting the development of a model (that ARC is proposing) by which ARC can be integrated into project design and implementation. One possibility would be for projects to buy into ARC. If a small proportion of the project budget was allocated to the collection of data within a framework designed in collaboration with ARC, the process of building standardized, high quality databases would be accelerated. Collaboration with ARC would also ensure that the data are not lost when the project ends. ARC thus provides AID with the opportunity to institutionalize the data collected and lessons learned during project implementation.

Under the Development Fund for Africa's (DFA) mandate to achieve "broad-based and sustainable impacts", the Africa Bureau has been developing a technical approach for the Assessment of Project Impact (API). Reliable and low cost measures of API are needed, which implies taking a small sample from a well stratified population. An accurate stratification requires considerable a priori knowledge about the population that can only come from the collection, compilation, and study of relevant biophysical and socioeconomic data. A successful API should be based upon an accurate initial survey and stratification, followed by on-going project monitoring focused on collecting and analyzing a few key indicators. ARC could provide AID with the data needed to accurately stratify a population according to a range of biophysical criteria. There is no reason why ARC should not provide other donor projects with similar support.

C. International Geosphere-Biosphere Program

The International Geosphere-Biosphere Program (IGBP) requires global land cover data sets for several of its core projects, notably the International Atmospheric Chemistry Project (IGAC), Biosphere Aspects of the Hydrologic Cycle (BAHC), Global Change and Terrestrial Ecosystems (GCTE), and Global Analysis Interpretation and Modelling (GAIM). Examples of the need for information on land attributes include investigations of:

1. Climate through the need for variables describing surface roughness, albedo, latent and sensible heat fluxes.

⁶Project Identification Document: SWDM Phase IV. Project 625-0981. Hunter Farnham, Abdoul Diallo, Derrick Thom, Mark McGuire. June 1993

⁷Strengthening AID Supported GIS Activities in Niger: Mission Report and Recommendations. Jake Brunner, WRI and Dan Dworkin, AID/AFR/ARTS/FARA. June 1993.

2. Biogeochemical cycles and atmospheric chemistry, through such attributes as land cover conversion and the rate, distribution, and type of biomass burning events.
3. Water-energy-vegetation studies for which information on soil moisture, land transformations, and evapotranspiration is required.

AVHRR LAC data can be used to provide relevant land attribute information for these and related projects. Given its position as the sole archive of these data for the Sahel, ARC should explore the opportunities for long term collaboration with these international research programs.

D. Intergovernmental Negotiating Committee for a Convention to Combat Desertification

At the first Meeting of the Intergovernmental Negotiating Committee for a Convention to Combat Desertification (INCD) in Nairobi, May 24-June 3, two points were emphasized that are directly relevant to ARC's mission:

1. There is a continuing need for more systematic monitoring of drought and desertification conditions in the semi-arid tropics.
2. Information that is being collected needs to be made accessible to decision makers of all kinds.

ARC should seek to identify the gaps and weaknesses that exist in the monitoring of desertification, land conversion, and deforestation in the Sahel. On the basis of this study, ARC should prepare a workplan to expand its monitoring program in conjunction with national governments, donors, and multilateral initiatives such as the INCD and the Global Environmental Facility (GEF).

E. International Crops Research Institute for the Semi-Arid Tropics Sahelian Center

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Sahelian Center (ISC) in Niamey is the regional center for western Africa. Long term strategic research on natural resource management is being conducted at ISC. A Resource Management Program (RMP) is the largest of the seven basic activities outlined in ICRISAT's 1994-98 Medium Term Plan,⁸ consuming almost one-third of the \$30.18 million per annum budget. The overall goal of RMP will be to provide farmers with low cost sustainable technologies based on an understanding of three broad sets of factors: physical determinants such as soil, water, and climate; biological determinants such as diversified cropping systems and agroforestry; and socioeconomic determinants. GIS will be strengthened as an important component of integrated modeling efforts to study crop-soil economic systems across different agroecological environments. ARC has an excellent opportunity to contribute data and technical services, especially in GIS and remote sensing, to this program. Collaboration between ARC and ISC is strongly supported by the Consultative Group on International Agricultural Research (CGIAR) Secretariat at the World Bank.

IV. New Products and Services

The main issue that ARC has to address is how to more effectively meet its clients' needs for information and technical assistance. We are proposing

⁸ICRISAT Medium Term Plan 1994-98. Vol. 1. Main Report. September 1992.

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that ARC develop a number of timely and useful products as well as expand its technical advisory services to member countries.

A. Data and Technical Services Catalogue

As a priority task, ARC should produce a catalogue specifying the areal coverage, temporal span or map date, source, and resolution of the data available through the AGRHYMET system. This catalog should be distributed as hardcopy and on diskette. As more data are archived, including the 1,500 CCTs of historic AVHRR data from USGS/EROS Data Center (EDC), the need for an up-to-date catalog will become increasingly important as a way of advertising ARC's importance as a data center, and to help identify the gaps in the available coverage.

A related issue is data distribution. If ARC begins to distribute large quantities of data on a regular basis, it should investigate the use of CD-ROM as a distribution medium. On account of its large data volume, small size, long expected life-time, and low cost, CD-ROM has become the preferred data distribution medium in use at the NOAA and USGS national data centers.⁹

ARC should also produce a catalog of the technical services (hardware maintenance, database development and management, map digitizing, image interpretation, telecommunications support, etc.) that it can provide.

B. Documented Success Stories

Before ARC can begin to advertise its data and services effectively, and raise awareness of what AGRHYMET can contribute towards agricultural and natural resource management projects, it needs to be able to show potential clients well documented examples of its impact on development projects. These include:

1. The use of ARC's AVHRR greenness maps for improved early warning and locust control within member countries,
2. The impact of the AGRHYMET pilot studies on local food production and security

C. Documentation Center

The documentation center that already exists at ARC has the potential of becoming a Sahel-wide environmental and natural resource information center. ARC should take advantage of the recent advances in desktop publication and information distribution to become a focal point for environmental research across the Sahel.

D. Telecommunications and Electronic Mail

ARC is currently considering the implementation of an Inmarsat-based telecommunications system to exchange satellite data and other information between ARC and the NACs. Another system that should be explored is the dedicated X.25 line that was run to ARC but never connected due to a dispute with the PTT over claimed unpaid service charges should be hooked up. As the experience of the Canadian Embassy shows, a dedicated X.25 line is a fast and reliable way to transmit data and fax internationally. Given the high cost and questionable reliability of the international phone lines that ARC

⁹A single CD-ROM would hold the entire 540 (18 x 30) MB of uncompressed LAC data that are transmitted during the six month (18 dekad) growing season from ARC to the NACs. Pinnacle Micro has recently introduced a CD-ROM recorder for \$4,000, and Ricoh and Yamaha are rumored to be releasing systems in the \$2,000 price range. In the past year, the price of blank CD-ROMs dropped from \$45 to \$19.

currently uses, every attempt should be made to resolve the dispute with the PTT and complete the X.25 installation.

Either the Inmarsat or X.25 link could provide the basis of a reliable electronic mail (e-mail) system that would connect ARC, NACs, government agencies, universities, and the NGO community, and, through ARC, the major international e-mail networks (Internet, Econet, CompuServe, etc.). Fidonet - the e-mail protocol that ARC will use for data transfer via Inmarsat - is used extensively in sub-Saharan Africa. Fidonet facilitates the transfer of text and data files over regular telephone lines, even poor ones. As a rule of thumb, it will work over any line that can support a fax. Other than access to a phone line, the only equipment needed are a PC and modem. The start up costs are minimal, yet the savings that can be substantial. For example, it costs an estimated \$600 round trip to drive the 1,700 km from Niamey to Diffa - enough to pay for two high speed modems.¹⁰

Such a system would encourage networking and exchange of information. It is also a very effective way of providing on-going technical support. For example, any user with access to e-mail could, via the Internet, receive technical support direct from ESRI, Inc. (Arc/Info), Clark University (Idrisi), and other software developers.

E. Database Development and Management

ARC should be encouraged to provide map digitization and database compilation and management services to donor projects and other clients. These are technically complex tasks that have to be carried with complete quality control. ARC is well equipped to provide these services. Once the GIS databases have been built, they can be readily distributed on diskette to any user equipped with a PC running Windows and Arcview.¹¹ This client-server approach has been successfully used by a GTZ-funded agricultural development project in Tunisia.

V. Outreach and Communication Unit

We recommend the creation of a 2-3 person Outreach and Communication Unit (OCU) that would provide intensive outreach services to member countries and other clients. This unit would be based at ARC but would travel frequently to maintain regular contact with current and potential clients

¹⁰The main advantage of Fidonet is that it encourages economies of scale by providing a "store and forward" service: files sent by individual users are stored at a central hub before being forwarded by high speed modem to an international destination. Because only a single international phone call is placed, the cost per user is minimized. Fidonet has thus become the de facto standard for e-mail communications in Africa and is used extensively by a number of AID projects in Africa, including Famine and Early Warning System (FEWS) and Southern Africa Food Information Resource Exchange (SAFIRE).

¹¹Arcview was designed by ESRI, the authors of Arc/Info, as a low cost, Microsoft Windows-based map viewer/composer that is 100% compatible with Arc/Info, the industry-standard GIS. The client has access to exactly the same data as the server but uses Arcview rather than Arc/Info - which is much harder to use and much more expensive - to view and analyze the data. By standardizing on Arcview, there will be no need to convert data between different GIS formats. Arcview can also handle both raster and vector data, allowing, for example, the superimposition of vector maps over raster satellite images. Arcview Version 2.0, due for release in late 1993, will let users relate the boundary files to their own dBase or Lotus 1-2-3 files.

within the region.

This is not a new recommendation. The position of NAC Client Advisor was proposed in the Requirements Needs Analysis for AGRHYMET Phase III carried out by EDC for AID in 1988. This position was never implemented and it was again proposed by the Phase III evaluation team in 1991. We recommend the establishment of 2-3 new positions rather than a single NAC Client Advisor because the new clients and new products identified above require additional expertise and technical support. The duties of the OCU would include:

- A. Serving as a full time advocate for the NACs and other in-country organizations. This means close and continual interaction with the NAC programs and team leaders to better define their needs in terms of raw data, new products, training, and other technical services.
- B. Ensuring that ARC's maps, databases, reports, and other products are available throughout the region. This would include hosting workshops for NAC staff and other organizations on the use ARC's data and technical services.
- C. Coordinating all training programs at ARC and support to the NACs and other in-country organizations. This would include planning the timing, type, and duration of short term consultant visits with the NACs, ARC, and international organizations such as UNITAR, UNSO, and the Observatoire du Sahel et du Sahara (OSS), all of which are interested in supporting training at ARC.
- D. Preparing periodic reports on ARC's activities, and contributing to a AGRHYMET newsletter with news of personnel changes, training schedules, hardware and software upgrades, new publications, and program information in other countries.
- E. Locating useful bibliographic and electronic information such as international journals (in both English and French), training materials, U.N. publications, statistical bulletins, catalogs, directories, databases, and maps.
- F. Supporting networking and exchange of information across the region, internationally, and, most importantly, within countries. The establishment of a regional e-mail system connected to ARC's Inmarsat link would provide users with access to a wealth of useful information.
- G. Consulting with donor projects, ICRISAT, and other international organizations to identify new clients and promote applications for ARC's data and technical services. As indicated above, the opportunities are numerous but will require ARC's sustained interest and support.

VI. Special Studies

In addition to the creation of the OCU, a number of special studies need to be undertaken to assist ARC in carrying out these new tasks. These include:

- A. An assessment of the regional telecommunications infrastructure and the optimum configuration of different systems (Inmarsat, X.25, Fidonet, etc.) for the exchange of data and information at the national and international levels.
- B. As assessment of new hardware and software for improved data analysis and product generation (UNIX workstations, large format color ink-jet printers, Erdas, Arcview, etc.).

- C. An assessment of the opportunity for ARC to provide 1 km LAC data to FEWS rather than the 7 km GAC data they currently receive from Washington, D.C.

In addition, there needs to be an assessment of new monitoring technologies and their potential applications.

- D. ARC should explore the use of airborne videography, in conjunction with ground surveys, as an appropriate technique for land cover and land use mapping. Videography is a low cost alternative to photography as it is cheap to acquire, does not require developing, and can be viewed, edited, and stored on a TV/VCR (analog) or PC (digital). High resolution video can, unlike SPOT or Landsat data, help identify improved natural resource management indicators such as tree plantations, contour dikes, wind breaks, half-moons, rock ridges, fenced land, fallow land, and forests. Combining the video with a Global Positioning System (GPS) gives the precise latitude and longitude of each frame, which allows comparison with other georeferenced data sets. These data are relevant to the API Indicator Framework Levels III (Adoption of Practices) and IV (Biophysical Parameters).
- E. Many projects need to be able to map villages and other point information. For example, AID/Niger's FHD project would like to combine the location of the 25,000 hamlets and villages identified in the 1988 census with data on transport, land use, drainage, and weather, to map the demand for, and possible impact of, new health centers. Decisions on where to locate new centers are currently based on political rather than medical considerations. Each village has a code that indicates its level within the administrative hierarchy, but the latitude and longitude of each settlement are unknown. In countries where the base map series may have been derived from aerial photo coverage that is 30-40 years old, a GPS campaign is the only way to locate villages and other point information quickly, accurately, and at reasonable cost. The GPS receivers themselves cost less than \$1,000 - the main costs will be training and transport.

VII. Conclusion

We recommend that AGRHYMET be equipped, financed, and organized in such a way as to properly fulfill its objectives. There is currently a substantial gap between AGRHYMET's potential for environmental monitoring and its ability to meet the demands of users at the national, regional, and global level. The approach recommended in this paper would help bridge this gap.

The activities that we suggest would increase AID's financial contribution to AGRHYMET. Given the fact that we are emphasizing a new role for ARC staff, it makes sense to provide an incentive through additional support over the short term.

Contacts

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Active and Planned AID Agricultural/Natural Resource Management Projects in all CILSS Countries¹²

Country	Name	Code No.	Status	LOP	Cost (million)
Burkina Faso	Volta Valley Development	686-0222	Planned	N/A	\$8.00
	Agricultural Development Support	686-0255	Planned	N/A	\$9.11
	Pilot Village Natural Resource Management	686-0276	Active	1989-91	\$2.00
	Natural Resource Management Development Support	686-0277	Active	1991-95	\$0.40
	Natural Resource Management	686-0278	Planned	1993-98	N/A
Cape Verde	Watershed and Applied Research Development	655-0017	Active	1991-95	\$1.80
	Watershed Development	655-0013	Active	1984-92	\$5.61
	Watershed Management	655-0006	Active	1985-87	\$6.27
Chad	Agricultural Trade Policy Reform Program	677-0069	Planned	1992-97	\$10.00
Gambia, The	Agriculture and Natural Resources Program	635-0235	Planned	1992-96	N/A
	Agriculture and Natural Resources Support	635-0236	Planned	1992-96	N/A
Guinea Bissau	Food Crop Protection III	657-0012	Active	1985-91	\$1.25
Mali	First Region Pilot Development	688-0215	Planned	N/A	\$1.00
	Livestock Sector II	688-0218	Active	1982-92	\$41.63
	Animal Productivity and Export	688-0244	Planned	1992-97	N/A
	NGO Support	688-0247	Active	1989-92	\$8.00
	Strengthening Research Planning and				
	Research on Commodities	688-0250	Planned	1992-97	N/A
	Mali Environmental Support	688-0267	Planned	1993-95	N/A
Program and Development Support Funds		688-0510	Active	1988-91	\$0.47
	Development of Haute Vallée	688-0233	Active	1988-93	\$17.50
Niger	Cereals Research	683-0225	Active	1982-89	\$11.66
	Forestry and Land Use Planning	683-0230	Active	1980-87	\$4.57
	Agricultural Production Support	683-0234	Active	1982-90	\$19.90
	Integrated Livestock Production	683-0242	Active	1983-90	\$17.60
	Rural Sector Development	683-0246	Active	1984-92	\$59.93
	Applied Agricultural Research	683-0256	Active	1987-93	\$20.00
	Agricultural Sector Development Grant II	683-0257	Planned	N/A	\$20.00
	Economic Policy Reform Program	683-0259	Planned	1988-92	\$13.30

¹²Source: AID/Center for Development Information and Evaluation. Current 3/1/93

	Niger Economic Policy Reform Support	683-0263	Active	1988-93	\$2.97
	Agricultural Sector Development Grant II - TA	683-0265	Active	1990-97	\$5.00
	Agricultural Marketing and Export Promotion	683-0274	Planned	1993-97	N/A
	Agricultural Research Inter-CRSP	683-0273	Planned	1993-96	N/A
énégal	Agricultural Development Support	685-0269	Active	1987-91	\$21.00
	Transfer of Technology II	685-0281	Active	1985-93	\$10.29
	Sénégal Reforestation Project	685-0283	Active	1991-95	\$12.00
	Natural Resource-Based Agricultural Research	685-0285	Active	1991-98	\$4.00
	Southern Zone Water Management	685-0295	Active	1988-96	\$18.00
	Community-Based Natural Resource Management	685-0305	Planned	1993-98	N/A
	Sénégal Agricultural Research	685-0957	Active	1984-92	\$6.64
egional	Institution Building/Socioeconomic Development	625-0930	Active	1978-81	\$4.00
	Famine and Early Warning Systems (FEWS)	698-0466	Active	1990-92	\$9.20
	Development Strategies for Fragile Lands	936-5438	Active	1986-91	\$6.10
	Sahel Policy and Program Development	698-0980	Planned	1992-97	N/A