

PROJECT DATA SHEET

A = Add  
C = Change  
D = Delete

Assignment Number

COUNTRY/ENTITY  
AID/WASHINGTON  
BUREAU/OFFICE

PROJECT NUMBER 698-0980  
PROJECT TITLE (maximum 60 characters)  
Programs for Applied Development Research in the Sahel

PD-ARI-106  
86940

AFR/SWA/PP 698

PROJECT ASSISTANCE COMPLETION DATE (MM/YY)

ESTIMATED DATE OF OBLIGATION (Under 2.7 below, enter 1, 2, 3 or 4)

MM DO YY  
019 310 918

A. Start FY 92 B. Current FY C. Final FY 98

E. COSTS (\$000 OR EQUIVALENT \$1 = )

A. FUNDING SOURCE	FIRST FY 92			LIFE OF PROJECT		
	B. FX	C. LC	D. Total	E. FX	F. LC	G. Total
AID Appropriation Total						
(Grant)	2,248		2,248	8,500		8,500
(Loan)						
Other						
U.S.						
Host Country						
Other Donors						
TOTALS	2,248		2,248	8,500		8,500

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROXIMATE RELATIONSHIP/PURPOSE CODE	B. PRIMARY TECH. CODE	C. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) DEA 190	290	0		893	-	7,000	
(2) SDP 7715	290	0		1,358	-	1,500	
(3)							
(4)							
TOTALS				2,248		8,500	

10. SECONDARY TECHNICAL CODES (maximum 6 codes or 4 positions each)

140 958 978

11. SECONDARY PURPOSE CODE

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

A. Code	AGPM	AGID	EDID	EVMP	FEED
B. Amount	2,200	1,800	600	2,400	1,500

13. PROJECT PURPOSE (maximum 600 characters)

To improve Sahelian analysis, formulation and implementation of sustainable policies and programs, through the coordination and prioritization of research efforts in agricultural production, food security and natural resources management.

14. SCHEDULED EVALUATIONS

MM YY MM YY Start MM YY  
016 915 08 918

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 941 Loan Other (Specify) 935

16. Other: The AFR/OINT has concurred with the Project Paper's proposed plan for financing and implementation.

17. APPROVED BY

Signature  
Name Timothy J. Bork, Director  
Sahel West Africa Office

Date Signed MM DD YY  
1/28/92

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

MM DD YY

AGENCY FOR INTERNATIONAL DEVELOPMENT

OFFICE OF SAHEL AND WEST AFRICAN AFFAIRS  
WASHINGTON D C 20523-0033

**ACTION MEMORANDUM FOR THE OFFICE DIRECTOR OF SAHEL WEST AFRICA AFFAIRS**

**FROM:** AFR/SWA/RP, Dana Fischer *Dana Fischer*

**SUBJECT:** Project Authorization, Programs for Applied Development Research in the Sahel Project (698-0980)

**I. PROBLEM:** Your approval is required to authorize grant funding in the amount of \$8.5 million for the Programs for Applied Development Research (PADRES) project. Of this total \$7 million is from the Development Fund for Africa (DFA) appropriation; \$1.5 million is from reobligated DFA and Sahel Development Program (SDP) appropriations. It is planned that DFA funding of \$893,000 and SDP funding of \$1,355,000 will be obligated in FY 1992.

**II. DISCUSSION:**

**A. Summary Project Description:** The purpose of the proposed project is to improve Sahelian analysis, formulation and implementation of sustainable policies and programs, through the coordination and prioritization of research efforts in agricultural production, food security and natural resources management. This project responds to three development needs in the Sahel region: 1) the need for more effective agriculture research through the establishment of a more creative research environment, reduced redundancy in research, and more adequate dissemination mechanisms for research results; 2) the need for effective coordination of regional research efforts; and 3) the need for more Sahelian-led analysis and ownership of research.

PADRES is designed to help the Sahelian states produce high quality research results and analyses for the development of agricultural and natural resource technologies and for the formulation and implementation of policies and programs which will contribute to sustainable increases in regional, national, and household incomes. The project will be implemented by the Sahel Institute (INSAH) at Bamako, Mali. INSAH is an established regional organization with a mandate to coordinate, promote, and harmonize agricultural research in the Sahel, collecting, analyzing, and disseminating scientific and technical information.

To help INSAH establish regional systems for the collection, synthesis and dissemination of research results and to influence and strengthen research activities in the Sahelian countries, PADRES will finance and support senior staff positions in agricultural research management, food security and natural resources management, as well as a scientific editor and supporting staff. The LOP funding level is \$8.5 million. Of this total, an estimated \$7 million will come from new obligating authority under the Sahel Regional DFA budget. The balance

2X

of \$1.5 million will come from SDP reobligation authority.

PADRES will be co-managed by AID/Washington (AFR/SWA/RP) and the field (USAID/Bamako). The day-to-day management will be handled by a Project Liaison Officer which will be provided by USAID/Bamako for the first two years and by program funds for the final three years.

**B. SUMMARY FINANCIAL PLAN (\$000):**

<u>ITEM</u>	<u>LOP FUNDING</u> ((\$000))
Agricultural Research Program	1,735
Food Security Program	2,558
NRM Program	1,429
Administration and Finance Unit	787
Pool Resources (Supplies and Services)	573
USAID/Bamako Support (Project Management)	651
Inflation and Contingency	312
INSAH Overhead	455
 Project Total	 8,500

**C. IMPLEMENTATION PLAN, CONDITIONS AND COVENANTS:** The PP contains implementation and procurement planning which is realistic and workable. Arrangements have been made for monitoring the implementation and evaluation of the attainment of project objectives, impact and sustainability.

In addition to the standard conditions precedent to disbursement, special conditions and covenants will be required.

Conditions Precedent:

1. Prior to any disbursement, or the issuance by A.I.D. of documentation pursuant to which disbursement will be made, the Grantee will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., evidence of the establishment of a separate interest-bearing bank account into which all grant funds received from A.I.D. will be deposited. No other funds will be commingled with the Grant funds provided by A.I.D. through this account.

2. Prior to any subsequent disbursement, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made except for the provision of technical assistance, commodities and related expenses necessary to establish an operational accounting system, the Grantee shall, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., evidence that Grantee has established a general system of accounting for use at all levels in INSAH which permits the capture of accounting data and which contains adequate internal accounting controls and otherwise

meets the required standards for grant award.

3. Prior to the disbursement under the Grant for the Natural Resources Management ("NRM") component of the Project, the Grantee shall, except as the Parties may otherwise agree in writing, furnish to A.I.D., in form and substance acceptable to A.I.D., the findings of an independent analysis of the demand for and feasibility of the proposed Geographic Information System Center for the support of research in NRM.

Covenants:

1. The Grantee agrees to actively pursue standardization of donor financing in order to insure that donors share equally in the overhead costs of INSAH, proportionate to their amount of financing.

2. The Grantee agrees not to allow funding provided for under the research mini-grants system to be used for salaries or salary premiums.

No waivers are requested in this project.

D. **PROJECT ANALYSES:** The project has been reviewed and found to be feasible based on economic, technical, financial, institutional and social soundness analyses conducted in conjunction with Project Paper design.

**III. MAJOR ISSUES AND BUREAU DECISIONS:** The issues meeting for the PADRES project was held on June 3, 1992. The ECPR took place on August 26, 1992 after the completion of required revisions and additions to the PP. Chairperson for the ECPR was Judy Gilmore, Deputy Director, AFR/SWA. There was one major issue raised at the ECPR which dealt with funding sources for the project.

**A. ECPR ISSUE:**

LOP Funding Sources: During the design phase from PID to PP, the LOP funding for PADRES increased from \$6 million to \$8 million. In addition, expatriate compensation issues raised by USAID/Bamako and additional requests from INSAH for support to the NRM analytical program increased the LOP from \$8 million to \$8.5 million. This LOP funding issue has been compounded by a reduction in the regional OYB from \$6.3 million to \$5.9 million. A regional OYB of \$5.9 million can accommodate the PADRES LOP funding requirements and the existing project portfolio. However, the possibility of additional funding requirements for the Sahel Regional Institutions project and/or the Promoting Population Policies project could constrain available funding. To assure sufficient funding for the PADRES activity, the PC recommended that PADRES be given priority consideration in the future allocation of regional SDP or DFA deob/reobs.

As a result of the ECPR discussions and consultation with the Mission in Bamako, several options for project reconfiguration and adjustment were considered. The final recommendation was to go ahead

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with the project as designed at the \$8.5 million LOP level with the additional Conditions Precedent (CP) that an independent assessment be conducted to test the demand and feasibility of the proposed Geographic Information Systems Center at INSAH before going ahead with the NRM component of the project.

**Decision:** The ECPR agreed to Authorize the PADRES project at \$8.5 million with the use of deob/reobs and the addition of the CP for the NRM program.

**B. OTHER ISSUES:** Numerous technical and project design issues were presented at the Project Committee level. These issues were resolved by a substantive rewrite of the PP. The Issues Memorandum and Cables will remain with the official files.

**IV. INITIAL ENVIRONMENTAL EXAMINATION:** A categorical exclusion for this project was approved with the PID by the Bureau Environmental Officer.

**V. JUSTIFICATION TO CONGRESS:** A Congressional Notification (CN) for the PADRES project was forwarded to the Hill on September 9, 1992, and will expire on September 23, 1992. The CN was completed and submitted before a final decision was made on the LOP funding level for the project; therefore, the LOP level in the CN is \$7,000,000. Subsequently, a decision was taken to fund the project at the \$8,500,000 level. Congressional notification of this increase in funding will need to be made as part of the Congressional Presentation for FY 1994. The additional \$1,500,000 will fund the NRM analytical component of the project as originally designed. This component of the project remains the same as reported in the FY 1992 Congressional Presentation, page 449.

**VI. AUTHORITY:** Under Delegation of Authority No. 553 as amended on January 23, 1992, you have the authority to approve projects where the project does not exceed \$20 million in LOP funding, does not present significant policy issues, does not require the issuance of waivers, does not contain an NPA component or constitute a capital project, and does not have a Life of Project in excess of ten years.

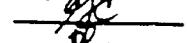
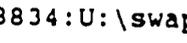
None of these conditions exist.

**VII. RECOMMENDATION:** It is recommended that you sign the attached project authorization to authorize the Programs for Applied Development Research in the Sahel project at a level of \$8.5 million in DFA and SDP (deob/reob) funds.

Attachments:

- A. Project Authorization
- B. PADRES Project Paper

Clearances:

AFR/SWA:JGilmore		Date: 24 Sept. 92
GC/AFR:PJohnson		Date: 27 Sept 92
AFR/ARTS/FARA:BStoner		Date: 9/16/92
AFR/ONI/TPPI:ZHahn		Date: 9/18/92
AFR/DP/PAB:GCauvin		Date: 9/21/92
FA/OP/O/AFR:Jathanans		Date: 9/25/92
AFR/MRP/CONT:LGrizzard		Date: 9/17/92
AFR/ARTS/FARA:MFuchs-Carsch		Date: 9/16/92
AFR/ARTS/FARA:GCohen		Date: 9-16-92
AFR/ARTS/FARA:MMcgahuey		Date: 9/1/92
AFR/ARTS/FARA:JHill		Date: 9/16/92
AFR/ARTS/FARA:MLowdermilk		Date: 9/16/92
AFR/ARTS/FARA:WKnausenberger		Date: 9/16/92
AFR/DP/PAB:ATouré-Sy		Date: 9/18/92
R&D/EID:GSteele		Date: 9/18/92

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## PROJECT AUTHORIZATION

Name of Country/Entity: Sahel West Africa Regional  
(The Sahel Institute)

Name of Project: Programs for Applied Development  
Research in the Sahel (PADRES)

Number of Project: 698-0980

1. Pursuant to Section 496 of the Foreign Assistance Act of 1961, as amended ("FAA"), and the former Section 121 of the FAA, for which deobligated funds are being made available for this project, I hereby authorize the Programs for Applied Development Research in the Sahel ("PADRES") project ("Project") for the Sahel West Africa Region, involving planned obligations of not to exceed Eight Million Five Hundred Thousand United States Dollars (US \$8,500,000) in grant funds over a six-year period from date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the project. The planned life of the Project is six years from the date of initial obligation.

2. The Project is designed to help the Sahelian states produce high quality research results and analyses for the development of agricultural and natural resource technologies and for the formulation and implementation of policies and programs which will contribute to sustainable increases in regional, national, and household incomes. The Project will be implemented by the Sahel Institute ("INSAH") at Bamako, Mali. INSAH is an established regional organization with a mandate to coordinate, promote, and harmonize agricultural research in the Sahel through the collection, analysis and dissemination of scientific and technical information.

3. The Project Agreement(s), which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority, shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

a. Source and Origin of Commodities, Nationality of Services:

(1) Procurement with Sahel Development Program Funds:

The nationality of suppliers of commodities or services, and the source and origin of commodities financed by A.I.D. under the Grant with Sahel Development Program Funds shall be in the United States,

member countries of INSAH; or in countries included in A.I.D. Geographic Code 941, except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the Grant with Sahel Development Program Funds shall be financed only on flag vessels of the United States, except as A.I.D. may otherwise agree in writing.

(2) Procurement with Development Fund for Africa Funds:

The nationality of suppliers of commodities or services, including ocean transportation services, and the source and origin of commodities financed by A.I.D. under the Grant with Development Fund for Africa funds shall be as set forth in the Africa Bureau Instructions on Implementing Special Procurement Policy Rules Governing the Development Fund for Africa (DFA) dated April 4, 1988 ("DFA Guidance"), as may be amended from time to time, except as A.I.D. may otherwise agree in writing.

b. Conditions Precedent:

1. Prior to any disbursement, or the issuance by A.I.D. of documentation pursuant to which disbursement will be made, the Grantee will, except as the Parties may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., evidence of the establishment of a separate interest-bearing bank account into which all grant funds received from A.I.D. for the Project will be deposited. No other funds will be commingled with the Grant funds provided by A.I.D. through this account.

2. Prior to any subsequent disbursement, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made except for the provision of such technical assistance, commodities and related expenses as may be necessary to facilitate the establishment of Grantee's operational accounting system, the Grantee shall, except as the Parties may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., evidence that Grantee has established a general system of accounting for use at all levels in Grantee which permits the capture of accounting data and which contains adequate internal accounting controls over the receipt and expenditure of funds and otherwise meets the required standards for grant award.

3. Prior to the disbursement under the Grant for the Natural Resources Management ("NRM") component of the Project, the Grantee shall, except as the Parties may otherwise agree in writing, furnish to A.I.D., in form and substance satisfactory to A.I.D., the findings of an independent analysis of the demand for the feasibility of the proposed Geographic Information System Center for the support of research in NRM.

c. Covenants:

1. The Grantee agrees to actively pursue the standardization of donor financing in order to insure that donors share equally in the overhead costs of INSAH, proportionate to their amount of financing.

2. The Grantee agrees not to allow funding provided under the component of this Project for the Research Mini-Grant System to be used for salaries or salary premiums.

  
\_\_\_\_\_  
Timothy J. Bork  
Office Director  
Sahel West Africa Affairs  
Bureau for Africa  
Date: 9/28/92

  
GC/AFR, PGJohnson/tim:X79218:23Sept92:PADRES.PA

**PROGRAMS FOR APPLIED DEVELOPMENT  
RESEARCH IN THE SAHEL (PADRES)**

**(698-0980)**

**PROJECT PAPER**

**AFR/SWA/REGL  
Agency for International Development  
Washington, D.C.  
July, 1992**

## LIST OF ACRONYMS

AFR/DP	Africa Bureau, Office of Development Planning
AFR/SWA/REGL	Office of Sahel and West Africa Affairs, Regional Desk
AFR/ARTS/FARA	Office of Analysis, Research and Technical Support Food, Agriculture and Resources Analysis Division
AGRHYMET	Regional Program in data collection and information dissemination in Agriculture, Hydrology and Meterology
A.I.D.	Agency for International Development
CERPOD	Center for Studies and Research in Population and Development
CILSS	Interstate Committee for Drought Control in the Sahel
COP	Chief of Party
CRSP	Collaborative Research Support Program
CSE	Ecological Monitoring Center
DAF	Administrative and Financial Division (INSAH)
DAG	Donor Advisory Group (Club du Sahel)
DFA	Development Fund for Africa
DIAPER	Permanent Diagnostic Food Availability Monitoring System (EEC)
DRMA	Division of Research, Environment and Agriculture (INSAH)
EC	European Community
EEC	European Economic Community
FAO	Food and Agriculture Organization
FEWS	Famine Early Warning System
FFA	Framework for Action (Revitalizing Agriculture in the Sahel)
FS I	Food Security in Africa project
FS II	Food Security in Africa II project
GC/AFR	Assistant General Counsel for Africa
GIS	Geographic Information System
IARC	International Agricultural Research Center
IFPRI	International Food Policy Research Institute
ILCA	International Livestock Center for Africa
INSAH	Sahel Institute
IPM	Integrated Pest Management
ISNAR	International Service for National Agricultural Research
ISRA	Agricultural Research Institute of Senegal
LOP	Life of Project
NARS	National Agricultural Research System
NOAA/AVHRR	National Oceanic and Atmospheric Administration/Advanced Very High Resolution Radiometer
NRM	Natural Resources Management
NRMAA	NRM Analytical Agenda
OSS	Sahara-Sahel Observatory

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PADRES	Programs for Applied Development Research in the Sahel
PAF	Project Administration and Finance Unit
PID	Project Identification Document
PP	Project Paper
PRISAS	Program for Institutional Reinforcement of Sahelian Research Capacities to Food Security
PSC	Personal Services Contract
PSDD	Desertification Dynamics Monitoring Program
RESADOC	Regional Documentation Center (INSAH)
R&D	Research and Development Bureau
SAARFA	Strengthening African Agriculture Research and Faculties of Agriculture project
SAFGRAD	Semi-Arid Food Grains Research and Development project
SPAAR	Special Program for African Agricultural Research
SRI	Sahel Regional Institutions project
UCTR/PV	Pest Management Technical Coordinating Unit (INSAH)
UNCED	United Nations Conference on the Environment and Development
UNEP	UN Environment Program
UNITAR	UN International Training Unit
UNSO	UN Sahel Office
USAID	A.I.D. field mission

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## CHAPTER 1

### PROJECT RATIONALE AND DESCRIPTION

#### I. PROJECT SUMMARY

The Programs for Applied Development Research in the Sahel (PADRES) is a regional project with a six-year time frame which provides five years of services to the Sahel Institute (INSAH) in Bamako, Mali. The planned Life of Project (LOP) funding level is \$8.5 million. Project objectives are as follows:

**GOAL:** To improve Sahelian decision-making on issues of food security and environmentally sustainable growth in the Sahel.

**PURPOSE:** To improve Sahelian analysis, formulation and implementation of sustainable policies and programs, through the coordination and prioritization of research efforts in agricultural production, food security and natural resources management.

The PADRES project was initiated to address several interrelated problems in the region:

- Limited effectiveness of ongoing agricultural research due to lack of a creative research environment, redundant research and inadequate dissemination mechanisms for research results;
- Limited effectiveness of the regional research coordination institution, the Sahel Institute (INSAH); and
- Need for more Sahelian-lead analysis and ownership of research data and results.

This project is designed to help the Sahelian states produce high quality research results and analyses for the development of agricultural and natural resource technologies and for the formulation and implementation of policies and programs which will contribute to sustainable increases in regional, national, and household incomes. The project objectives are to help researchers and policy-makers identify appropriate topics of research and analysis and to minimize duplication across the region. The vehicle for its execution is INSAH, an established regional organization with recent successful experience in carrying out its mandate. This mandate includes coordinating, promoting, and harmonizing agricultural research in the Sahel, collecting, analyzing, and disseminating scientific and technical information, and the training of research scientists and technicians. The project will be primarily operational rather than institution-building, with the objective of helping INSAH facilitate efforts of Sahelian scientists in producing demand-driven technologies, policy analyses, and action recommendations that can be linked to

appropriate levels of decision makers.

**PROJECT ACTIVITIES:** The project will finance and/or support senior staff positions in agricultural research management, food security, and natural resource management, as well as a scientific editor and supporting staff, to help INSAH establish regional systems for the collection, synthesis, and dissemination of research results and to influence and strengthen research activities in the Sahelian countries. USAID will provide up to eight million five hundred thousand dollars over a six year period to provide five years of: (a) services of four senior staff, four assistants, and support staff, (b) seminars, training programs, and research grants for Sahelian scientists, (c) a modest amount of commodities (computers, office equipment, supplies, etc.), and (d) operating funds to support these activities and INSAH in its role as facilitator of member state research and regional networking.

As a result of PADRES activities it is expected that:

- Analyses and reports, prepared essentially by Sahelian researchers and disseminated principally by INSAH that provide national and regional scientists and managers with essential data and information for the formulation of rational, regionally coordinated, cost-effective policies and programs;
- Sahelian research results and findings will be accepted and used by decision makers as guidance for planning policies, programs, legislation and practices;
- Processes will be in place to coordinate research, analyses, and information sharing that will impact on government, donor, and private sector plans and programs;
- PADRES agenda-setting or research-prioritization documents are viewed by researchers and donors (not limited to USAID) as a valuable guide for the definition of future research activities;
- Decision makers will be educated and sensitized to knowing the demands they should be making on the NARS and on the other elements of the research community; and
- Changes in the macro framework that affects institutional attitudes and practices, with research programs evolving from the current tendency to be bureaucratic to more creativity.
- Governments, donors, NGO's and the private sector will use INSAH as a repository of information produced by program and project designs, periodic program reports, evaluations, special studies, etc; and INSAH will organize this information in a way that will increase its effectiveness in conducting

research.

**PROJECT BENEFICIARIES:** The ultimate beneficiaries of the project are varied. To the extent that policy reforms are enacted and successful, INSAH's member states and their populations-at-large will benefit from the positive results of appropriate food security, agricultural production and NRM policies. As an example, reformed agricultural production and food security policies may allow consumers to expect improved food supplies and eventually lower and more stable food prices. Additionally, bilateral and multilateral donors can be expected to benefit to the extent that coordination reduces redundancies in development projects and improved economic policies contribute to more cost-effective and successful investment projects.

**PEOPLE LEVEL IMPACT:** A key assumption in the design of the PADRES project is that research and analysis can play a valuable role in formulating and implementing sustainable development policies and programs, and that it is, therefore, worthwhile to invest in improving Sahelian research systems. The link between research and problem-solving is expected to occur through a chain of links which tie researchers to the final beneficiaries, i.e. the farmers and herders whose livelihoods depend on primary resources like farmland, water, forests, and rangeland.

The links between researchers and the rural households who are targeted as ultimate beneficiaries of the PADRES project are fairly complex. Households are seen as producers of agricultural crops, fuelwood, livestock, and other income, through a production system constrained by a range of factors out of their control. In order to increase household production, it is necessary to understand how these constraints limit output; to identify the changes which will be most effective in reducing those limits; and to find mechanisms for implementing those changes. The role of researchers and other actors depends on the kind of constraint. For PADRES to succeed, a large group of policy-makers, civil servants, and in the final analysis households must understand how coordinated research and analysis can provide information for sound decision-making, and be willing to act on that understanding. This would involve a series of steps:

- producing usable research results;
- making them available to the expected users (policy-makers, civil servants, and households);
- working with the users to ensure that they understand what purpose this information can serve;
- participating in the decision-making process to ensure that decisions actually reflect this information;

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- assisting in the use of the new information (i.e. introduction of new technologies, design of price reforms, etc.) to ensure that their impact is not lost due to poor implementation; and
- observing increased output as a result.

PADRES is not actually going to be involved in all of these steps. Rather, its activities relate primarily to the first three. However, to close the analytical loop, INSAH researchers will have to work with users of research findings (decision makers, extension agents and households) to collect feedback data on actual outcomes of implemented changes.

**SUMMARY OF USAID FUNDING:**

<u>ITEM</u>	<u>LOP FUNDING</u> ( \$000)
AGRICULTURE RESEARCH PROGRAM	1,735
FOOD SECURITY PROGRAM	2,558
NRM PROGRAM	1,429
ADMINISTRATION & FINANCE UNIT	787
POOLED RESOURCES (SUPPLIES & SERVICES)	573
USAID/BAMAKO SUPPORT (PROJECT MANAGEMENT)	651
INFLATION & CONTINGENCY	312
INSAH OVERHEAD	455
 PADRES PROJECT TOTAL	 8,500

**OTHER DONOR SUPPORT:** There are seven other donors providing funding to INSAH. Other donor assistance activities range from support to specific commodity research to general institutional support. The majority of other donors are providing assistance for complementary research areas to the PADRES project. Documentation and information dissemination is supported by several donor activities. The list of donors and their specific areas of support are as follows:

- 1) EEC, Millet and Sorghum project;
- 2) FAC/ACCT (France), Drought Resistance Network and documentation;
- 3) CEAO (West African Economic Community), Phyto-genetic resources activity;
- 4) BMZ (Germany), Agro-forestry and pastoralism;
- 5) CIDA (Canada), Institutional support and documentation;
- 6) FAO, Information dissemination; and
- 7) UNSO (Sahel Office of the U.N.), Crop protection and NRM.

## II. PROBLEM STATEMENT

The nine Sahelian states form a homogeneous region. Despite much variety in soils, micro climates, ethnic groups and practices, they share a geographic propinquity, an arid to semi-arid tropical climate with uncertain rainfall, heavy dependence on sorghum and millet as staples, similar harsh socioeconomic conditions, a historical, cultural and colonial legacy, and a sense of Sahelian identity. The widespread commonalities of problems, potential, and national interest have encouraged regional collaboration in the search for solutions to common and interrelated problems.

In recognition of this mutuality of interest, and in the face of the devastating droughts that began in the 1960s, the Sahelian states<sup>1</sup> formed the Comité Permanent Inter-Etats pour la Lutte Contre la Secheresse dans le Sahel (CILSS). The CILSS is a deliberative and coordinating body established to cope with drought and its effects on food security and the environment. Its Executive Secretariat is in Ouagadougou, where it has some sixty senior and support staff, as well as a number of associated projects. It is funded through member contributions and donor assistance.

The CILSS system also includes two separate technical institutes, AGRHYMET (in Niamey, Niger) and the Institut du Sahel (INSAH, in Bamako, Mali). AGRHYMET works on applications of agrometeorology to famine early warning and increasing agricultural output; it has been instrumental in strengthening the national weather services of the member countries and building historical data bases on climatic conditions in the region. INSAH is a center for coordinating scientific and technical information, primarily for facilitating member state research organizations and scientists in the coordination of their efforts and in the dissemination of their research results. Central to the institutes' concerns are increasing productivity in agriculture and the arrest of the degradation of the natural resource environment throughout the Sahel. This project deals with INSAH (the Sahel Institute), its functions and role, and the efforts needed to help it provide services to member state researchers over the next five years.

Since its establishment in 1977, INSAH has not developed into the prestigious center foreseen by its founders. In the decade of the eighties, mismanagement and poor direction led donors, especially USAID, to reduce funding to the various programs of INSAH. In the past few years, however, INSAH has taken important steps to improve its management, streamline its organization and budget, and focus its mandate. These changes and the services it

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Burkina Faso, Mali, Mauritania, Niger, Senegal, and Chad were the founding members in 1973; The Gambia joined in 1974, Cape Verde in 1977, and Guinea Bissau in 1986.

is providing through several successful projects have led to new confidence in both member states and donors that INSAH can provide needed services to the regional research and decision making communities.

This project provides INSAH with technical and financial support to address several interrelated problems in the region:

A. Limited effectiveness of ongoing agricultural research

Agricultural research in the Sahel has led to productivity increases in cash and food crops. There have been some notable successes, particularly in developing more productive strains of cash crops like cotton, and in the development of food crop networks for sorghum and millet which have led to technology adaptations and production increases. However, the impact of agriculture research has not met expectations. An analysis of the achievements and limitations of the agricultural research systems in the Sahel can be found in Annex 5A.

In general, the broader impact of adaptation and adoption of new technologies has been limited by the weak management and incentive structures of the National Agricultural Research Services (NARS), lack of regional collaboration/coordination on research priorities, a negative overall economic policy environment, inadequate researcher to client linkages, and weak or nonexistent research dissemination mechanisms. While improvements have been made of late in several Sahelian countries, the limited effectiveness of agricultural research systems still persists across the region.

A number of factors contribute to this situation. The choice of research topics has frequently not been broad enough to address all the determinants of agricultural output. Rather, research has focused primarily on developing drought-resistant seed varieties, without looking at the myriad economic and social constraints which determine whether farmers will actually use those varieties. Moreover, the effectiveness of the research institutions is hampered by poor management and inadequate financial and human resources. In particular, the personnel practices common in Sahelian civil services (of which agricultural researchers are usually a part) do not encourage the creative thinking and initiative which are essential to successful research. Another problem within the Sahelian research systems is that national resources are often allocated in ways which are inefficient from a regional perspective, in that each country tries to address all of the key issues, rather than each concentrating its efforts in a few areas of strength and sharing results across the region.

Valuable research results may also have limited impact because the mechanisms for disseminating them are inadequate. The agricultural extension systems are hampered by inadequate resources

with which to work actively with the farmers. Moreover, in many areas of the region, the linkages between research and extension are weak. The private sector has also proven ineffective in marketing new varieties. Sahelian markets have not attracted interest on the part of the seed propagation and distribution companies that play an important role in introduction of new varieties in developed countries, so there are no well-developed mechanisms for marketing new strains which could increase output at affordable prices.

Notwithstanding the limitations, networking and extension activities have had positive impacts on Sahelian agriculture. These impacts have been documented in the project paper for the Mali agriculture research project (SPARC) and in the 1991 evaluation of the SAFGRAD networks. Based on these positive reports and the 1990 evaluation of the Sahel Regional Institutions (SRI) project, AFR/SWA/RP is proposing project support to INSAH to enhance the impact of research through regional coordination and dissemination of research results by Sahelian networks.

#### B. Limited effectiveness of INSAH

Although INSAH was originally created to foster communication across research activities in food security and environmental management, it began to implement a number of large donor assistance projects in the 1980s. INSAH was supported by several donors until the mid-eighties. However, problems with mismanagement, lack of accountability and mis-directed project implementation responsibilities led to a discontinuation of donor support in 1987.

In 1990, an independent evaluation of the SRI project looked at all the CILSS institutions and made numerous recommendations concerning the resumption of donor assistance to INSAH. The evaluators found that INSAH had made considerable progress in recent years in establishing and implementing an organizational structure, work program and financing arrangements that permit it to fulfill its mandated role as research coordinator in the areas of food security and environmental management.

Key management changes occurred at INSAH during June, 1991, when both the Administrative Manager and Financial Controller were dismissed. The Administrative Manager had been at INSAH since 1978, the Financial Controller since 1981. Reports had been received by the Council of Ministers of CILSS concerning dissatisfaction with the performance of these individuals. At present the two positions are frozen until an adequate profile, including terms of reference, can be prepared for each position. A common Operations Manual is under preparation for the three CILSS institutions. Therefore, the implementation of the Project Administration and Finance (PAF) unit will be a priority for PADRES and INSAH during the first year of activity. In fact, the PAF must

be functioning before INSAH can disburse funds for the other project components, see section on Conditions Precedent and Covenants.

Since 1987, INSAH has not had the programs, personnel, facilities, or stature needed adequately to fulfill its appropriate role as regional research coordinator. This project will complement other donor funding to help INSAH perform its role in the region.

**C. Need for more Sahelian-lead analysis and ownership of research data and results**

Historically, research and analysis in the Sahel has been managed and conducted by expatriates. Prescriptions for change designed and proposed by expatriate advisers are less likely to receive widespread acceptance than are those generated by the Sahelians themselves. As a result, policy dialogue and implementation in the region have been constrained by the lack of independent information and policy analyses prepared by Sahelian scientists. Moreover, Sahelian researchers and policy-makers have often had only limited access both to expatriate research results and, more importantly, to the data on which they are based. Without a sense of ownership of information and intellectual property rights, timely and relevant decision making at national and regional levels becomes problematic. By contrast, experience suggests that when senior level Sahelian scientists or researchers champion a policy debate or issue based on their own work, they may be listened to by national policy-makers. This is a factor in the success of three INSAH programs, the Center for Studies and Research in Population and Development (CERPOD), the Pest Management Technical Coordinating unit (UCTR/PV), and the Regional Program for Strengthening Institutional Research Capacity on Food Security in the Sahel (PRISAS). These programs provide statistical data and information to researchers and policy-makers, and they are well respected both by Sahelians and by the donor community as sources of information and policy guidance. Considerable progress has been made of late in the Sahelianization of policy research and analysis in food security. Given the revitalization of INSAH over the past three years, AFR/SWA/RP sees the opportunity now to replicate these positive trends in the areas of agriculture research management and coordination, and natural resources management analysis.

**III. INSAH'S STRENGTHS**

In 1987-88, INSAH worked with the CILSS states to identify the priority areas for INSAH activity over the subsequent five years. They reaffirmed that INSAH's role was not to carry out or control research activities but to serve as a catalyst and facilitator for effecting concerted action and for the exchange of research results carried out by the NARS and other researchers. The conclusions and agreements reached in 1989 are embodied in INSAH's "Strategy and

Five Year Program: 1990-1994". The strategic role agreed to for INSAH is the provision of leadership in carrying out service programs that will contribute to strengthening the potential of the agricultural research institutions in the CILSS member states. These include making available relevant information for member state scientists by facilitating greater access to research reports and documents. In addition, the members agreed that INSAH is to assist in programs for training high level scientists and technicians. The areas identified for INSAH activity are crop and animal production, socioeconomic factors influencing food production, marketing, distribution, and resource use, environmental and ecological concerns, researcher training, and the preparation and dissemination of documentation associated with these themes.

The process of arriving at consensus on INSAH's mandate, the mutual sensitizing of concerned officials to the need for more regional cooperation and coordination, appears to have fostered a new confidence in INSAH within the NARS and among donor agencies. This is reinforced by the recent achievements of CERPOD, UCTR/PV, and PRISAS. These have been relatively well-funded programs, and, in many respects, they contrast sharply with the other, less-favored program activities within the INSAH organizational framework.

CERPOD has been operational since 1988. Started originally as a center primarily concerned with demographic training and research, it has since grown into an organization with a broadened mandate for working in population policy development in the Sahel. Some of the desirable policy outcomes attributable to CERPOD's influence include adoption of a population policy by the CILSS Council of Ministers in Burkina Faso in 1989, drafting of a population policy in Niger (that is not yet officially adopted but is serving to inform national debates on the country's next government), the adoption of a population policy in Mali in 1991, and the adoption by CILSS of population policies and programs as one of its four key program foci.

UCTR/PV was created in 1987 to fill a void left by the termination of the USAID funded Integrated Pest Management (IPM) project. Since 1987, INSAH has taken the lead in maintaining an information exchange and coordination role with the nine national crop protection services and NARS. INSAH has maintained the UCTR/PV with minimal donor funding. With the partial exception of the Nairobi-based PESTNET, it is the only such regionally conceived entity devoted to pest management research coordination anywhere in Africa. INSAH UCTR/PV is already playing an important role in national level research coordination. It provides a forum for pest management decision-makers and extension staff to interact with research colleagues. The coordination role of INSAH in crop protection has been acknowledged and affirmed in numerous meetings of Sahelian professionals in the field.

This unit has functioned very effectively with a small staff. The key has been the relentless efforts of a dedicated senior-level professional strategically placed at a regional institution with the mandate to coordinate research efforts and information dissemination activities of colleagues.

PRISAS began as a pilot food security program in 1989, with much less funding than CERPOD, and was linked to INSAH in 1990. (The latter has already received about \$15 million, whereas PRISAS totals little more than \$1 million). However, PRISAS has already built an effective working relationship with both researchers and policy makers in the Sahel. PRISAS has conducted a review of existing studies on food security issues in the Sahel and held workshops and seminars which have received wide acclaim for sensitizing researchers and government officials to the importance of political, technical, financial and structural constraints in chronic food shortages. PRISAS has publicized the fact that empirical results of studies done in the Sahel have played a major role in transforming the limited goal of privatization or liberalization of the cereal sector to a broader one of reforming the food system. For purposes of PADRES, PRISAS has also broken a trail that other coordinators may follow in establishing the validity of pursuing a more effective research methodology. This involves encouraging national researchers in exchanging and disseminating their interim results, and involving them and policy-makers in identifying common priority areas for further research. PRISAS has developed an interim product approach to develop and refine the policy research process. The interim product approach gives other researchers and policy makers an opportunity to provide feedback to the researcher before the activity is finalized. This process helps to refine the research questions, data collection and analyses to make the final policy product more applicable to policy makers needs. This approach has been adopted by the \$46 million analysis and research project in AFR/ARTS/FARA (PARTS).

Concurrently, INSAH's position has been strengthened by its role in the Special Program for African Agricultural Research (SPAAR), an informal group of twenty-three donors who support agricultural research in Africa. The donor forum, based in the World Bank, was started in 1985 because the donors recognized the necessity of taking a regional approach in support of agricultural research. In March 1990, at their 10th plenary session, the donors decided that the SPAAR should support preparation of two frameworks for action in agricultural research, one for the Sahel and one for Southern Africa. INSAH was selected to collaborate with the Sahelian national agricultural research systems (NARS) in preparing a revitalized program for agricultural research.<sup>2</sup> In mid-1991, the

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<sup>2</sup> INSAH/SPAAR task force. "Revitalizing Agricultural Research in the Sahel: A Proposed Framework for Action" Draft, October 4, 1991.

CILSS member states refined this program and agreed on three categories of action that require mutual attention: delineation of priority research themes within the NARS, establishment of lead research poles in the Sahel to carry out regional, concerted, and non-duplicative efforts, and institutional development of the national research systems, themselves.

INSAH is to be a key player in implementing these recommended actions, as it was in developing them. This is a role which will serve to reinforce its regional stature in the area of research coordination and definition of priorities. The implementation of the SPAAR Framework for Action will therefore form an important part of the activities supported under the PADRES project.

The networking efforts of INSAH need to be viewed in light of the various other research networks, e.g., SAFGRAD, CORAF, CRSP, and IARCs. Additional detail on these various networking efforts can be found in Annex 5, page 5.

#### IV. DESCRIPTION OF PADRES ACTIVITIES

INSAH's recent successful activities in CERPOD, UCTR/PV, PRISAS, and SPAAR, and the sense of direction which has evolved through elaboration of the Five-Year Plan warrant continued and renewed donor assistance to help maintain momentum in this direction. The support provided under the PADRES project will be used for coordinators and program activities in three broad subject areas; agricultural research, food security, and natural resources management. The activities funded through these three programs within PADRES will enable INSAH to help member states define regional and national research priorities and determine a rational allocation of responsibility for research on different subjects among the national research systems. This includes assisting with implementation of the lead centers proposed under the SPAAR Framework for Action. The three programs will also review research and disseminate results, with the assistance of a specialist in scientific editing and publishing. Although PADRES will provide staff and operational support to INSAH, this is not seen as primarily an institution-building project; rather, the focus is on producing analytical outputs and enabling INSAH to improve the effectiveness of the NARS during the life of the project.

## A. Agricultural Research

Agricultural research in the Sahel has historically been carried out by a plethora of national, regional and international institutions, with funds and leadership provided by the donor community. The diversity of institutions has led to duplication of effort across countries, and insufficient sharing of data, methodologies and results within the research community. One of the principal reasons for the creation of INSAH was to try and address these problems. The Institute's mandate includes exchange of research results, coordination of research activities, and development of regional research agendas. The need for these services has increased in recent years, as the Sahelian countries' financial crises have required more efficient use of extremely limited resources for research.

An important step in this direction has been taken by INSAH and the NARS through the development of the Sahelian Framework for Action (FFA). The FFA is aimed at remedying the problem of the slow rate of technology generation emanating from the agricultural research systems in the Sahel. It proposes a broad series of measures in areas such as institution building, substantive research issues, and regional collaborative mechanisms. A central pillar of the strategy is assignment of specific regional research responsibilities to specific national systems, in order to build research poles which will take the lead in their fields. The FFA proposes the establishment of three pilot research poles, one on sorghum varieties to be based in Mali, one on small ruminants to be based in Senegal, and one on village land management approaches to soil and water conservation to be based in Burkina Faso. INSAH has been designated as the lead institution to facilitate implementation of the FFA approach and development of the three pilot research poles.

The agricultural research program of PADRES is designed to support both INSAH's mandate to promote information exchange and its role in implementation of the FFA. There will be three broad groups of activities. The first will focus on supporting the activities of the NARS and the implementation of the FFA, and will be carried out by the agricultural research management specialist. The second will concentrate on INSAH's role in information exchange, and will be the primary responsibility of a scientific editor. The third will be in the specific area of pest management, for which PADRES will provide operational funding to support the activities of a technical specialist (UNSO funded) to INSAH's Pest Management Technical Coordinating Unit (UCTR/PV).

### 1. Support to the NARS

One of the primary tasks involved in supporting the NARS will be setting up the research poles proposed under the FFA. The research management specialist will prepare detailed proposals to

INSAH and the NARS on institutional linkages between the NARS, INSAH, and the proposed lead centers; linkages between lead centers and host countries and other NARS; how the research poles should be structured; how they should be staffed and funded; mechanisms to ensure exchanges of research results; how they should be monitored and evaluated; and how their research agendas should be defined. These proposals should be developed in collaboration with INSAH and NARS staff, as well as with other research institutions studying those commodities.

The FFA lead centers are likely to contribute largely to research activity in the Sahelian countries that already have the most developed research systems; Mali, Senegal, Niger, and Burkina Faso. A second responsibility of the research management specialist will therefore be to develop separate proposals for how to strengthen the NARS in the other five CILSS countries, taking into account their relatively small populations and resource bases, and their relative inexperience in building research institutions.

A third activity of the research management specialist will be to coordinate the preparation of syntheses of past and ongoing research in the Sahel. Such syntheses may take different forms, depending on their audience; books for researchers, short reports for policy-makers and donors, leaflets for extension agents or farmers, etc. They will be structured by commodity system, so their preparation will require participation of specialists from a range of disciplines. The scientific editor will assist in developing, editing, and distributing them. PADRES will have funds available with which to provide mini-grants to Sahelian researchers, to help them write up their work and prepare syntheses of their results. The functioning of the mini-grants programs is discussed at the end of this section on the project components.

## 2. Publication and Dissemination of Information and Data

PADRES will fund the salary and activities of a scientific editor who will help INSAH publish documents which meet international standards. The publication of scientific papers, literature reviews, or analyses of the policy implications of scientific research will serve to keep researchers informed about each other's work, keep policy-makers abreast of new developments, and establish INSAH's credibility in the research community. While some of the papers published may be written by PADRES or other INSAH staff, by and large they will originate with the national researchers. The editor will be in the information division of the Documentation, Information and Training Department (DDIF), and will work with any INSAH program interested in developing publications.

INSAH is also interested in the possibility of building a database on what kind of research is being carried out in the Sahel, and by whom. In view of the other attempts to do just this, both in the past and ongoing, and in view of the of the difficulty

of keeping such a system up to date, PADRES support for this activity will begin with a study of the needs of potential data users and a review of other systems in existence or under development. If deemed appropriate, work will continue with system design and data collection in years two and three, system implementation and data entry in the fourth year, and the first round of data updating in the fifth year of the project. The work will be carried out by the database staff of the DDIF.

### 3. Integrated Pest Management

UCTR/PV, INSAH's pest management unit, has demonstrated considerable success in bringing researchers, civil servants, and policy-makers together to discuss common issues, and in disseminating information about ongoing research to a general audience. The program coordinator for IPM is funded by support from Canada and the UN Sudano-Sahelian Office (UNSO). PADRES will support the unit's activities with funds with which to commission literature reviews and other studies, organize technical conferences, maintain an international plant protection database, and purchase journals and other literature.

#### B. Food Security

In relation to the PRISAS and PADRES activities, we are using the World Bank and DFA definition of food security, i.e., "access by all people at all times to sufficient food and nutrition for a healthy and productive life." The basic premise of the project is that development research and analysis of existing policies and practices in food production, processing, and marketing at the macro and micro levels can influence change. This influence can be to change policies and or practices which make food more readily available or make food more accessible to households and markets on a sustainable basis. INSAH's experience with PRISAS has shown that a regional institution with the proper support can have positive effects on national and household food security. These positive effects have been exemplified in the work of PRISAS on Marketing Information Systems (MIS), coordination and prioritization of research agendas across the region, and providing a clearer picture of Sahelian household food insecurity to Sahelian decision makers.

INSAH has been active in the food security arena since 1990, through PRISAS, a pilot project financed by a USAID Africa Bureau buy-in to the Food Security in Africa project implemented by Michigan State University through a Cooperative Agreement with the Research and Development Bureau (R&D/EID). This project has promoted regional cooperation on research and policy decision-making in order to improve the persistent situation of food insecurity in the Sahel. PRISAS has promoted and organized workshops and seminars with the participation of Sahelian researchers and policy makers for the setting of research priorities.

The PRISAS project was designed to help implement INSAH's mandate and its Five-Year Plan, one of whose objectives is to strengthen the analytical capacity of Sahelian national researchers'. The PRISAS contribution was initiated through a critical review of research and studies on food security in the Sahel undertaken during the 1985-1990 period. This review was distributed to Sahelian and non-Sahelian researchers and was the basis for discussion during the first regional workshop, held in May 1991. This workshop resulted in the first prioritization of research themes at the national and regional level by Sahelian researchers.

PRISAS has contributed substantially to the development of cereals market information systems, using them to analyze the institutional environment of the markets and their relationship to the food security situation of the region. Another PRISAS analysis focused on the elements of intrinsic poverty - financial poverty, technological poverty, institutional poverty and changing consumption patterns - and its link to food security. PRISAS also provided valuable inputs into the formulation and design of the first Malian Economic Development Plan, designed to guide the country's economic development for the next 12 years.

In support of INSAH's role in the food security arena, the PADRES project will assure continuation of PRISAS's leadership role in giving direction and impetus to national researchers and policy makers. The overall objective of the PADRES/Food Security program is to stimulate the generation of relevant food security policy research while promoting and organizing a cooperative working relationship between researchers and policy makers for the improvement of food security and economic growth in the Sahel. The interaction between Sahelian researchers and policy makers is essential for more effective and efficient policy research, policy formulation and implementation at the national and regional level.

The objective of the food security program of PADRES will be achieved through several activities. The program will facilitate the setting of research agendas on food security, through annual workshops at the regional and national level. Regional workshops will be attended by food security researchers representing the NARS of CILSS country members, donor representatives and researchers from the international research community. They will address research policy, planning and design, and methodologies. National workshops will take place in the member countries, and will permit discussion and dialogue among national researchers and policy-makers on food policy implementation, empirical findings and their implications for food security.

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Stratégie et Programmation quinquennale 1990-1994. Institut du Sahel, Bamako, Août 1990.

The program will also identify, design and undertake analysis of food security policy issues of regional impact and importance, pointing out the interactions between research, policy formulation and implementation, institutions and households. It will undertake publication of regional level analyses of food security issues, for dissemination to the NARS, key policy makers, the CILSS executive secretariat and the international research community. PADRES will provide funds for research mini-grants, through which the food security program will encourage research on issues of regional importance.

**Priority Setting and Themes:** PADRES will build on the positive priority setting experience of the PRISAS activity. The PRISAS program coordinator first prepared a literature review of past research in the food security area for the Sahel. This literature review was shared widely with national researchers and decision makers. Then INSAH/PRISAS coordinated a workshop for the setting of research priorities at the national and regional levels. The detailed national agendas can be found in Annex 5B. The setting of priorities at the national level was followed by discussions that resulted in the setting of common regional priority themes as follows:

#### MICRO-MACRO LINKAGES

- choices of economic activities and marketing structures
- comparative advantages

#### STUDIES CENTERED ON INCOME GROWTH

- research and analysis on diversification/specialization instead of diversification for self-subsistence
- analysis on competitiveness of export crops in the regional and world markets (vegetable and animal products)
- analysis on complementarity between:
  - cash crops and food crops
  - agricultural and non-agricultural activities
- labor markets (rural and urban)

#### MAIZE: (case studies on intensification potential)

- technological constraints specially at the level of transformation
- commercialization constraints
- relationship with other agricultural products

#### MARKETS INSTITUTIONAL AND LEGAL ENVIRONMENT

MARKETS FOR FACTORS OF PRODUCTION: structure, performance and function

#### CONSUMPTION

- changes in consumption habits
- optimal level of consumption to improve nutritional status
- role and objective of food aid

This prioritization of topics at the national and regional level was taken back to the Sahelian countries that participated in the workshop and reviewed and discussed with key policy makers. In response to those discussions several proposals for studies have been made by Mali, Gambia and Senegal. In the case of Senegal, its first analysis pertains to the interaction between macroeconomic policies and microeconomic adjustments of agricultural activities on the river basin. All three countries proposed priority research themes that will be presented at the next INSAH/PRISAS workshop in November of 1992 in Bamako, Mali. At the November workshop, policy makers will attend and critique these studies for final adjustment and reporting. This basic priority setting process will be adapted to the other research programs under PADRES as appropriate.

Activities of the food security program will be carried out in close cooperation with the coordinators of the agricultural research and natural resource management programs of PADRES, as well as with other INSAH programs. PADRES will fund the salary and activities of a program coordinator and two research assistants for up to five years, beginning when the current AID/W buy-in funding is exhausted in late 1992. PADRES will continue the MSU buy-in for technical assistance, although in a change from the PRISAS arrangement, the PADRES food security staff will be employees of INSAH rather than MSU.

### C. Natural Resources Management

The INSAH Five-Year Plan recognized that degradation of the region's natural resource base, due in large measure to increased population and decreased rainfall, seriously threatens development prospects in the Sahel. The plan calls for INSAH to support research in three areas; soil and water conservation, natural forest management, and ecological monitoring. However, this field has lagged behind other priority activities, both within INSAH and in the national research systems. In 1991, the UNSO provided support for initial surveys of research needs on soil and water conservation and forestry, and they have agreed to fund a natural resources expert to head that program.

INSAH's NRM program will have two components. These components will be funded by UNSO and USAID. The overall NRM program will focus on the areas of soil and water conservation and forestry, as well as assisting in the implementation of the SPAAR Framework for Action in the area of land management, and interdisciplinary and spacial analytical frameworks for research on NRM.

The UNSO expert will have responsibility for implementing the natural resources component of the Five-year Plan. Work will begin with an interdisciplinary review of recent research. Complementing the review will be a set of preliminary recommendations on areas for future work, which will serve to launch discussions on research priorities among Sahelian researchers and policy makers.

The proposed USAID program in natural resources management will focus on applications of spatial analysis and geographic information systems to research on natural resource management. The two NRM components are expected to work collaboratively, building on and informing each other's efforts. Some of their work will be undertaken jointly, but the coordinator of each component will manage a budget specifically allocated to his or her activities.

The PADRES funded analysis component of the NRM program stems from INSAH's belief that the lack of spatial information and spatial analysis is an important constraint on natural resources policy-making in the Sahel, and that INSAH must be equipped to work with spatial analysis tools in order to assist national researchers in their use. However, to substantiate INSAH's belief in the demand for spatial analysis tools, PADRES will work with the Consultative Group of the NRM (CG/NRM) unit of the PARTS project to make an independent assessment of the demand for this type of information management and how such a capacity would relate to other activities in the region. After this assessment, the managers of PADRES will make a decision as to what parts of the NRM analytical program they will fund.

PADRES as presently designed will support INSAH in work with spatial data, as analysts and synthesizers rather than as the developers or suppliers of base data. The AGRHYMET regional center in Niamey has responsibility for establishing regional data bases covering the basic resource areas, e.g., rainfall, soils, vegetative cover, land use, administrative units, hydrology, etc. With the possible addition of the regional agriculture statistics project (DIAPER) at AGRHYMET, they will have a major role to play concerning agricultural data collection and service to the region. INSAH will need to work with AGRHYMET staff in the development of appropriate data sets and analytical tools.

The analysis component will be closely linked to the Programme Sahelien d'Appui à la Gestion de l'Environnement (SAGE), a CILSS Executive Secretariat activity in the area of environmental information systems. SAGE was first proposed in 1988 as the Programme de Suivi de la Dynamique de la Désertification, and it is still in the discussion phases. A one-year preparatory study for SAGE is to begin in 1992. The study will gather baseline data on programs and systems in process and on user needs, and it is expected to lead to recommendations on data standardization and development efforts needed in order to build an effective ecological monitoring system for the CILSS countries. The study will also make recommendations about institutional location of the SAGE program itself within the CILSS system. AGRHYMET is considered a likely home, because of its experience in building and managing databases. Among the other possibilities is to separate the data development and analysis functions of the program, placing the former at AGRHYMET and the latter at INSAH.

During the first year of operation for the NRM program, the PADRES analysis coordinator will inventory existing use of spatial data and analysis tools in the CILSS countries, both in order to gather information and in order to build a network of contacts with national researchers using GIS. Because this activity will overlap closely with the SAGE preparatory study, the PADRES coordinator should be a member of the SAGE team. This collaboration is essential both in the interests of efficiency and to ensure that there is no duplication of effort among the CILSS institutions. This joint SAGE/PADRES inventory has already been the subject of discussions between INSAH and the manager of the SAGE study; details remain to be arranged. During the first year of the project the analysis coordinator will also provide GIS software training to NRM program staff and others at INSAH who are interested, so that they can develop a sense of how the technology could be applied in their work.

Based on the inventory, the coordinator will identify priority areas for INSAH support to national GIS use. Such support may take many forms, including national or regional meetings on methodologies, software, or data problems; establishment of national user groups; or building links at the national level between users of GIS and producers of spatial and tabular data. The analysis coordinator will also use spatial information systems to analyze specific NRM questions with regional policy dimensions. These questions could be raised through the inventory or through the work of the NRM coordinator or other PADRES coordinators. They could also be generated by other institutions in the CILSS system, or through the SAGE program once it is established.

The two components of the NRM program will work jointly in several areas. All work on identifying research priorities must be joint, because research which uses spatial analysis tools does not ask different questions from other research; it simply uses different tools to answer them. In the later years of the project, the program will develop a forum, such as occasional annals or a journal, to publish important research on natural resources management. The program will also award small grants to support research on resource management. These will be used to encourage regional approaches and interdisciplinary collaboration in research.

USAID will provide funding through the PADRES project to support a research associate under the NRM analytical program to work with the interdisciplinary team conducting the Sahel Ecology, Economy and Demography Study (SEED). SEED is part of the apres-Segou process which will: 1) further the understanding of the development and environment choices facing Sahelian countries; and

2) lay the groundwork for improved strategies and policies in NRM.<sup>4</sup> The proposed analyses cover a broad range of disciplines and combine both field observation and development of research methodologies. While at present SEED is a set of discrete studies, there is the potential to institutionalize this interdisciplinary analytical methodology at INSAH to serve the region's future needs for interdisciplinary analysis.

The first phase of SEED (literature review and desk top study) should be completed by mid-1992. It is proposed that PADRES fund Phases two and three through a possible arrangement with Washington State University.

#### D. Research Mini-grants

Each of the proposed PADRES programs will fund research mini-grants. The purpose of the grants will be to promote and encourage national researchers to include an interdisciplinary and sub-regional direction to their activities. Results from these national studies will be brought together to form sub-regional synthesis papers of the priority regional research themes, research methodologies, crops and analytical techniques.

##### 1. Definition

Mini-grants are strengthening grants to national researchers/institutions. These grants will serve to remove constraints to research efforts that will benefit both the national programs and the regional research community.

##### 2. Justification

National research programs are often designed and implemented on a strictly sectoral basis and without a sub-regional dimension.

As an institution entrusted with the promotion and harmonization of research at the regional level, INSAH is to strengthen national programs through the multi-sectoral and interdisciplinary approach by promoting inter-Sahelian sub-regional dimensions to research. This grant program is one concrete way to promote this regional directive.

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<sup>4</sup>The Segou Roundtable on local natural resources management took place in Segou, Mali, May 22-27, 1989. This CILSS/Club sponsored conference included local farmers' groups for the first time as an equal participant with national government and donors in the debate over local resource management. The eight resource management declarations coming from this conference were accepted and endorsed by the CILSS Heads of State in February, 1990. Apres-Segou is a CILSS/Club program to continue research, debate and implementation of the eight Segou declarations.

Most often, these grants will be used to remove a specific constraint to a research proposal, e.g. Sahel travel funds, data collection funds, publication and dissemination funds, and/or coordination meetings/work between researchers from different disciplines and different countries working on different aspects of the same research issue.

### 3. Eligible Areas for Research Support

The areas for which mini-grants will be awarded are to be determined by national research programs, but only when it fits within the framework of the CILSS/INSAH/PADRES mandate. Activities likely to be covered are the following:

- all costs associated with a specific priority regional research topic (proposal preparation, data collection, analysis and reporting);
- procurement of equipment or materials absolutely necessary for implementing the research activity;
- cost for inter-sectoral, interdisciplinary, and sub-regional coordination; and/or
- costs of production and dissemination of results.

### 4. Mechanism for Awarding Grants

The awarding mechanism is as follows:

a. National research proposals are submitted to INSAH, discussed with a regional coordination group of Representatives of the CILSS member states and international experts as peer reviewers, and amended as necessary to conform to the major research priorities established in INSAH's Five-year Plan and in subsequent regional workshops.

b. Research Protocols between INSAH and NARS will be signed by the Director General of INSAH and the research director in the national program. These individual protocols will include general and specific provision for compliance. A sample protocol is attached to Annex 5B.

It should be noted that an independent committee of experts will be formed for each discipline under PADRES to define eligibility criteria and finally select among proposals. It is recommended that appropriate members of USAID technical staff participate on these committees. INSAH/PADRES and the independent committees of experts will hold annual in-house reviews of progress being made by each research and analytical activity and entertain any additional research activities.

Finally, it is recommended that the PADRES grant agreement have a covenant in it that specifies that mini-grant funds cannot be applied as salaries or salary premiums.

#### E. Linkages across the PADRES programs

Although PADRES is structured in three separate programs, the issues to be addressed are very closely related. For this reason, building linkages across the three programs will be essential to effective implementation of the project as a whole. Ultimately, it is the job of the Director General of INSAH to ensure the complementarity and coordination of all the work at the institute. He/She will be supported by the newly appointed Scientific and Technical Coordinator. This individual will be key to ensuring the complementarity of the various programs. It is essentially his/her job to oversee all the technical programs of INSAH which would include coordination of the various work programs. This function will be accomplished in several ways, review of coordinators' work plans, development of an interdisciplinary analytical framework, periodic progress reviews of the programs, and joint programming of the research mini-grants.

The coordinators in the different fields must develop a conceptual framework for understanding the intellectual linkages among their disciplines. The project essentially incorporates three disciplinary approaches; the first focusing on the biological dimensions of agriculture, the second on agricultural economics and other social sciences, and the third grouping the fields of soil science, hydrology, and forestry. Each of these disciplines asks its own questions about how natural and human systems operate, and studies the impacts of specific human interventions or natural changes on variables such as crop yields, runoff, whether people market their crops, etc. A conceptual framework for understanding the linkages across the disciplines would clarify the questions being asked by each discipline, and focus on how the givens of one model are being varied by another. This would provide a basis for identifying interdependencies in the work done by researchers in different fields. At the start of the project, the PADRES coordinators should work together to develop such a framework, and use it to identify the relationships among the research activities being undertaken in the three areas. The framework developed should be used throughout the project to keep abreast of research in each other's fields and ensure that links are made within the NARS as necessary.

Specific mechanisms may be used to strengthen these linkages and support interdisciplinary research. At the research conferences and workshops held by the three programs, sessions should explicitly address interdisciplinary linkages. National meetings may be held jointly by the three PADRES programs, in order to build interdisciplinary research networks within the NARS. The

PADRES research mini-grants may also be used to encourage interdisciplinary approaches or to fund joint research efforts which go beyond a single field. Insofar as PADRES personnel are directly involved in analyzing issues of regional importance, as expected in the food security and NRM programs, the development of joint projects may also be a valuable strategy for building bridges across the project.

#### F. Linkages with the PARTS project

The PADRES project has been designed to work with and be an African regional complement to the new analytical project in the AFR/ARTS/FARA office. The Policy, Analysis, Research and Technical Support (PARTS) project is designed to increase the utilization of information and analysis for USAID sponsored agricultural and natural resources policies, programs and projects in Sub-Saharan Africa. PARTS anticipates conducting analytical work in five technical areas. These areas include food security and productivity, technology development and transfer, agricultural marketing and agribusiness, natural resources management, and environmental protection. The analytical work will be guided by an analytical agenda setting process which includes the participation of Africans and African institutions. It is envisioned that African participation will be facilitated through the use of workshops and conferences funded through the Cooperating Agencies mechanisms with R&D Bureau projects. The PRISAS activity, at INSAH, helped develop the participatory approach that will be used by PARTS, i.e., the interim product approach to policy research and development. The PADRES project follows the design of the PRISAS activity. PADRES, as did PRISAS, will work with Cooperating Agencies under R&D projects, as appropriate.

PADRES will complement PARTS by supporting INSAH in the analysis, formulation and implementation of sustainable policies and programs, through the coordination and prioritization of research efforts in agricultural research, food security and Natural Resources Management. USAID, through PADRES, will provide operational support to INSAH for analysis and coordination of applied policy research on Sahel-wide issues. It will give the Sahelian researchers an independent voice in the process of setting the analytical agenda for the region in three critical research areas. PADRES support to INSAH will help ensure African participation in the setting of the analytical agenda of PARTS.

## V. INSTITUTIONAL CONTEXT

The PADRES coordinators will be INSAH staff, integrated into the INSAH organizational hierarchy, and responsible for INSAH programs in the three areas of agricultural research, food security, and natural resources management. For this reason, some background on INSAH's current activities and its organizational structure is useful in putting PADRES into its institutional context. It should also be noted that the organizational structure may change in the next year or two as a result of the present efforts to restructure all CILSS institutions.

### A. Organizational structure

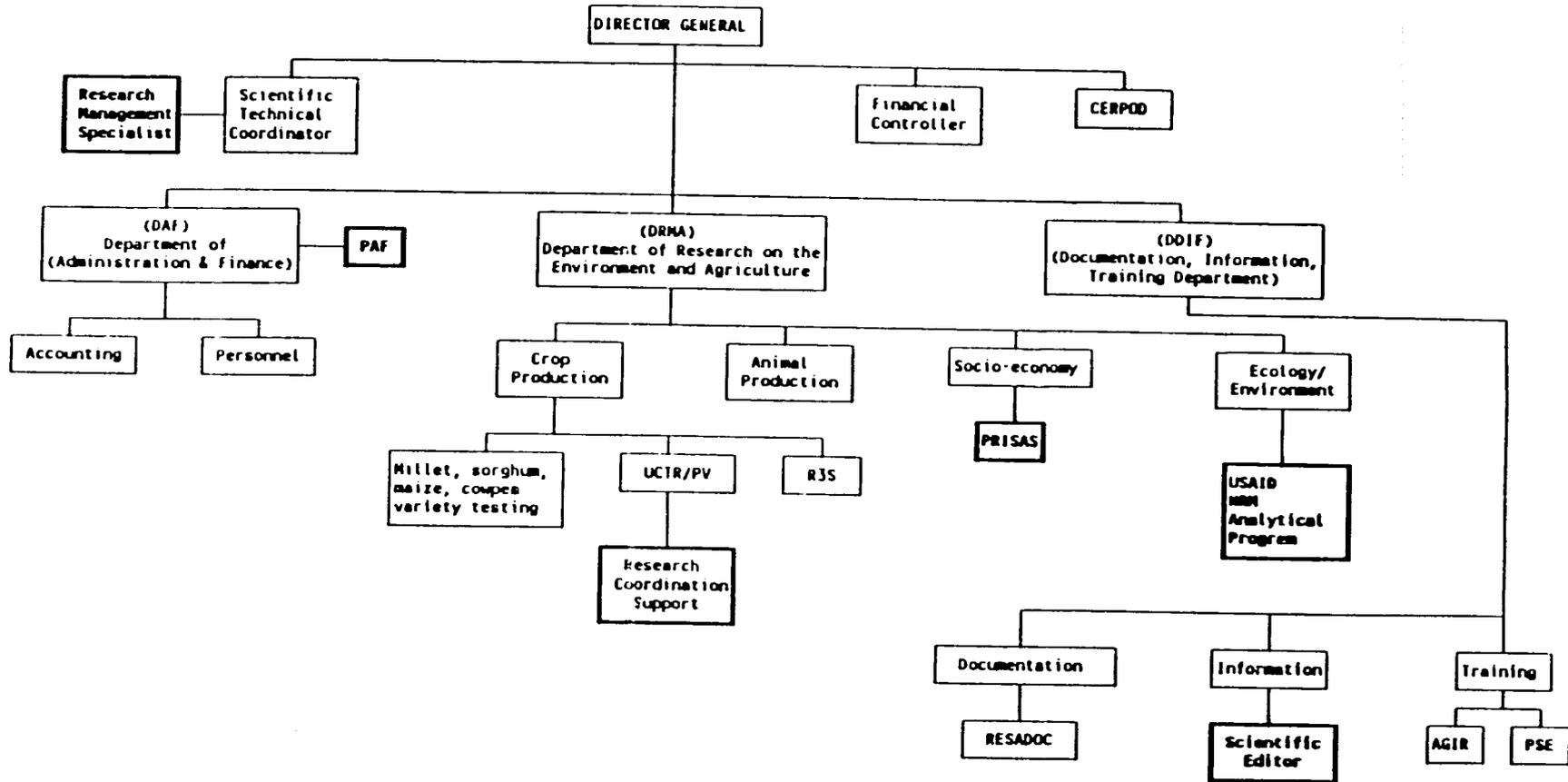
INSAH is a relatively small organization, employing 49 people of whom eleven are professionals. The Director General (DG) has overall management and policy responsibility. He has no deputy, but is supported by a Scientific and Technical Coordinator, who is attached to the DG's office and acts for him in his absence. INSAH has three departments (see organizational chart):

- the Department of Research on the Environment and Agriculture (DRMA);
- the Department of Documentation, Information, and Training (DDIF); and
- the Department of Administration and Finance (DAF).

The first two are headed by program coordinators, who are responsible both for managing specific projects (usually funded by donors) and for coordinating and overseeing the activities of other managers of projects and activities within their departments. The INSAH leadership stresses the fact that the department chiefs are not managers or administrators in the bureaucratic sense of managing people. The emphasis is, instead, on department chiefs having operational roles as project managers responsible for facilitating and coordinating projects that are essentially carried out by organizations within the member states.

The PADRES coordinator for food security will be in the socioeconomic program of INSAH, within the DRMA. The UNSO-funded NRM expert will be responsible for the overall natural resources program, also within the DRMA. The AID-funded NRM analyst will manage a parallel analysis program within the natural resources program of the DRMA. The agricultural research management specialist will be adjacent to the scientific and technical coordinator in the organizational structure. The scientific editor will be in the DDIF, within the information department.

FIGURE 1: INSTITUT DU SAMEL ORGANIZATIONAL CHART



38x

38x

In the Department of Administration and Finance there is at present no director or controller. The incumbents of these positions (as well as those in AGRHYMET and the DAF of the Executive Secretariat) were fired in June, 1991 as a part of the ongoing restructuring of the CILSS system. It is not anticipated that they will be replaced before mid-1992. The Director of the Documentation, Information, and Training Department is temporarily sharing these duties with the Director General. PADRES will have a separate accounting system and administrative personnel, housed in a Project Administration and Finance Unit (PAF) adjacent to the DAF. Consideration should be given to folding the PAF into the DAF as a project accounting unit at a later stage of the project. A prerequisite to this move would be continued progress in the DAF.

#### B. Ongoing activities

In taking a regional approach, INSAH's role is to foster collaborative efforts among the NARS and to stimulate donor interest in supporting particular projects that promote such efforts, either through INSAH or on a bilateral basis. Within the DRMA, INSAH now has underway:

- a regional program for coordinating development of improved varieties of millet, sorghum, cowpea, and maize;
- a research network for developing crops and methods that will improve plant resistance to drought, the R3S program;
- a research diffusion program for the crop protection program, based on research in integrated pest management; and
- a program for strengthening scientific capacity in agro-sylvo-pastoral activities in the Sahel.

In its role of facilitator for training and for providing information and documentation for interested Sahelian scientists and research managers, the DDIF is coordinating:

- project activities in Sahelian education programs and rural radio Programs;
- establishment and improvement of a Sahelian scientific and technical Documentation Network (RESADOC); and
- training programs in natural resource management (with UNSO support) and in the improvement of the management of Sahelian research institutes.

## VI. PROJECT COMPONENTS, INDICATORS AND SUSTAINABILITY

### A. Goals and Purpose

The Programs for Applied Development Research in the Sahel is a regional project. Project objectives are as follows:

**GOAL:** To improve Sahelian decision-making on issues of food security and environmentally sustainable growth in the Sahel.

**PURPOSE:** To improve Sahelian analysis, formulation and implementation of sustainable policies and programs, through the coordination and prioritization of research efforts in agricultural production, food security and natural resources management.

### B. Link to the Development Fund for Africa

In achieving the project purpose, PADRES will contribute to accomplishment of three of the four strategic objectives of the Development Fund for Africa:

- DFA objective 2 is to strengthen competitive markets so as to provide a healthy environment for private sector-led growth. PADRES will contribute to this objective through the work of the food security program in supporting research on regional cereals markets, which can be used to develop policies for making them work more efficiently.
- DFA objective 3 is to develop the potential for long-term increases in productivity. Objective 3.1 is to accomplish this through improved natural resource management; this will be addressed by the natural resources component of the PADRES project. Objective 3.2 is to improve long-term productivity through accelerated agricultural technology transfer and development; this will be addressed by the agricultural research program within PADRES.
- DFA objective 4 is to improve food security in Africa; this is a target of the entire PADRES project, and of the food security program in particular.

### C. Outputs

PADRES will work towards accomplishment of these objectives by helping INSAH to strengthen the contribution of research to identifying solutions to development problems. Through PADRES, INSAH will:

- improve the quality of the NARS' research outputs, through the implementation of SPAAR concept of lead research poles which reduces inefficient duplication across national systems, and concentrate resources in the fields of each country's

comparative advantage;

- publish and disseminate scientific documents;
- have functional programs for applied policy research in agricultural research, food security and NRM which establish and strengthen the links between researchers and research users (interim-product approach), and provide a forum in which researchers, policy-makers, donors and farmers or herders can jointly decide which topics require further work;
- identify research issues and make policy recommendations for use by national and regional decision makers in the three technical areas;
- GIS systems being used as a normal tool for data analysis and display; and
- establish a Project Administrative and Financial unit which can provide sound financial management and reporting.

If INSAH is successful in these efforts, it should lead to research outputs which are directly or indirectly useful to three sets of constituents:

- Policy-makers will now have better information about the consequences of different policy options, and they will make more informed decisions;
- Agricultural, livestock, and resource management extension agents will have more appropriate technologies to transfer to their clients; and
- Farmers and herders will adopt new technologies in agriculture, livestock management, and natural resource management.

#### D. Indicators

Indicators of whether these outputs are achieved may be defined at two levels. At the INSAH level, it will be possible to routinely monitor what the PADRES project has done. Useful indicators will include:

- How many detailed proposals prepared on the management structures and linkages of the research poles and the smaller countries.
- How many literature reviews are produced by each program and what disciplines they cover;
- To whom the literature reviews are disseminated;

- How many meetings are held, when, where, and who has attended;
- What kinds of agenda-setting or research prioritization documents are produced, and through what process;
- What publications are produced, whom they target, to whom they are disseminated, and how they are received by the international scientific community and their target audiences.

At one level removed from the actual PADRES activities, by the end of the project it should be possible to observe results in target areas which are not directly under INSAH control. These may include:

- The FFA research poles are in existence, and they are doing research in their areas;
- PADRES agenda-setting or research-prioritization documents are viewed by researchers and donors (not limited to USAID) as a valuable guide for the definition of future research activities;
- Research funds are being provided by donors following the priorities defined through the PADRES process;
- INSAH is publishing research results which have clear applications to the needs of policy-makers, extension agents, or farmers and herders;
- Policy-makers, extensions agents, or farmers and herders are aware of and using the new research results.

The monitoring plan in this project paper spells out possible indicators, monitoring mechanisms, and evaluation strategies in more detail.

#### E. INPUTS

USAID plans to provide \$8.5 million for activities under the PADRES project. These funds will be used to provide technical assistance, computer equipment, report production and dissemination, and facilitating numerous regional and national conferences in each of the three technical areas of the project. Further detail on project inputs can be found in the notes section of the budget chapter and in the logframe annex.

## F. SUSTAINABILITY

At the end of the project, INSAH through the support of the project programs will have established itself as the research coordination institution in the Sahel. The research coordination and analytical outputs, processes and capacity fostered by PADRES will have created a demand among Sahelian and donor decision-makers for the analytical and networking services of INSAH such that the programs will be sustained by donors and the CILSS member countries. Given that INSAH is an applied research and training institution, it is unlikely that it will generate sufficient revenues to cover its costs in the medium term. INSAH's sustainability will depend on its performance and funding base. The experience of CERPOD should be followed for the other programs of INSAH. CERPOD has successfully broadened its donor support base and incorporated overhead and service fees into its standard operations.

Sustainability will need to be a fundamental concern or issue for INSAH and PADRES project management. Sustainability of effective services at INSAH should be pursued in every possible way, e.g., multi-donor meetings in support of INSAH programs (promoting a broad base of donor support), project evaluations, specific sustainability planning meetings, and/or an institutional endowment program study.

INSAH should look to CILSS to establish a Group du Bamako which would include all of the primary donors to INSAH. Sustainability would need to be one of the continuing objectives of this group and of INSAH. This multi-donor group should be called upon to coordinate donor support to INSAH programs and the sustainability of those programs. PADRES management would need to take an active role in such a group to encourage continued collaborative support of INSAH past the PADRES PACD.

The scope of work for the mid-term and final evaluations of PADRES will include an assessment of and recommendations for sustainability options for INSAH/PADRES programs and services. One possible option is to establish a multi-donor or USAID funded endowment fund. The mid-term evaluation team should be tasked with reviewing USAID experience with such endowments. This option would give INSAH a truly independent voice in policy analysis and dialogue arenas.

Finally, INSAH and PADRES management should consider the need for specific sustainability meetings which would prepare position papers and bring together the major donors to discuss possible options.

**CHAPTER 2**  
**COST ESTIMATES**

**I. FULL PROPOSED BUDGET**

This budget gives the full cost for all activities proposed under the PADRES project. The notes which follow explain what the line items in this budget cover.

PADRES PROJECT PROPOSED BUDGET	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
<b>1. AGRICULTURAL RESEARCH PROGRAM</b>						
<b>A. SALARIES</b>						
Expat Research Mgmt Specialist	\$200,000	\$200,000	\$170,000			\$570,000
Sahelian Res Mgmt Specialist			\$30,000	\$60,000	\$60,000	\$150,000
Crop Protection Specialist	(UNSO)	(UNSO)	(UNSO)	(UNSO)	(UNSO)	(UNSO)
Scientific Editor	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$300,000
Secretary	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$75,000
SUB-TOTAL	\$275,000	\$275,000	\$275,000	\$135,000	\$135,000	\$1,095,000
<b>B. EQUIPMENT</b>						
PC & Software	\$20,000					\$20,000
Furniture	\$10,000					\$10,000
SUBTOTAL	\$30,000					\$30,000
<b>C. ACTIVITIES</b>						
Travel	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$50,000
Priority-Setting Workshops	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$150,000
Crop Protection Activities	\$30,000	\$40,000	\$40,000	\$30,000	\$30,000	\$170,000
Database Study	\$40,000					\$40,000
Database Development		\$0	\$0	\$0	\$0	\$0
SUBTOTAL	\$110,000	\$80,000	\$80,000	\$70,000	\$70,000	\$410,000
<b>D. OTHER DIRECT COSTS</b>						
Research Mini-Grants	\$0	\$20,000	\$30,000	\$30,000	\$20,000	\$100,000
TA/Consulting Ag Res.	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$100,000
SUBTOTAL	\$20,000	\$40,000	\$50,000	\$50,000	\$40,000	\$200,000
<b>AGRICULTURAL RESEARCH TOTAL</b>	<b>\$435,000</b>	<b>\$395,000</b>	<b>\$405,000</b>	<b>\$255,000</b>	<b>\$245,000</b>	<b>\$1,735,000</b>
<b>2. FOOD SECURITY PROGRAM</b>						
<b>A. SALARIES</b>						
Coordinator	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$600,000
Research Associates	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$300,000
Secretary	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$75,000
SUB-TOTAL	\$195,000	\$195,000	\$195,000	\$195,000	\$195,000	\$975,000
<b>B. EQUIPMENT</b>						
PC/Software			\$8,000			\$8,000
Furniture	\$5,000					\$5,000
SUBTOTAL	\$5,000		\$8,000			\$13,000
<b>C. ACTIVITIES</b>						
Travel	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$50,000
Regional Workshops	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$200,000
National Workshops	\$20,000	\$30,000	\$30,000	\$30,000	\$30,000	\$140,000
SUBTOTAL	\$70,000	\$80,000	\$80,000	\$80,000	\$80,000	\$390,000

<b>D. OTHER DIRECT COSTS</b>						
Research Mini-Grants	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$400,000
MSU Buy-in - TA	\$156,000	\$156,000	\$156,000	\$156,000	\$156,000	\$780,000
<b>SUBTOTAL</b>	<b>\$236,000</b>	<b>\$236,000</b>	<b>\$236,000</b>	<b>\$236,000</b>	<b>\$236,000</b>	<b>\$1,180,000</b>
<b>FOOD SECURITY TOTAL</b>	<b>\$506,000</b>	<b>\$511,000</b>	<b>\$519,000</b>	<b>\$511,000</b>	<b>\$511,000</b>	<b>\$2,558,000</b>
<b>J. NRM ANALYSIS COMPONENT</b>						
<b>A. PERSONNEL</b>						
Analysis Coordinator	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$600,000
Research Assistant	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$150,000
Secretary	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$75,000
<b>SUBTOTAL</b>	<b>\$165,000</b>	<b>\$165,000</b>	<b>\$165,000</b>	<b>\$165,000</b>	<b>\$165,000</b>	<b>\$825,000</b>
<b>B. EQUIPMENT</b>						
Computer & Software	\$40,000	\$2,000	\$2,100	\$2,205	\$2,315	\$48,620
Furniture	\$5,000					\$5,000
<b>SUBTOTAL</b>	<b>\$45,000</b>	<b>\$2,000</b>	<b>\$2,100</b>	<b>\$2,205</b>	<b>\$2,315</b>	<b>\$53,620</b>
<b>C. ACTIVITIES</b>						
Travel	\$20,000	\$10,000	\$10,000	\$10,000	\$10,000	\$60,000
Regional Meetings		\$20,000	\$20,000	\$20,000	\$20,000	\$80,000
National Meetings		\$20,000	\$20,000	\$30,000	\$30,000	\$100,000
<b>SUBTOTAL</b>	<b>\$20,000</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$240,000</b>
<b>D. OTHER DIRECT COSTS</b>						
Research Mini-grants	\$0	\$20,000	\$30,000	\$30,000	\$30,000	\$110,000
TA/Consultants (SEED/WSU)	\$100,000	\$100,000	\$0	\$0	\$0	\$200,000
<b>SUBTOTAL</b>	<b>\$100,000</b>	<b>\$120,000</b>	<b>\$30,000</b>	<b>\$30,000</b>	<b>\$30,000</b>	<b>\$310,000</b>
<b>NRM ANALYSIS TOTAL</b>	<b>\$330,000</b>	<b>\$337,000</b>	<b>\$247,100</b>	<b>\$257,205</b>	<b>\$257,315</b>	<b>\$1,428,620</b>
<b>4. ADMINISTRATION AND FINANCE UNIT</b>						
<b>A. SALARIES</b>						
PAF Administrator	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$400,000
Accountant	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$125,000
Administrative Assistant	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$75,000
<b>SUBTOTAL</b>	<b>\$120,000</b>	<b>\$120,000</b>	<b>\$120,000</b>	<b>\$120,000</b>	<b>\$120,000</b>	<b>\$600,000</b>
<b>B. EQUIPMENT</b>						
PC/Software	\$106,200					\$106,200
Furniture	\$15,750					\$15,750
<b>SUBTOTAL</b>	<b>\$121,950</b>					<b>\$121,950</b>
<b>C. ACTIVITIES</b>						
System Installation	\$60,400					\$60,400
Prepare Purchase Order	\$5,000					\$5,000
<b>SUBTOTAL</b>	<b>\$65,400</b>					<b>\$65,400</b>
<b>PAF TOTAL</b>	<b>\$307,350</b>	<b>\$120,000</b>	<b>\$120,000</b>	<b>\$120,000</b>	<b>\$120,000</b>	<b>\$787,350</b>
<b>5. POOLED RESOURCES</b>						
Driver/Messenger (3)	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$75,000
Vehicles (3)	\$60,000		\$30,000			\$90,000
Publications & Distribution	\$35,000	\$40,000	\$40,000	\$40,000	\$40,000	\$195,000
Office Supplies	\$20,000	\$30,000	\$40,000	\$40,000	\$30,000	\$160,000
Insurance	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$10,000
Vehicle Operations	\$8,500	\$8,500	\$8,500	\$8,500	\$8,500	\$42,500
<b>SUB-TOTAL</b>	<b>\$140,500</b>	<b>\$95,500</b>	<b>\$135,500</b>	<b>\$105,500</b>	<b>\$95,500</b>	<b>\$572,500</b>
<b>6. USAID EXPENSES</b>						
USAID Project Liaison Officer	\$0	\$0	\$60,000	\$60,000	\$60,000	\$180,000
Project Liaison Office Rent	\$0	\$0	\$8,500	\$8,500	\$8,500	\$25,500
Financial Audit	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000	\$175,000
Project Evaluation			\$40,000		\$150,000	\$190,000
Procurement Services Agent (IOC)	\$40,000	\$0	\$40,000	\$0	\$0	\$80,000
<b>SUB-TOTAL</b>	<b>\$75,000</b>	<b>\$35,000</b>	<b>\$183,500</b>	<b>\$103,500</b>	<b>\$253,500</b>	<b>\$650,500</b>

ACTIVITIES SUB-TOTAL		\$1,793,850	\$1,493,500	\$1,610,100	\$1,352,205	\$1,482,315	\$7,731,970
INFLATION	5%		\$74,675	\$80,505	\$67,610	\$74,116	\$296,906
INSAH OVERHEAD	7%	\$106,319	\$88,095	\$87,962	\$87,409	\$86,017	\$455,802
<b>PADRES PROJECT TOTAL</b>		<b>\$1,900,169</b>	<b>\$1,656,270</b>	<b>\$1,778,567</b>	<b>\$1,507,224</b>	<b>\$1,642,448</b>	<b>\$8,484,678</b>

**Notes on the PADRES Budget:**

I. Agricultural Research Program

A. Salaries

1. The Research Management Specialist is expected to be an expatriate for the first three years of the project. Therefore, s/he will be contracted as a USAID/Bamako Personal Services Contractor. In year three s/he is to be replaced with a Sahelian; hence the two line items and the drop in cost. The research specialist will then be contracted with INSAH.
2. UNSO will be providing a crop protection specialist, who is included simply for reference.
3. The scientific editor will be a Sahelian.
4. The secretary will be a fluently bilingual Sahelian. S/he will work with the research management specialist and scientific editor and have secretarial and desktop publishing duties.

B. Equipment

This provides routine office furniture and personal computers for the research management specialist, the scientific editor, and their staffs.

C. Activities

1. "Priority-setting workshops" includes the costs of meetings, transport and per diem for workshop participants, related communications and printing, etc.
2. Crop protection activities will include 2 seminars on sub-sector analysis, 2 committees for monitoring, evaluation, and impact analysis, 2 annual technical conferences, subscriptions, literature, purchase of a commercial cd-rom of an international plant protection database, and 2

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trips per year for the UCTR coordinator.

3. Database study includes consultant study of existing databases in agriculture research.
4. Database development will need to be assessed after the database study. At that point, INSAH and USAID management will need to decide how much money is required and from where within the project the funds will come.

D. Other direct costs

1. There will be an anticipated 2 to 3 annual mini-grants of \$10,000 each beginning in year two.
2. TA/Consulting for agricultural research includes the services of such institutions as ISNAR, which may support the agricultural research specialist in his or her work supporting the NARS.

II. Food Security Program

A. Salaries

1. The salary of the food security coordinator is based on that currently earned by the coordinator of PRISAS. This is an American salary, but with benefits negotiated directly with INSAH, and assumed to be lower than full USAID expatriate benefits.
2. The research associates salaries follow the CILSS salary and allowance grids. One of these research associates will have specific responsibility for working with the NRM group and the SEED Study.
3. The secretary should be bilingual (English/French) Sahelian.

B. Equipment

This provides routine office furniture and personal computers for the food security program staff. Since some equipment has already been purchased by PRISAS, this figure is lower for this program than for the other two PADRES programs.

C. Activities

1. The figure for regional workshops includes 2 regional meetings per year for policy research,

dialogue, planning, design and result presentation, at a cost of \$20,000 each.

2. The figure for national workshops assumes 2-3 annual meetings at a unit cost between \$8,000 and \$12,000.

D. Other direct costs

1. This anticipates 3-5 annual mini-grants of \$12,000-\$20,000.
2. This will cover a project buy-in to the Michigan State University Food Security in Africa Program, to cover technical assistance and travel.

III. NRM Analytical Component

A. Personnel

1. The basic premise of the project is to have senior level Sahelian scientist at a regional level; Therefore, the NRM analysis coordinator will be a Sahelian. The salary and benefits for the analysis coordinator are calculated based on the salary and benefits scale of the Food Security Coordinator.
2. One research assistant will be provided at CILSS salary and benefit scales.
3. The secretary should be bilingual English/French.

B. Equipment

This provides routine office furniture and personal computers for the NRM analytical staff. It also includes two GIS workstations and software, one for using PC ARC/Info and the other for using less costly packages such as IDRISI and Atlas/GIS.

C. Activities

1. The budget assumes one regional meeting per year at a cost of \$20,000, beginning in the second year of the project.
2. The budget assumes 2-3 national meetings per year, at a cost of \$8,000 - \$10,000. Meetings will begin in the second year of the project.

D. Other Direct Costs

The budget anticipates 2-4 annual mini-grants of approximately \$10,000 for this component.

IV. Administration and Finance Unit

A. Personnel

1. The salary and benefits for the PAF Administrator are calculated based on an expatriate salary with benefits to be negotiated directly with INSAH as in the case of the coordinator for the food security program.
2. The salaries of the accountant and the administrative assistant assume CILSS pay scales.

B. Equipment

This includes furniture and computers for the PAF staff. The computer line item includes several accounting workstations and software.

C. Activities

System installation includes designing the system configuration, implementing the accounting software, and validating it in practice.

V. Pooled Resources

These are resources which will be shared across the three components of PADRES and the PAF. They include three vehicles, three drivers, gasoline, and maintenance; insurance on project assets; publications and distribution costs; and bulk purchases of general office supplies and general services (Fax, phones, paper, etc.).

## VI. USAID Expenses

This category includes expenses which will be incurred by USAID, for the project liaison office, evaluation, and so on.

It should be noted that the expatriate research management specialist will be a USAID funded PSC.

## VII. Miscellaneous

Inflation is estimated at 5% per year.

INSAH Overhead - is 7% of everything except the USAID expenses which includes funding for the research PSC.

INSAH will be responsible for advertisement and procurement of everything in the project budget except: 1) the expatriate PSC for the agriculture research component; 2) items in section 6, USAID Expenses; 3) project vehicles; and 4) the services of a Procurement Services Agent (PSA) in years one and three to facilitate procurement.

## CHAPTER 3

### IMPLEMENTATION PLAN

#### I. IMPLEMENTATION PHASES

##### A. Phase I: Pre-Project and Mobilization.

This phase covers the period from processing of the Project Paper through authorization of the project, the signing of the Grant Agreement, procurement actions to obtain personnel and commodities, discussion and approval of the initial work plans, installation of the Project Administration and Finance Unit, and mobilizing the follow-on activities. This stage will be completed approximately eight to ten months after project authorization. After project authorization, the most important areas of concern, benchmarks and critical actions will be as follows:

##### 1. Grant Agreement

USAID/Bamako will draft the grant agreement and negotiate with INSAH. Once the agreement is signed, the USAID can prepare the initial Project Implementation Letters that exchange authorized signatures and describe implementation and financial procedures and responsibilities. The USAID can provide the services of an experienced Foreign Service National (FSN) to be the Project Liaison Officer for the first two years. In year three, USAID will issue procurement documents to obtain a Project Liaison Officer (preferably a senior FSN or a locally-available US national). In general, procurement responsibility will be with INSAH insofar as the Mission can certify that it has acceptable procedures that permit host country type contracting; otherwise it will be lodged with USAID.

##### 2. Personnel

The basic concept of this project is that, whenever possible, services for INSAH will be provided by Sahelian citizens, irrespective of their current domicile. To maximize the possibility of tapping Sahelian resources and to avoid losing time if no qualified Sahelians are found, the USAID and CILSS should concurrently publicize expressions of interest through their individual channels for each of the PADRES personnel positions. INSAH management believes that they are not likely to find a qualified Sahelian Agricultural Research Specialist. This specialist would, therefore, be a Personal Service Contractor, procured by USAID. All other contractual arrangements may be possible under direct procurement by INSAH, subject to USAID's prior review and approval of the procedures followed and of the final contractual arrangements. To the extent that salaries and benefits follow the published CILSS schedules, USAID should

consider the propriety of a blanket agreement authorizing INSAH to execute direct contracts.

### 3. Gray Amendment Considerations

In accordance with Agency and Africa Bureau policy, the project will make every possible effort to maximize the use of Gray Amendment firms to provide project technical and implementation support assistance. While this project does not call for a central contractor, project management will look to Gray Amendment firms to provide the required technical assistance for the evaluations and any possible audits. It should be noted that the basic premise of the procurement of personnel under the project is to contract individually with Sahelian experts.

### 4. Commodities

AID procurement procedures are complicated. In addition, lead times for commodities under AID procedures can effectively nullify the benefits of technical advisory services if the commodities arrive long after the technicians are on board. To avoid legal and programmatic problems, the project may employ the services of either a commodity management specialist or a US procurement agent. USAID/AFR/SWA/RP will procure the services of a French-speaking commodity management specialist for up to three months to prepare the specifications and bid documents, and to make the necessary arrangements for receipt and arrival accounting. These services should be procured under a PSA/IQC.

### B. Phase II: First Implementation Cycle

This phase covers approximately one year of actual project implementation, including preparation of an inception report that each specialist should prepare to indicate what s/he intends to do over the first several months of the contract, elaboration and implementation of the first Annual Work Plan for each program, and the preparation of project benchmarks that indicate when specific events are to occur. It is expected that each specialist will prepare his/her own work plans in collaboration with INSAH management and the participating member organizations. The Monitoring and Evaluation section of this Project Paper details some of the considerations that should guide this effort.

### C. Phase III: Long-Term Implementation

Implementation plans for this phase, beginning in the third year and lasting through the end of the project, will depend on preparation and approval of more detailed annual work plans (based on having completed a full cycle of events), on establishment of firm benchmarks, on the availability of funds, and on outcome of the initial evaluation toward the end of the second year.

## II. IMPLEMENTATION SCHEDULE

The following schedule is indicative of how implementation could proceed over the coming years and be integrated into INSAH's routine calendar of events. Actual dates and time periods will depend on a variety of factors beyond control of the design process and, for the same reason, primary responsibility for implementation could be shifted to or shared with others.

Overall responsibility for the project will be vested in AFR/SWA. The USAID/Bamako, however, will have an important supporting role.

### Phase I. -- Pre-project Mobilization

MONTH	ACTIVITY	RESPONSIBILITY
April-Sept 1992	Finalize and Review Project Paper. Prepare Project Authorization.	AID/W
Sept 1992	Draft, negotiate, and sign Grant Agreement and initiate PILs.	USAID/Bamako
	Hire Project Liaison Officer	USAID/Bamako
Oct - Dec 1992	Prepare PIOs and advertise for PADRES personnel.	USAID/Bamako INSAH
	Contract with TDY procurement specialist.	USAID/AID/W
Oct 1992	Contract with Sahelian accounting firm for PAF Unit	USAID/INSAH
October-December 1992	Initial elements of PAF installed. Commodity specifications prepared and IFB's/purchase orders issued Initial increments of operating funds transferred to INSAH project accounts.	USAID/INSAH
January 1993	Award PSC contracts for PADRES personnel.	USAID/Bamako INSAH
March 1993	Prepare/approve inception reports for each specialist. Prepare project budgets.	INSAH
April 1993	Prepare/approve first annual work plans Issue first PAF Financial Status Report.	INSAH

Phases II & III -- Implementation Cycles

	Contract short-term consultants to study various aspects of, and to make proposals on, NARS lead research institutions, staffing, institutional linkages, research agendas, etc.	INSAH/Research Mgmt. Specialist
	Identify research topics and authors, and commission studies and syntheses of commodity systems.	INSAH/Research Mgmt. Specialist/Scientific Editor
	Prepare agenda for workshop on prospective studies.	
	Hire short-term consultants to advise on organization of scientific editing unit and choices of media to be used	INSAH/Science Editor
	Conduct workshops and seminars; identify pest management policies and research programs that can be integral elements of sustainable agriculture; commission articles on pest management; and reinforce coordination, information exchange, and networking	INSAH/Plant Protection Unit
	Conduct regional and national workshops; identify priority themes that may be of interest to policy makers; award mini-grants; publish literature reviews and studies.	INSAH/PRISAS
	Inventory NRM activities; establish networks; identify priority areas needing support; conduct workshops on harmonization of objectives, methodologies, technologies, and efforts.	INSAH/NRM coordinators
	Conduct periodic budget reviews and audits of financial/management activities.	USAID/INSAH
	Conduct evaluations.	USAID/ AID/W /INSAH

### III. PROCUREMENT PLAN

All procurement under the project is financed under the Development Fund for Africa (DFA) and thus subject to the USAID Procurement Guidelines.

#### A. General Procurement Responsibilities

1. INSAH is the implementing agency for this project. INSAH is responsible for carrying out all local cost financing through host country contracting in accordance with AID Handbook 11 and Handbook 1, Supplement B, procedures. INSAH will also be responsible for procurement of technical assistance and support staff.

2. USAID/Bamako will undertake the procurement of some technical assistance (TA), as appropriate, e.g., expatriate research management specialist as a Personal Services Contractor (PSC), and Project Liaison Officer (PSC). The USAID/AFR/SWA/RP will also provide backstopping (Procurement Services Agent, PSA, and PIO/Cs) for the procurement of vehicles and computer equipment.

#### B. Source/Origin

The authorized source/origin for commodities and services financed by this project is AID Geographic Code 935. Considerable TA will be procured from U.S. sources.

U.S. sources will be sought for procurement of some TA, e.g., Cooperating Agreements through R&D or Title XII Universities (\$1 million), USAID Expenses (\$.475 million) and PSC research specialist (\$.570 million). The remaining TA will be provided from Sahelian countries.

#### C. Commodities

The following illustrative list of commodities will be procured under this project.

<u>Commodity</u>	<u>Estimated Cost</u>	<u>Planned Source/Origin</u>
Three Vehicles	\$90,000	U.S.
Computers	\$183,000	U.S.
Office Equipment	\$36,000	Sahel West Africa

Some commodities listed above will be of non-U.S. sources. Vehicle procurement will follow USAID/Bamako practice of purchasing Jeep Cherokees. This U.S. procurement is possible due to the fact that there are adequate maintenance service and spare parts in Mali for U.S. manufactured vehicles. Computers and other office equipment and supplies will be procured following small purchase

procedures from U.S. sources. Computer equipment must be 220v/50 cycle. In addition, office equipment available locally will be procured as shelf-items in accordance with Handbook 1, Supplement B, Chapter 18.

D. Transportation

The small value and quantity of commodities and the fact that some will be procured locally will result in minimal or no use of U.S. flag carriers. However, as needed, U.S. flag carriers will be used.

E. Methods of Implementation and Financing

Based on the procurement plan discussed above, the methods of implementation and financing are summarized below.

<u>Method of Implementation</u>	<u>Method of Financing</u>
<b>Expatriate Costs</b>	
Expatriate Agriculture research specialist	Direct Payment/PSC
TA/Buy-ins, Consultants or Title XII agreements	Direct Payment/Letter of Credit
Project Liaison Officer	Direct Payment/PSC
Evaluation/Audit	Direct Payment/PSC
PSA/IQC	Direct Payment
Vehicles	Direct Payment
Computer Equipment	Direct Payment
<b>Sahelian Costs</b>	
Personnel	HC/Periodic Advances
Activities	HC/Periodic Advances
Equipment	HC/Periodic Advances
Research Mini-grants	HC/Periodic Advances
Pooled Resources (OE)	HC/Periodic Advances

USAID, through the DFA will provide grant funding to INSAH to carry out the PADRES project. The project is open to contributions from other donors. USAID funding will cover contract staff salaries, commodities, operating costs, travel and other direct costs. The project will also finance the USAID Project Liaison Officer and will procure the required short-term technical assistance for INSAH staff. Local cost financing will be implemented using host country procurement and limited USAID direct procurement. Offshore procurement of goods and services will be handled by USAID directly. These financial arrangements have been used with the CERPOD project over the past nine years.

INSAH/CERPOD has received advances for operating expenses for several years and the PADRES project calls for the implementation of an identical financial accounting system for the rest of INSAH. INSAH will need to be certified to handle the procurement called for under this project. Annex 5D prescribes a computerized accounting system and training to handle all of INSAH's accounting needs well into the future. However, the Regional Inspector General Accounting office at Dakar (RIG/A) will still need to certify that INSAH has sufficient contracting procedures, accounting systems, procedures and controls to handle DFA advances. This certification should take into consideration the proposed systems for the Project Administrative and Finance unit under PADRES. INSAH will also need to be certified for contracting. It is understood that no project program funds can be expended until the appropriate certifications have been obtained. These stipulations should be part of the grant agreement.

## CHAPTER 4

### MONITORING AND EVALUATION PLAN

#### I. PURPOSE OF MONITORING AND EVALUATION

A recent report prepared for the Africa Bureau discussed four purposes to be accomplished by monitoring'. Tracking is the most simple form of monitoring, and is intended to help the project implementers keep track of whether they are doing what they planned to. It is primarily an internal management tool to help people effectively run their own project. Impact monitoring is intended to answer the question, "are we accomplishing what we set out to accomplish, and if not, why not?" It can be carried out by the implementers of the project or by outside reviewers, and can be either a management or an oversight tool. Research monitoring is intended to determine whether the implicit hypotheses on which the project is based are correct, in order to assess whether this is a reasonable way to design projects in the future. Finally, problem identification monitoring is designed to flag areas for concern, such as environmental degradation or food shortages, so as to target future interventions.

Two of these four types of monitoring, tracking and impact monitoring, will be important for the PADRES project. The essential difference between the two is that tracking focuses on whether the project carries out its activities smoothly, whereas impact monitoring focuses on whether the project is meeting its purpose and objectives through those activities. Tracking will clearly be considerably simpler than impact monitoring. However, it is also the basic point of departure for impact monitoring, since if the activities are not even carried out, there can be no hope of them accomplishing the desired objectives. The difficult issue in designing an impact monitoring system (and in carrying out project evaluations) will be to determine how far the causal links between project activities and ultimate activities can actually be traced.

#### II. PADRES' PURPOSE, ROLE, IMPACT and INDICATORS

##### A. Purpose

To improve Sahelian analysis, formulation and implementation of sustainable policies and programs, through the coordination and prioritization of research efforts in agricultural production, food security and natural resources management.

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Hecht, Christophersen, and Ganguli, "Environmental Assessment in Africa: Final Report" Prepared for the Africa Bureau Environmental Officer, October 25, 1991

PADRES will work towards accomplishment of this purpose by helping INSAH to strengthen the contribution of research to identifying solutions to development problems.

#### B. Link between Research and Problem-Solving

A key assumption in the design of the PADRES project is that research and analysis can play a valuable role in formulating and implementing sustainable development policies and programs, and that it is, therefore, worthwhile to invest in improving Sahelian research systems. The link between research and problem-solving is expected to occur through a chain of links which tie researchers to the final beneficiaries, i.e. the farmers and herders whose livelihoods depend on primary resources like farmland, water, forests, and rangeland.

The links between researchers and the rural households who are targeted as ultimate beneficiaries of the PADRES project are fairly complex. Households are seen as producers of agricultural crops, fuelwood, livestock, and other income, through a production system constrained by a range of factors out of their control. These factors include production technologies, such as crop or livestock varieties, equipment, pest management techniques, soil and water conservation techniques, cookstove technology, etc. They also include factors in the economic and policy environment, such as agricultural and livestock prices, agricultural and livestock markets, access to transportation or markets, availability of non-subsistence sources of income, land and tree tenure systems, systems for allocating rights to harvest fuelwood, etc. In addition, they include factors out of human control such as rainfall and temperature.

In order to increase household production, it is necessary to understand how these constraints limit output; to identify the changes which will be most effective in reducing those limits; and to find mechanisms for implementing those changes. The role of researchers and other actors depends on the kind of constraint. For example, agricultural researchers have traditionally focused on breeding projects designed to develop new seed varieties, such as ones which will be productive under conditions of limited rainfall. For such research to reduce constraints on household production, it must be supported by the following conditions: 1) extension agents capable of showing the farmers how the seed can be useful; 2) a central policy decision that agricultural extension workers should, in fact, spend their time demonstrating the utility of this seed; and 3) a seed breeding and marketing program which ensures that supplies will be available to farmers. All of those complementary elements are parts of the mechanism through which research results can help alleviate the constraint imposed by currently available seed varieties.

Similarly, agricultural economists often study the impact of

crop price and trade policies on the quantity of food produced by rural households. Their work is oriented towards understanding the impact of specific national policies on food supply. For their work to have an impact, national leaders must be willing to change their policies in response to those results, in order to alleviate the constraints which may be limiting household production.

Thus for PADRES to actually succeed, a large group of policy-makers, civil servants, and in the final analysis households must understand how coordinated research and analysis can provide information for sound decision-making, and be willing to act on that understanding. This would involve a series of steps:

- producing usable research results;
- making them available to the expected users (policy-makers, civil servants, and households);
- working with the users to ensure that they understand what purpose this information can serve;
- participating in the decision-making process to ensure that decisions actually reflect this information;
- assisting in the use of the new information (i.e. introduction of new technologies, design of price reforms, etc.) to ensure that their impact is not lost due to poor implementation; and
- hopefully, observing increased output as a result.

#### C. PADRES' role

PADRES is not actually going to be involved in all of these steps. Rather, its activities relate primarily to the first three. A major component of PADRES's activities will be to support the national research systems in order to help them produce usable research results. This will be done through seminars, workshops, technical publications, and other assistance to the NARS intended to reduce inefficient duplication across national systems, enable researchers to learn from each other's experience, and concentrate resources in the fields of each country's comparative advantage. A second major portion of PADRES's activities will involve establishing better communication between researchers and decision-makers, in order to ensure both that the choice of research topics reflects real needs and that the decision-makers know about and understand useful results which should influence their decisions. This communication activity is likely to be targeted more towards national policy-makers than towards local level civil servants or households, since there is no field component to the activities anticipated under the PADRES project.

PADRES will not be directly involved with the decision-making

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process, nor will it work on implementation of research results through agricultural extension, policy reform, or other mechanisms.

#### D. Implications for indicators, monitoring, and evaluation

The ultimate goal of PADRES is to increase productivity and incomes of rural households. However, because the project will be directly involved with only some of the steps required to accomplish that goal, it is not possible to trace the impacts of the project all the way through to the ultimate goal. More specifically, an observed increase in household production might be attributable to successful PADRES activities; however, it could just as well be attributable to new, unrelated increases in effectiveness of the agricultural extension system even if PADRES had failed utterly. Similarly, if income drops, it might be because poor policy decisions were made even though PADRES had been very effective in providing better options to the decision-makers.

For this reason, monitoring and evaluation of PADRES activities must focus on the areas which are within the purview of the project's activities, and will not be able to actually show a causal link between PADRES and changes in household productivity and income. Monitoring and evaluation will therefore cover the direct outputs and management of the project (tracking) and will attempt to establish a link between PADRES outputs, the information made available to decision-makers, and whether that information was actually brought to bear in decision-making (impact monitoring and impact evaluation).

### III. MONITORING

#### A. Purpose

Tracking and impact monitoring are intended to serve primarily as internal management tools to help INSAH stay on top of its own activities and their impacts. It will involve each of the PADRES senior personnel producing periodic (annual) work plans, annual impact reports, reviews of the activities of the previous period, and frank assessments of the factors which hindered them from accomplishing what they set out for the previous period if targets were not met. These reports will be used to report to the USAID Project Liaison Officer and AFR/SWA/RP about project activities and (insofar as possible) their impacts. The impact reports will be based on the activity reports. Activity reports should be considered internal management reports. These reports will be most useful if they are viewed as a tool with which the PADRES staff can use to keep their own work running smoothly. To the extent that they are viewed only as an external reporting and oversight requirement, they will be less helpful as a management tool, because there will be an incentive to present things in the most

favorable light possible which may mask problems which could otherwise be addressed directly. The production of activity reports is not an end in itself - it is a means to an end, which is for each person to review whether s/he is getting done what s/he meant to.

#### B. Activity reporting

USAID funding schedules will require the preparation of annual work plans and anticipated funding needs for each component of the PADRES project. These will have to detail what activities will be carried out during the following year, what the inputs will be to those activities, and what financial resources will be needed to obtain those inputs. The monitoring of project activities and impacts will be linked to those plans.

Every four months during the year, the senior PADRES personnel will prepare a brief review of what they have accomplished, what project inputs have been used, and where their work is relative to what they expected to accomplish for the year. These reports should include the following kinds of information about specific activities (as appropriate to the different PADRES programs at different times in their work cycles):

- Which resources were mobilized and in what time frame? This will be particularly relevant at the start-up of the project.
- What administrative problems were encountered in mobilizing resources or carrying out activities, if any?
- How many literature reviews were produced and what disciplines do they cover?
- How many meetings were held, when, where, who attended, what subjects were discussed, and what outputs were produced (if any)?
- What kinds of agenda-setting or research prioritization documents were produced, and through what process?
- What publications were produced, whom do they target, to whom were they (or they will be) disseminated?
- What legal actions have been taken to bring the research poles into existence?

In preparing these activity reports, certain kinds of information will be particularly important for assessing whether the activities are having or are likely to have the intended impacts. Although impacts probably will not be observable for several years, the reports should give particular attention to issues such as:

- Who is receiving INSAH publications, literature reviews, or other information, and what is their position? When publications or reports are produced, the activities reports should include, as an annex, an actual list of people to whom the publications are sent.
- How have INSAH publications been received by the international scientific community and by their target audiences;
- Who is participating in INSAH conferences, workshops, or seminars, and what is their position? Again, activity reports should include participant lists.
- How have conferences, workshops, and seminars been received by the participants? Do they seem to be useful? Would different formats or agendas from those followed have been more useful?
- How are other donors participating in the definition of research priorities? This question is intended to get at whether donor support for future research is likely to be targeted at the areas identified as high priority through the INSAH process.
- What kind of feedback, if any, is INSAH getting about the utility of PADRES activities? This could include requests for publications, requests to participate in meetings, requests for information from other donors or other research networks, etc.

A key element of these reports will be a comparison of where the program is at any given time with where it was expected to be at that time. If the program is not on track, it will be very important to assess what factors have constrained its activities. This assessment is intended to enable the PADRES staff to figure out whether their expectations were unrealistic, or whether unforeseen problems arose which made it impossible to meet otherwise realistic expectations. If problems arose, the assessment should discuss how they were addressed, what steps can be taken to ensure that they will not recur, and whether they suggest a need to rethink how that program should be implemented. This assessment should not normally be seen as an evaluation of the individual PADRES staff member, but as a tool for helping him or her keep the project running smoothly.

#### C. Impact reporting

Each program coordinator will be required to submit an annual impact report which discusses the previous years activities and the impact of these activities on research agendas, policies and programs in the technical areas of the project. These reports should highlight sub-sectoral trends, and project impact on various

aspects of the sub-sectors. Impact reporting will be critical in the areas of food security (analysis of marketing trends based on marketing information on basic food and livestock flows and prices), and natural resources management (use of GIS and other analytical tools to analyze the costs and benefits to user-based renewable natural resources governance).

D. How reports will be used

Activity reports will be used primarily to reorient the management or design of PADRES activities from within, in response to problems identified during implementation. They are to be used to ensure that the project is effectively run and accomplishes as much as possible. Thus the four-month reports will be used by INSAH staff and the AID PLO to realign the annual work plans if it is not possible to accomplish what was anticipated during the year.

The activity reports will also serve to meet AID reporting requirements about consumption of inputs, production of outputs, and impact on final objectives. Additionally, they will simplify the preparation of annual activity reports within INSAH, and will facilitate the work of project evaluation teams.

E. Resources devoted to monitoring

Producing these reports is not expected to require more than 1-2 work-days per four-month period by each PADRES senior staff member. The PLO and the INSAH scientific and technical coordinator are not expected to need more than one week per four-month period to review the reports and realign annual work plans if necessary. The only costs incurred by this monitoring will be in the time of the PADRES and other INSAH personnel. They will be paid for out of project funds and general INSAH funds.

#### IV. EVALUATIONS

Formal evaluations of the PADRES project will be conducted at its mid-point, for mid-course corrections, and toward the end in order to assess the degree to which the project purpose is being achieved.

A. Mid-term evaluation

The mid-term evaluation will focus primarily on the efficiency and effectiveness of implementation of the PADRES project. This focus is appropriate because it is expected to be too soon to assess whether PADRES activities are accomplishing their objectives; however, this will be a reasonable time to determine whether INSAH is carrying out the PADRES activities well.

Questions to be asked in carrying out the mid-term evaluation will include (but not be limited to):

- Has the project been set up and is it operating efficiently and effectively? This will be answered by looking at how long it took to hire project staff and how well they are suited to their positions; whether personnel began working promptly when hired; whether the PAF has set up and is using efficient accounting and financial management systems; whether those systems allow the project to run smoothly and without delays; whether funds, equipment and supplies have been available when needed; whether maintenance has been carried out when needed; and so on. This information will be available from the tracking data and PAF records.
- Is the PAF making any headway in offering a model for financial management which can be followed by the INSAH DAF? Has the CILSS Executive Secretariat introduced a standardized accounting system and software to be used by the whole CILSS system? What implications does this have for the role of the PAF, if any?
- What activities have been carried out; literature reviews prepared and disseminated, meetings held, etc. This information should be easily obtained from the monitoring data.
- Have appropriate international reviews of project outputs (e.g. literature reviews, research publications) been established?
- How effectively have the PADRES staff been able to integrate the activities and perspectives of the three project components?
- Who is the project bringing into its networks; do they include only researchers, or also the users of research outputs? This will be determined by looking at who has been targeted by and received copies of publications or literature syntheses, who has participated in workshops and seminars, etc. It may also be assessed by looking at what is published or discussed at the meetings, in order to assess the balance between "pure research" and development needs.
- What steps have been taken to address INSAH's long-term sustainability?

The mid-term evaluation should be conducted by an INSAH/USAID/Consultant team comprised of PADRES staff, other senior INSAH staff, the PLO, other interested USAID staff from the Mali Mission, an independent consultant, and the AFR/SWA/RP office. It will impose time costs on INSAH and USAID staff, and travel costs

for the AID/W staff who participate. It is not expected to require more than two weeks time from the participants.

The evaluation should result in recommendations on the subsequent course of the project, with respect to improvements in management, strategies for alleviating problems encountered in the first few years, shifts in allocation of funds among the various programs and activities, mechanisms for linking the three PADRES programs, who should be targeted by future publications or meetings and what additional steps need to be taken to address sustainability.

#### B. Final evaluation

The end of project evaluation will be concerned primarily with assessing whether the project is having its intended impact, and how it could do so more effectively. This evaluation will be the basis for determining the sustainability of INSAH and whether further USAID support for similar activities at INSAH will be warranted, and if so whether (and how) the project design should be modified to make follow-on activities more effective. In order to speed the transition from PADRES to a possible follow-on project, this evaluation should be completed at least six months before the end of this project, and earlier if feasible.

This (almost) final evaluation will be considerably more complex than the mid-term one, because it must attempt to determine not whether INSAH activities were carried out efficiently, but whether those activities accomplished their objectives. To this end, members of the evaluation team will not only gather information at INSAH, but they will visit a few CILSS member countries to speak with all of the participants in the PADRES networks and obtain their perspectives on how effective the project has been. In doing this, they will meet with researchers and research managers, including those in the new lead centers and those in the NARS; policy-makers involved with agricultural extension and pricing, forest management, land tenure, etc; donors who fund agricultural research; civil servants including agriculture extension agents, forest managers, local development workers; and others whose work could be informed by research results.

Questions to be asked should include, but not be limited to:

- Are the lead centers functioning? Have they been created as legal entities? How are they funded? What has been done in order to focus work on their topics around these centers rather than allowing it to be dispersed around the region? How have personnel issues been resolved for the lead centers, particularly the question of whether researchers on lead-center topics will move to work at the center or continue working in their home countries? From the perspective of both

INSAH and the lead centers, what has been INSAH's role in getting the centers established? Are those perspectives similar?

- Can we observe any shift in research programs of the national centers in response to INSAH's activities to facilitate the development of research priorities at a regional scale? Do any NARS report having shifted their proposed research as an outcome of PADRES activities? How do NARS researchers perceive the congruence between their own priorities and those identified through PADRES activities? Do they feel that donors are interested in funding PADRES priorities, or that there is pressure on them to shift their own research in the directions identified through PADRES? Do they perceive this as positive, negative, or irrelevant?
- Can we observe any differences in how research funds are allocated as a result of PADRES activities? How do other donor agencies perceive the influence of PADRES activities on the definition of research themes, and in particular on their own allocation of research funds?
- Do civil servants or decision-makers report having received INSAH publications, having been invited to PADRES workshops and seminars, having discussed research priorities with the researchers? Do they consider that information received from the research systems was actually useful in decisions they made? What decisions? How did it influence those decisions?
- The final evaluation should also follow up on the management review of the mid-term evaluation, to see how the project has evolved in its later years especially concerning sustainability.

The primary output of the final evaluation should be a judgment as to whether on the whole the PADRES project has been sufficiently successful to warrant additional USAID funding to INSAH. If so, the evaluation should go on to consider which aspects of the project have been most effective, and which have been least effective, in order to recommend how the follow-on project might be designed. These recommendations should address both the project structure and management and the design of the project's technical activities.

The final evaluation should be conducted by an outside evaluation team, in which USAID staff may participate as appropriate. The team should spend at least half of its field time gathering information at the national rather than the regional level. It should include, at a minimum, an expert in agricultural research management and an expert in the use of information for decision-making and policy analysis. The final evaluation is

likely to require six weeks of field work, plus writing time; this will, therefore, be a much more significant effort than the mid-term evaluation.

## CHAPTER 5

### SUMMARY OF ANALYSES

#### I. SOCIAL SOUNDNESS

The direct outputs of the project will be the functioning programs of applied policy research in the areas of agricultural research, food security, and NRM. These, in turn, will support policy analysis, formulation and implementation processes within Sahelian governments and research institutions, the CILSS Secretariat, the donor community, and INSAH itself. The immediate beneficiaries of the project, therefore, will be those public and private officials and decision makers who participate in and learn from the various project activities and collaborative dialogue.

The ultimate beneficiaries of the project are varied. To the extent that policy reforms are enacted and successful, INSAH's member states and their populations-at-large will benefit from the positive results of appropriate food security, agricultural production and NRM policies. As an example, reformed agricultural production and food security policies may allow consumers to expect improved food supplies and eventually lower and more stable food prices. Additionally, bilateral and multilateral donors can be expected to benefit to the extent that improved economic policies contribute to more cost-effective and successful investment projects.

While policy-related data and information, in and of themselves, are "good" and neutral, policy reform is not neutral. To the extent that this project encourages specific policy decisions, it will contribute to actions which, at least relative to the status quo, favor some interest groups over others. Specific social implications of the research and analyses produced by or as a result of this project cannot be predicted at this time, but must be examined by USAID Missions, host countries and TA contractors on a country-by-country and activity-by-activity basis. Among the factors that should be consistently analyzed in PADRES policy and program studies is the impact on women. Therefore, wherever appropriate, data and analysis should be disaggregated by gender.

#### II. ECONOMIC

The PADRES project is designed to support Sahelians, the CILSS Executive Secretariat and donors in the analysis, formulation and adoption of policies, strategies and programs in a coordinated regional framework. Accomplishment of this objective will improve the allocation of public and private resources in the Sahel so as to cost-effectively increase agricultural productivity, food security and environmental sustainability. This is a very broad agenda and it is not possible to establish a precise cost-benefit

ratio for the investment. PADRES does not fit into the context of a standard investment project. The emphasis of the project and its outputs is on improving the coordination, dissemination and use of research information among Sahelian institutions and donors. It is not possible to establish a cost or benefit to the value of information and all its possible positive and negative multiplier effects. Therefore, we have chosen to assess this project design by looking at its cost-effectiveness versus that of alternative options. The alternatives would include continuing the status quo, establishing a regional coordination unit for each of the NARS, or possibly looking to SAFGRAD or the IARCs for coordination support.

At present each of the NARS is setting a research agenda which proposes to address the critical problems in all the major crops produced in the country. One alternative would be to do nothing and allow the donors to continue to fund a costly shot-gun pattern of agriculture research in each country. This lack of coordination and information sharing has proven to be very ineffective and costly to NARS and donors. Therefore, the donors through SPAAR have already made the decision not to continue funding the status quo.

Establishing a capacity in each of the NARS to facilitate research coordination would be an obvious proliferation of personnel and operating expenses. Finding the required number of qualified Sahelians would be a very difficult if not impossible task. This would also continue the present parochial practices.

One of the major premises of the SPAAR is to devolve responsibility and authority for setting research agendas and priorities to the NARS. This would rule out using the IARCs. It is not possible to look to SAFGRAD's coordination unit as it will probably not exist after December, 1992.

It is difficult to imagine an alternative investment which would be able to exert greater leverage than an applied research project located at a Sahelian institution with a powerful mandate from its clientele to carry out precisely the kind of research and coordination that is contemplated under this project. The CILSS Council of Ministers and the NARS Directors have reaffirmed their support for INSAH and its mandate by approving INSAH's Five-year Plan and ratifying INSAH's draft of the agriculture research action plan (FFA) under the SPAAR. The proposed investment would appear to be modest compared to the leverage which high-quality, regionally-focused policy analysis and research could exert on the development of national policies and programs.

### III. AGRICULTURAL RESEARCH

In the Sahel, decision-makers often have inadequate or insufficient data to make decisions. There are many organizations involved in agricultural research in the Sahel who need assistance. Research institutions and donors funding these institutions are making great efforts to collaborate and harmonize their policies. The Institute of the Sahel has an important role to play, especially one of technical advisor to the different actors involved in agricultural research.

The agricultural research/integrated pest management (IPM) component of PADRES, in collaboration with the food security and the natural resources management components of the project, will contribute to a better definition of regional research priorities and forward-looking prospective studies on food commodities; the synthesis, publication and dissemination of research results; better coordination between networks and thus better-planned regional lead research centers, and better coordination among disciplines contributing to more appropriate research results. These activities will greatly help the national agricultural research systems of the Sahel, contributing to their ability to obtain results adapted to local circumstances and adopted by small-holders.

The agricultural research/IPM component of PADRES will be fully integrated into INSAH and contribute to the fulfillment of its mandate. It will be considered as one of INSAH's programs.

In the agriculture research domain, four support-type activities will be carried out at INSAH, through PADRES:

- Assistance to the national agricultural research systems (NARS). INSAH will facilitate the establishment of the research poles proposed in the Sahelian Framework for Action (FFA).
- It will undertake and coordinate the publication of literature reviews and research results on different sub-sectors.
- It will work with the institutions involved with agricultural research on the definition of regional priorities and forward-looking prospective studies. The crop production, food security and natural resources programs of the Department of Research on Environment and Agriculture (DRMA) of INSAH will be involved in that process.
- INSAH will pursue its coordinating role in the field of integrated pest management.

Two senior positions will be opened :

- A research management specialist who will be next to the scientific and technical coordinator, and will carry out most of the assistance to NARS's functions.
- A scientific editor, who will contribute to the synthesis work and their publication.

To help them, one secretary will be hired. The agriculture research component of PADRES is estimated to cost \$1.7 million.

#### IV. FOOD SECURITY

This section defines the Food Security program which will incorporate and continue the activities started by the PRISAS pilot project. PRISAS is a three way agreement between INSAH, AID and MSU. It is an integral part of the activities already in place within the INSAH.

The PRISAS project was designed in accordance with INSAH's five year plan, one of whose objectives is to strengthen the analytical capacity of Sahelian national researchers'. This program of the PADRES project will function within the Socio-economic division of the DRMA.

##### A. Project objectives

The overall objective of the PADRES food security program is to stimulate the generation of relevant food security policy research and information while promoting and organizing a cooperative working relationship between researchers and policy makers. The operational objective of the food security program is to provide a vehicle through which national researchers and policy makers can set a coordinated, effective and relevant research agenda for the improvement of food security and economic growth in the Sahel. This program will be an activity integrated within INSAH's structured activities.

The objectives of the PRISAS program are:

- to strengthen Sahelian institutional capacity to carry out food security policy analysis and extension activities;

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Stratégie et Programmation quinquennale 1990-1994.  
Institute du Sahel, Bamako, Août 1990.

'Dione, Josue. Regional program for strengthening institutional research capacity on food security in the Sahel (PRISAS): Summary Description. PRISAS/PD 01/90.

72x

- to diffuse more widely to Sahelian researchers and policy makers the results of recent food security research and policy reforms;
- to train Sahelian food security researchers on improved research methods; and
- to stimulate new studies on regional food security issues in the Sahel.

The food security program of the PADRES project will provide technical and scientific information to national researchers, policy makers and donors on priority research themes of national and regional importance. This program will incorporate and continue the activities of the PRISAS project.

#### B. Project activities

The objectives of the food security program of the PADRES project will be achieved by the following activities:

- Facilitate the setting of research agendas relevant to food security issues in the Sahel through annual workshops at the regional and national level with the participation of national and international researchers, key policy makers and donors representatives
- Identify, design and undertake analysis of food security policy issues of regional impact and importance, pointing out the interactions between research, policies, institutions and households
- Publication of regional level analysis related to the food security issue, dissemination to the NARS, to key policy makers, to CILSS executive secretariat and to the international research community
- Close cooperation on regional analysis with the coordinators of the Agricultural Research and Natural Resource Management programs of PADRES as well as, with the other programs within DRMA and CERPOD

The workshops or seminars will be carried out at the national and regional levels. Regional meetings will be attended by food security researchers representing the NARS of CILSS member countries and researchers from the international research community. They will address research policy, research planning and design, and methodologies. National workshops or seminars will take place in the CILSS member countries, for discussion and dialogue among national researchers and policy-makers on food policy issues, empirical findings and their implications for policies pertaining food security.

This project should promote and encourage a dynamic and continuous working relationship among public and private sector researchers of the CILSS member countries, between researchers and policy makers, between extension services and policy makers, and between extension services and households.

The PADRES food security program will also provide indirect training of Sahelian researchers by hiring its researcher assistant from the different CILSS member countries on two-year contracts. The research associate will work under the guidance and supervision of the coordinator and should benefit from his/her knowledge and experience.

The food security program of the PADRES project will finance one Program Coordinator, two research associates, one secretary and one chauffeur and their respective activities (see Annex 5.B.b), all of whom will be on contract directly to INSAH. The buy-in to the Michigan State University Food Security II Cooperative Agreement will be continued to provide the program with technical and intellectual backstopping.

The program budget for the food security aspect of PADRES has been estimated to be \$2.5 million.

#### V. NATURAL RESOURCES MANAGEMENT

Supporting national research in the area of natural resources management is within the mandate of the Institute du Sahel, and is an important part of its 1990-1994 Five-Year Plan. However, until 1990, when the United Nations Sudano-Sahelian Office (UNSO) began supporting work in this area, INSAH was unable to begin carrying out this part of its plans. The USAID PADRES project therefore includes an analytical program, whose objectives are to support national-level research through information dissemination, guidance in establishing research priorities, technical support, and research mini-grants.

The PADRES natural resources program focuses on applications of spatial analysis and geographic information systems to research on natural resource management. An analysis is needed to determine the demand for information management tools such as GIS and how a GIS center at INSAH would relate to other regional research and information efforts. This analysis will take place in the first year of the project before any funds are committed under the NRM program of PADRES.

The analytical coordinator will focus specifically on supporting use of GIS in research on natural resources management, through a series of activities. First, he or she will conduct an inventory of existing use of GIS and spatial data in the region, preferably in collaboration with the preparatory study for the Programme Sahelien d'Appui A la Gestion de l'Environnement (SAGE)

which is soon to be launched at the CILSS Executive Secretariat. This process will enable the coordinator both to find out about ongoing work, and to establish a network of contacts with the people carrying out that work. During the first year of the project the coordinator will also begin informal GIS training for the program staff and for other INSAH staff who may be interested. Based on the needs identified during the inventory, the coordinator will organize national and regional meetings at which those using GIS can exchange ideas about methodologies, technical problems, analytical approaches, data needs, and software tools. The coordinator will also analyze specific questions of regional importance, which may be suggested by the overall NRM coordinator, by the national researchers, or through the implementation of the SAGE program.

There will be a fund with which to provide mini-grants to support research on regional questions about natural resource management. These grants can be used flexibly as determined by the coordinator, in order to encourage a regional focus in natural resources research. Working with the PADRES-supported scientific editor, the program will also explore options for publishing research results, possibly in the form of a journal or working papers.

The linkages between the NRM program and the other two programs within the PADRES project are critical. The three coordinators will make a concerted effort to follow the research in the others' areas, and to always be aware when an interdisciplinary focus is called for, either within INSAH or among the national researchers. Insofar as possible they will attend meetings organized by each other. Undertaking joint analysis projects through the analytical component of the program may be an effective way to build linkages within INSAH. Using the mini-grants to encourage interdisciplinary work may encourage such links at the national level.

The NRM program will have two senior staff members (one funded by UNSO) and one program assistant. The analytical coordinator is expected to be a Sahelian, and the program assistant a Sahelian doctoral student. The preliminary budget for this part of the PADRES project is about \$1.4 million.

## VI. ADMINISTRATION AND FINANCE

This annex to the PADRES Project Paper includes an institutional analysis, a financial analysis, and appendices which address a number of specific administrative and financial issues. The institutional analysis considers INSAH's organizational setting and background, its management and administrative systems, its resource base and management practices, and its links to other organizations. It recommends that the PADRES project be structured as set of relatively autonomous programs defined in terms of their organizational outputs. PADRES administration and financial management should be the responsibility of a project administration and finance unit (PAF), to be situated within but independent of the INSAH accounting department. It is also recommended that a project liaison officer be based in the USAID Mission in Mali, in order to facilitate relations between A.I.D. and INSAH.

The financial analysis proposes a management structure which could be used to handle not only PADRES funds, but all donor support to INSAH. An important element will be the automation of project accounting, in a system which can be used to present expenditures simultaneously in the formats required by many different donors. The analysis also calls for the development of more reliable data with which to determine an accurate overhead rate for INSAH, which could then be applied to the PADRES project and to other donor support. The project will include further training for the current INSAH accounting staff, as part of the implementation of the automated accounting system.

The appendices to the administrative and financial analysis provide detailed information about a number of aspects of current and proposed INSAH administration, including the operations of the PAF, its accounting procedures, a summary of the CILSS procedures manual, position descriptions for the PAF staff, and current CILSS staffing levels.

The administrative and finance activity of PADRES will cost approximately \$.8 million.

## VII. CONDITIONS AND COVENANTS

The following conditions precedent and covenants will be included in the grant agreement between USAID/Bamako and INSAH.

### Conditions Precedent:

1. Prior to any disbursement, or the issuance by A.I.D. of documentation pursuant to which disbursement will be made, the Grantee will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., evidence of the establishment of a separate interest-bearing bank account into which all grant funds received from A.I.D. will be

deposited. No other funds will be commingled with the Grant funds provided by A.I.D. through this account.

2. Prior to any subsequent disbursement, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made except for the provision of technical assistance, commodities and related expenses necessary to establish an operational accounting system, the Grantee shall, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., evidence that Grantee has established a general system of accounting for use at all levels in INSAH which permits the capture of accounting data and which contains adequate internal accounting controls and otherwise meets the required standards for grant award.

3. Prior to the disbursement under the Grant for the Natural Resources Management ("NRM") component of the Project, the Grantee shall, except as the Parties may otherwise agree in writing, furnish to A.I.D., in form and substance acceptable to A.I.D., the findings of an independent analysis of the demand for and feasibility of the proposed Geographic Information System Center for the support of research in NRM.

Covenants:

1. The Grantee agrees to actively pursue standardization of donor financing in order to insure that donors share equally in the overhead costs of INSAH, proportionate to their amount of financing.

2. The Grantee agrees not to allow funding provided for under the research mini-grants system to be used for salaries or salary premiums.

No waivers are requested in this project.

**VIII. RECOMMENDED ENVIRONMENTAL THRESHOLD DECISION**

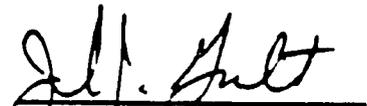
This activity meets the criteria for Categorical Exclusion in accordance with Section 216.2 (c) (2) (iii). An approved Initial Environmental Examination is attached.

INITIAL ENVIRONMENTAL EXAMINATION

Project Country/Region: Sahel Regional (698-0980)  
Project Title: Programs for Applied  
Development Research in  
the Sahel (PADRES)  
Proposed Life of Project Funding: \$6,000,000 (DPA)  
Life of Project: Five Years (FY92 -FY97)  
Environmental Action Recommended: Categorical Exclusion

Activity Description: The goal of the PADRES project is improved Sahelian decision-making on issues of food security and environmentally sustainable growth in the Sahel. The project's purpose is the production of high-quality analyses for the formulation and implementation of coordinated and sustainable policies and programs in agricultural research, natural resources management, and food security. The project consists of dollar disbursements for technical assistance, commodities, training, studies, evaluation, audit and local costs which support the overall objectives of the project.

Recommended Environmental Action: This activity meets the criteria for Categorical Exclusion in accordance with Regulation 16 Section 216.2 (c) (2) (iii). This technical assistance program consists of analyses, studies, workshops and meetings intended to develop the capability of Sahelian researchers and officials in development planning. There will be no construction or other activities directly affecting the environment.

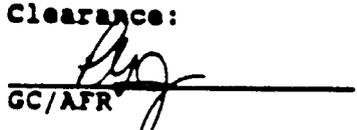
  
John Gaudet  
Bureau Environmental  
Coordinator

Approved:

Disapproved:

Date: Nov 5/1991

Clearance:

  
GC/AFR

Date: Nov 7, 1991

**ANNEX ONE**  
**PID APPROVAL MESSAGE**

**MEMORANDUM**

To : The Record  
From : Ron Daniel, AFR/SWA/REGL  
Subject : PID Guidance for the Design of the Programs for Applied Development Research in the Sahel (PADRES) Project Paper

The PADRES PID has been approved and project design should continue to the Project Paper (PP) stage. The PP design should follow the guidance found in this memo, pertinent sections of the PID, the Scope of Work for the PP design team, and A.I.D. Handbook 3. The PP will be approved and the project authorized in AID/W.

The PID was reviewed in draft by USAID/Bamako, Club du Sahel and INSAH staffs in August 1991. The concerns and issues were dealt with in a collaborative way and reflected in the subsequent draft that was reviewed by AFR Bureau personnel.

The AFR Bureau Project Committee (PC) for the review of the PADRES PID included representatives from AFR/ARTS/FARA, AFR/PD/SWAP, GC/AFR and AFR/SWA/REGL. Additional reviewers included representatives from R&D/RD, BIFAD and other officers from AFR/SWA. The PC will be adjusted slightly for the review of the PP due to the Bureau reorganization which took effect in October, 1991. The review committee met twice to discuss the PID, September 5 and October 10, 1991. The basic issues paper was prepared by AFR/ARTS/FARA and can be found as annex F to the PID. The PP design team needs to read the PID with these issues in mind.

The PID design team, AFR/SWA/REGL and a project development consultant, addressed most of the issues raised in the initial review meeting by augmenting sections of the PID where appropriate and adding several new sections. However, several concerns were referred to the PP team as design issues. These concerns can be found below and as Section IV G of the PID. These issues should be carefully reviewed by the PP team early in the PP design stage.

On October 10, 1991, the PC met again to make sure that previous issues had been properly addressed and to consider any further issues or concerns. There were no outstanding issues. However, several additional concerns were raised by various offices for referral to the PP design team.

**CONCERNS:**

1. Food Security: The PP design should look at food security activities under this project from a household-level perspective. While the agenda can and should address macro-level policies and issues, the implications for small-holders and urban households should always be the basic measure of the impact on food security.

2. **People-level Impact:** In designing the basic components of the project and the monitoring and evaluation section, the PP team needs to detail ways to measure the impact of project activities at the small-holder and urban household levels. Specifically in agricultural research support, the PP team should look critically at the methods and processes proposed by INSAH to facilitate the researcher to client interface. These linkages are crucial to technology adoption and impact from agricultural research.

3. **Sustainability:** The PID takes the position that the analytical and capacity building services will be sustained by joint donor and member country core funding for INSAH programs as a function of the demand for these services. As the project programs provide needed information services based on the information needs of the Sahelian and donor clients, the future demand for worthwhile services will be sustained by interested donors and INSAH core funding. It should be noted that CILSS (Interstate Committee for the Fight Against Drought in the Sahel) member countries' financial support of its institutions has been exemplary in the past and is continuing to improve.

However, sustainability is a serious concern for all development activities. The PP design team needs to address the issue of how to sustain the programs initiated under this project after project assistance is terminated.

4. **Financial Accountability:** The Financial management specialist on the PP team will need to assess the financial vulnerability of present procedures at INSAH's Administration and Finance Division (DAF) and design a transparent system for the Project Administration and Finance (PAF) unit. The system designed for PAF should detail its relationship to the DAF staff, the Director General, Program Coordinators and the USAID/Controller's office.

#### **DESIGN ISSUES:**

Based on the activities outlined in the PID, the Project Paper (PP) team will need to look at several sub-sectors and have technical expertise to:

- establish criteria for the definition of realistic research agendas for each center using an objective tree type methodology;
- define a detailed two-year research agenda for each area, an indicative research agenda for the subsequent three years, and the scope of work for each senior-level researcher supported by PADRES, with particular attention to linkages among the three agendas and ways in which they can provide mutual support;
- define the precise relationship between INSAH and the PADRES programs and project administrative and financial unit, with particular attention to distinguishing the role

and functions of program personnel from that of INSAH core staff;

- review the project design with CILSS to ensure full compatibility with its agenda and the restructuring of responsibilities within the CILSS institutions, INSAH, AGRHYMET and The Executive Secretary;

- review the project programs with selected donors to ensure that the project design facilitates their participation in the work of the programs;

- prepare the detailed technical analyses required for a PP (see Handbook 3); and

The PP design team will need to review this paper and make recommendations on the proposed activities, taking into account the project purpose and the resources available from within the project and from other sources. It will be up to the project paper design team, in consultation with the parties concerned, to define the level of effort to be ascribed to each of the project units.

In particular, the design team needs to consider:

- what form and level of support to propose for the agriculture research, integrated pest management and NRM units;

- the nature and extent of PADRES support to the SPAAR effort;

- the most appropriate contractor(s) and contracting mode;

- explore precise management support arrangements with the mission.

- examine the possibility, desirability and modality of providing research grants under the project to facilitate national researcher participation in research, data collection, and networking on regional-wide issues.

- in light of the data base development and networking functions of the PAPERS, explore the advisability and feasibility of providing support to RESADOC.

- review the relationship between INSAH and MSU under the PRISAS activity and make recommendations concerning how this relationship should and could be continued. This type of institutional linkage should be considered for the other areas of the

PADRES project. The PP team should also discuss this issue with the Rural Development office of the Science and Technology Bureau of A.I.D. (S&T/RD/RD).

- explore the potential complementarity and overlap between the activities proposed for PADRES and other A.I.D. projects in the Africa Bureau (SAARFA, SAFGRAD, AGRHYMET, FEWS) and in R&D (Food Security I & II, CRSP, Sustainable Agriculture) and highlight real and potential redundancies and ways to eliminate them.

- given the increased emphasis on data base development, the PP team is requested to the best of their ability to make suggestions and recommendations concerning the hardware and software needs of the project as a whole and by individual components.

Drafted: AFR/SWA/REGL: RDaniel; 10/22/91

Clearances:

AFR/ARTS, JWolgin	<u>draft</u>
AFR/ARTS/FARA, BStonner	<u>draft</u>
AFR/ARTS/FARA, MFuchs-Carsch	<u>draft</u>
AFR/ARTS/FARA, JHill	<u>draft</u>
AFR/ARTS/FARA, MMcGahuey	<u>draft</u>
AFR/ARTS/FARA, MLowdermilk	<u>draft</u>
AFR/ARTS/FARA, TResch	<u>draft</u>
AFR/ARTS/FARA, WKnausenberger	<u>draft</u>
AFR/PD/SWAP, BBurnett	<u>draft</u>
AFR/DP, GCauvin	<u>draft</u>
R&D/RD, GSteele	<u>draft</u>
GC/AFR, PJohnson	<u>draft</u>

**ANNEX TWO**  
**LOGICAL FRAMEWORK**

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p align="center"><u>Goal</u></p> <p>Improved Sahelian decision-making on issues of food security and environmentally sustainable growth in the Sahel</p>	<p align="center"><u>Measures of Goal Achievement</u></p> <p>Policies and programs of nine Sahelian states reflect timely use of NARS' research, due in great measure to INSAH and PADRES' efforts in facilitating regional coordination, improved technical quality, and concern for sustainability</p> <p>CILSS, Sahel donor community, and concerned international research centers are responsive to PADRES' catalytic actions in setting their development agendas and policies, designing programs and projects, and in coordinating regional and bilateral efforts</p> <p>All of the participating organizations make appropriate and timely use of PADRES analytical models and methodologies for policy analysis and monitoring</p>	<p>National government sector plans and budgets, policy statements, development program and project descriptions, and impact studies, reports of international meetings.</p> <p>Policy statements, program plans, progress reports, and news releases from CILSS, donors, and research centers</p>	<p>NARS research results are translated into sound and realistic policy and program recommendations</p> <p>CILSS, donors, member-state governments, and national and international research centers are receptive to realistic recommendations and to efforts at regional coordination of policies</p>



PROJECT OUTPUTS		MEANS OF VERIFICATION	
1. Lead research poles established. NARS cooperating in division of labor. SPAAR FFA being implemented	Three pilot regional poles and three programmatic areas established based on INSAH proposals for the following: a) effective financial control and management, b) effective budgeting and planning process, c) criteria to prioritize research, and d) effective monitoring and evaluation systems	Site visits, INSAH reports, and project evaluations  PADRES publication lists and evaluations.	Donors agree to finance the SPAAR FFA  NARS scientists are able to shift from research activities to periodic preparations of in-depth reports
2. INSAH publishing and disseminating scientific documents	Two scientific abstracts per year, 10-12 prospective studies and literature reviews, 5-10 subsector and policy analyses, and 5-8 impact analyses		
3. Research issues identified and policy recommendations prepared for use by national and regional decision makers	Issues papers prepared on each significant topic in the gamut of constraining factors (e.g., marketing, legal, transport, import policies, prices paid to farmers, etc.)	INSAH reports	Researcher interests adequately represent the major policy areas that must be addressed
4. Fully functional programs operational for applied policy research in food security, ag research, and natural resources management	Each program annually sponsoring 3-5 meetings and/or seminars, financing 3-5 mini-research grants, and producing at least one major policy issues paper	INSAH periodic reports of activities, and published reports of seminar and workshop proceedings	Necessary physical facilities and bureaucratic support for research and coordination activities are available in Bamako and at other activity sites
5. GIS systems being used as a normal tool for data analysis and display	Each primary center of NARS and the major scientific and educational institutions have in-house familiarity with both raster and vector systems	INSAH activity reports and site visits, NARS reports	Data gatherers such as CERPOD and AGRHYMET will release data to other research and educational institutions on a reasonable basis and in a timely fashion.
6. The project administrative and financial unit established and providing sound financial management and reporting	Semi-annual financial management reports, periodic funds status statements by project and component	INSAH and USAID Controller reports	The PADRES components, other donor support, and INSAH's budgetary activities warrant investment in a relatively costly financial management system

INPUT ACTIVITIES	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Estimated levels of Expenditure (\$000s)			
<u>A. Ag Research Program</u>			
1. TA to restructure NARS, establish lead poles, help set ag research agenda	Expatriate consultant \$460 (approx 38 person months) Consultants (\$120) and operational costs (\$185)	Project activities report, Controller reports, and evaluations	Qualified Sahelian coordinator not available, but able to recruit qualified expatriate acceptable to NARS.
2. Conferences, short-term training seminars, mini-research grants.	\$250 (research grants \$25/yr)	ditto	Slack periods in normal routines permit time for researchers to participate.
3. TA to edit/publish NARS and INSAH reports/abstracts/syntheses.	Scientific editor \$300 (approx 60 person months), Consultants (\$20), publications and operating costs (\$100)	ditto	Qualified Sahelian available with access to expertise in desktop publishing.
4. Funds for crop protection networking and dissemination activities	publications, conferences, and operating expenses (\$170)	ditto	Other donors will continue other support of plant protection unit.
5. Commodities to support INSAH home office activities as a center of excellence in agricultural research	Computers and software (\$20), furniture (\$10)		
<u>B. Natural Resources Mgmt</u>			
1. TA to identify GIS user needs, establish Geographic Information Systems, and train in analytical methodologies.	Analysis Coord. (\$600), seminars (\$180), operating expenses (\$100), research mini-grants (\$110)		UNSO will fund NRM coordinator's salary  Sahelian expertise is available for analysis coordinator position.

INPUT ACTIVITIES	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
2. Commodity support for analysis unit.	Computers and software (\$49), furniture (\$5).		
3. TA and Consultants for SEED study.	Contract Agreement (\$200).		
<b>C. Food Security</b>			
1. TA to coordinate and give direction to research on food security issues.	Food Security coordinator (\$600) (approx 60 person years), research associates (\$300), MSU/consultants (\$780), operating expenses (\$210), publications (\$40)		Qualified Sahelian expertise would be pirated by international organizations unless salary/benefits are competitive.
2. Conferences, workshops, research grants.	Workshops (\$520), research grants (\$240).		
3. Commodity Support.	Computers & software (\$8), furniture (\$5).		
<b>D. Administration &amp; Finance</b>			
1. TA to install and operate a project administrative and finance unit with computerized accounting systems.	Mgmt. personnel (\$800), (approx 180 person months), systems installation (\$60), operating costs (\$462), financial audits (\$175)		Qualified Senegalese that installed CERPOD system is available.
2. Commodity Support.	Vehicles (\$90), computers and software (\$106), furniture (\$16).		US procurement agent available to ensure expeditious purchasing and delivery.
3. USAID Project Support	Project Liaison Officer (\$300) (approx 60 person months), operating cost (\$43), eval & audit (\$325)		Qualified Sahelian or US citizen recruited locally.

**ANNEX THREE**  
**STATUTORY CHECKLIST**

ANNEX 3

STATUTORY CHECKLIST

SC(2) - ASSISTANCE CHECKLIST

Listed below are statutory criteria applicable to the assistance resources themselves, rather than to the eligibility of a country to receive assistance. This section is divided into three parts. Part A includes criteria applicable to both Development Assistance and Economic Support Fund resources. Part B includes criteria applicable only to Development Assistance resources. Part C includes criteria applicable only to Economic Support Funds.

A. CRITERIA APPLICABLE TO BOTH DEVELOPMENT ASSISTANCE AND ECONOMIC SUPPORT FUNDS

1. **Host Country Development Efforts (FAA Sec. 601(a)):** Information and conclusions on whether assistance will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.

PADRES is an Africa regional, not a country - specific project. This project focuses on the agricultural production, food security and natural resources. In the long run, the project will encourage Sahelian efforts in areas a, b, and e.

2. **U.S. Private Trade and Investment (FAA Sec. 601(b)):** Information and conclusions on how assistance will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

This project does not focus on industry trade and or commerce develop.

### 3. Congressional Notification

a. General requirement (FY 1991 Appropriations Act Secs. 523 and 591; FAA Sec. 614A): If money is to be obligated for an activity not previously justified to Congress, or for an amount in excess of amount previously justified to Congress, has Congress been properly notified (unless the notification requirement has been waived because of substantial risk to human health or welfare)?

A full notification was sent forward to Congress on August 21 and expired on September 4, 1992.

b. Notice of new account obligation (FY 1991 Appropriations Act Sec. 514): If funds are being obligated under an appropriation account to which they were not appropriated, has the President consulted with and provided a written justification to the House and Senate Appropriations Committees and as such obligation been subject to regular notification procedures?

N/A

c. Cash transfers and nonproject sector assistance (FY 1991 Appropriations Act Sec. 575(b)(3)): If funds are to be made available in the form of cash transfer or nonproject sector assistance, has the Congressional notice included a detailed description of how the funds will be used, with a discussion of U.S. interests to be served and a description of any economic policy reforms to be promoted?

N/A

4. **Engineering and Financial Plans (FAA Sec. 611(a)):** Prior to an obligation in excess of \$500,000, will there be: (a) engineering, financial or other plans necessary to carry out the assistance; and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

(a) Yes

(b) Yes

5. **Legislative Action (FAA Sec. 611(a)(2)):** If legislative action is required within recipient country with respect to an obligation in excess of \$500,000, what is the basis for a reasonable expectation that such action

N/A

will be completed in time to permit orderly accomplishment of the purpose of the assistance?

- 6. Water Resources (FAA Sec. 611 (b) FY 1991 Appropriations Act Sec. 501):** N/A  
 If project is for water or water-related land resource construction, have benefits and costs been computed to the extent practicable in accordance with the principles, standards, and procedures established pursuant to the Water Resources Planning Act (42 U.S.C. ' 1962,, M .)? (See A.I.D. Handbook 3 for guidelines.)
- 7. Cash Transfer and Sector Assistance (FY 1991 Appropriations Act Sec. 575(b)):** N/A  
 Will cash transfer or nonproject sector assistance be maintained in a separate account and not commingled with other funds (unless such requirements are waived by Congressional notice or nonproject sector assistance)?
- 8. Capital Assistance (FAA Sec. 611(e)):** N/A  
 If project is capital assistance (e.g., construction), and total U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability to maintain and utilize the project effectively?
- 9. Multiple Country objectives (FAA Sec. 601(a)):** Information and conclusions on whether projects will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.  
 Africa regional, Sahel: This project focuses on agriculture production, food security and natural resources. It does not focus directly on industry, trade and/or commerce development.
- 10. U.S. Private Trade (FAA Sec. 601(b)):** Information and conclusions on  
 As stated previously this project does not focus on

how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

industry trade, and/or commerce development.

**11. Local Currencies**

N/A (regional project)

a. Recipient Contributions (FAA Secs. 612(b), 636(h)): Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the US are utilized in lieu of dollars.

b. U.S. Owned Currency (FAA Sec. 612(d)): Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

N/A

c. Separate Account (FY 1991 Appropriations Act Sec. 575). If assistance is furnished to a foreign government under arrangements which result in the generation of local currencies:

N/A

(1) Has A. I. D. (a) required that local currencies be deposited in a separate account established by the recipient government, (b) entered into an agreement with that government providing the amount of local currencies to be generated and the terms and conditions under which the currencies so deposited may be utilized, and (c) established by agreement the responsibilities of A.I.D. and that government to monitor and account for deposits into and disbursements from the separate account?

N/A

(2) Will such local currencies, or an equivalent amount of local currencies, be used only to carry out the purposes of the DA or ESF chapters of the FAA (depending on which chapter is the source of the assistance) or for the administrative requirements of the United States Government?

N/A

(3) Has A.I.D. taken all appropriate steps to ensure that the equivalent of local currencies disbursed from the separate account are used for the agreed purposes? N/A

(4) If assistance is terminated to a country, will any unencumbered balances of funds remaining in a separate account be disposed of for purposes agreed to by the recipient government and the United States Government? N/A

**12. Trade Restrictions**

a. Surplus Commodities (FY 1991 Appropriations Act Sec. 521(a)): If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? N/A

b. Textiles (Lautenberg Amendment) (FY 1991 Appropriations-Act Sec. 521 (c)) Will the assistance (except for programs in Caribbean Basin Initiative countries under U.S. Tariff Schedule "Section 807," which allows reduced tariffs on articles assembled abroad from U.S.-made components) be used directly to procure feasibility studies, prefeasibility studies, or project profiles of potential investment in, or to assist the establishment of facilities specifically designed for, the manufacture for export to the United States or to third country markets in direct competition with U.S. exports, of textiles, apparel, footwear, handbags, flat goods (such as wallets or coin purses worn on the person), work gloves or leather wearing apparel? N/A

**13. Tropical Forests (FY 1991 Appropriations Act Sec. 533(c)(3)):** Will funds be used for any program, project or activity which would (a) result in any No.

significant loss of tropical forests, or  
(b) involve industrial timber extraction  
in primary tropical forest areas?

**14. PVO Assistance**

N/A

a. Auditing and registration (FY 1991 Appropriations Act Sec. 537): If assistance is being made available to a PVO, has that organization provided upon timely request any document, file, or record necessary to the auditing requirements of A.I.D., and is the PVO registered with A.I.D.?

b. Funding sources (FY 1991 Appropriations Act, Title II, under heading "Private and Voluntary Organizations"): If assistance is to be made to a United States PVO (other than a cooperative development organization), does it obtain at least 20 percent of its total annual funding for international activities from sources other than the United States Government?-

N/A

**15. Project Agreement Documentation (State Authorization Sec. 139 (as interpreted by conference report)**  
Has confirmation of the date of signing of the project agreement, including the amount involved, been cabled to State L/T and A.I.D. LEG within 60 days of the agreement's entry into force with respect to the United States, and has the full text of the agreement been pouched to those same offices? (See Handbook 3, Appendix 6G for agreements covered by this provision).

No, but it will be!

**16. Metric System (Omnibus Trade and Competitiveness Act of 1988 Sec. 5164, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy):** Does the assistance activity use the metric system of measurement in its procurements, grants, and other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of

Yes, however, this project will finance very little commodity procurement.

markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be specified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic stages, and from the earliest documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight), through the implementation stage?

**17. Women in Development (FY 1991 Appropriations Act, Title 11, under heading "Women in Development")** Will assistance be designed so that the percentage of women participants will be demonstrably increased?

Both women and men will participate in project-sponsored analytical activities and the specific concerns of women will be addressed.

**18. Regional and Multilateral Assistance (FAA Sec. 209):** Is assistance more efficiently and effectively provided through regional or multilateral organizations? If so, why is assistance not so provided? Information and conclusions on whether assistance will encourage developing countries to cooperate in regional development programs.

This is a regional project and will focus on issues with regional relevance and development potential.

**19. Abortions (FY 1991 Appropriations Act, Title 11, under heading "Population, , DA," and Sec. 525):**

a. Will assistance be made available to any organization or program which, as determined by the President, supports or participates in the management of a program of coercive abortion or involuntary sterilization?

No.

b. Will any funds be used to lobby for abortion?

No.

**20. Cooperatives (FAA Sec. 111):** Will assistance help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward a better life?

N/A. This is a regional research coordination and analysis project.

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## 21. U.S.-Owned Foreign currencies

a. use of currencies (FAA Secs. 612(b), 636(h); FY 1991 Appropriations Act Secs. 507, 509): Describe steps taken to assure that, to the maximum extent possible, foreign currencies owned by the U.S. are utilized in lieu of dollars to meet the cost of contractual and other services.

N/A

b. Release of currencies (FAA Sec. 612(d)): Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

N/A

## 22. Procurement

a. Small business (FAA Sec. 602 (a)) Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed?

Yes.

604 (a)) Will all procurement be from the U.S. except as otherwise determined by the President or determined under delegation from him?

Under DFA legislation, procurement from Geographic Code 935 is authorized. To the extent practicable and consistent w/project objectives, project-financed procurement will have U.S. source & origin.

c. Marine insurance (FAA Sec. 604(d)): If the cooperating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company?

N/A

d. Non-U.S. agricultural procurement (FAA Sec. 604(e)): If non-U.S. procurement of agricultural commodity or product thereof is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity? (Exception where commodity financed could not reasonably be

N/A

procured in U.S.)

N/A

e. Construction or engineering services (FAA Sec. 604(g)): Will construction or engineering services be procured from firms of advanced developing countries which are other-wise eligible under Code 941 and which have attained a competitive capability in international markets in one of these areas? (Exception for those countries which receive direct economic assistance under the FAA and permit United States firms to compete for construction or engineering services financed from assistance programs of these countries.)

N/A

f. Cargo preference shipping (FAA Sec. 603)): Is the shipping excluded from compliance with the requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percent of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be-transported on privately owned U.S. flag commercial vessels to the extent such vessels are available at fair and reasonable rates?

Yes.

g. Technical assistance (FAA Sec. 621(a)): If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable? Will the facilities and resources of other Federal agencies be utilized, when they are particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

Yes.

h. U.S. air carriers (International Air Transportation Fair Competitive Practices Act, 1974): If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available?

i. Termination for

All project-funded contracts will contain such

99x

convenience of U.S. Government' (FY 1991 Appropriations Act Sec. 504): If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States?

provision.

Yes.

j. Consulting services (FY 1991 Appropriations Act Sec. 524): If assistance is for consulting service through procurement contract pursuant to 5 U.S.C. 3109, are contract expenditures a matter of public record and available for public inspection (unless otherwise provided by law or Executive order)?

Yes.

k. Metric conversion (Omnibus Trade and Competitiveness Act of 1988, as interpreted by conference report, amending Metric Conversion Act of 1975 Sec. 2, and as implemented through A.I.D. policy) : Does the assistance program use the metric system of measurement in its procurements, grants, and other business-related activities, except to the extent that such use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms? Are bulk purchases usually to be made in metric, and are components, subassemblies, and semi-fabricated materials to be specified in metric units when economically available and technically adequate? Will A.I.D. specifications use metric units of measure from the earliest programmatic stages, and from the earliest documentation of the assistance processes (for example, project papers) involving quantifiable measurements (length, area, volume, capacity, mass and weight), through the implementation stage?

Yes.

1. Competitive Selection Procedures (FAA Sec. 601(e)): Will the assistance utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

### 23. Construction

N/A

a. Capital project (FAA sec. 601(d)): If capital (e.g., construction) project, will U.S. engineering and professional services be used?

N/A

b. Construction contract (FAA Sec. 611(c)): If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable?

N/A

c. Large projects, Congressional approval (FAA Sec. 620(k)): If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million (except for productive enterprises in Egypt that were described in the Congressional Presentation), or does assistance have the express approval of Congress?-

Yes. Auditing will be conducted on an annual basis by a RIG/A Dakar certified accounting firm in Sahel West Africa.

24. U.S. Audit Rights (FAA Sec 301(d)): If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights?

N/A

25. Communist Assistance (FAA Sec. 620 (h)). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of the Communist-bloc countries?

N/A

## 26. Narcotics

a. Cash reimbursements (FAA Sec. 483): Will arrangements preclude use of financing to make reimbursements, in the form of cash payments, to persons whose illicit drug crops are eradicated?

Yes.

b. Assistance to narcotics traffickers (FAA Sec. 487): Will arrangements take "all reasonable steps" to preclude use or financing to or through individuals or entities which we know or have reason to believe have either: (1)

been convicted of a violation of any law or regulation of the United States or a foreign country relating to narcotics (or other controlled substances); or (2) been an illicit trafficker in, or otherwise involved in the illicit trafficking of, any such controlled substance? N/A

**27. Expropriation and Land Reform (FAA Sec. 620(g)):** Will assistance preclude use of financing to compensate owners for expropriated or nationalized property, except to compensate foreign nationals in accordance with a land reform program certified by the President? Yes.

**28. Police and Prisons (FAA Sec. 660):** Will assistance preclude use of financing to provide training, advice, or any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? Yes

**29. CIA Activities (FAA Sec. 662):** Will assistance preclude use of financing for CIA activities? Yes.

**30. Motor Vehicles (FAA Sec. 636(i)):** Will assistance preclude use of financing for purchase, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained? Yes.

**31. Military Personnel (FY 1991 Appropriations Act Sec. 503):** Will assistance preclude use of financing to pay pensions, annuities, retirement pay, or adjusted service compensation for prior or current military personnel? Yes.

**32. Payment of U.N. Assessments (FY 1991 Appropriations Act Sec. 505):** Will assistance preclude use of financing to pay U.N. assessments, arrearage or dues? Yes.

**33. Multilateral Organization Lending (FY 1991 Appropriations Act Sec. 506):** Will assistance preclude use of financing to carry out provisions of FAA section 209(d) (transfer of FAA funds to multilateral organizations for lending)? Yes.

**34. Export of Nuclear Resources (FY 1991 Appropriations Act Sec. 510):** Will assistance preclude use of financing to finance the export of nuclear equipment, fuel, or technology?

Yes.

**35. Repression of Population (FY 1991 Appropriations Act Sec 511):** Will assistance preclude use of financing for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?

No.

**36. Publicity or Propaganda (FY 1991 Appropriations Act Sec. 516):** Will assistance be used for publicity or propaganda purposes designed to support or defeat legislation depending..before Congress, to influence in any way the outcome of a political election in the United States, or for any publicity or propaganda purposes not authorized by Congress?

Yes, where such a clause is applicable to the services being procured under the contract or solicitation.

**37. Marine Insurance (FY 1991 Appropriations Act Sec. 563):** Will any A.I.D. contract and solicitation, and subcontract entered into under such contract, include a clause requiring that U.S. marine insurance companies have a fair opportunity to bid for marine insurance when such insurance is necessary or appropriate?

No.

**38. Exchange for Prohibited Act FY 1991 Appropriations Act Sec. 569):** Will any assistance be provided to any foreign government (including any instrumentality or agency thereof), foreign person, or United States person in exchange for that foreign government or person undertaking any action which is, if carried out by the United States Government, a United States official or employee, expressly prohibited by a provision of United States law?

B. CRITERIA APPLICABLE TO DEVELOPMENT ASSISTANCE ONLY

N/A

1. **Agricultural Exports (Bumpers Amendment)** (FY 1991 Appropriations Act Sec. 521(b), as interpreted by conference report for original enactment): If assistance is for agricultural development activities (specifically, any testing or breeding feasibility-study, variety improvement or introduction, consultancy, publication, conference, or training), are such activities: (1) specifically and principally designed to increase agricultural exports by the host country to a country other than the United States, where the export would lead to direct competition in that third-country with exports of a similar commodity grown or produced in the United States, and can the activities reasonably be expected to cause substantial injury to U.S. exporters of a similar agricultural commodity; or (2) in support of research that is intended primarily to benefit U.S. producers?

No.

2. **Tied Aid Credits** (FY 1991 Appropriations Act, Title 11, under heading "Economic Support Fund"): Will DA funds be used for tied aid credits?

N/A

3. **Appropriate Technology** (FAA Sec. 107): Is special emphasis placed on use of appropriate technology (defined as relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?

4. **Indigenous Needs and Resources** (FAA Sec. 281(b)): Describe extent to which the activity recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.

The project will ensure host country input and participation in identifying and prioritizing research and analysis activities. The project will not involve civic education or training. Also efforts will be made to engage and support African researchers in the project activities.

The improved analytical

**5. Economic Development (FAA Sec. 101(a)):** Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

capacities for information and research utilization will contribute to improved policies, programs and projects in agriculture production, food security and natural resources management, thereby increasing productive capacities and self-sustaining economic growth.

**6. Special Development Emphases (FAA Secs. 102(b), 113, 281(a)):** Describe extent to which activity will: (a) effectively involve the poor in development by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, dispersing investment from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using appropriate U.S. institutions; (b) encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries.

In activities that support agricultural research networks, the project will encourage regional cooperation. The project will not work directly in any of the other areas, but will generate and facilitate the use of information to enhance such activities as they relate to regional issues of agriculture production, food security and natural resources management.

**7. Recipient Country Contribution (FAA Secs. 110, 124(d)):** Will the recipient country provide at least 25 percent of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively least developed" country)?

N/A, regional program.

**8. Benefit to Poor Majority (FAA Sec 128(b)):** If the activity attempts to increase the institutional capabilities of private organizations or the government of the country, or if it attempts to stimulate scientific and technological research, has it been designed and will it

Yes.

be monitored to ensure that the ultimate beneficiaries are the poor majority?

**9. Abortions (FAA Sec. 104(F); FY 1991 Appropriations Act, Title 11, under heading "Population, DA," and Sec. 535):**

a. Are any of the funds to be used for the performance of abortions as a method of family planning or to motivate or coerce any person to practice abortions? No.

b. Are any of the funds to be used to pay for the performance of involuntary sterilization as a method of family planning or to coerce or provide any financial incentive to any person to undergo sterilizations? No.

c. Are any of the funds to be made available to any organization or program which, as determined by the President, supports or participates in the management of a program of coercive abortion or involuntary sterilizations. No.

d. Will funds be made available only to voluntary family planning projects which offer, either directly or through referral to, or information about access to, a broad range of family planning methods and services? N/A

e. In awarding grants for natural family planning, will any applicant be discriminated against because of such applicant's religious or conscientious commitment to offer only natural family planning? N/A

f. Are any of the funds to be used to pay for any biomedical research which relates, in whole or in part, to methods of, or the performance of, abortions or involuntary sterilization as a means of family planning? No.

g. Are any of the funds to be made available to any organization if the President certifies that the use of these funds by such organization would violate any of the above provisions related to abortions and involuntary sterilization?

No.

10. **Contract Awards (FAA Sec. 601(●)):** Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

Yes.

11. **Disadvantaged Enterprises (FY 1991 Appropriations Act Sec. 567):** What portion of the funds will be available only for activities of economically and socially disadvantaged enterprises, historically black colleges and universities, colleges and universities having a student body in which more than 40 percent of the students are Hispanic Americans, and private and voluntary organizations which are controlled by individuals who are Black Americans, Hispanic Americans, or Native Americans, or who are economically or socially disadvantaged (including women)?

It is not anticipated that such a set-aside will be made in this project. However, the basic premise of the project is to employ African researchers to champion policy and program dialogue at the regional level. In accordance with Section 567, all contracts exceeding \$500,000 will be required to have subcontracting plans that meet the requirements of this legislation.

No.

12. **Biological Diversity (FAA Sec. 119(g)):** Will the assistance: (a) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity; (b) be provided under a long-term agreement in which the recipient country agrees to protect ecosystems or other wildlife habitats; (c) support efforts to identify and survey ecosystems in recipient countries worthy of protection; or (d) by any direct or indirect means significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas?

13. Tropical Forests (FAA Sec. 118; FY 1991 Appropriations Act Sec. 533(c)-(e) & (g))

Yes.

a. A.I.D. Regulation 16:  
Does the assistance comply with the environmental procedures set forth in A.I.D. Regulation 16?

b. conservation: Does the assistance place a high priority on conservation and sustainable management of tropical forests? Specifically, does the assistance, to the fullest extent feasible: (1) stress the importance of conserving and sustainably managing forest resources; (2) support activities which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and help countries identify and implement alternatives to colonizing forested areas;

(3) support training programs, educational efforts, and the establishment or strengthening of institutions to improve forest management; (4) help end destructive slash-and-burn agriculture by supporting stable and productive farming practices; (5) help conserve forests which have not yet been degraded by helping to increase production on lands already cleared or degraded; (6) conserve forested watersheds and rehabilitate those which have been deforested; (7) support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing; (8) support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation; (9) conserve biological diversity in forest areas by supporting efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis, by making the establishment of protected areas a condition of support for activities involving forest clearance or degradation, and by helping to identify tropical forest

The project will not work directly in any of these areas but will coordinate research and facilitate the use of research findings to enhance such activities as they relate to agriculture production, food security and natural resources management.

ecosystems and species in need of protection and establish and maintain appropriate protected areas; (10) seek to increase the awareness of U.S. Government agencies and other donors of the immediate and long-term value of tropical forests; (11) utilize the resources and abilities of all relevant U.S. government agencies; (12) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land; and (13) take full account of the environmental impacts of the proposed activities on biological diversity?

No.

c. Forest degradation: Will assistance be used for: (1) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner and that the proposed activity will produce positive economic benefits and sustainable forest management systems; (2) actions which will significantly degrade national parks or similar protected areas which contain tropical forests, or introduce exotic plants or animals into such areas; (3) activities which would result in the conversion of forest lands to the rearing of livestock; (4) the construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undergraded forest lands; (5) the colonization of forest lands; or (6) the construction of dams or other water control structures which flood relatively undergraded forest lands, unless with respect to each such activity an environmental assessment indicates that the activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development?

d. Sustainable forestry: If assistance relates to tropical forests, will project assist countries in developing a systematic analysis of the appropriate use of their total tropical forest resources, with the goal of developing a national program for sustainable forestry?

Although the project is not focused on developing national programs for sustainable forestry, some research and analysis activities will provide data to help countries plan for appropriate use of forest resources.

e. Environmental impact statements: Will funds be made available in accordance with provisions of FAA Section 117(c) and applicable A.I.D. regulations requiring an environmental impact statement for activities significantly affecting the environment?

N/A

14. Energy (FY 1991 Appropriations Act Sec. 533(c)): If assistance relates to energy, will such assistance focus on: (a) end-use energy efficiency, least-cost energy planning, and renewable energy resources, and (b) the key countries where assistance would have the greatest impact on reducing emissions from greenhouse gases?

N/A

15. Saharan Africa Assistance (FY 1991 Appropriations Act Sec. 562, adding a new FAA chapter 10-(FAA Sec. 496)): If assistance will come from the Sub-Saharan Africa DA account, is it: (a) to be used to help the poor majority in Sub-Saharan Africa through a process of long-term development and economic growth that is equitable, participatory, environmentally sustainable, and self-reliant; (b) to be used to promote sustained economic growth, encourage private sector development, promote individual initiatives, and help to reduce the role of central governments in areas more appropriate for the private sector; (c) to be provided in a manner that takes into account, during the planning process, the local-level perspectives of the rural and urban poor, including women, through close consultation with African, United States and other PVOs that have demonstrated effectiveness in the promotion of local grassroots activities on behalf of

Although the project will not be directly involved with field implementation, the project's research and analysis process will be implemented in accordance with all items, (a-f).

long-term development in Sub-Saharan Africa; (d) to be implemented in a manner that requires local people, including women, to be closely consulted and involved, if the assistance has a local focus; (e) being used primarily to promote reform of critical sectoral economic policies, or to support the critical sector priorities of agricultural production and natural resources, health, voluntary family planning services, education, and income generating opportunities; and (f) to be provided in a manner that, if policy reforms are to be effected, contains provisions to protect vulnerable groups and the environment from possible negative consequences of the reforms?

**16. Debt-for-Nature Exchange (FAA Sec. 463):** If project will finance a debt-for-nature exchange, describe how the exchange will support protection of: (a) the world's oceans and atmosphere,, (b) animal and plant species, and (c) parks and reserves; or describe how the exchange will promote: (d) natural resource management, (e) local conservation programs, (f) conservation training programs, (g) public commitment to conservation, (h) land and ecosystem management, and (i) regenerative approaches in farming, forestry, fishing, and watershed management. N/A

**17. Deobligation/Reobligation (FY 1991 Appropriations Act Sec. 515):** If deob/reob authority is sought to be exercised in the provision of DA assistance, are the funds being obligated for the same general purpose, and for countries within the same region as originally obligated, and have the House and senate Appropriations Committees been properly notified? Yes.

**18. Loans**

**a. Repayment capacity (FAA Sec. 122(b)):** Information and conclusion on capacity of the country to repay the N/A

///X

loan at a reasonable rate of interest.

b. Long-range plans (FAA Sec. 122(b)): Does the activity give reasonable promise of assisting long-range plans and programs designed to develop economic resources and increase productive capacities? N/A

c. Interest rate (FAA Sec. 122(b)): If development loan is repayable in dollars, is interest rate at least 2 percent per annum during a grace period which is not to exceed ten years, and at least 3 percent per annum thereafter? N/A

d. Exports to United States (FAA Sec. 620(d)): If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20 percent of the enterprise's annual production during the life of the loan, or has the requirement to enter into such an agreement been waived by the President because of a national security interest? N/A

19. Development objectives (FAA Secs. 102(a), 111, 113, 281(a)): Extent to which activity will: (1) effectively involve the poor in development, by expanding access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (2) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (3) support the self-help efforts of developing countries; (4) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (5) utilize and encourage regional

In activities that support agricultural research networks, the project will encourage regional cooperation. The project will not work directly in any of the other areas, but will conduct research and facilitate the use of information to enhance such activities as they relate to the agriculture and natural resources sector.

cooperation by developing countries?

**20. Agriculture, Rural Development and Nutrition, and Agricultural Research (FAA Secs. 103 and 103A):**

a. Rural poor and small farmers: If assistance is being made available for agriculture, rural development or nutrition, describe extent to which activity is specifically designed to increase productivity and income of rural poor; or if assistance is being made available for agricultural research, has account been taken of the needs of small farmers, and extensive use of field testing to adapt basic research to local conditions shall be made.

The project will not work directly with the rural poor, but will support research and analysis and networking that will contribute to increasing the productivity of small farmers.

b. Nutrition: Describe extent to which assistance is used in coordination with efforts carried out under FAA Section 104 (Population and Health) to help improve nutrition of the people of developing countries through encouragement of increased production of crops with greater nutritional value; improvement of planning, research, and education with respect to nutrition, particularly with reference to improvement and expanded use of indigenously produced foodstuffs; and the undertaking of pilot or demonstration programs explicitly addressing the problem of malnutrition of poor and vulnerable people.

N/A

c. Food security: Describe extent to which activity increases national food security by improving food policies and management and by strengthening national food reserves, with particular concern for the needs of the poor, through measures encouraging domestic production, building national food reserves, expanding available storage facilities, reducing post harvest food losses, and improving food distribution.

Food security is one of the project's research areas and will be addressed in coordination with other sectors to increase the utilization and influence of analysis in efforts to promote better food security policies, programs and infrastructure.

**21. Population and Health (FAA Secs. 104 (b) and (c)):** If assistance is being made available for population or health activities, describe extent to

N/A

which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems, and other modes of community outreach.

**22. Education and Human Resources Development (FAA Sec. 105):** If assistance is being made available for education, public administration, or human resource development, describe (a) extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, and strengthens management capability of institutions enabling the poor to participate in development; and (b) extent to which assistance provides advanced education and training of people of developing countries in such disciplines as are required for planning and Implementation of public and private development activities.

N/A

**23. Energy, Private Voluntary organizations, and Selected Development Activities (FAA Sec. 106):** If assistance is being made available for energy, private voluntary organizations, and selected development problems, describe extent to which activity is:

N/A

a. concerned with data collection and analysis, the training of skilled personnel, research on and development of suitable energy sources, and pilot projects to test new methods of energy production; and facilitative of research on and development and use of small-scale, decentralized, renewable energy sources for rural areas, emphasizing development of energy resources which are environmentally acceptable and require minimum capital investment;

N/A

- b. concerned with technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations; N/A
- c. research into, and evaluation of, economic development processes and techniques; N/A
- d. reconstruction after natural or manmade disaster and programs of disaster preparedness; N/A
- e. for special development problems, and to enable proper utilization of infrastructure and related projects funded with earlier U.S. assistance; N/A
- f. for urban development, especially small, labor-intensive enterprises, marketing systems for small producers, and financial or other institutions to help urban poor participate in economic and social development. N/A
- C. CRITERIA APPLICABLE TO ECONOMIC SUPPORT FUNDS ONLY
1. **Economic and Political Stability (FAA Sec. 531(a)):** Will this assistance promote economic and political stability? To the maximum extent feasible, is this assistance consistent with the policy directions, purposes, and programs of Part I of the FAA? N/A
2. **Military Purposes (FAA Sec. 531 (e))** Will this assistance be used for military or paramilitary purposes? N/A
3. **Commodity Grants/Separate Accounts (FAA Sec. 609):** If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made? (For FY 1991, this provision is superseded by the separate account N/A

requirements of FY 1991 Appropriations Act Sec. 575 (a) , see Sec. 575 (a) (5).)

**4. Generation and Use of Local Currencies (FAA Sec. 531(d)):** Will ESF funds made available for commodity import programs or other program assistance be used to generate local currencies? If so, will at least 50 percent of such local currencies be available to support activities consistent with the objectives of FAA sections 103 through 106? (For FY 1991, this provision is superseded by the separate account requirements of PY 1991 Appropriations Act Sec. 575(a), see Sec. 575(a)(5).) N/A

**5. Cash Transfer Requirements** N/A  
**fy 1991 Appropriations Act, Title 11,**  
 under heading "Economic Support Fund,"  
 and Sec. 575(b)). If assistance is in the  
 form of a cash transfer:

a. Separate accounts: Are N/A  
 all such cash payments to be maintained by  
 the country in a separate account and not  
 to be commingled with any other funds?

b. Local currencies: N/A  
 Will all local currencies that may be  
 generated with funds provided as a cash  
 transfer to such a country also be  
 deposited in a special account, and has  
 A.I.D. entered into an agreement with that  
 government setting forth the amount of the  
 local currencies to be generated, the  
 terms and conditions under which they are  
 to be used, and the responsibilities of  
 A.I.D. and that government to monitor and  
 account for deposits and disbursements?

c. U.S. Government use of N/A  
 local currencies: Will all such local  
 currencies also be used in accordance with  
 FAA Section 609, which requires such local  
 currencies to be made available to the  
 U.S. government as the U.S. determines  
 necessary for the requirements of the U.S.  
 Government, and which requires the  
 remainder to be used for programs agreed  
 to by the U.S. Government to carry out the  
 purposes for which new funds authorized by

the FAA would themselves be available?

d. Congressional notice:  
Has Congress received prior notification providing in detail how the funds will be used, including the U.S. interests that will be served by the assistance, and, as appropriate, the economic policy reforms that will be promoted by the cash transfer assistance?

N/A

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**ANNEX FOUR**  
**B/G REQUEST FOR ASSISTANCE**

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COMITE PERMANENT INTERETATS DE LUTTE  
CONTRE LA SECHERESSE DANS LE SAHEL



PERMANENT INTERSTATE COMMITTEE FOR  
DROUGHT CONTROL IN THE SAHEL

## CILSS

SECRETARIAT EXECUTIF: B.P. 7049 OUAGADOUGOU (BURKINA FASO)

Téléphones : Siège : 30 67 67 - 30 67 68 - 30 67 59  
Annexe : 30 46 70 - 30 36 64 - 30 43 51

Télex : 8263 COMITER Ouaga  
Fax : (00226) 30 72 47

N / Réf. 1292 / CAB/ADD/mb

Ouagadougou, le

V / Réf.

02 SEP. 1991

OBJET :

Dear Sir,

Since the adoption of INSAH's Five Year Programme and Strategy by the 26th CILSS Council of Ministers in February 1990, and the holding of the Round Table of donors (14-15 January 1991), the Director General of INSAH has kept me informed of the evolution of discussions with USAID concerning the later possible support in the execution of the Five Year Programme.

More recently I have been informed and have received a draft PID document that Mr James Walsh visited INSAH to finalise. During my visit to Paris (19 - 23 August 1991) for the annual CILSS/Club meeting I had the opportunity to discuss this draft PID with both Jim Walsh and John Lewis. The main thrust and areas of concentration proposed in the draft PID meet with my agreement and I wish to formally notify you that I am in full support of this initiative. I am aware and appreciative of the fact that through your support to the FRISA unit, for food security research based in INSAH important achievements within a relatively short space of time have been obtained. I have no doubt that enlarging your sphere of intervention in the other domains proposed would not only consolidate the redynamisation of INSAH but will, also considerably help the entire CILSS system to be of better service to member states in policy formulation and extension in the fields of Natural Resource Management and agricultural research.

Mr. Robert S. ...  
United States Agency for International Development

USAID  
Washington, D.C.

PROD 1101/1101/1101

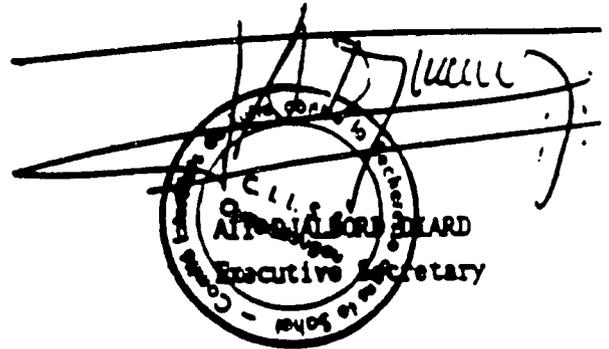
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As you are aware CILSS is currently undertaking an indepth review of its mandate, structure, programmes and management system. The final product of this exercise is to help us on the one hand, to position our organisation vis-à-vis the evolving institutional and socio-political environment in the region, and on the other, to bring about greater coherence, integration and rationalisation of the programming and management of the system to respond to the present and future challenges. The outcome of this exercise would mean better clarification and increased strengthening of the specialised institutions in their role as technical instruments of the CILSS system. It seems to me that the activities indentified within the context of the draft PID are in harmony with this thrust.

Before concluding I would like to take this opportunity to express my gratitude to the USAID for its constant support to the CILSS system and its profound intrest in the successful outcome of Plan of Relance.

Sincerely.



A handwritten signature is written over a circular official stamp. The stamp contains the text: "CILSS", "ATTOUJAL SOU ELLARD", and "Executive Secretary". The stamp also features a date "1945" and some illegible text around the perimeter. The signature is written in dark ink and appears to be "MULLU".

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PROGRAMS FOR APPLIED DEVELOPMENT RESEARCH IN THE SAHEL

(PADRES) - 698-0980

ANNEX FIVE

TECHNICAL ANALYSES

**ANNEX 4**

**PROGRAMS FOR APPLIED DEVELOPMENT RESEARCH IN THE SAHEL (PADRES)**

**Technical Annex:**

**NATURAL RESOURCE MANAGEMENT**

**Joy E. Hecht**

**International Resources Group  
1400 I Street, N.W. Suite 700  
Washington, D.C. 20005**

**December, 1991**

## EXECUTIVE SUMMARY

Supporting national research in the area of natural resources management is within the mandate of the Institut du Sahel (INSAH), and is an important part of its 1990-1994 Five-Year Plan. However, until 1990, when the United Nations Sudano-Sahelian Office (UNSO) began supporting work in this area, INSAH was unable to begin carrying out this part of its plans. The USAID PADRES project therefore includes a natural resources program, whose objectives are to support national-level research through information dissemination, guidance in establishing research priorities, technical support, and research mini-grants.

The PADRES natural resources program has two components. The first, which will be partially supported by UNSO through provision of a natural resources expert, is responsible for overall implementation of INSAH's mandate and Five-Year Plan in this area. The second, entirely funded by USAID, focuses more narrowly on applications of spatial analysis and geographic information systems to research on natural resource management. The two components are expected to work collaboratively, building on and informing each other's efforts. Some of their activities will be joint, and they will share certain resources within the PADRES budget. However, their primary activities differ, and the coordinator of each component will manage a budget specifically allocated to his or her activities.

The overall natural resources component of the project will accomplish its objectives through a series of activities, beginning with an interdisciplinary review of research which has already been completed on natural resources management techniques in the Sahel. While carrying out this review the coordinator will also be building a network of contacts with researchers working on these issues, decision-makers interested in using the results, and donors who support NRM research. All the members of the network will receive copies of the review, with a preliminary set of recommendations for future research priorities. One or several regional or national meetings will be held to discuss the research and arrive at a preliminary consensus on future directions. This will launch an ongoing iterative process, in which the coordinator will review ongoing work, disseminate results, and organize meetings through which to provide technical assistance and refine priorities. The process will also identify analytical questions which INSAH may work on through the analytical component of the NRM program, in order to contribute to a regional perspective on natural resource issues.

The analytical coordinator will focus more specifically on supporting use of GIS in research on natural resources management, through a series of activities. First, he or she will conduct an inventory of existing use of GIS and spatial data in the region, preferably in collaboration with the preparatory study for the Programme Sahelien d'Appui A la Gestion de l'Environnement (SAGE) which is soon to be launched at the CILSS Executive Secretariat. This process will enable the coordinator both to find out about ongoing work, and to establish a network of contacts with the people carrying out that work. During the first year of the project the coordinator will also begin informal GIS training for the program staff and for other INSAH staff who may be interested. Based on the needs identified during the inventory, the coordinator will organize national and regional meetings at which those using GIS can exchange ideas about methodologies, technical problems, analytical approaches, data needs, and software tools. The coordinator will also analyze specific questions of regional importance, which may be suggested by the overall NRM coordinator, by the national researchers, or through the implementation of the SAGE program.

Certain activities will be common to the two components of the NRM program. There will be a fund with which to provide mini-grants to support research on regional questions about natural resource management. These grants can be used flexibly as determined by the coordinators, in order to encourage a regional focus in natural resources research. Working with the PADRES-supported scientific editor, the program will also explore options for publishing research results, possibly in the form of a journal or working papers.

The linkages between the NRM program and the other two programs within the PADRES project are critical. The three coordinators will make a concerted effort to follow the research in the others' areas, and to always be aware when an interdisciplinary focus is called for, either within INSAH or among the national researchers. Insofar as possible they will attend meetings organized by each other. Undertaking joint analysis projects through the analytical component of the program may be an effective way to build linkages within INSAH. Using the mini-grants to encourage interdisciplinary work may encourage such links at the national level.

The NRM program will have two senior staff members (one funded by UNSO) and one program assistant. The analytical coordinator is expected to be an expatriate, and the program assistant a Sahelian doctoral student. The preliminary budget for this part of the PADRES project is about \$2.7 million.

**ANNEX 2**

**PROGRAMS FOR APPLIED DEVELOPMENT RESEARCH IN THE SAHEL (PADRES)**

**AGRICULTURAL RESEARCH AND INTEGRATED PEST MANAGEMENT**

**Marie de Lattre  
Thomas Hart  
Walter Knausenberger**

**December, 1991**

## EXECUTIVE SUMMARY

In the Sahel, decision-makers often have inadequate or insufficient data to make decisions. There are many organizations involved in agricultural research in the Sahel who need assistance. Research institutions and donors funding these institutions are making great efforts to collaborate and harmonize their policies. The Institut du Sahel (INSAH) has an important role to play, especially one of technical advisor to the different actors involved in agricultural research.

The agricultural research/integrated pest management (IPM) component of PADRES, in collaboration with the food security and the natural resources management components of the project, will contribute to a better definition of regional research priorities and forward-looking prospective studies on food commodities; the synthesis, publication and dissemination of research results; better coordination between networks and thus better-planned regional lead research centers, and better coordination among disciplines contributing to more appropriate research results. These activities will greatly help the national agricultural research systems of the Sahel, contributing to their ability to obtain results adapted to local circumstances and adopted by small-holders.

The agricultural research/IPM component of PADRES will be fully integrated into INSAH and contribute to the fulfillment of its mandate. It will be considered as one of INSAH's programs.

Four types of activities will be carried out at INSAH, through PADRES:

- Assistance to the national agricultural research systems (NARS). INSAH will facilitate the establishment of the research poles proposed in the Sahelian Framework for Action (FFA). It will undertake and coordinate the publication of literature reviews and research results on different sub-sectors. It will work with the institutions involved with agricultural research on the definition of regional priorities and forward-looking prospective studies. The crop production, food security and natural resources programs of the Department of Research on Environment and Agriculture (DRMA) of INSAH will be involved in that process.
- Coordination and networking. INSAH will pursue its coordinating role in the field of integrated pest management.
- Collection, analysis and dissemination of information. INSAH will survey past and existing data bases on agricultural research, assess the database needs of the Sahelian countries, and create a data base on agricultural research in the Sahel. INSAH will set up an editing and publication unit in the Information division.

Two senior positions will be opened :

- A research management specialist who will be next to the scientific and technical coordinator, and will carry out most of the assistance to NARS's functions.
- A scientific editor, who will contribute to the synthesis work and their publication.

To help them, two secretaries will be hired.

The total cost of this component will be \$2,585,000, which will be divided as follows:

Salaries	\$1,060,000
Activities (travel, meetings, etc.)	\$740,000
Equipment	\$30,000
Other Direct Costs (consultants, TA, etc.)	\$755,000

## I. THE ORGANIZATION OF AGRICULTURAL RESEARCH IN THE SAHEL

Many institutions are involved in agricultural research in the Sahel. In this section, we will describe the main organizations and show that the Institut du Sahel (INSAH) is one among many. INSAH's mandate has been defined by CILSS, but it must take into account what others are doing in the region, to fulfill its role and meet its objectives. Figure 1 summarizes the major research networks in the Sahel and the crops on which they focus.

### A. The national agricultural research systems (NARS)

#### 1. Historical perspective

Research work in the Sahel in the early 1920s, under the aegis of the colonial administrations. Emphasis was placed on crops for exports (mainly cotton and groundnuts) and animal health, with little attention to food crops. After independence, the research institutions were nationalized, although foreign organizations continued doing the research in some countries. Starting in the early 1970s, the Sahelian nations formed their own national agronomic institutes. Foreign cooperation has continued, with additional support to the NARS from new donors including USAID, EEC, IBRD, CIDA, and GtZ. Several international agricultural research centers have started to work in the region (ILCA, ILRAD, IITA, CIMMYT, ICRAF, IFPRI and ICRISAT) as have FAO and a number of American universities.

When the national research institutes were created, there were hardly any trained Sahelian scientists. Since then, donors have made great efforts to send Sahelians abroad for training, giving scholarships to study in the US, Canada, France or Belgium. The international agricultural research centers organized short-term and long-term training in collaboration with United States land-grant universities. We must be aware, though, that it has hardly been fifteen years since the first Sahelian nationals returned home with advanced degrees in agriculture. This is a very short period of time in which to expect dramatic change. Moreover, the attrition rate in the research institutes is very high, and there is little incentive to work. Research institutes have been also reorganized several times over the last ten years, which has discouraged the researchers.

#### 2. Efforts to reorganize NARS and prepare national agricultural research plans

Since the early 1980s, various efforts have been made to improve operations in the agricultural research systems of the CILSS countries. First, the national agricultural research systems of the larger CILSS countries have been reviewed, and efforts made to reorganize some of the national agricultural research institutes (INERA in Burkina Faso, IER in Mali, INRAN in Niger, and ISRA in Senegal). Some of these reviews were undertaken by ISNAR with IBRD funds. However, they concentrated on the national institutes, and paid little attention to other places where some agricultural research is also carried out (universities, development companies, agro-industries, producers associations, NGOs, etc). They looked more at structural and organizational issues than at the core activities of the research institutions. The researchers of these countries have also prepared national agricultural research plans and priorities for the national research institutions.

**FIGURE 1**  
**SAHELIAN AGRICULTURAL RESEARCH NETWORKS AND LEAD CENTERS**

Research Domain	INSAR	CORAF (Networks + Base-centers)		SAHELIAN FFA RESEARCH POLES (Variety Improvement)	IARC	OTHERS
		on-going	proposed			
MAIZE	FED Project	SENEGAL (irrigated) Cameroon (humid)		BURKINA FASO	IITA CIMMYT	
GROUNDNUT		BURKINA FASO (Phytopathology)	SENEGAL (variety) CONGO (humid) CONGO (variety improvement) TOGO (agronomy) IVORY COAST	SENEGAL	ICRISAT (NIGER)	
CASSAVA					IITA	
RICE					WARDA	
DROUGHT RESISTANCE	RIS	SENEGAL		SENEGAL		
SORGHUM	FED Project			MALI	INCRISAT (MALI)	SARGRAD CRSP
NATURAL RESOURCES MANAGEMENT				BURKINA FASO MALI SENEGAL	IITA-ICRISAT IPDC - IBSRAM	
COWPEA	FED Project			NIGER	IITA	CRSP
MILLET	FED Project			NIGER	ICRISAT (NIGER)	CRSP SARURAD
SMALL RUMINANTS			X			
INTEGRATED PEST MANAGEMENT	UCTR/PV			SENEGAL	ILCA	
COTTON			X			
FOOD SECURITY						
AGROFORESTRY	PRISAS				ICRAF	
IRRIGATION MANAGEMENT					IIMI	

Technical Annex: Agricultural Research and IPM

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Second, an INSAH-based project, AGIR (Amélioration de la Gestion des Instituts de Recherche), analyzed the management of the research institutions, and produced reports on each country.

Third, workshops and training seminars on agricultural research management have been organized by ISNAR and AGIR, to contribute to strengthening the NARS.

### 3. Research achievements

In 1990, at the request of the World Bank, CIRAD tried to evaluate agricultural research results and their application to development in Sahelian and Sudanian countries of Africa<sup>1</sup>. This study shows that there have been many agricultural research results, in the favored as well as in the less favored countries. These include development of improved cotton varieties and cotton crop protection techniques, better application of contouring techniques of management of water runoff and thus better response to fertilizer application, improved fertilizer efficiency through soil amendments and crop rotation, improved livestock-crop production systems, etc.

Because of the weak economic condition of the national governments and the farms, research results often cannot be used in their present form. However, if better adapted to local conditions, they would be very appropriate. The basic knowledge that can help solve fertility problems is there, but more adaptive work has to be done. There are often great differences between research expectations and actual farm production. While these are partly due to insufficient adaptation of research results to the needs of the farmers, they are also an outcome of inappropriate agricultural policies.

### 4. Problems faced by national agricultural research institutes

The national agricultural research institutions are facing a crisis at present, for several reasons:

- The national economies do not have the capacity to support research at levels sufficient to face the diversity of problems and the development challenges, at a time when donor funds increasingly scarce.
- The public statutes favor a bureaucratic system, rather than an enabling environment which would promote creativity and assure the flexibility needed for undertaking a multiplicity of tasks. As a result, attrition rates are high in the research institutes and there is a serious lack of leadership.
- Other actors such as farmers, herders or their associations, faculties of agronomy, extension services, NGOs, the private sector, consumers, merchants, etc. have not been fully integrated into the technology generation and dissemination process. The research institutes are disconnected from their clients. They have forgotten their purpose, i.e. the production of information that will improve agricultural production.

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<sup>1</sup> Bosc P.M., Calkins P., Yung J.M.. Développement et recherche agricole dans les pays sahéliens et soudaniens d'Afrique. Les synthèses du CIRAD, 1990.



Germany (GtZ), Portugal (INIA, ICT). There are also numerous European, American and Canadian universities working on agricultural research in the Sahel.

D. Structures with a regional mandate and networks

1. A CILSS institution: the Institut du Sahel (INSAH)

The Institut du Sahel, created in 1977, is a CILSS institution. Its purpose is technical and it has a regional mandate. In its original mandate, INSAH had six objectives<sup>2</sup>:

- collection, analysis and dissemination of research results;
- transfer and adaptation of appropriate technologies;
- coordination, promotion and harmonization of scientific and technical research;
- training of research scientists and technicians;
- proposal and definition of regional research agendas; and
- guidance on research at a regional level.

In its present five year plan, INSAH has tried to focus its activities more narrowly on assisting the national agricultural research systems. It will also strengthen its function of coordination through catalytic activities, information exchanges, and its capacity to have appropriate documentation available for the countries.

During the 1980s, INSAH was not been very effective in fulfilling its mandate to the Sahelian countries. Over the last three years, however, it has reorganized and has prepared a five-year plan in consultation with the NARS. This has led to increased confidence in INSAH's potential. INSAH should therefore be very careful in its choices of activities and keep its present focus.

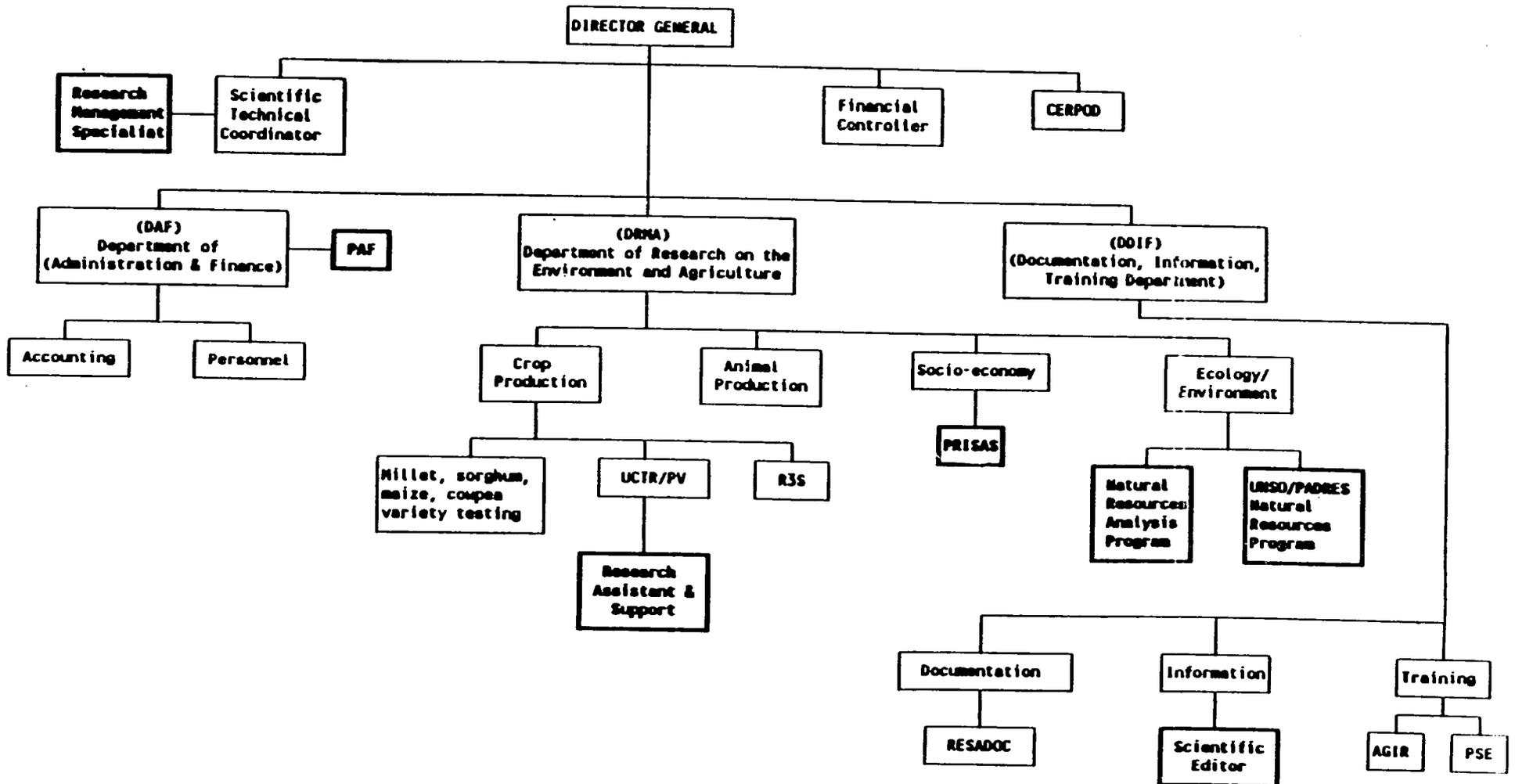
INSAH's organizational structure includes (see organizational chart, Figure 2):

- The general directorate; Dr. Amadou Tijan Jallow is the director general, and Dr. Gaoussou Traoré the scientific and technical coordinator.
- The Department of Research on Environment and Agriculture (DRMA) headed by M. Netoyo Laomaïbo.

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<sup>2</sup> CILSS - Institut du Sahel. Stratégie et programmation quinquennale 1990 - 1994. Bamako, aout 1990, p.5.

FIGURE 2: INSTITUT DU SAHEL ORGANIZATIONAL CHART



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The organizational chart shows four programs in the Department; however, they are not all operative. They are<sup>3</sup>:

1. The crop production program is mainly involved in coordination and dissemination of information. It has three components:

- Networking on integrated pest management. This is done by the crop protection unit (UCTR/PV) headed by Dr. Ba Diallo Daoulé. It disseminates information (Sahel PV Info, a monthly periodical) and organizes technical coordination meetings for researchers and extension agents involved in crop protection and integrated pest management. The activities are financed by CIDA and UNSO, some a small contribution from CTA. UNSO has committed itself to supporting one research assigned to this unit.
- Coordination of regional testing of varieties of millet, sorghum, cowpea and maize through a project financed by the Fonds Européen de Développement (until 1992). M. Adolphe Kere is responsible for that program.
- Networking on drought resistance. Jointly with CORAF, INSAH coordinates the drought resistance research network (R3S - Réseau de Recherche sur le Résistance à la Sécheresse) which aims at the characterization of water supply and at the improvement of its potential for rainfed crops.

The NARS say that these activities have been very helpful to them. They have facilitated contacts among researchers, trials of varieties from different countries, and exchange of information.

2. The socio-economic program collects and disseminates information and conducts research. There is one project in this program, PRISAS (program for strengthening institutional research capacity on food security in the Sahel). It is being carried out in collaboration with Michigan State University and will be funded by USAID through 1992. It is headed by Josué Dioné.

Other topics which have been identified but are not yet funded include technology transfer and the role of the informal sector in development. A research project and network on regional markets (espaces régionaux) is under preparation.

Since its creation two years ago, PRISAS has collaborated with the other Bamako-based programs to bring a socio-economic component to INSAH's existing natural sciences activities. The NARS say that PRISAS has helped them in making the link between socio-economic activities and other research activities, as well as in the definition of research subjects.

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<sup>3</sup> CILSS - Institut du Sahel. Rapport d'activités du directeur général, Octobre 1989-septembre 1990. Octobre 1990.

3. The ecology and environment program includes only one project, the "projet de renforcement des capacités scientifiques des pays sahéliens en agro-sylvo-pastoralisme." (RCS) This is a joint INSAH-UNESCO project financed by Germany. It has a research and a training component. It is based at EISMV and coordinated by Dr. Ibrahima Touré. Two other topics have been identified as important, but are not funded; water and soil conservation, and management of natural forests. UNSO has committed itself to financing one staff position for this program.

4. The animal production program has no funded activities.

- The Documentation, Information and Training Department (DDIF) is headed by M. Moussa Batchily Ba. This department has three divisions, each of which runs its own activities and provides services to the DRMA:

1. The documentation division is headed by M. Samba Aw. The main activity of this division is RESADOC (Réseau sahélien de documentation et d'informations scientifiques et techniques). It collects and disseminates information, publishes bibliographies, indexes, etc. Over the next five years, the Canadians plan to fund the activities of RESADOC.

2. The information division publishes INSAH's documents, works with rural radio stations, and participates in the preparation of films. It is headed by Mme Ba Touré Rokia.

3. The training division, headed by M. Moussa Batchily Ba, is responsible for several projects:

- The AGIR project (Amélioration de la Gestion des Instituts de Recherche), based in Dakar, which has been funded by Canada, is in this division. It has done diagnostic studies of research institutions managerial problems and organized training seminars for research managers and administrators. Its future is not certain.

- The Programme sahélien d'éducation à la lutte contre la sécheresse et la désertification encourages the school systems to educate students about environmental protection. This project is financed by UNSO.

- The Centre d'Etudes et de Recherche sur la Population pour le Développement (CERPOD) is headed by M. Nassour Ouaidou. It has research, training, planning, scientific and technical information activities.

- The Administrative and Financial Direction has accounting and personnel offices. Due to the CILSS restructuring, at present there is no director or financial controller.

INSAH functions can be represented as follows:

Figure 3: Departments and Functions of INSAH

<u>Function:</u>				
<u>Department:</u>	Assistance to NARS <sup>4</sup>	Research coordinat.	Information Research disseminat.	
<b>DRMA</b>				
Crop production	X	X	X	
Socioeconomics	X	X	X	
Ecology/Environment	X			X
Animal Production				
<b>DDIF</b>				
Documentation	X	X	X	
Information	X		X	
Training	X	X	X	
<b>CERPOD</b>		X	X	X

2. Other regional collaboration

African countries are also involved in collaborative efforts which go beyond the CILSS region. These include:

CORAF (Conférence des Responsables de la Recherche Agronomique Africains)

CORAF promotes collaboration among research leaders and scientists from 19 African countries (the CILSS countries plus Benin, Cameroun, Central African Republic, Congo, Gabon, Guinea, Ivory Coast, Madagascar, Togo). Its strong point is its bottom-up approach.

CORAF has five networks on annual crops (maize, cassava, rice, groundnut and cotton), and a network on drought resistance (R3S) in collaboration with INSAH. It has been promoting the idea of *bases centres* (lead centers) for the last four years and set up two of them, one in Senegal for irrigated maize, and one in Cameroon for maize in the humid zone.

Until 1991, CORAF was a conference of research leaders with an executive secretariat based in Dakar, but with no formal status. However, in December 1991, Ministers of Research of CORAF member countries are expected to approve a CORAF strategic plan and proposed status as an association of national agricultural research institutions.

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<sup>4</sup> This includes training activities, technical assistance and logistical and financial help.

## SAFGRAD (Semi-Arid Food Grain Research and Development)

SAFGRAD is a research and development project placed under the auspices of the Scientific, Technical and Research Commission of the Organization for African Unity (OAU/STRC). Its coordinating office is in Ouagadougou, and its activities are carried out in seventeen African countries.

SAFGRAD activities include:

- support to regional technical programmes of IARCs;
- coordination of research activities through networks;
- promotion of linkages between research and extension;
- training through IARCs;
- information exchange through organisation of workshops and conferences.

Examples of SAFGRAD past and current activities in the CILSS region are the West and Central Africa Maize Network, the West and Central Africa Cowpea Network, the West and Central Africa Sorghum Network.

### IARCs' coordinated networks<sup>5</sup>

Several networks involving research institutions in the region are coordinated by international agricultural research centers. They include:

- the small ruminant and camel network and the trypanotolerant livestock network which are coordinated by ILCA;
- the African network on striga based in Nigeria;
- the West African Network on Fertilizers coordinated by IFDC;
- the agro-forestry network (SALWA) coordinated by ICRAF; and
- the cassava-maize task force coordinated by IITA.

### American universities' coordinated networks

Several Sahelian countries have been involved in collaborative research support programs (CRSP) on sorghum and millet, bean and cowpea, peanut, small ruminants, or soil fertility and

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<sup>5</sup> Plucknett D, Smith N., Ozgediz S. International Agricultural Research : A Data Base of Networks. CGIAR Study Paper No. 26. October 1990.

management. These programs are coordinated by American universities, and are often linked with IARCs programs. They have been funded by USAID's Bureau of Science and Technology.

### Regional Training institutions

Regional training institutions in the Sahel include the Ecole Inter-Etats d'Ingénieurs de l'Équipement Rural in Ouagadougou and the Ecole Inter-Etats des Sciences et Médecines Vétérinaires in Dakar. In the crop protection field, the most significant training institution is the Dutch-funded Département de Formation en Protection des Végétaux, based at AGRHYMET.

#### 3. Conference of the West and Central Africa Ministers of Agriculture

In March 1991, the Ministers of Agriculture of West and Central Africa held a conference in Dakar to facilitate collaboration and exchange. Agricultural research was one of the topics discussed. Nigeria is in charge of preparing a document on the improvement of agricultural research in the region.

#### E. Donor coordination: SPAAR

SPAAR (the Special Program for African Agricultural Research) is an informal group of twenty-three donors who support agricultural research in Africa. SPAAR has an executive secretariat headquartered in the World Bank. Moustapha Touré (ex-director general of ISRA, Senegal) is the current executive secretary. Edward Jaycox, vice-president of the World Bank's African operations, is the chairman.

SPAAR was started in 1985 because a regional approach to donor support of agricultural research was advocated for Africa. It was believed that IARCs networks were going to help the NARS, and SPAAR's role was to convince donors to increase their contributions to these networking activities. However this did not prove fruitful because the research institutes in Africa are weak.

In March 1990, at their 10th plenary session, the donors decided that SPAAR executive secretariat should prepare two Frameworks For Action in agricultural research, one for the Sahel, one for Southern Africa. In the Sahel, the SPAAR executive secretariat worked with INSAH, as the only existing regional research institution. They held brainstorming meetings with Sahelian research managers and consultants. Together they deliberated over approaches to revitalization of agricultural research in the Sahel. The final report was put together by INSAH and SPAAR.

In May 1991, the Sahelian Framework for Action (FFA) and one for Southern Africa were presented to the donors and research managers at the 11th SPAAR plenary session. The agricultural research leaders were in full agreement with the ideas presented and defended them. The donors endorsed the principles of the document. In July 1991, the SPAAR executive secretariat and INSAH organized another meeting of the leaders of the national agricultural

research institutes of the region. They validated the FFA, identified priority themes for regional collaboration, and developed an action plan for implementation published in the final report.<sup>6</sup>

The Sahelian Framework for Action proposes that:

- Agricultural research institutes carry out institutional reforms to create an enabling environment which will promote creativity and innovation and reward performance. The reforms to be undertaken should contribute to reinforcing the institutes as the basic building blocks for a sustainable regional research system. The reforms should try to solve institutional problems related to size, capacity, and stability. Changes in the statutes of researchers are also envisaged.
- National consolidated funding mechanisms be set up in collaboration with donors to improve research collaboration and efficiency. This implies a review process with respect to research activities to be funded in the national research institutions, a mechanism to manage the funding, and a mechanism for governments to coordinate donors.
- New mechanisms of regional collaboration be developed through the creation of research poles based within the national agricultural research institutes, but with a regional mandate.
- Cross-cutting actions be undertaken in the search for ways to alleviate constraints common to national and regional research efforts. A human resource development strategy for the region should be elaborated. Improved instruments for regional collaboration should be found. Research agendas which are client-oriented and demand-driven should be identified.
- INSAH be the lead agency in the implementation of these proposals.

These propositions will be discussed at the 12th plenary SPAAR meeting in December 1991. However, it should be emphasized that several Sahelian governments have already shown interest in these propositions. The Minister of Agriculture of Mali has indicated her eagerness for Mali to be considered as a pilot country for the Sahel region. The Chairman of the Council of Ministers and the Executive Secretary of CILSS have agreed to make a strong case for the validation of the Framework for Action at the forthcoming CILSS annual conference scheduled for early 1992.

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<sup>6</sup> INSAH - SPAAR. "Rapport final. Atelier régional INSAH-SPAAR : finalisation du plan d'action sur la recherche agricole au Sahel". Ouagadougou, 22-26 juillet 1991.  
INSAH / SPAAR task force. "Revitalizing Agricultural Research in the Sahel. A Proposed Framework For Action." Draft, October 4, 1991.

## II. CHALLENGES FOR AGRICULTURAL RESEARCH AT THE REGIONAL LEVEL

Agricultural research in the Sahel faces many challenges. Although the Sahel is a heterogeneous zone, there is a need for regional research programs and definition of priorities, as well as promotion of an integrated approach to problems. This section analyzes the main challenges faced by agricultural research institutions and INSAH's role in finding solutions.

### A. Collaboration between disciplines: the sub-sector approach

#### 1. The Sahel is a heterogeneous zone

The CILSS countries are in the Sahel zone, which is characterized by a single rainy season. Annual rainfall ranges from less than 100 mm per year in Northern Mauritania, Mali, Niger, and Chad to more than 900 mm per year in Southern Senegal, Guinée Bissau, Mali, Burkina Faso and Chad. Soils are also very heterogenous. One problem common to all countries, however, is climatic risk.

Production systems vary greatly across the region. Cereals dominate, with few varieties for self-sufficiency. Export crops include cotton in the South, and groundnuts in the North. Livestock and small ruminants exist throughout and play a very important role. There is very little mechanization, except where cotton and groundnuts are grown. Farmers tend to look for secure food production and monetary resources; they do not work for maximum production.

Production units are usually family-based and very hierarchical. Some family members work on the farm, while others have a salary; non-agricultural activities play an important role in household incomes. Farmers do not usually have the funds to invest in equipment. Especially in the north, households look all over the Sahel to ensure food and financial security.

There are important macro-economic constraints on Sahelian incomes, including poor infrastructure, poorly organized markets, low producer prices of agricultural products, inappropriate input subsidies, lack of reliable or too costly transport from rural to urban areas, lack of appropriate credit schemes to purchase inputs or equipment, vacuums created by the disappearance of the development companies, trade liberalization, reduction of subsidies for inputs, etc. This means that agricultural research must find answers to very complex situations and challenges.

#### 2. Limits on agricultural improvement

Considering the number of research institutions working in the Sahel and the lack of impact on agricultural production, one can legitimately question the effectiveness of current research. However, there are many reasons for lack of agricultural progress, insufficient or inappropriate research is only one. Key factors influencing agricultural production include:

- Naturally occurring and often extensive droughts.
- Diseases affecting leaves, stems, roots, and standing grain in the field, after harvest, or at storage. In addition, pest problems, such as weeds, field and storage insect damage, and losses from rodents or grain-eating birds, can be devastating.

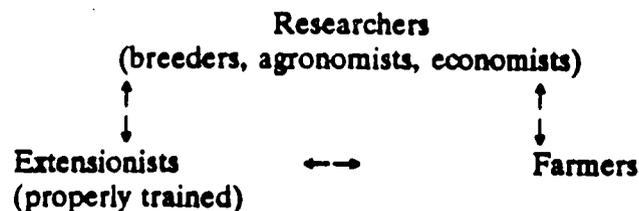
- Failure to use inputs such as proper quantities of improved seed varieties, and failure to treat seed against pests prior to sowing, often reduces emergence, stand, and ultimately yields.
- Poor sowing techniques which lead to poor stands and therefore low yields.
- Failure to get yield responses on improved varieties due to improper use of fertilizer.
- Insufficient number of trained scientists (agronomists, breeders, entomologists, economists, anthropologists, geographers, technologists, etc.).
- Development of inappropriate varieties which are not adopted. A classical example is the release of high-yield, disease-resistant varieties whose preparation, cooking or taste are unacceptable to the consumers. Other examples are varieties which require too long a cycle to fit farmers' planting schemes, are inappropriate for intercropping, conflict with labor supply, etc.
- Failure to disseminate research results adapted to farmers' local circumstances.
- Marketing problems, including poor infrastructure, poorly organized markets, primitive market facilities and conditions, low product prices and lack of reliable low-cost transport from farm to urban areas.
- Lack of credit or subsidies for farmers to purchase inputs (fertilizers, pesticides) and machinery, hire extra labour or animals, etc.
- Lack of efficient private companies to produce ample quantities of high quality seed with a timely delivery system, an appropriate price, and a built-in effective extension branch as part of the company. Over the years, government or quasi-governmental organizations have failed drastically in seed production and distribution. The reasons for failure are many, but largely center around a lack of incentives in the public sector to do a good job, lack of seed production and processing equipment, lack of proper storage, and a delivery system which almost always collapses.
- Ineffective extension services. This problem has many dimensions, ranging from a lack of vehicles, spare parts and fuel, to problems of untrained extension agents who do not know what their job really is or how to execute it effectively.
- Lack of effective research-extension-farmer linkages. Too often, economists are still excluded from this loop. On top of that, the system is typically characterized by top-down authority structures. Researchers tell extension agents what to do, rather than teaching them by involving them in the research and giving them an input into decisions and research design. The result is oversights and errors because researchers and extension agents do not communicate. Equally as bad, extension agents tell farmers what to do, rather than involving them in decisions about new varieties, fertilizer, or other technologies through trials on the farmers' fields where technology transfer must occur and at which farmer- and household-level impact is felt.

This top-down system, illustrated in figure 4, does not work, and typically results in low adoption and therefore low impact. To a considerable degree, it explains why we are where we are today, perpetuating low productivity in agriculture. A system of full-flow reciprocating involvement, cooperation and collaboration among researchers, extension agents, and farmers is required if new practices are to be adopted and an impact on agricultural output is to be felt. While farming system research (FSR) has attempted to address this problem and been included in most NARS research programs, additional attention to these linkages is still needed. Figure 5 illustrates this concept.

**Figure 4 :** The top down system



**Figure 5:** Research-extension-farmers linkages



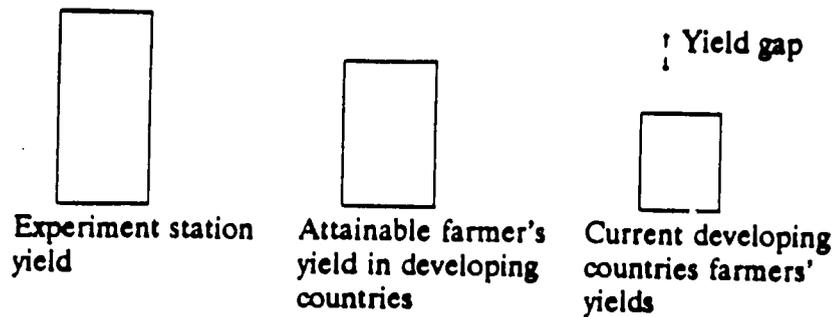
### 3. Agricultural constraints

In the Sahel, farmers' yields are very low. Moreover, there is a large gap between actual yield, potential on-farm yield, and experiment station yields (Figure 6). Two types of factors explain these gaps:

- **physical and biological constraints:** water deficit, diseases, insects, birds and rodents, unproductive varieties, cultural practices, nutritional problems, soils factors, toxicities, weeds, high temperature, solar radiation, etc.
- **socio-economic constraints:** traditions, access to credit, risk and profitability, marketing, inputs availability, tenure and institutions, knowledge, commodity prices, etc.

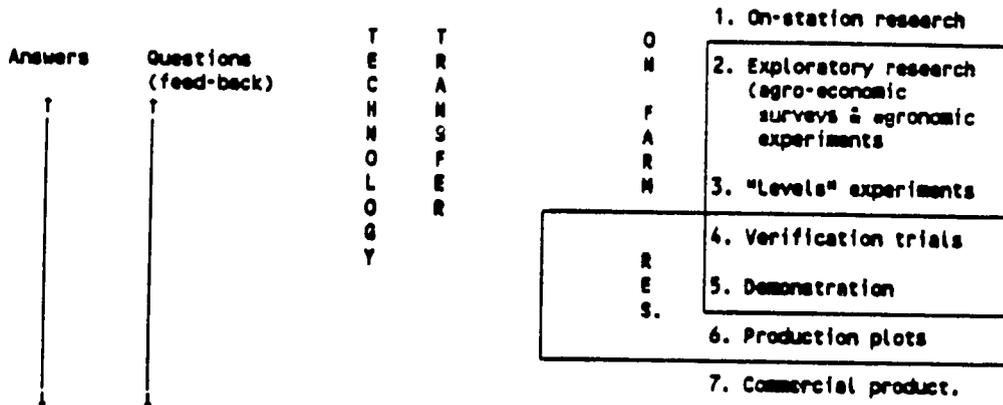
Failure to produce, or low productivity when producing, will definitely be due to one or a combination of the above factors. To close the yield gap in developing countries is, therefore, no simple task.

**Figure 6:** Yield gap between research results and on-farm performance



The link between transfer of appropriate agricultural research results, farmer adoption, and increased yields can also be illustrated diagrammatically (Figure 7). This diagram suggests a plausible way to accomplish technology transfer which leads to impact; if this is not done, we may expect no impact and a large yield gap. Actually, almost nothing has happened regarding increased national food production in Africa for the past 30 years, except through cropping more land. Until a multidisciplinary approach is put into action, largely via on-farm practical demonstrative research with farmer involvement, production increases will be difficult.

**Figure 7:** Research and technology transfer strategy



This does not imply that on-station research should stop, but it should be limited to such efforts as breeding programs, early development of new technologies, and screening new potentially hazardous chemicals. Agronomic trials such as replicated varieties, spacing, fertilizer, and inter-cropping, should be conducted on farmers' fields. Such trials have no place on the research station and serve no purpose when conducted there.

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#### 4. Pest Management as a Constraint on Sahelian Agriculture

As a category of constraints to high productivity of crops in the Sahel, pests in their full spectrum -- insects, diseases, weeds, grain-eating birds, rodents -- are second only to drought. Annual pre-harvest losses are estimated at 10-25% of potential yield due to chronic pests, and outbreak pests cause, on average, additional losses of 15 to 20%. Post-harvest losses typically add 10-30% or more, depending on the crop and location. Sahelian pre-harvest losses to pests in 1988 are estimated to have averaged 30%, roughly equivalent to the amount of food aid provided that year (1.87 million tons).

Improved pest management is a fundamental element of agricultural productivity and sustainability, and of food security. Important increases in agricultural production and use can be achieved through targeted improvements in crop protection technology and information.

The concept of integrated pest management (IPM) provides a strategic management approach to pest problems, an approach involving integration of methods and disciplines, and consideration of environmental values and socio-economic parameters. IPM approaches are key to the development of low-input sustainable agricultural practices, and are especially relevant in areas where farmers have few resources to invest in high-cost external inputs such as pesticides.

#### 5. An inter-disciplinary approach: commodity systems studies

The commodity system (*filière*) approach, in directing attention to the whole system from production to consumption, is very important. It requires the collaboration of different disciplines; natural scientists--those working in genetics, crop protection, agronomy, and soil sciences--must work with social scientists--those working in economics, sociology, anthropology, law etc. INSAH, through PRISAS and UCTR/PV, has started to facilitate this collaboration. This role should be strengthened through PADRES.

Agro-economic surveys of farmers are a key ingredient in ultimate production success. It is imperative that such surveys be conducted jointly by economists and agronomists in order to gain an understanding of farmers' circumstances and a perspective on why farmers do the things that occupy their agricultural and social calendars. An agro-economic survey that considers farmers, merchants dealing with inputs, agricultural products, purchases of food grains and livestock, credit institutions and their criteria for loans, and other relevant organizations, can help the economic and agronomic researchers familiarize themselves with the geographic areas in the Sahel which are appropriate for their research. It would permit the researchers to stratify the farmers over the applicable region into "recommendation domains". A "recommendation domain" refers to a group of farmers for which the same recommendations are valid, considering them as potential users of new technology as well as collaborators in the research. Thus the agro-economic survey not only identifies factors that limit production, but also serves to assist in locating favorable sites where agronomic trials can be conducted. Most importantly, careful use of data obtained from agro-economic surveys allows the researchers to prescreen possible solutions to farmers' problems. Good use of survey data usually shows that many possible solutions can be eliminated for further research, because they are in some way inconsistent with farmers' methods, requirements or circumstances. Thus unproductive research is dropped without further investment of scarce resources.

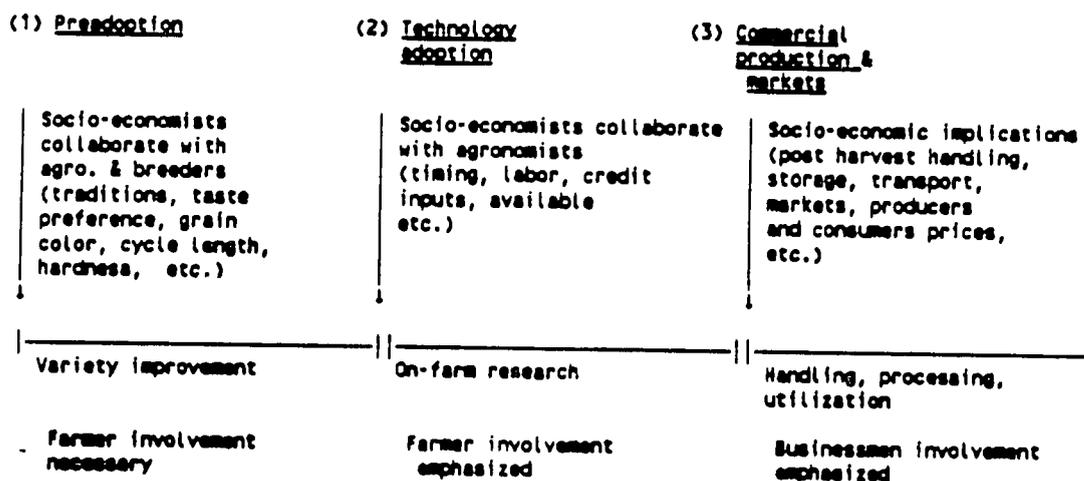
## 6. Need for commodity-system studies of food crops

The concept of demand/client/market driven research has been raised in the Sahelian Framework for Action, with cotton cited as a successful example. It should be understood though, that it would be much more difficult to attain similar success status with most domestically produced staple food crops. Food staples almost always are burdened with ambiguous, uncertain marketing potential. Marketing arrangements are primitive, usually with substantial losses, and sales from the farms are often on an ad-hoc basis.

Much greater control over the entire commodity system is possible when dealing with industrial crops, such as cotton or rubber, with well-organized management and marketing systems. Also extremely important in the non-food arena is the fact that the cost of inputs, usually delivered to farmers by the management institution, is recoverable in cash or in kind. Also there is only a single buyer for the industrial crops, and the industry is often fully vertically integrated. None of these conditions prevail in staple food commodity systems.

In spite of the dramatic differences between cash and food crops, socioeconomic research must play a vital role in analyzing at least three stages of any commodity system: (a) crop improvement, (b) technology transfer (including husbandry methodology), and (c) commercial production by farmers and the activities which follow on up to value added products. Figure 8 illustrates the role of the social sciences in commodity systems research.

**Figure 8:** Involvement of socio-economists



INSAH, through PADRES, should collaborate with the NARS and the regional programs in their research agenda so that at the critical stages the social and natural scientists collaborate both with each other and with the farmers, merchants, agro-industrial industries, etc. Such collaboration will prevent costly, time consuming research on technologies which are not ultimately adopted, and will promote transfer and adoption of technologies which lead to increased production and enhanced quality. INSAH would then fulfill the role of a technical advisory body.

## B. Coordination of research activities

### 1. Current initiatives

For years, CILSS countries have had similar commodity research programs going on simultaneously. However, today, a severe worldwide financial crunch makes this independent approach to research too wasteful of limited human and monetary resources, both domestic and external. It involves an unproductive duplication of effort, and is inefficient from a scientific point of view, because no one research program can generate the critical mass of human, financial and material resources necessary to achieve results.

The concept of networks coupled with lead centers (called research poles or *bases centres*) has evolved as an attempt to coordinate and develop regional approaches to common problems, rather than continuing the national pursuit of solutions. In essence, it can be defined as a national research program open to regional and international cooperation. The program is strengthened considerably, giving it the capacity to fulfill its own national mission better while serving a regional mandate in a state-of-the-art fashion at the same time. The thrust of the concept is that all nations in the Sahel region will be better off, and with greater capacity, efficiency and cost-effectiveness they should help overcome major problems.

In the Sahel, there are two parallel initiatives for the creation of lead centers, that of the Sahelian Framework of Action led by INSAH and SPAAR, and that of CORAF. The Sahelian Framework For Action proposes research poles for several commodities:

- sorghum in Mali,
- maize in Burkina Faso,
- millet and cowpea in Niger,
- groundnut in Senegal,
- livestock in Senegal, Mali, Niger and Chad,
- natural resources conservation and management in Burkina Faso, Mali and Senegal.

The research poles for forestry and fruits, vegetables and ornamentals have not been identified yet. The Sahelian Framework For Action proposes that INSAH plays an important role in the setting up of the poles.

The CORAF strategic plan proposes several *base-centres*:

- groundnut in Senegal (Bambey); specialized work will be carried out in Burkina Faso and Togo;
- irrigated maize in Senegal (Saint Louis), and maize in the humid zone in Yaounde;
- drought resistance in Senegal (CERAS).

These *base-centres* are one element in a network.

Although research institute leaders have participated both in CORAF strategic planning and in the Sahelian Framework for Action, as well as many other networking activities, there seem to be parallel efforts and insufficient intra-Sahelian coordination. The agricultural research institutions

are still finding their way, which is normal. Already gigantic steps have been made in priority setting and collaboration in the research institutions, as discussed above.

*Base-centres* and research poles have the same objectives and face the same problems. How can researchers from different Sahelian countries work in one country on the same program? How should the regional programs be financed and managed? How should priorities be set? What kind of agreement should be signed between the countries? INSAH, through PADRES, could play an important role by providing a forum for coordination among networks and a forum for discussion of the administrative and scientific issues in establishing lead centers. Organizations involved in the networks or having faced the same questions (e.g. IRRI and WARDA) could be invited to participate in that forum.

## 2. Limitations of the proposals

To strengthen national agricultural research systems in their areas of comparative advantage, the Sahelian Framework for Action proposes the development of regional research poles. A few questions remain unresolved, however.

The proposed program for the revitalization of agricultural research in the Sahel is geared towards the national agricultural research institutes and the IARCs. Although the FFA recognizes the need to take into account actors such as the private sector, agro-industrial companies, NGOs, producer associations, or other institutions, the mechanisms for including them have not been elaborated.

It is suggested that regional programs only be executed under fixed-period research contracts.<sup>7</sup> This means that the regional programs, where more basic research is supposed to be carried out, will function with special project funds. This approach has been necessary in order to avoid burdening the NARS with the recurrent costs of regional programs; however ideally this kind of research activities would be supported with secure long-term funding.

The proposed research poles run the risk of being too activity-specific in their design. The substance of the research agendas to be pursued has been left open as a design issue, rather than committing the poles to the broad inter-disciplinary perspective of the commodity systems approach. It is possible, therefore, that the research carried out in the poles will not integrate socio-economic and agronomic surveys to properly identify the constraints and determine the needs for station and on-farm research. This risk must be guarded against in the eventual design of research agendas.

## C. Regional priorities and forward-looking studies

Several agricultural research institutes have prepared or are currently preparing national agricultural research plans (Senegal, Burkina Faso, Niger, Mali, INSAH). Different methodologies are being used. The depth of the analyses varies, with the most complex ones being carried out in Mali. Time frames also vary; INSAH's is five years, for example, and Mali's is twelve. Nearly

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<sup>7</sup> "Revitalizing national agricultural research in sub-saharan Africa. Discussion note on Consolidated Funding Mechanisms". 3rd draft.

everywhere, the work has been done by the researchers themselves. Policy makers, farmers, development companies, agro-industries, merchants, etc. have rarely been involved in the process.

Although collaboration exist among countries and priorities are addressed through the networks, it is still insufficient. It is necessary to think about research priorities at a regional level and to carry out forward-looking studies on the future of agricultural products. This must be done taking a West African rather than only a Sahelian perspective. The volume of trade among Sahelian countries and between the Sahel and the coastal countries is too great to allow independent work on commodity systems. INSAH, through PADRES, should promote prospective studies on the future of different commodity-systems, drawing on Sahelian and international experts to carry them out.

#### D. The role of INSAH

As outlined above, many organizations are involved in agricultural research in the Sahel and collaboration among organizations should be promoted. Anything that can be done to improve research effectiveness and policy making should be done. From the above description, we can draw some conclusions on the most appropriate role for INSAH in the future.

In the Sahel, research activities are carried out in the national agricultural research institutions, some faculties of agriculture, some NGOs, some private sector organizations, IARCs, research institutions from the north, and soon the research poles and *base-centres*. They all form the agricultural research system. Collaboration among institutions is formalized through either bilateral agreements or networks. Many institutions are involved in coordination and networking activities; INSAH is one of them. Donor collaboration in sub-saharan Africa is done through SPAAR. Some national agricultural research institutes are also currently organizing meetings with all donors to discuss their programs and facilitate collaboration.

There is no Sahelian institution working on priority setting, prospective studies, publishing documents and disseminating them in the region, and doing institutional coordination, although many organizations do research coordination. Since these activities are part of INSAH's mandate and five-year plan, they should be encouraged. INSAH could be a technical advisory body to national agricultural research systems, policy makers and donors; facilitate institutional coordination; and publish and disseminate information at the regional level. This means that INSAH would play a role in implementing parts of the Sahelian Framework for Action.

### III. USAID-FINANCED ACTIVITIES AT INSAH: PADRES

#### A. Description of PADRES

##### 1. PADRES: An INSAH Project

Sahelian policy makers need scientific information to make appropriate decisions. In the Sahel, this information often comes from outside the region. PADRES (Programs for Applied Development Research in the Sahel) will aim at solving this deficiency.

Considering (a) the present organization of agricultural research in the Sahel, (b) INSAH's five-year plan, (c) the propositions made in the Framework For Action for the revitalization of agricultural research in the Sahel, and (d) the problems faced by the national agricultural research institutes, PADRES should aim to strengthen INSAH's main function, assistance to national agricultural research systems. It will also strengthen its function of coordination through catalytic activities, concertation and exchange mechanisms, and its capacity to have appropriate documentation available for the countries.

The PADRES project, as defined in the PID<sup>8</sup>, will consist of three major components:

- agricultural research/integrated pest management;
- food security; and
- natural resources management.

These three USAID-financed activities will be integrated into INSAH's current departments and programs.

This section defines the agricultural research/integrated pest management component. They will be part of INSAH's departments, the Department of Research on Environment and Agriculture (DRMA) and the Department of Documentation, Information and Training (DDIF).

##### 2. Objectives of PADRES in relation to its agricultural research/IPM component

The agricultural research/IPM program of PADRES, in collaboration with the food security and natural resources management programs, will aim to assist the NARS through definition of regional agricultural research priorities, synthesis of research results, institutional coordination of activities, and diffusion of information. These activities are consistent with the very core of INSAH's 1990-1994 plan.

By doing so, PADRES will contribute to the production of high-quality analyses for the formulation and implementation of coordinated and sustainable programs in agricultural research

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<sup>8</sup> Project Identification Document (PID) : Programs for Applied Development Research in the Sahel (PADRES). No.698-0980. AFR/SWA/REGL. September 1991.

answering the needs of the clients (farmers, policy makers, consumers, etc.). Thus the NARS will be more able to carry out appropriate research, answering the needs of small-holders, and policy makers will make better-informed decisions which will benefit small-holders, consumers and other users of research outputs.

PADRES will also contribute to INSAH's role as a technical advisory body for the region. INSAH could provide a forum for researchers, development actors and donors to discuss the challenges agricultural research is facing and the responses that can be given to these challenges. INSAH can play this role because it has both the political mandate, through its link with CILSS, and the technical capacity to make a useful contribution. However, it will be effective only if the donors and the NARS leaders support it.

The sections which follow present the activities that will be financed through PADRES and the staff positions necessary to carry out those activities.

## B. Research Coordination and Assistance to the NARS

The major responsibilities of research coordination and assistance to the NARS will be provided mainly by a research management specialist (RMS) who will work with all of INSAH's staff. We will first describe his activities and then his position.

### 1. Activity: strengthening the NARS

As mentioned above, several countries have been working on the improvement of their agricultural research institutions (Burkina Faso, Mali, Niger, Senegal). Less attention has been given to the organization of the agricultural research systems of The Gambia, Cape Verde, Chad, Guinea Bissau, and especially Mauritania. The preliminary plans for the research poles foresee them in the larger research institutes, thus reinforcing the strongest institutions in the region. In order to have a balanced Sahelian agricultural research system, it is important to look carefully at the organization of agricultural research in the countries which have begun doing agriculture research more recently.

The research management specialist, in collaboration with INSAH's AGIR project and consultants from African NARS and other research organizations, will be responsible for the strengthening of NARS. He will look at issues of structure, inter-institutional collaboration, programs, and priorities, and will make proposals for their improvement. The ultimate objective is a revitalization of agricultural research in the Sahel. The smaller sahelian countries do not need a full-fledged agricultural-research system and a large public research institute. They need to be able to use the research results developed in the other countries.

### 2. Activity: Setting up research poles

INSAH has been proposed to implement the Sahelian Framework for Action, especially the setting up of regional research poles. The research management specialist will make detailed proposals to INSAH and the national agricultural research systems for their implementation. This includes:

- Analyzing the feasibility of proposals made during the regional INSAH-SPAAR meeting<sup>9</sup> and making appropriate recommendations.
- Making proposals on:
  - institutions involved; insofar as possible NGOs, producers associations, private sector companies, universities, etc. should work with the national institutes and other international research partners;
  - institutional linkages; it is proposed that a Memorandum Of Understanding be signed by the host country and CILSS;
  - linkages between the host country and the other CILSS countries (especially those with weak research institutions), the research networks, and INSAH;
  - structure of the research poles;
  - program leadership, staffing (national and expatriate), and funding;
  - identification of research priorities;
  - transfer of research results to other countries; and
  - monitoring and evaluation.
- Two years after implementation, preparing the external evaluation.

In order to carry out this activity, the research management specialist will work with the other INSAH staff members, NARS managers, other networks working on the same commodities, and SPAAR. Consultants may be hired on a short-term basis. Previous attempts to set up regional lead centers (for instance CDH in Senegal, CRTA in Burkina Faso, CRPB and Garoua in Cameroon) could be studied.

### 3. Activity: Research Coordination

Research is being carried out in the Sahel by many different organizations, yet very few syntheses of research results have been published, especially at the regional level and by commodity system. There is a need for such an activity. The objectives of the syntheses are:

- to **keep track** of previous activities carried out by the the national research institutes, the universities, the NGOs, the private sector, the IARCs, the cooperating agencies, and other research groups. Experienced researchers must transfer their knowledge to their more recent colleagues.

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<sup>9</sup> INSAH-SPAAR. "Atelier régional INSAH-SPAAR : Finalisation du plan d'action sur la recherche agricole au Sahel". Ouagadougou, 22-26 juillet, 1991. Aout 1991.

- to avoid too much duplication of work.
- to let the policy makers, developers, users of research results, donors, etc. know what research has been done and what its impact has been on development.
- to identify research domains which have been neglected, and main research constraints. This will be useful for priority setting.
- to identify constraints on the adoption of research results.
- to promoting interdisciplinary work.

The syntheses should take different forms, according to targets: books for researchers and students; short reports or extracts for policy makers and donors; leaflets, tapes, or videos for extension agents and farmers, etc.

The syntheses will be prepared by commodity system. Therefore, researchers from different disciplines (agronomists, breeders, crop protection specialists, socio-economists, natural resources management specialists, etc.) and different institutions will work together. This will insure interdisciplinary collaboration within INSAH as well as in the NARS. The syntheses will be prepared at the regional level, and will include work done throughout the Sahel.

The research management specialist will coordinate this work. He will identify the writers (researchers from the national agricultural research institutes and maybe other organizations), and will supervise and coordinate their work. He will help identify sources of information and will facilitate access to information. Before publication, the syntheses will be reviewed by a committee of experts from different disciplines.

The scientific editor will edit the work and prepare it for publication. There will be different types of publications; the editor will choose the most appropriate ones according to the objective.

It is expected that one synthesis will be done in the first year of the project, to set up the methodology. Then at least two syntheses could be done per year the following years. The choice of commodity systems will be made by INSAH, in collaboration with the NARS and the networks. A questionnaire could be sent to policy-makers and development organizations, to identify their particular needs.

In connection with the production of the research syntheses, the project will offer research mini-grants to national researchers. These grants will enable INSAH to be an active broker of peer-group reviewed proposals (with possible participation by donor technical representatives as proposal reviewers). This grants program concept will permit appropriate collaborative analytical activities by scientists who at the NARS are often severely constrained by lack of funds for travel, literature, and the like. A carefully elaborated set of criteria for submission and review of mini-grant proposals will need to be crafted to optimally promote the purposes of PADRES within INSAH. It could involve a conceptual framework promoting priority principles. As such, only the most appropriate studies would be funded. At the same time, the creativity of potential consultants or grantees at the research community would thereby be stimulated, and unexpected and interesting

combinations could result. In this way, relatively modest resources could leverage more studies than would otherwise be possible, and a sense of "ownership" of the studies will be encouraged.

#### 4. PADRES research management specialist

PADRES will hire a research management specialist to work with INSAH's scientific and technical coordinator. This research management specialist will carry out the activities described above and promote cooperation among the PADRES programs. The terms of reference of the research management specialist are in annex 1. It will be a three-year appointment for an expatriate. In the fourth and fifth years of the project the post will be Sahelianized. It is expected that after three years, the Sahelian research system would be more balanced, research poles working, and the syntheses launched. There would be in-house capacity to carry out these activities, especially with short-term consultancies. ISNAR could help INSAH in the recruitment process of this research management specialist.

### C. Information Clearinghouse

#### 1. Coordination of database initiatives

INSAH gets requests from donors, researchers, development organizations, policy makers who want to know the kind of research carried out in the Sahel and who does it. It would like to maintain and update a data bank on Sahelian research capacity and national/regional programs. This bank would be complemented with efficient communication links, both within and among countries in the region such as facsimile services, modems, and possibly, satellite hookups.

INSAH's request is very valid. However, it should be clearly emphasized that there have been several attempts in the past and currently to develop such data bases. We will review the main attempts here and draw important lessons from them.

#### Past and current data base development

In the early eighties, USAID financed a consulting firm (DEVRES) to develop a database on agricultural research in the Sahel. The project was very ambitious and had too many objectives. DEVRES managed to publish data, but never trained anybody to use the hardware and the software. All the equipment lies at INSAH which does not know how to use it.

Currently, the SPAAR executive secretariat is setting the SPAAR Information System, a database of research projects funded by donors and joint research projects between a Sahelian research institution and a cooperating agency (FAO, IARCs, French, German, British cooperating agencies, etc.). The data are entered by the donors and the cooperating agencies themselves and are monitored by the SPAAR executive secretariat.

Each network has set up a database for its particular topic, including lists of the researchers involved in the network, the programs going on, etc. These databases are usually maintained by the network coordinator, which may be a Sahelian research institute, an IARC, a university, or a cooperating agency. There is no centralization of the data of all these networks.

FAO, with the help of a French researcher, is in the process of publishing a book on agricultural research institutions in Africa, with lists of quantitative data.

ISNAR has put together a data base with historical information on national agricultural research systems from all over the world. Right now it is in the process of starting a data base on research institutions in Africa and is working on the format.

The Communauté des Etats de l'Afrique de l'Ouest (CEAO) had planned to set up a training and information center on agriculture. The project seems to be at a standstill.

Some national agricultural research institutes are trying to develop data bases on their programs and personnel.

FAO, ACCT, CTA, CIDARC, ICRAF/SALWA, Université de Laval (Canada) all have bibliographical data bases. INSAH has access to most of them.

### Difficulties encountered

There have been and still are many more or less successful attempts to develop data bases, and several failures. Some of the reasons for failure are as follows:

- It is not clear what type of information is needed. Therefore the data bases are poorly designed with respect to a particular group(s) of users.
- The data must come from the national agricultural research systems. Either they are not available, there is reluctance to provide them, or nobody has attempted to obtain them.
- The data are very quickly out-dated. Researchers change programs or quit research, programs end, funding ends, etc. Therefore the database must be updated on a regular basis.
- The infrastructure within each member country is widely varied with regard to communication capabilities and level of existing knowledge. Telecommunications, electricity, etc. do not function properly.
- The data are difficult to compare. Within the Sahel, there is no standard definition of a researcher, a research program, etc.

### INSAH's role

INSAH's interest in a Sahelian data base on agricultural research is valid, but as has just been shown, it is a difficult process. INSAH could play a very useful role, however, as a forum where the different organizations involved in data base development could meet and discuss:

- The needs of the potential users. Who are they; policy makers, researchers, donors, development organizations, students?
- Compatibility across the different systems, and possible collaboration and interconnection.

- A synopsis format that would be available for all projects in the region.

To the extent that harmonization of databases is impossible, INSAH, in collaboration with the other systems, could develop its own database to meet the particular needs of the Sahel. INSAH proposes to have a data base that allows it to answer the such questions as who does what research, where, what are their objectives, their results. Additional work must be done on the users of information and the types of questions they will ask. This will help defining the information that will need to be entered in INSAH's data base, the sources of information, and the format of the data base.

It is proposed that PADRES finance:

- In year 1, a study on the needs of potential Sahelian database users and a review of both content and design of the existing databases on Sahelian agricultural research. It could be done by a consultant and an INSAH staff member who could then visit the main sources of information.
- In years 2 and 3, the development of a Sahelian database on agricultural research: choice of format, system, information, updating method, sources of information, and possibly purchase of computers and modems.
- In year 4, completion and maintenance of the database.
- In year 5, updating of the database.

This work will be coordinated by the director of the DDIF (Department for Documentation, Information and Training), with major input from the research management specialist, the scientific coordinator, and the staff of the DRMA. The person responsible for databases in the Documentation Division will be actively involved.

## 2. PADRES scientific editor

INSAH has requested a scientific editor who will help the whole organization to publish documents which meet international standards and have an INSAH label. There is a great need for such a person. One of the ways INSAH will gain credibility is through dissemination of good quality documents. INSAH will not write all the documents itself. Some of them will be written by national researchers, especially the syntheses. INSAH will launch the ideas, find the writers, and then edit and publish the documents under the INSAH banner. Proper recognition of authors, especially for the syntheses, and sources of funding will be done. Different types of documents will be published according to the intended audiences.

The scientific editor will be in the information division of the DDIF (Department for Documentation, Information and Training). The term of references are in annex 2. The first year, a consultant could be hired on a short-term basis to help on the organization of the editing section and the choices of media.

D. Coordination activities: UCTR/PV

1. Pest Management in the Sahel and at INSAH

INSAH has been involved in promoting crop protection and integrated pest management for over a decade. This involvement originated mainly with the USAID-funded CILSS-FAO Integrated Pest Management project, 1978 to 1987. This ambitious project focussed on establishing an IPM research capability in the Sahel, and on developing IPM systems for major crops. It was intended to complement AID's Regional Food Crop Protection (RFCP) Project (1975 to 1985), which was primarily an institution-building project to help participating CILSS countries establish and/or strengthen National Crop Protection Services, through training, construction of facilities, and provision of equipment and supplies.

The IPM project ended just as it had built up Sahelian research capacity and before much IPM technology could be adequately developed or extended to farmers. Likewise, the RFCP project did not attain one of its goals, the creation of systems for extending IPM technology to farmers in the Sahelian countries.

Nevertheless, the two Sahelian pest management projects succeeded in creating functional national crop protection services and a regional IPM research capability. By the end of the RFCP project, crop protection services, with appropriate infrastructure, had been established and/or strengthened in eight countries, many people were trained, and returned to work for the national crop protection services and most of the positions are now covered in the national budgets.

Where only a handful of trained researchers and meager facilities and knowledge existed before, the IPM Project produced a solid infrastructural base for IPM research. Research teams are now in place, though small, in each Sahelian country, save in Mauritania. The long-term impact of both projects has been positive, particularly by virtue of the creation of a core group of crop protection professionals who are motivated to conceive and implement pest management research and development projects despite the severe limitations of their national budgets.

2. Other Pest Management Activities in the Sahel

Currently, the only other regionally-focused pest management organizations in the Sahel are:

- the crop protection training center for the Sahel in Niamey, an autonomous unit within CILSS, and administratively linked to AGRHYMET;
- the Dakar-based Organization for Control of Grasshoppers, Locusts and Grain-eating Birds (OCLALAV), with a focus on regional monitoring and information exchange regarding migratory pests.

Several agencies have supported crop protection strengthening activities in the Sahel on a bilateral basis, notably: Canada (CIDA) (INSAH, Niger, Burkina Faso); France (CIRAD, ORSTOM) (Sahel-wide, CIRAD esp. with respect to grasshopper and locust control); Germany (GTZ) (Niger, Mauritania, Mali-proposed); The Netherlands (Chad via FAO, Niger, Senegal via FAO); the United Kingdom (ODA-NRI)(Mali); USAID (Guinea Bissau-to 1990, Mali and Niger); as well as the EEC (CTA to INSAH), and UNSO through FAO (Chad, Mali and Senegal). Other

nations' donors have been involved, particularly during the locust/grasshopper campaigns of 1986-1990, when some 50 donors and other organizations played more or less significant roles.

A number of international agricultural research centers are active in the region, as discussed above, and many of these have pest management research components. Especially relevant is the work of the IITA Biological Control Program in Benin, which has a liaison with AGRHYMET. However, coordination of their activities, those of the national research institutes, and of the bilaterally-funded pest management activities is not taking place. INSAH's UCTR/PV has a clear role to play in promoting such coordination.

### 3. Current Pest Management Activity at INSAH

Since the end of the IPM project, INSAH, recognizing the importance of this field to the progress of agriculture in the Sahel, has taken the lead in maintaining an information exchange and coordination role with the nine national crop protection services and national agricultural research systems. INSAH created a Pest Management Technical Coordinating unit (UCTR/PV), specifically to promote this function. It is a project of the Crop Production program of the Department of Research on the Environment and Agriculture (DRMA). As a result, INSAH has built a comparative advantage in the domain of pest management coordination in the Sahel; it has fine-tuned a collaborative relationship with the national agricultural research institutes, IARCs, national crop protection services and other regional and international organizations. Indeed, with the partial exception of the Nairobi-based PESTNET of ICIPE, it is the only such regionally conceived entity devoted to pest management research coordination anywhere in Africa. INSAH UCTR/PV thus is already exercising an important guidance role for national level research and coordination actions, and provides a forum for pest management decision-makers and extension staff to interact with their research colleagues. The coordination role of INSAH in crop protection has been acknowledged and affirmed in numerous meetings of Sahelian professionals in the field.

This unit has functioned very effectively with a small staff: a scientific coordinator (Dr. Ba Diallo Daoulé), two secretaries and a driver. Limited funding has been received from CIDA, UNDP and CTA and others, for coordination and information dissemination activities. The budget for this unit has been drawn from ad hoc projects, not core funds.

UNSO has committed itself to providing resources to UCTR/PV for an entomologist (2.5 years) to focus on pest population surveillance, crop-loss assessment and food security issues as related to pest management.

INSAH's five-year plan in crop protection includes four aspects, as elaborated with Sahelian crop protection researchers in a number of fora organized by UCTR/PV:

- Sahelian Network for Research on IPM of Crop Pests. Eleven priority research themes have been identified<sup>10</sup>.
- Strengthening of Crop Protection Services.

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<sup>10</sup> INSAH's Second Conference on Food Crop IPM in the Sahel. Bamako, January 1990.

- **Information Dissemination.** This includes continuation of the periodical, Sahel PV Info, which has appeared 10 times annually since April 1988, publication of proceedings of Annual Meetings of Sahelian Crop Protection Researchers, preparation of various brochures and fact sheets derived from the USAID-CILSS-FAO IPM project results, exploration of the possibilities of launching a scientific review journal in Sahelian crop protection.
- **Regional Coordination.** UCTR/PV proposes to promote regional coordination by providing regular fora for discussion and information exchange, specifically by organizing (a) annual meetings of crop protection researchers, national crop protection service directors, and "chefs de base" of the main plant protection field stations; (b) technical conferences relating to IPM of food crops in the Sahel; and (c) ad hoc meetings addressing specific topics or needs.

#### 4. UCTR/PV's Role under PADRES

PADRES will support INSAH's UCTR/PV unit, to allow it to:

- strengthen its analytical role;
- continue its role as facilitator and catalyst in matters relating to pest management research;
- help identify policy and research programs that can assist in adoption of pest management strategies as an integral element of sustainable agriculture; and
- further promote regional coordination and information exchange regarding options and strategies.
- provide research mini-grants targeted at whatever areas are identified as most able to benefit from the funds available through PADRES.

In other words, PADRES will undergird the elements of the five-year plan which relate to research networking and information dissemination, and strengthen its capacity to provide high quality strategic analytical outputs, including attention to impacts of pest management activities.

It is recommended that the PADRES project not support some of the activities requested by UCTR/PV, for example:

- crop protection service strengthening, except from the perspective of linkages with research and analysis endeavors;
- building on the present publications program of INSAH, because support is likely to be obtainable from CTA and other sources;

Editorial and other technical support will be available from the scientific editor. In particular, it is expected that UCTR/PV will promote its objectives in close collaboration with the coordinators of the natural resources management, food security research and science editing and publishing components of PADRES, as well of course all INSAH staff. This also would include.

of course, support from the Project Administrative and Financial unit, such as for administering consultancies and or research mini-grants.

Strengthened support to UCTR/PV through the PADRES project will help to capitalize on USAID's previous investments, and to effectively promote on the IPM initiatives taken thus far, and to reinforce and deepen certain functions of UCTR/PV. The specific aspects to be funded are described next.

5. Assistance to NARS: syntheses and prospective studies

UCTR/PV will participate actively in the syntheses and the forward-looking studies coordinated by the research management specialist. The IPM researchers in the NARS will be highly involved in this process, and maybe consultants as well. They will work with researchers from other disciplines.

Despite the major increase in pest management research in the Sahel during the past 10 years, which has brought many ideas and much-improved knowledge of pest biology and control methods, a low adoption rate of actual IPM strategies has occurred in the region. UCTR/PV should analyze the reasons for this low adoption rate, characterize the constraints, and promote regionally coordinated approaches to overcoming the constraints (be they technical, socio-economic, policy-oriented). UCTR/PV will want to commission studies consistent with the priorities established in a participatory process with the region's crop protection professionals. Attention will necessarily continue to be focussed on farmer production constraints, but increasing attention will need to be given to other clients of research (such as policymakers, consumers, private sector firms - pesticide, storage, transport, processing, etc.).

Likewise, it is proposed that INSAH-UCTR/PV increasingly become involved in facilitating and doing studies such as (but not limited to):

- subsector and policy analyses such as related to food security, plant quarantine or pesticide policy;
- prospective analyses regarding the potential for new technologies and opportunities for success represented by experiences as the farmer-level;
- monitoring, evaluation, and impact analysis of technology generation; and
- jointly exploring possible modalities of private sector participation in agricultural technology development and transfer.

With regard to a food security liaison role, UCTR/PV would be in a position to develop a working relationship with the socio-economic program and PRISAS, to promote the linkage of pest management issues with the other planned components of food security research and policy dialogue. Identification of the actual subjects addressed and activities undertaken will derive from a consultative dialogue with others at INSAH and in the region as to the priorities.

## 6. Coordination and Networking

This is one of the core functions of INSAH and clearly one in which UCTR/PV has excelled. Specifically, the annual technical conferences organized for crop protection professionals of the Sahel are a valuable forum which should be continued. In addition, there should be a facility for organizing special conferences to explore specific issues and come to a consensus on priorities and approaches. A reasonable number of meetings would be about eight provided for in five years under PADRES. As in the past, various additional ad hoc meetings would presumably be funded from separate sources.

## 7. Documentation and Information Retrieval

In addition to improving its database on Sahelian pest management research, the unit will need to develop a strengthened literature base and an information management and referral capacity, ideally including electronic retrieval capacity. Modest resources would also be provided to permit acquisition of key subscriptions to scientific journals, books and other materials. This would augment the resources which will be available through INSAH core units (regional documentation center) and scientific editor to be provided through PADRES.

## 8. Staffing and Resources

To address the tasks associated with strengthening the analytical role of INSAH UCTR/PV, the unit will require additional technical staff, in addition to the unit scientific coordinator and secretarial staff. This will at least free up the coordinator to prepare and arrange for syntheses, analytical and prospective studies, and still allow the unit's productive "catalytic" networking functions to continue.

UNSO is planning to reinforce the unit with another scientist, probably entomologist, who is expected to be applied to the food security question (crop loss assessment, cost-benefit analyses etc.), and pest management surveillance and environmental analytical tasks related to the Sahara-Sahel Observatory.

It is proposed that PADRES further strengthen the unit's professional staff by providing for the services of a capable research assistant who would be in a position of backstopping the coordinator and UNSO researcher assigned to UCTR/PV, and of carrying out analyses independently once the task has been defined. Under the budgetary limitations and established priorities of the proposed PADRES unit, a senior professional assigned to this unit cannot be justified at present. But, appropriately selected, the research assistant, while perhaps being trained in a specific discipline such as weed science, can be encouraged to be broad and strategic in his or her thinking, and thus be an even more valuable member of the UCTR/PV team.

It is hoped that under PADRES, demand for the outputs of the analytical units of INSAH will be such that support will be found to address other felt needs. In any case, it is the design team's belief that UCTR/PV ought not place itself in the role of being a technical assistance team, multi-disciplinary or not, to help address specific technical problems at the implementation level. Rather it should seek to capitalize on its recognized leadership role in bringing professionals in the field together to agree on approaches to solutions of agreed-upon priority problems, and to strengthen its role in providing persuasive syntheses and suggestions for new approaches.

The basic objective of this position will be to provide INSAH UCTR/PV with technical expertise in a pest management discipline complementary to the multi-disciplinary nature of the unit, to strengthen and backstop the coordination and information dissemination functions of the unit, and to support the unit's strategic analysis tasks. The assistant will be managed by the Coordinator of the UCTR/PV, who will provide general and specific guidance, supervision, and work assignments. He or she may be a student (graduate assistant) on a two- or three-year assignment related to a thesis of significance to the UCTR/PV mission, in which case, supervision of the research would be shared with the degree-granting institution's thesis advisor. The thesis research should directly relate to the objective of the UCTR/PV and INSAH. In this situation, the salary indicated should suffice for two or three graduate assistant-type appointments].

Sixty percent of the Research Assistant's duties will involve the following programmatic duties:

- Assist in providing appropriate analytical reviews, contacting and interviewing researchers regarding subjects identified with national researchers and UCTR/PV senior staff;
- Assists in the improvement and transfer of information through the existing publications.
- Assists in contacts with national officials, NGO's, private sector regarding issues of significance to research and analysis objectives.
- Prepares technical syntheses on specific topics identified with supervisors and associates.
- Assists in the design and implementation of monitoring and evaluation missions.

The other forty percent of the assistant's time will be devoted to the following administrative duties:

- Takes primary logistical role in organizing the annual meetings and assists in assembling preparation documents for discussion at these meetings;
- Provides literature retrieval assistance via electronic means and library search.
- Backstops the functions of the coordinator and/or the researcher as necessary in their absence, keeping initiatives moving.

Candidates for the research assistant position should meet the following qualifications (assuming graduate assistant modality is accepted):

- Sahelian graduate student currently enrolled in an accredited university in a discipline related to pest management, or in a discipline which can be readily applied to pest and natural resource management problems (anthropology, agricultural economics, agricultural policy).
- Ability to work independently and creatively, and willing to tackle problems without sustained oversight

- Fluency in French, ability to function effectively in English; facility with other relevant languages desirable (Portuguese, major indigenous tongues).
- Computer literacy essential, or possessing clear aptitude for working with computers, such as ability to type.

9. Evaluation of activities

The means of verification of the efficiency of the agricultural research/IPM component of PADRES will be the following:

- number of publications (reports, books, leaflets, etc.),
- number of seminars held,
- number of representatives from national agricultural research institutes, universities, producers associations, private sector companies, merchants, etc. attending the seminars,
- citations of INSAH's documents in other publications (ministries reports, news releases, etc.),
- effective organization of research poles and bases centres,
- better coordination between research networks operating in the Sahel,
- better integration of the data bases collecting information on Sahelian agricultural research.
- annual reports of PADRES activities

E. Linkages among PADRES programs

There will be several means to insure linkages across the PADRES programs for agricultural research/IPM, natural resources management, and food security. First, the research management specialist hired through PADRES will promote interdisciplinary work through joint analytical projects, particularly the preparation of synthesis documents. The use of mini-grants will also be quite effective to promote interdisciplinary collaboration within the NARS.

Second, the INSAH scientific and technical coordinator will work with the research management specialist and the other PADRES coordinators to provide interdisciplinary intellectual oversight to ensure that each of the agendas developed reflect the links to the others. This will serve to keep the PADRES programs in communication with each other rather than allowing them to go their own ways.

Third, during the course of the project, there will be sessions attended by all INSAH senior staff to go through a detailed overview of the activities covered by each program and the areas of linkages.

One example of possible collaboration will be between UCTR/PV and PRISAS. In the past ten years, Sahelian governments have developed explicit national food self-reliance policies. While there is some controversy surrounding the food self-sufficiency option, efforts to evaluate cereal production have centered on whether the agricultural sector can meet consumption requirements of the domestic population. As was highlighted in the AID-INSAH Crop Loss Assessment Colloquy in Ouagadougou, March 1991, little attention has been given in food security assessments to the role of pests in the food production picture. The reasons for this may be at least in part due to the lack of disciplinary and institutional interaction between crop protection and food security decision-makers.

There are at least two common overriding constraints that limit the capacity of national agricultural sectors to feed their populations: the instability of agroclimatic conditions and lack of improved technologies. The contributions of agricultural research, including pest management technologies and strategies, have not been the focus of Sahelian food security studies. This is an aspect which needs closer examination. A related and particularly important issue which remains to be resolved is the costs and benefits of food aid and locust and grasshopper control campaigns financed largely through external donor inputs.

Another opportunity for collaboration will be between UCTR/PV and the natural resources management program. This will be through an assessment of the environmental sustainability of pest management practices. Appropriate pest management tactics need to be documented, and their adoption monitored, particularly as they interact with and complement agronomic and cultural practices. Criteria for successful IPM interventions in the natural resources management context should be established and evaluated.

## ANNEX 1

### TERMS OF REFERENCE: RESEARCH MANAGEMENT SPECIALIST

#### Activities

The research management specialist will report to the scientific and technical coordinator of INSAH. His or her activities will include:

- Assistance to Sahelian NARS' structure and organization. S/he will advise the less advanced national agricultural research systems of the Sahel. This implies looking at all the institutions involved in agricultural research, personnel, funding mechanisms, research programs, priority setting mechanisms, linkages with clients, etc. This activity will be carried out in collaboration with AGIR and consultants from African NARS and other research organizations.
- Setting up of research poles. S/he will make detailed proposals to INSAH and the NARS for the implementation of the research poles proposed in the Framework For Action for the Revitalization of Agricultural Research in the Sahel. This includes feasibility studies on the poles and proposals on institutional linkages, structure, staffing, funding, transfer of research results, monitoring and evaluation.
- Syntheses and promotion of research results. The research management specialist will manage interdisciplinary syntheses of research work and results by commodity system. S/he will identify the writers, supervise and coordinate their work, help in access to information.
- Prospective studies. S/he will coordinate studies on the future of different agricultural products in the Sahel.

#### Qualifications

- Scientist with ten years of experience in the Sahel, and long experience of leadership of research teams.
- Ability to work across disciplines (crop and animal production, social sciences and economics, and environmental sciences) and to promote interdisciplinary work.
- Human qualities: diplomacy and leadership.
- Bilingual (French and English).

#### Conditions

- International-level salary and benefits.
- Three-year contract.
- Based at Bamako, Mali.

## ANNEX 2

### TERMS OF REFERENCE: SCIENTIFIC EDITOR

#### Function

The principal responsibility of the scientific editor will be to direct INSAH's editorial policy and prepare documents for publication. His or her specific responsibilities will include:

- to define the INSAH publications policy and determine the human, financial and physical resources needed to implement it;
- to organize publications work within INSAH: choose the editors, set the calendar, determine what form the publications should take, manage the mechanics of document preparation, etc.

The scientific editor will be in the Information Division of the Department of Documentation, Information and Training (DDIF). S/he will report to the director of the DDIF.

#### Qualifications

Candidates for the position of scientific editor must:

- be familiar with agricultural research in the Sahel (environmental problems, crop and livestock production, rural economy, forestry, etc.)
- be an experienced scientific editor
- have several years experience managing an organization which does scientific publication.
- speak French and English.
- be willing to make a three-year commitment.

#### Conditions

- Salary will be according to the CILSS-donor scale, or as negotiated.
- Three-year renewable contract
- Based at Bamako, Mali

## ANNEX 3

## PROPOSED BUDGET

PADRES PROJECT PRELIMINARY BUDGET	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
<b>1. AGRICULTURAL RESEARCH PROGRAM</b>						
<b>A. SALARIES</b>						
Expat Res Mgmt Spec	\$120,000	\$120,000	\$120,000			\$360,000
Sahelian Res Mgmt Specialist				\$50,000	\$50,000	\$100,000
Crop Protection Specialist	(UNSO)	(UNSO)	(UNSO)	(UNSO)	(UNSO)	(UNSO)
Crop Protection Assistant	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$150,000
Scientific Editor	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$300,000
Secretaries (2)	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$150,000
<b>SUB-TOTAL</b>	<b>\$240,000</b>	<b>\$240,000</b>	<b>\$240,000</b>	<b>\$170,000</b>	<b>\$170,000</b>	<b>\$1,060,000</b>
<b>B. EQUIPMENT</b>						
PC & Software a)	\$20,000					\$20,000
Furniture b)	\$10,000					\$10,000
<b>SUBTOTAL</b>	<b>\$30,000</b>					<b>\$30,000</b>
<b>C. ACTIVITIES</b>						
Services & supplies c)	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$30,000
Travel in the Sahel	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$50,000
Publications & Distribution	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$100,000
Priority-Setting Workshops	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$100,000
Crop Protection Activities d)	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$300,000
Database Study e)	\$40,000					\$40,000
Database Development f)		\$50,000	\$50,000	\$10,000	\$10,000	\$120,000
<b>SUBTOTAL</b>	<b>\$156,000</b>	<b>\$166,000</b>	<b>\$166,000</b>	<b>\$126,000</b>	<b>\$126,000</b>	<b>\$740,000</b>
<b>D. OTHER DIRECT COSTS</b>						
Research Mini-Grants	\$108,000	\$108,000	\$108,000	\$108,000	\$108,000	\$540,000
TA/Consulting Ag Res.	\$50,000	\$40,000	\$20,000	\$40,000	\$20,000	\$170,000
TA/Consulting Publishing	\$20,000					\$20,000
Contingencies	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
<b>SUBTOTAL</b>	<b>\$183,000</b>	<b>\$153,000</b>	<b>\$133,000</b>	<b>\$153,000</b>	<b>\$133,000</b>	<b>\$755,000</b>
<b>AGRICULTURAL RESEARCH TOTAL</b>	<b>\$609,000</b>	<b>\$559,000</b>	<b>\$539,000</b>	<b>\$449,000</b>	<b>\$429,000</b>	<b>\$2,585,000</b>

## FOOTNOTES:

- a) Includes computer software and hardware
- b) Includes desks, chairs and air conditioners
- c) Includes misc. supplies, communications and mail
- d) Includes 5 seminars on sub-sector analysis, 3 committees for monitoring and evaluation and impact of analysis, 5 annual technical conferences, subscriptions, literature, commercial cd-rom of international plant protection database, and 3 trips per year of UCTR coordinator
- e) Includes consultant study of existing databases on agricultural research
- f) Development of database on agricultural research

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## LIST OF PERSONS MET

### Institut du Sahel

Tijan Jallow	Director General
Gaoussou Traoré	Scientific & techn. coordinator
Ludovic Nettoyo Laomaibao	DRMA
Adolphe Kere	DRMA - Crop production
Mme Ba Diallo Daoulé	DRMA - UCTR/PV
Josué Dioné	DRMA - PRISAS
Moussa Batchily Ba	DDIF
Souleymane Frantao	DDIF - bases de données

### World Bank

Moctar Touré	SPAAR Executive Secretary
Jan Weijenberg	SPAAR consultant
Jacques Brossier	SPAAR consultant

### USAID

Dana Fisher	AFR/SWA/REGL
Ron Daniel	AFR/SWA/REGL
Michael Fuchs-Carsh	AFR/ARTS/FARA
Jeff Hill	AFR/ARTS/FARA
Melanie Lowdermilk	S&T

### CIRAD

Jacques Lefort	Directeur DSA and SPAAR advisor
Rolland Guis	Délégué Afrique
François Noël Reyniers	Correspondant français de R3S

### ISNAR

Howard Elliot	Deputy Director General
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### CORAF

NDiaga Mbaye	Executive Secretary
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### Institut Sénégalais de Recherches Agricoles

Habib Ly	Director General
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### Institut d'Economie Rurale (Mali)

Dotianga Diamoutene	Deputy director general
Foussini Mariko	Chief Technical Studies division
Lassine Dembele	Chief p.i. Ag. research division

### Club du Sahel

John Lewis	USAID representative
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### Ministère de la Coopération, France

Technical Annex: Agricultural Research and IPM

Danielle Barret

Sous direction de la Recherche

Michigan State University  
John Staatz

Professor

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## LIST OF ACRONYMS

ACCT	Agence de Coopération Culturelle et Technique (France)
AGIR	Amélioration de la gestion des instituts de recherche (INSAH)
AGRHYMET	Centre régional de formation et d'application en agrométéorologie et hydrologie opérationnelle (Niger)
CEAO	Communauté des Etats d'Afrique de l'Ouest
CERPOD	Centre d'Etudes et de Recherche sur la Population pour le Développement (INSAH)
CGLAR	Consultative Group on International Agricultural Research
CIDA	Canadian International Development Agency
CIDARC	Centre d'information et de documentation en agronomie des régions chaudes (France)
CILSS	Comité Inter-Etats de Lutte contre la Sécheresse dans le Sahel (Burkina Faso)
CIMMYT	Centro Internacional de Mejoramiento de Maize Y Trigo (Mexico)
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement (France)
CORAF	Conférence des responsables de la recherche agronomique
CRSP	Collaborative Support Research Program (USA)
CRPB	Centre Régional Bananiers et Plantains (Cameroon)
CRTA	Centre de Recherche sur les Trypanosomoses Animales (Burkina Faso)
CTA	Centre Technique de Coopération Agricole et Rurale (EEC)
DDIF	Département documentation, information, formation (INSAH)
DRMA	Département de recherche sur le milieu et l'agriculture (INSAH)
EEC	European Economic Community
FAO	Food and Agriculture Organization (Italy)
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (Germany)
IARC	International agricultural research center
IBRD	International Bank for Reconstruction and Development
ICIPE	International Center for Insect Physiology and Ecology (Kenya)
ICRAF	International Council for Research on Agro-Forestry (Kenya)
ICRISAT	International Center for Research in the Semi-Arid Tropics (India)
IDRC	International Development Research Centre (Canada)
IER	Institut d'Economie Rurale (Mali)
IFDC	International Fertilizer Development Center (USA)
IFPRI	International Food Policy Research Institute (USA)
IITA	International Institute of Tropical Agriculture (Nigeria)
ILCA	International Livestock Center for Africa (Ethiopia)
INERA	Institut national d'études et de recherches agricoles (Burkina Faso)
INIA	Instituto Nacional do Investigaçao Agronomica (Cape Verde)
INRAN	Institut National de Recherches Agronomiques du Niger (Niger)
INSAH	Institut du Sahel
IPM	Integrated Pest Management
ISNAR	International Service for National Agricultural Research (The Netherlands)
ISRA	Institut Sénégalais de Recherches Agricoles (Sénégal)
ITC	International Trypanotolerance Centre (The Gambia)

<b>KIT</b>	<b>Koninklijk Instituut voor de Tropen (The Netherlands)</b>
<b>NARS</b>	<b>National agricultural research system</b>
<b>NGO</b>	<b>Non Governmental Organization</b>
<b>NRI</b>	<b>Natural Resources Institute (UK)</b>
<b>OAU</b>	<b>Organization for African Unity</b>
<b>OCLALAV</b>	<b>Organization for Control of Grasshoppers, Locusts and Grain-Eating Birds</b>
<b>ODA</b>	<b>Overseas Development Administration (UK)</b>
<b>ORSTOM</b>	<b>Institut français de recherche scientifique pour le développement en coopération (France)</b>
<b>PADRES</b>	<b>Programs for Applied Development Research in the Sahel</b>
<b>PID</b>	<b>Project Identification Document</b>
<b>PRISAS</b>	<b>Programme de renforcement institutionnel en matière de recherche sur la sécurité alimentaire au Sahel (INSAH)</b>
<b>RFCP</b>	<b>Regional Food Crop Protection</b>
<b>R3S</b>	<b>Réseau de Recherche sur la Résistance à la Sécheresse dans le Sahel (INSAH and CORAF)</b>
<b>SAFGRAD</b>	<b>Semi-arid food grain research and development project</b>
<b>SPAAR</b>	<b>Special Program for African Agricultural Research (USA)</b>
<b>UCTR/PV</b>	<b>Unité de coordination technique régionale / Protection des Végétaux (INSAH)</b>
<b>UNDP</b>	<b>United Nations Development Program</b>
<b>UNESCO</b>	<b>United Nations Education and Culture Organization</b>
<b>UNSO</b>	<b>United Nations Sahel Office</b>
<b>USAID</b>	<b>United States Agency for International Development</b>
<b>WARDA</b>	<b>West African Rice Development Association (Ivory Coast)</b>

**ANNEX 3**  
**FOOD SECURITY**

**ANNEX 3**

**FOOD SECURITY**

**Technical Annex to the PADRES Project Paper**

**December, 1991**

**Patricia Godoy-Kain**

## EXECUTIVE SUMMARY

The purpose of this document is to design the follow-on food security program of the proposed AID/PADRES project. It is also the purpose of this document to describe the activities of the Institut du Sahel (INSAH) related to food security in the recent past. INSAH has been active in the food security since 1990, through a pilot project financed by USAID through Michigan State University. This project, named Programme Regional de Renforcement Institutionnel en Matière de Recherches sur la Sécurité Alimentaire au Sahel (PRISAS), has promoted regional cooperation on research and policy decision in order to improve the persistent situation of food insecurity in the Sahel. PRISAS has promoted and organized workshops and seminars as vehicles for the setting of relevant research priorities with the participation of researchers and policy makers.

This document contains four sections and two annexes. Section 1 describes the objectives of the PRISAS project, section 2 briefly describes the activities undertaken in 1990-1991 period, and its 1991-1992 workplan. Section 3 contains the proposed follow-on food security program, including description, objectives and activities. Section 4 includes conclusions and recommendations for continued food security activity within INSAH including a schedule of activities on a yearly basis. Annex A contains themes for research activity agreed upon by Sahelian researchers and Annex B contains staffing, equipment requirements and a preliminary budget for a five year project.

## I. BACKGROUND INFORMATION

### A. Institutional framework

The Programme Regional de Renforcement Institutionnel en Matière de Recherches sur la Sécurité Alimentaire au Sahel (PRISAS) is an integral program of the USAID's Food Security in Africa Cooperative Agreement (FSA) with Michigan State University (MSU). The FSA project began in 1984 and it is scheduled to end in November 1992. A follow-on project has already been identified and recommended.

PRISAS is a three way agreement between INSAH, AID and MSU. It is an integral part of the activities already in place within the Institut du Sahel (INSAH). It is a special project of the socio-economic program of the Département de la Recherche sur le Milieu et l'Agriculture (DRMA) of INSAH. Thus, PRISAS in this document is referred to as project.

The PRISAS project was designed in accordance with INSAH's five year plan, one of whose objectives is to strengthen the analytical capacity of Sahelian national researchers<sup>1</sup>. This project focuses on food security.

### B. Project objectives

The overall goal of PRISAS is to contribute to the improvement of food security in the Sahelian countries through the timely dissemination of relevant scientific and technical information for the formulation, evaluation, implementation and impact of national and regional policies. The objectives of the PRISAS program are:<sup>2</sup>

- to strengthen Sahelian institutional capacity to carry out food security policy analysis and extension activities;
- to diffuse more widely to Sahelian researchers and policy makers the results of recent food security research and policy reforms;
- to train Sahelian food security researchers on improved research methods; and
- to stimulate new studies on regional food security issues in the Sahel.

The PRISAS project began its activity in 1990 under the supervision of INSAH's Director General and the MSU/FSA project Director. Its activities have been coordinated and carried out by a Sahelian economist whose title is Program Coordinator. PRISAS was designed to support and build upon the work of national research institutions in the CILSS member countries.

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<sup>1</sup> Stratégie et Programmation quinquennale 1990-1994. Institut du Sahel, Bamako, Août 1990.

<sup>2</sup> Dioné, Josué. Regional program for strengthening institutional research capacity on food security in the Sahel (PRISAS): Summary Description. PRISAS/PD 01-90.

The activities of PRISAS were also closely linked to the food security activities of the CILSS Executive Secretariat through its Division of Studies and Planning (DEP), Division of Projects and Programs (DPP), and the Diagnostic Permanent Project (DIAPER). Technical cooperation was also established with other regional and international institutions involved in the analysis of food security issues in the Sahel such as the Club du Sahel, the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), the International Food Policy Research Institute (IFPRI), the Institut National de la Recherche Agricole (INRA), the Université Nationale du Benin, the Université de Laval, etc.

## II. FOOD SECURITY IN THE SAHEL

### A. PRISAS Food Security Analysis

PRISAS project activities were modeled in accordance with INSAH's 1990-1994 Five Year Plan, which was approved by CILSS and its nine member states. The five year program has the following objectives:

- collection, analysis and dissemination of research results
- coordination, promotion and harmonization of scientific and technical research
- proposal and guidance for the definition of a regional research agenda

The first result of the analytical work of the INSAH/PRISAS project in the food security arena was presented at the CILSS/Club du Sahel regional seminar in Bamako, Mali (April 1990)<sup>3</sup>. PRISAS contributed with an overview and analysis of the objectives, the institutional environment and the impact of developing a market information system (SIM, Systèmes d'Information sur les Marchés) in the Sahelian cereals market. Another analysis of market information systems<sup>4</sup> was centered around the importance of developing and improving the analytical capacity and dissemination of cereal market information and how information affects food security in the Sahel.

PRISAS followed with an analysis of some of the fundamental causes of the present food insecurity in the Sahel and how it can be influenced through market and trade liberalization<sup>5</sup>. Here it is pointed out that although pricing policy has been perceived as the root of stagnant food production and thus of food insecurity in Sub-Saharan Africa, it is only one of five fundamental

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<sup>3</sup> Dioné, J., Production Scientifique No.2, DT 90-1. "Objectifs, environnement institutionnel, utilisation et impact des Systèmes d'Information sur les Marchés".

<sup>4</sup> Dioné, J., "Amélioration de l'Utilisation des données au Sahel: Nécessité d'un plan d'action pour le renforcement des capacités d'analyse et de diffusion de l'information sur les marchés". DT/90-01 April, 1990

<sup>5</sup> Dioné, J. "Liberalisation des economies et des echanges et securite alimentaire au Sahel". DT 90-02. June, 1990.

causes. First, food insecurity in the Sahel is the result of "intrinsic poverty". With an average annual per capita GDP between \$160 and \$200, five of the nine Sahelian countries were among the sixteen poorest nations in the world in 1987 (World Bank, 1989). Second, declining productivity in the Sahelian countries is largely the result of technological poverty or the lack of appropriate technological options for small farmers in order to increase or stabilize their production. Third, the region also suffers from "financial poverty" as a result of high taxation of food production and exports combined with the lack of credit for investment resulting in little or no-response to producer price increases. There is also the key problem of "institutional poverty", the ineffectiveness and inefficiency of public service institutions found at all levels: labor markets, factors of production markets, financial markets, etc. Last, but not least, food security in the Sahel is aggravated by changing consumption patterns. This has been largely the result of rural-urban migration, relative prices of basic food products which favor imported staples (rice and wheat) over domestically produced basic foodstuffs (millet and sorghum) and the fact that domestic staples take longer to prepare and are more difficult to preserve.

In September 1990 PRISAS participated in the International Seminar of the Club du Sahel-CIRAD (Montpellier, France) with an analysis of trade markets in the Sahel and the need for food market stabilization in the region in order to achieve food security<sup>6</sup>.

At the same time, the PRISAS project coordinator was developing a review of research on food security in the Sahel over the 1985-1990 period. This literature review was distributed to the National Agricultural Research Systems (NARS)<sup>7</sup> in the nine CILSS member states. Over 150 copies of the literature review were distributed among Sahelian researchers and the international food security research community. It covered studies of production, consumption and nutritional aspects of food security.

A main conclusion of the review was that food insecurity in the Sahel is tied to inadequate income among populations primarily practicing subsistence agriculture. Therefore, increasing farmers' incomes is a key precondition for improving availability and accessibility of food. Thus, to reduce food insecurity in the rural and urban areas it is necessary that research on agricultural problems also address questions of capital formation, investment in infrastructure, self-sustaining investment, market performance, comparative advantage and specialization of high-value enterprises as well as on the complementarity of food crops and cash crops.

A key factor that has limited the impact of agricultural research in the Sahel has been the lack of coordination among researchers and the lack of a working relationship between policy makers and researchers. Another handicap has been the lack of a working relationship between natural science researchers and economic policy researchers. Integrated research has also been limited by the lack of reliable and relevant information. Without reliable and appropriate input data it is useless to apply state-of-the-art models and analysis, since they will provide erroneous conclusions and lead to the formulation of inappropriate policies and recommendations.

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<sup>6</sup> Dioné, J. "Elargissement des espaces d'échanges et stabilisation des marchés alimentaires au Sahel". DT 90-03

<sup>7</sup> The NARS include national agricultural research institutes, Universities, PVO's, international research institutions in the Sahel and private research institutes.

In response to this lack of cooperative working relations among Sahelian researchers, the PRISAS project extended an invitation to the NARS to participate in a regional workshop on food security in the Sahel, held after some delays in May 1991. Seven of the nine member countries participated (Burkina Faso, Cap Vert, Gambia, Mali, Mauritania, Niger and Senegal). During this workshop, two major results were achieved; the definition of the food security and its implications, and a preliminary prioritization of research topics at the national and regional level (see Annex A). The results of this workshop were taken back to the key policy makers in each country for discussion and for the development of research agendas to be carried out at the national level.

The next PRISAS workshop of researchers will take place in the November 1991, in Bamako. This workshop will be for Malian researchers and policy makers. PRISAS will be an active participant in the discussion and proposal of specific research topics and activities to be undertaken in the next year to generate relevant information concerning food security policies, and will provide guidance on analytical methods and issues. One anticipated outcome of this workshop will be the identification of any necessary adjustments to national research agendas in response to a continuously changing economic system.

The key role of the PRISAS project is to facilitate not only the setting of a coordinated research agenda by Sahelian researchers, but the participation of key policy makers in the setting of research priorities and in use of research results for the formulation and implementation of national and regional policies. In this way PRISAS supports the interaction between researchers and the individual households.

## B. PRISAS 1991-1992 Workplan

### 1. November 1991

The 1991-1992 workplan will begin with a **Researchers Regional Workshop**, to be held in Bamako, Mali at the end of November 1991. This workshop has two major objectives:

- presentation of results and conclusions of research activities and policy decisions undertaken in response to the May 1991 workshop and
- identification, planning and discussion of the topics to be studied during the 1991-1992 period.

Throughout the 1991-1992 working year there will be a series of national workshops or seminars organized by PRISAS to facilitate discussions between national researchers and policy makers. At these sessions specific studies already in progress will be discussed and a concerted decision will be made by policy makers and researchers on the specific studies/topics to be analyzed/undertaken at the national level.

### 2. March 1992

Coordination for designing and undertaking a pilot study on the legal, institutional and administrative constraints of inter-state trade of agricultural food products in the Sahel.

3. July 1992

Completion of a synthesis of research pertaining to the socio-economic implications of agricultural technology transfer in the rural areas of the Sahel. Completion of a synthesis of research on the relationship between informal economic activities and food security in the Sahel. It will be followed by a regional seminar on the subject to discuss research priority setting.

4. November 1992

Regional workshop/seminar for policy research and dialogue. Analysis of studies completed during the previous period. Discussion of results and impacts among researchers and policy makers. Setting of the 1992-1993 research priority themes.

### III. THE INSAH/PADRES PROJECT

#### A. Project Description

The PADRES project is a five-year effort to support INSAH's coordination and information dissemination role in the areas of agricultural research, food security and natural resources. This section defines the Food Security program which will incorporate and continue the activities started by the PRISAS project. This program of the PADRES project will function within the Socio-economic division of the DRMA. This project should start on November 1992, which is the official completion of the PRISAS project and thus taking over its activities.

#### B. Project Objectives

The overall goal of the PADRES food security program is to stimulate the generation of relevant food security policy research and information while promoting and organizing a cooperative working relationship between researchers and policy makers. The objective of the food security program is to provide a vehicle through which national researchers and policy makers can set a coordinated, effective and relevant research agenda for the improvement of food security and economic growth in the Sahel. This program will be an activity integrated within INSAH's structured activities.

The food security program of the PADRES project will provide technical and scientific information to national researchers, policy makers and donors on priority research themes of national and regional importance. This program will incorporate and continue the activities of the PRISAS project.

#### C. Project Activities

The objectives of the food security program of the PADRES project will be achieved by the following activities:

- **Facilitate** the setting of research agendas relevant to the food security issue in the Sahel through annual workshops at the regional and national level with the participation of national and international researchers, key policy makers and donors representatives
- **Identify, design and undertake** analysis of food security policy issues of regional impact and importance, pointing out the interactions between research, policies, institutions and households
- **Publication** of regional level analysis related to the food security issue, dissemination to the NARS, to key policy makers, to CILSS executive secretariat and to the international research community
- **Close cooperation** on regional analysis with the coordinators of the Agricultural Research and Natural Resource Management programs of PADRES as well as, with the other programs within DRMA and CERPOD

The workshops or seminars will be carried out at the national and regional levels. Regional meetings will be attended by food security researchers representing the NARS of CILSS member countries and researchers from the international research community. They will address research policy, research planning and design, and methodologies. National workshops or seminars will take place in the CILSS member countries, for discussion and dialogue among national researchers and policy-makers on food policy issues, empirical findings and their implications for policies pertaining food security.

This project should promote and encourage a dynamic and continuous working relationship among researchers of the CILSS member countries, between researchers and policy makers, between extension services and policy makers, and between extension services and households (see Figure 1).

The PADRES food security program will also provide indirect training of Sahelian researchers by hiring its researcher assistants from the different CILSS member countries on two-year contracts. The research associates will work under the guidance and supervision of the coordinator and should benefit from his/her knowledge and experience.

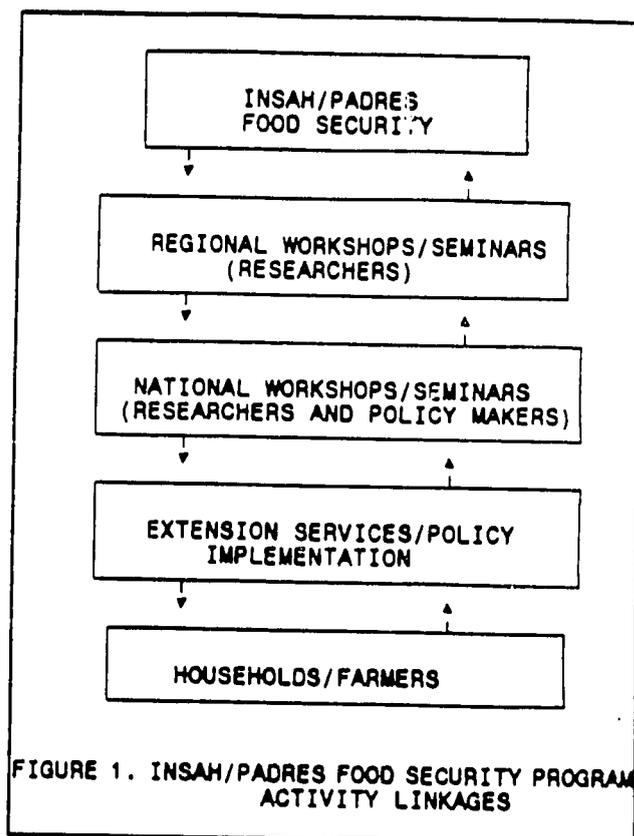
The food security program of the PADRES project will finance one Program Coordinator, two research associates, one secretary and one chauffeur and their respective activities (see Annex B), all of whom will be on contract directly to INSAH. The buy-in to the Michigan State University Food Security in Africa Cooperative Agreement will be continued to provide the program with technical and intellectual backstopping.

#### D. INSAH/PADRES Program Linkages

In the past ten years Sahelian governments have implemented an array of public policies in order to achieve national food self-reliance. While there is some controversy surrounding the food self-sufficiency option, efforts to evaluate cereal production have centered on whether the agricultural sector can meet consumption requirements of the domestic population. As was highlighted in the AID/INSAH Crop Loss Assessment Colloquy in Ouagadougou, March 1991, little

attention has been given in food security assessments to the role of pests in the food production picture. The reasons for this may be at least in part due to the lack of coordinated interdisciplinary and institutional interaction between crop production and food security decision-makers.<sup>8</sup>

There are at least two common overriding constraints that limit the capacity of national agricultural sectors to feed their populations: the instability of agroclimatic conditions and the ineffectiveness of improved technologies. The contributions of agricultural research, including improved pest management technologies and strategies to improve cereal yields, have not been focussed on its relation to and impact on food security. This is an aspect which needs closer examination. A key issue that needs socio-economic and environmental examination is that of the costs and benefits of locust and grasshopper control campaigns financed largely through external donor inputs.



A similar issue arises with respect to natural resources and deforestation, where there is a trade-off between fuel needs and degradation. One issue is as important as the other, in order to make a more balanced decision within the whole economic system, the question of opportunity cost has to be addressed.

In terms of the PADRES project activities, interaction can occur through participation of the three program coordinators in the other regional meetings, through the daily activities of the coordinators and the research associates, as well as through a conscious effort to share ideas and research results.

#### IV. CONCLUSIONS

A key factor of the failure of agricultural research in the Sahel region has been the lack of coordination of appropriate research and the lack of a working relationship between policy makers and researchers. Another handicap has been the lack of a working relationship between natural science and economic policy researchers. The PRISAS project was designed and implemented in order to improve these working relationship.

<sup>8</sup> Knausenberger, Walter. "Contribution to the PADRES Project Paper" Bamako, November 1991.

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**TABLE 1: FOOD SECURITY PROGRAM SCHEDULE OF ACTIVITIES**

	Yr-1	Yr 2	Yr 3	Yr 4	Yr 5
Activity:					
Reg. Workshop	3	3	3	3	3
Nat. Workshop	5-7	5-7	5-7	5-7	5-7
Mini-Grants	5-7	5-7	5-7	5-7	5-7
Publications	6	6	6	6	6
Sahel TDY	5-7	5-7	5-7	5-7	5-7

The main role of the PADRES food security program will be to continue and improve on the activities initiated by PRISAS. That is, the objectives will not only be the one of facilitating the setting of a coordinated research agenda by Sahelian researchers, but also facilitating the participation of key policy makers in the setting of research priorities and using such analysis for the formulation and implementation of policies of national and regional impact/importance creating a more direct link between researchers and the individual households.

Agricultural research has also been limited by the unavailability of reliable and relevant information. Lacking reliable and appropriate input data makes it useless to apply state-of-the-art models and analysis. Although the PADRES food security program will not get involved with field data collection, it will provide guidance to the NARS on analytical methodologies, data gathering, data preparation and utilization.

The PADRES project will promote the establishment of dynamic working relationships between researchers and policy makers, between policy makers and extension services, and between extension services and households. These relationships are important to provide necessary feedback for agricultural and economic researchers to identify those areas and regions where there is chronic or transitory food insecurity.

Through PADRES, INSAH can also serve as a clearinghouse for information on on-going research. This information can be useful to other USAID projects in the Sahel like the S&T Food Security II project as well as to other donors, for a more efficient allocation of resources for research activities at the regional and national level. PADRES can serve the FS II project on the identification of suitable Sahelian candidates for its long-term formal training component. It can also provide guidance and information to the FS II project on the on-going food security research activities in the region, thus reducing the level of duplication, redundancy and irrelevant research.

This document does not include a five-year research agenda proposal (as specified in the PID) since it is counter productive to the activities and purpose of the program here proposed. The

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regional and national workshops to be organized by the Food Security program will be the activities where research agendas are set and results of food security studies and policies will be presented and discussed. Moreover, these workshops or seminars can serve as a built-in mechanism of self-evaluation and monitoring.

The selection of personnel for the program coordinator, research associates and supporting staff of the Food Security program will be the responsibility of INSAH/USAID-Bamako. It should be recognized that the high quality performance given by the PRISAS Coordinator, Dr. Josue Dioné, makes him the best candidate to carry out the tasks of the PADRES food security program coordinator. It should also be recognized that the research assistants should be Sahelians working as researchers on the food security issue at the different national research centres in the CILSS member state.

## **ANNEX A. PRIORITY RESEARCH THEMES**

The situation of chronic and transitory food insecurity in the Sahel is an integral part of an overall stagnant economy. This stagnant economies are characterized by the following situation:

- general income and production instability accompanied by a continuous degradation of the resource base (soil, water, forest) and a high demographic growth
- inadequate, imperfect and inefficient markets for both, production inputs and production outputs
- non existing policies and institutions to stimulate the participation of the private sector

In response to the above situation the INSAH/PRISAS project coordinated a workshop for the setting of research priorities at the national and regional levels.

The result of the discussions at the MAY 1991 Research workshop on food security gave way to the following coordinated national and regional topics of priority.

### **BURKINA FASO**

- Improvement of the effectiveness and efficiency of rural associations related to food production, equipment, credit etc.
- More effective and more efficient markets including transportation and prices
- Cereals: trade determinants and dynamism among neighbors
- Income, production and consumption diversification within the food security framework

### **CAP VERT**

- Transformation of the F.H.I.M (Fronts a Haute Intensite de Main d'Oeuvre/Fronts for High Labour Intensiveness)
- Role of Consumption Cooperatives
- Impact of rural migration on food security
- Commercialization of agricultural production
- Population survival strategies

### **GAMBIA**

- Cultural choices in risky situations: implications on food security

- Estimation of Gambian aggregated cereal consumption
- Market integration on the Gambian borders
- Evaluation of national reforms on the commercialization of peanuts

#### **MALI**

- Farmers associations and the commercialization of agricultural products
- Study on accessibility constraints to spacial and temporary supply of cereals in the different zones and cities
- Study on the impact of the legal environment on the commercialization of cereals
- Study of eating habits by region, by ethnic group and by socio-demographic category
- Adaptation strategies in the urban sector according to levels of income, ethnic origin and time

#### **MAURITANIA**

- Optimal policies for land management, water conservation and agricultural activity on the river basin
- Impact of agricultural policies on farming activities, rice production constraints and determinants of paddy supply
- Socio-economic study on the distribution of cereals and evaluation of available means of transportation
- Study on the impact of privatization on cereal commercialization/marketing
- Study on income and consumption preferences of urban and rural centres for different food products

#### **NIGER**

- Analysis of different markets and price formation(internal and external aspects)
- Intra-regional trade in Niger and the food security issue
- Common practices used by the average household to increase their food security
- Effectiveness of farmers associations on food security
- Analysis of the impact of structural adjustment policies on food security

## SENEGAL

- Crop diversification: vegetable crops, maize, peanuts and the role of fertilizers
- Intensification of animal production: analysis of animal feed stocks, utilization of agricultural by-products, development of feed-lots and breeding-lots, studies of commercialization/marketing alternatives
- Animal-crop integration: evaluation of technologies and analysis of producers decision making given improved technologies
- Impact of structural adjustments at the micro-economic level
- Study on the commercialization of cereals: integration of surplus zones and deficit zones including the role of food aid
- Study on food consumption habits in the urban and rural areas by ecological zone

The setting of priority themes at the national level was followed by discussions that resulted in the setting of common priority themes as follows:

### MICRO-MACRO LINKAGES

- Choices of economic activities and marketing structures
- Comparative advantages

### STUDIES CENTERED ON INCOME GROWTH

- Research and analysis on diversification/specialization instead of diversification for self-subsistence
- Analysis on competitiveness of export crops in the regional and world markets (vegetable and animal products)
- Analysis on complementarity between:
  - cash crops and food crops
  - agricultural and non-agricultural activities
- Labour markets (rural and urban)

### MAIZE: (case studies on intensification potential)

- technological constraints specially at the level of transformation
- commercialization constraints
- relationship with other agricultural products

- inter-sectoral synergism

## MARKET'S INSTITUTIONAL AND LEGAL ENVIRONMENT

MARKETS FOR FACTORS OF PRODUCTION: structure, performance and function

## CONSUMPTION

- changes in consumption habits
- optimal level of consumption to improve nutritional status
- role and objective of food aid

This prioritization of topics at the national and regional level were taken back to the Sahelian countries that participated in the workshop and taken to the attention and discussion of key policy makers in each country.

In response to those discussions several proposals for studies have already been made by Mali, Gambia and Senegal.

Gambia's studies already proposed and under formulation are: 1) Cereals market integration at the borders of Gambia and Senegal, 2) Food security implication of agricultural activities and associated risk, 3) estimation of cereal aggregate consumption.

In the case of Senegal, its first analysis proposed and under formulation pertains to the interaction between macroeconomic policies and microeconomic adjustments of agricultural activities on the river basin.

In Mali, a multi-disciplinary group of researchers have submitted a proposal for the analysis of major constraints to spatial and temporary accessibility to the supply of cereals with the innovative PROGRAM of the legal and institutional dimension of the problem.

The above proposed research studies are being presented at the next INSAH/PRISAS workshop in November of 1991 in Bamako, Mali.

## ANNEX B. STAFFING, EQUIPMENT AND BUDGET

### I. STAFFING

#### A. Food Security Coordinator

##### 1. Terms of Reference

The Program Coordinator will function under the supervision of the Director of DRMA. He /She will assume leadership and responsibility for the following:

- Promote and organize, regional meetings(workshops,seminars) in order to facilitate the setting of relevant research agenda;
- Provide scientific and technical guidance to stimulate and sustain collaborative efforts in identifying, designing and implementing national level socio-economic research projects of national and regional interest and impact within the food security arena;
- Identify, design and undertake analysis of food security policy issues of regional/transnational nature, taking explicit account of interactions between research, policies, institution and technology linkages of the macro/global economic level and the micro/household level;
- Promote national and regional level meetings (workshops or seminars) between Sahelian national researchers and national policy makers in order to develop and maintain a dynamic dialogue between them to ensure relevant research and timely diffusion of findings as well as interactive adjustments to research agendas and policy formulation or implementation.

##### 2. Qualifications

The Program Coordinator should:

- Hold a PH.D or equivalent degree in Agricultural Economics
- Have a minimum of seven (7) years of professional research experience, of which at least five (5) years in a field pertaining directly to food security in the Sahel
- Show an established record of valuable scientific research production to the subject-matter of food security in the Sahel
- Demonstrate a very strong sense of technical/professional competence, initiative, leadership and team-membership.

- **Fluently bilingual (French/English)**

**B. Research Associates (2)**

**1. Terms of Reference**

The research associates will work under the supervision of the Food Security Coordinator of PADRES. The research associates will be responsible for the following activities:

- **Developing and updating reviews of socio-economic issues affecting the development and diffusion of improved technologies; socio-economic impact on structure, operation and performance of key informal economic activities in the Sahel;**
- **Synthesize current state of knowledge on the efficiencies and constraints of key informal sectors;**
- **Reviewing evidence of factors affecting the returns to investments in agricultural research in the Sahel;**
- **Helping incorporate socio-economic issues into on-going INSAH research activities on crops, livestock and natural resources;**
- **Aiding in the preparation of workshops and seminars organized by INSAH for dialogue between Sahelian researchers and policy makers on issues related to technology development and dissemination, research agenda setting and adjustments;**
- **Other relevant duties as assigned by the Food Security Coordinator of PADRES.**

**2. Qualifications**

Candidates for the research associate positions should:

- **Hold at least a Masters degree or equivalent in Agricultural Economics;**
- **Have a minimum of five (5) years professional experience in the subject matter in the Sahel;**
- **Show valuable record of research production on the subject**
- **Demonstrate a strong sense of professional competence, initiative and team-membership**
- **Be fluently bilingual (French/English)**

**C. Bilingual Secretary**

The bilingual secretary for the food security PROGRAM of PADRES will be under the direct supervision of the Food Security Coordinator. He or she should be highly qualified and fluently bilingual (English/French), with at least 5 years of experience in a major institutional environment and micro-computer skills including word-processing and spreadsheets.

**D. Driver**

The driver is to assume responsibility for operating and maintaining the Food Security vehicle and serve as a routine messenger.

## II. EQUIPMENT

The Socio-economic program of INSAH has acquired through the PRISAS project the following equipment:

1. 4 IBM-compatible 386 generic desk-top micro-computers  
1 of 16Mhz-40 MB hard disk  
1 of 25Mhz-80 MB hard disk  
2 of 25Mhz-120 MB hard disk
2. 1 Zenith Supersport 286 Laptop computer
3. 4 ITT VIP-Executive UPSs
4. 5 ZX-25 surge protectors
5. 5 Printers  
1 HP Laserjet III  
1 HP Laserjet Series II  
1 Okidata ML-390  
1 Epson LQ-1050  
1 Diconix 150
6. 1 Multitech 224E Modem
7. 1 Gestetner 2240Z copier with collator
8. Complete set of office furniture for coordinator and secretary
9. 1 Vehicle  
Peugeot 505 station-wagon

This equipment will become part of INSAH's institutional equipment and should be used to continue the activities of PRISAS which will be are to be continued by the Food Security program of the PADRES project.

### III. PRELIMINARY BUDGET

FOOD SECURITY PROGRAM BUDGET	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
<b>A. SALARIES</b>						
Coordinator a)	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$600,000
Research Associates (2) b)	\$80,000	\$60,000	\$60,000	\$60,000	\$60,000	\$300,000
Secretary	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$75,000
<b>SUB-TOTAL</b>	<b>\$195,000</b>	<b>\$195,000</b>	<b>\$195,000</b>	<b>\$195,000</b>	<b>\$195,000</b>	<b>\$975,000</b>
<b>B. EQUIPMENT</b>						
PC/Software c)			\$8,000			\$8,000
Furniture d)	\$5,000					\$5,000
<b>SUBTOTAL</b>	<b>\$5,000</b>		<b>\$8,000</b>			<b>\$13,000</b>
<b>C. ACTIVITIES</b>						
Services & supplies e)	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$30,000
Travel in the Sahel	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$50,000
Publications & Distribution	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$100,000
Regional Workshops f)	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$450,000
National Workshops g)	\$80,000	\$80,000	\$80,000	\$80,000	\$80,000	\$300,000
<b>SUBTOTAL</b>	<b>\$188,000</b>	<b>\$188,000</b>	<b>\$188,000</b>	<b>\$188,000</b>	<b>\$188,000</b>	<b>\$930,000</b>
<b>D. OTHER DIRECT COSTS</b>						
Research Mini-Grants h)	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$500,000
MSU Buy-in - TA	\$158,000	\$158,000	\$158,000	\$158,000	\$158,000	\$780,000
<b>SUBTOTAL</b>	<b>\$258,000</b>	<b>\$258,000</b>	<b>\$258,000</b>	<b>\$258,000</b>	<b>\$258,000</b>	<b>\$1,280,000</b>
<b>FOOD SECURITY TOTAL</b>	<b>\$642,000</b>	<b>\$637,000</b>	<b>\$645,000</b>	<b>\$637,000</b>	<b>\$637,000</b>	<b>\$3,198,000</b>

**FOOTNOTES:**

- a) Base salary and benefits calculated at international salary scale
- b) CILSS salary scale and allowance grids
- c) Includes computer software and hardware
- d) Includes desks, chairs and air conditioners
- e) Includes misc. supplies, communications and mail
- f) Includes 3 regional meetings per year for policy research, dialogue, planning, design and result presentation, at \$30K each
- g) 5-7 annual meetings at a unit cost between \$8,000 and \$15,000
- h) 5-7 annual grants of \$12,000-\$20,000

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**COMITÉ PERMANENT INTERÉTATS DE LUTTE CONTRE LA SÉCHERESSE DANS LE SAHEL**

**INSTITUT DU SAHEL - B.P. 1530 - BAMAKO**

**PROGRAMME RÉGIONAL DE RENFORCEMENT INSTITUTIONNEL EN MATIÈRE DE  
RECHERCHES SUR LA SÉCURITÉ ALIMENTAIRE AU SAHEL (PRISAS)**

**PROTOCOLE D'ENTENTE DE COLLABORATION No. \_\_\_\_\_**

**Entre:**

l'Institut du Sahel (INSAH), B.P. 1530, Bamako, Mali, représenté par son Directeur Général,

et

le Centre d'Études, de Documentation, de Recherches Économiques et Sociales (CEDRES), Faculté des Sciences Économiques et de Gestion (FASEG), Université de Ouagadougou, 03 B.P. 7021, Ouagadougou 03, Burkina Faso, représenté par son Directeur.

**Article 1: Cadre**

Le présent Protocole est établi par l'INSAH en vue de son appui à la réalisation d'études sur les politiques relatives à la sécurité alimentaire au Sahel. Il constitue un support à la mise en oeuvre, dans une optique multidisciplinaire et inter-institutionnelle, de projets d'études spécifiques définis et élaborés dans le cadre du Programme Régional de Renforcement Institutionnel en matière de Recherche sur la Sécurité Alimentaire au Sahel (PRISAS).

**Article 2: Objet**

Ce Protocole a pour objet de permettre la mobilisation effective de ressources humaines et financières complémentaires, indispensables à la réalisation adéquate des projets d'études des politiques et stratégies nationales et régionales de sécurité alimentaire, conçus et initiés par les chercheurs des Systèmes Nationaux de Recherche Agricole (SNRA) participant au programme PRISAS.

### **Article 3: Durée de Validité**

L'entente de collaboration conclue et signifiée par le présent Protocole entre en vigueur à partir de la date de sa signature et demeure valide pendant toute la durée du programme PRISAS de l'INSAH.

### **Article 4: Obligations de l'INSAH**

L'INSAH s'engage à mettre à la disposition du CEDRES l'expertise et le financement complémentaires nécessaires à la réalisation des activités de recherche définies et approuvées en conformité avec la stratégie et les thèmes prioritaires de l'agenda scientifique du PRISAS.

### **PROTOCOLE PRISAS INSAH - CEDRES**

### **Article 5: Obligations du CEDRES**

Pour chaque projet d'étude approuvé dans le cadre de ce Protocole, le CEDRES s'engage à:

- (a) accorder au(x) chercheur(s) impliqué(s) les facilités nécessaires à la mise en oeuvre effective des activités prévues et assurer l'utilisation des financements acquis de l'INSAH aux fins exclusives de ces activités;
- (b) affecter un chercheur à titre de responsable de la coordination technique des activités de recherche correspondantes et de la livraison effective des produits attendus. Ces produits seront et demeureront la propriété conjointe de l'INSAH et du CEDRES.

### **Article 6: Modalités Opérationnelles**

Les termes de référence, les produits attendus et le budget de chaque projet d'étude convenu dans le cadre de ce Protocole feront l'objet d'un avenant individuel et distinct. Les responsabilités de signature et de la gestion technique, administrative et financière de chaque avenant incomberont, pour l'Institut du Sahel, au Coordinateur Régional du programme PRISAS et au Directeur du Département Recherche sur le Milieu et l'Agriculture (DRMA) et, pour le CEDRES, au chercheur affecté comme coordinateur de l'étude correspondante et qui représentera officiellement l'Administration de l'Institution. Les financements accordés par l'INSAH se feront sous forme de bourses de recherche régies par des conditions et modalités spécifiques explicitées dans chaque avenant et par les "Conditions Générales des Bourses de Recherche", annexées au présent Protocole.

**Article 7: Budgets et Modalités de Paiement**

Le montant total du financement de chaque projet d'étude sera précisé par l'avenant correspondant. Le paiement s'effectuera par l'INSAH en une ou plusieurs tranches correspondant à la livraison effective du (des) produit(s) attendu(s) des étapes explicites de réalisation du projet d'étude concerné.

**Article 9: Litige et Amendement:**

Tout litige pouvant surgir de l'exécution du présent Protocole sera réglé à l'amiable entre les deux parties. Tout amendement du Protocole se fera par accord mutuel direct des deux parties signataires.

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**Pour le Centre d'Études, de Documentation,  
de Recherches Économiques et Sociales:**

Ouagadougou, le \_\_\_\_\_

**Le Directeur**

**Dr. Souleymane SOULAMA**

**Pour l'Institut du Sahel:**

Bamako, le \_\_\_\_\_

**Le Directeur Général**

**Dr. Amadou T. JALLOW**

**PROTOCOLE D'ENTENTE**

**1955**

## **CONDITIONS GENERALES DES BOURSES DE RECHERCHE**

### **Responsabilité du Bénéficiaire:**

Le bénéficiaire consent, en tant que consultant contractuel, à utiliser la bourse de recherche accordée uniquement dans le but et aux fins du Projet explicitement approuvé. La bourse ne peut être transférée à une autre personne sans le consentement écrit de l'Institut du Sahel (INSAH). De même, le projet pour lequel la bourse est accordée ne peut être changé sans le consentement écrit de l'INSAH.

### **Responsabilité de l'INSAH:**

La bourse sera à la disposition du Bénéficiaire sur réception par l'INSAH de l'Accord de Bourse de Recherche dûment signé.

L'INSAH se réserve le droit de suspendre, d'annuler ou de retirer toute portion non utilisée de la bourse en cas de défaillance du bénéficiaire de se conformer à une ou plusieurs des conditions générales ou spécifiques de l'Accord. Il en sera de même pour les situations où seront mises en évidence des circonstances susceptibles d'empêcher une réalisation satisfaisante des activités et produits visés par l'Accord.

### **Responsabilité de l'Institution Administrative:**

L'Institution Administrative (institut, centre, département, division, etc.) dont relève le Bénéficiaire s'engage à respecter et à faire respecter les conditions convenues pour la gestion de la bourse de recherche par le bénéficiaire aux fins exclusives du Projet de l'Accord. Elle s'engage également à pourvoir les facilités nécessaires à la réalisation du Projet de recherche.

Tout équipement acheté par le Projet sur le financement approuvé dans l'Accord restera propriété de l'INSAH jusqu'à la réalisation complète du Projet. A cette échéance et sous réserve de conclusion explicite d'un arrangement autre, l'équipement ainsi acquis deviendra propriété de l'Institution Administrative.

### Conditions et Modalités de Paiement de la Bourse de Recherche:

Sur réception par l'INSAH de l'Accord signé, le paiement de la bourse de recherche au bénéficiaire s'effectuera en une ou plusieurs tranches correspondant à la livraison effective du (des) produit(s) attendu(s), conformément aux conditions spécifiées dans l'Accord. A cet effet, des fiches de facturation correspondant aux différentes étapes du Projet de recherche seront jointes à l'Accord de Bourse de Recherche. A la réalisation complète de chaque étape vérifiée par un produit attendu, le Bénéficiaire signera les copies de la fiche de facturation correspondante et les expédiera au Coordinateur du PRISAS, Institut du Sahel, B.P. 1530 - Bamako, Mali. Sur réception de chaque tranche de financement, le Bénéficiaire signera les fiches de quittance correspondantes et les renverra à la même adresse à l'INSAH.

### Résultats de Recherche:

Le bénéficiaire consent à publier tous les résultats du Projet de recherche dans une publication appropriée de l'INSAH. En outre, le Bénéficiaire tiendra l'INSAH informé de toute application possible des résultats du Projet et déposera à l'INSAH une copie de toute publication relative à ces résultats.

L'INSAH pourra utiliser dans ses publications tout produit qui lui sera soumis par le Bénéficiaire ou l'Institution Administrative, à condition de citer en due forme la source de telles informations.

### Obligations pour Dommage, Accident ou Perte de Vie:

L'INSAH ne sera tenu responsable ni d'un accident ou d'une perte de vie de personne ni des dommages causés à une propriété dans le cadre de la réalisation du Projet de recherche. Par conséquent, le Bénéficiaire et l'Institution Administrative dont il relève consentent à tenir l'INSAH exempt de tous dommages pouvant découler ou résulter de la mise en oeuvre du Projet.

**PROTODI...**

**...**

**COMITÉ PERMANENT INTERÉTATS DE LUTTE CONTRE LA SÉCHERESSE DANS LE SAHEL**

**INSTITUT DU SAHEL - B.P. 1530 - BAMAKO**

**PROGRAMME RÉGIONAL DE RENFORCEMENT INSTITUTIONNEL EN MATIÈRE DE  
RECHERCHES SUR LA SÉCURITÉ ALIMENTAIRE AU SAHEL (PRISAS)**

**AVENANT No. 01 AU  
PROTOCOLE D'ENTENTE DE COLLABORATION No. 001  
ENTRE L'INSTITUT DU SAHEL ET LE CENTRE D'ETUDES, DE DOCUMENTATION,  
DE RECHERCHES ECONOMIQUES ET SOCIALES (CEDRES), BURKINA FASO**

**ACCORD DE BOURSE DE RECHERCHE**

Accord de Bourse No. \_\_\_\_\_

Date: \_\_\_\_\_

- (1) **Imputation Budgétaire:**      **Projet d'appui de l'Accord de Coopération USAID/MSU au  
Programme PRISAS/INSAH**
- (2) **Montant de la Bourse:**      **1.990.000 F.CFA**
- (3) **Bénéficiaire de la Bourse:**      **Dr. Kimseyinga SAVADOGO  
CEDRES, Université de Ouagadougou, Burkina Faso.**
- (4) **Titre du Projet:**      **Etude de l'impact des arrangements institutionnels et contractuels sur  
les coûts de transaction et les performances du commerce des céréales  
au Burkina Faso.**

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(5) **Institution Administrative:** CEDRES, Faculté des Sciences Economiques et de Gestion  
Université de Ouagadougou, BURKINA FASO

(6) **Conditions et Modalités Spécifiques de Paiement:**

La présente bourse de recherche est accordée pour la réalisation de l'étude sus-intitulée qui devra explicitement couvrir les points suivants:

- (A) un examen critique des différents types d'arrangements institutionnels et contractuels publics et privés en rapport avec leur incidence sur les coûts de transaction; et
- (B) une analyse de l'impact des coûts de commercialisation sur les principaux Indicateurs de performance du commerce des céréales.

Le paiement de la bourse de recherche d'un montant total de un million neuf cent quatre vingt dix mille Francs CFA (1.990.000 F.CFA), se fera en deux (2) tranches de 1.615.500 F.CFA et 374.500 F.CFA. Ces paiements correspondront et s'effectueront respectivement à la livraison effective des produits suivants:

- (i) une proposition détaillée du projet de recherche présentant les objectifs précis de l'étude, les hypothèses de recherche, les sources et méthodes de collecte des données et les méthodes d'analyse; et
- (ii) un rapport résumant les résultats de l'étude et les recommandations conséquentes pour des arrangements contractuels susceptibles de réduire les coûts de transaction des céréales.

En référence aux éléments des points (1) à (6), l'INSAH, le Bénéficiaire (3) et l'Institution Administrative (5) conviennent de leur intérêt commun à soutenir le Projet (4) enregistré au titre d'Accord de Bourse de Recherche INSAH/PRISAS No. \_\_\_\_\_ .

L'Institut du Sahel s'engage, pour une période de six mois allant du 1er Juin au 30 Novembre 1992, à appuyer l'étude sus-définie par une bourse de 1.990.000 F.CFA sujette aux conditions spécifiques stipulées au point (6) et aux "Conditions Générales des Bourses de Recherche" annexées au présent avenant.

Pour l'Institut du Sahel: \_\_\_\_\_ Date: \_\_\_\_\_

Le Coordinateur du PRISAS

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Note:

**ANNEX 4**  
**NATURAL RESOURCES MANAGEMENT**

## I. NRM ACTIVITIES AT INSAH

### A. Background

In carrying out the research for its 1990-94 Five-Year Plan, INSAH found that although the degradation of the Sahelian natural resource base is a longstanding and familiar problem, relatively little research has been directed at understanding the causes or mechanisms through which this is occurring. Much of the ongoing research focused on restoring degraded or destroyed vegetation. The major topics being addressed included:

- natural forest management, particularly determining how much and which wood can be harvested without harming the productive capacity of the resource;
- conservation and stocking of phylogenetic resources in order to produce high-quality seed for reforestation efforts;
- plantation forestry, with particular emphasis on use of local species for reforestation and commercial forestry;
- agroforestry as an input to soil and water conservation;
- ecological monitoring in general, and monitoring desertification in particular, especially using remote sensing techniques; while this was of interest to many countries, only Senegal had begun work in this area;
- biotechnology, including work on biological nitrogen fixing and the impact of specific mushrooms on soil productivity;
- soil and water conservation, in which limited short-term studies have been done on dune fixation, contour dikes, and other soil management techniques;
- wood technologies, particularly preservation techniques and the physical and mechanical properties of different woods;
- fish culture;
- socioeconomic aspects of resource management; while this was recognized as a priority, little work was actually done in this area.

### B. The Five-Year Plan

In response to both the interests of the Sahelian countries and the gaps identified in their work, the Institute identified three broad areas which were to be given priority in its Five-Year Plan:

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### 1. Soil and Water Conservation

The focus in this area stems from a recognition that improving the productivity of agriculture and livestock depends not only on plants and animals, but on the resources on which they depend, and that human activity can have a major impact on the productivity of those resources. The Five-Year Plan proposes the creation of multidisciplinary teams in each country, to research appropriate technologies for making better use of these resources in the different ecological zones covered by the CILSS countries.

### 2. Management of Natural Plant Formations

Recognizing the need to focus on local species rather than exotics, since they are more suited to local use of wood products and are likely to be more resistant to the harsh climate, the Five-Year Plan focuses on research on the biology of principle local species. The plan calls for revitalization of research on silvicultural techniques, genetic improvement, and plant physiology. In addition, the plan calls for work on the management of natural forests, in order to understand better how the resources can be used efficiently and sustainably.

### 3. Ecological Monitoring

The plan recognizes that notwithstanding the obvious degradation of the Sahelian environment over the past twenty years, data are not yet available which show precisely what has changed, where, or how. The plan therefore proposes a program which will develop and implement a methodology for monitoring desertification trends, and create a database with which it will be possible to inform decision-makers about the state of the Sahelian environment. This is to be carried out in two phases. The first is a preparatory study lasting one year, during which a critical inventory would be carried out of what data or monitoring systems already exist. The second is the implementation of specific indicators and measurement systems with which the environment will be monitored.

### C. Activities

INSAH's work in natural resources management has lagged behind its work on agricultural research, with the result that for the most part the programs proposed in the Five-Year Plan have yet to be implemented. Since 1990, some work has been undertaken with support from the United Nations Sudano-Sahelian Office (UNSO). Two consultant studies have been conducted to identify potential research areas in soil and water conservation and forestry. These were carried out during the summer and fall of 1990, but have not yet been reviewed by the member countries and officially released by INSAH. In addition, UNSO has agreed to finance an expert in natural resources management who will be responsible for coordinating INSAH activities in this area. The precise terms of reference for this person have been left relatively open, in order to allow him or her the flexibility to develop a program based on the consultant studies. INSAH has solicited applications for this post, but has not yet chosen a candidate.

## II. THE PADRES NATURAL RESOURCES PROGRAM

### A. Objectives of PADRES

The USAID PADRES project is a five-year effort to support INSAH's coordination and information-dissemination role in the areas of agricultural research, food security, and natural resource management. The overall objective of PADRES is to produce high-quality policy and program guidance for policy-makers in the CILSS countries. To do this, it proposes the creation of three programs within INSAH which will guide the setting of research priorities, provide technical assistance in research methods, provide limited research funding, and conduct applied policy research. An important element of this project will be establishing linkages across the disciplines covered by the three programs, in order to ensure that the interdisciplinary nature of Sahelian ecological problems is taken into account in the search for solutions, both within INSAH and in the national research systems.

### B. The Natural Resources Program

The natural resources program within the PADRES project is designed to help INSAH carry out some of the activities proposed in the Five-Year Plan. The objectives of this program are to support national-level research on natural resource management through information dissemination, guidance in establishing research priorities, technical support, and research mini-grants.

The NRM program has two components, each managed by a different coordinator. The overall natural resources agenda set out in the Five-Year Plan will be the responsibility of the UNSO-funded expert. He or she will be considered to be part of the PADRES project, making this a joint UNSO-USAID venture. Complementing this overall work will be a narrower component focused on applications of spatial analysis techniques and geographic information systems to research in natural resource management. The coordinator of this analytical component will be funded by USAID.

The two programs within the area of natural resource management are expected to work collaboratively, building on and informing each other's efforts. Some of their activities will be joint, since the national researchers with whom they work are likely to be largely overlapping. They are viewed as two parallel, complementary efforts, each reporting to INSAH's Director of Research on Agriculture and the Environment. However, their primary activities differ, and the coordinator of each component will manage a budget specifically allocated to his or her activities.

Sections three and four below discuss each of the two natural resource components in turn. Each considers some conceptual and practical background issues, and then describes the specific activities which will be carried out. Section five then considers linkages among the three programs which make up the PADRES project, and section six covers staffing and equipment. Appendix A presents the budget for the two components of the project. Appendix B discusses a set of broader issues on information systems use in the CILSS system, which constitute the context of the work of the PADRES analysis coordinator.

### III. OVERALL NATURAL RESOURCES COMPONENT

#### A. Facilitating the development of research priorities; background concerns about coordination

INSAH's mandate is to "coordinate research" in the Sahel. This may be understood to mean that INSAH will contribute to the definition of research priorities and guide the identification of areas on which national the national research systems focus, in order to avoid duplication of effort and ensure that the most important problems are addressed. It is useful to be more explicit about what it means to coordinate research, however, in order to determine how INSAH can be most effective through the PADRES project.

The fundamental question which must be addressed is who INSAH expects will follow the research agendas it develops, and why they should do so. At present, decisions about what areas will be researched in each country can have input from a number of actors. The researchers themselves presumably have some say, in response to their own interests and their perceptions of what is needed or where interesting results could be obtained. Some of the research institutions are developing overall strategies which they wish to follow in their programs. Government decision-makers who want to use the results of the research may have some input into the choice of topics. Donor agencies who fund research activities certainly have a major input into the decisions, which may respond either to their perception of the country's needs or to internal needs of their own (e.g. developing data to meet Congressional requirements). Donor agendas may also be a product of the interests and skills of the universities and consulting firms with whom they contract for project design, which have a vested interest in encouraging work in their own areas of expertise.

All of these actors are faced with a range of pressures on their choices of research topics. An INSAH-developed agenda would simply be one more opinion, and one not backed by the ability to fund research. Why should anyone listen?

The donor-initiated Special Program for African Agricultural Research<sup>1</sup>, which INSAH is implementing in the Sahel, reflects a donor and Sahelian recognition that the region cannot afford to diversify as much as it has in research on agriculture and natural resource management. At least in principle, this means that both researchers and donors should be willing to go along with the priorities established through INSAH. However, "going along with the research priorities" does not mean simply agreeing with them. It means that a significant proportion of future research will follow these priorities, rather than ones defined independently by the countries or their funders. Agreeing to follow such an agenda means a loss of autonomy for both researchers and funders, because they will have less authority to decide for themselves what to work on or what to fund.

We should, therefore, anticipate resistance to following an INSAH-developed research agenda. Moreover, not all resistance will be the result of personal interests. Each country naturally wants to work on the questions which are the most important to solving its own problems. A regionally developed set of priorities will respond to the problems perceived to be most crucial at a regional scale; for any individual country, however, these could be secondary. Following a

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<sup>1</sup> See the agriculture research technical annex to the PADRES Project Paper for a detailed discussion of the SPAAR initiative.

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regional agenda means deciding to put the common good of the CILSS countries above the individual good of one's own country, and, reasonably enough, no government will be in a hurry to do so.

How can INSAH design a research agenda (or several, in the different disciplines) which can overcome these natural sources of opposition? The most plausible approach seems to be to focus on the process through which priorities are developed. If the agenda is perceived as something developed by INSAH, with only advisory input from the CILSS countries or the donors, then no one will feel very strong allegiance to it, and it is sure to be ignored whenever it conflicts with individual interests. On the other hand, to the extent that priorities are set through a process in which everyone has a say - researchers, funders, decision-makers, etc. - then there may be some hope that they will be willing to give up at least a little of their own interests for the common good.

Managing a participatory process for setting priorities will not be easy. The usual donor approach to identifying needs in the CILSS countries - send a consultant to visit the countries and see what they want, then have the consultant synthesize the findings - is insufficient. This method is excellent for identifying problems, but it only gives the countries an advisory role in establishing priorities among them. Similarly, the typical approach to donor cooperation - "if I tell them what I'm doing they can take it into account and design around me" - will not ensure that funding will actually follow an INSAH agenda. Even more important is that INSAH recognize that the donor agencies are complex institutions, and that the office which funds INSAH's priority-setting may not be one which funds agricultural research. For example, the Sahel/West Africa Office of USAID supports the INSAH/SPAAR process, but it does not have authority over research funding in the nine CILSS countries.

It will be crucial, therefore, for the process of building research agendas to involve the end users - both researchers and funders - fully. INSAH's role could, therefore, be to identify the relevant actors, and to bring them together to develop a consensus on a framework for their activities, how they relate to each other, and what the priorities should be for future work. Such coordination does not give INSAH itself any authority; the priorities established will carry weight to the extent that process by which they were developed is perceived as legitimate.

## B. Program Activities

In light of these concerns about how to facilitate the establishment of research priorities, the overall natural resources program will have several kinds of activities. First, it will regularly review research in the areas of soil and water conservation and forestry in the Sahel, and disseminate that information to national researchers and policy-makers in various forms. Second, through both this information-dissemination and a series of regional or national meetings, it will guide the process of establishing research priorities in these areas. Third, through the meetings it will provide technical guidance to researchers in the natural resources area. The steps involved in carrying out these activities are described below.

### 1. Review and Synthesis of Literature and Ongoing Research

The first step is to review the research which has already been done on natural resource management techniques in the Sahel, focusing on the areas of soil and water conservation and natural forest management which have been given priority in the Five-Year Plan. These topics may

be further divided, to produce several different reviews addressing different topics. Even if further subdivided, the reviews will have to cross a number of different disciplines such as soil science, hydrology, range management, ecology, biology, forestry, economics, public policy, law, anthropology, and so on. An interdisciplinary scope is essential if the review is to address both scientific research on the efficacy of different techniques and social science work on whether those techniques are likely to be useful in particular social settings. Because this must span so many different disciplines, consultants from a variety of fields should participate in preparing it; no one person is likely to be able to do justice to this breadth. The reviews should take into consideration prior reviews of natural resources management work on the Sahel, and if appropriate it may focus primarily on recent work not already reviewed elsewhere.

Because research on natural resource management has received less attention in the Sahel than has classical agricultural research, the reviews may be stronger on identifying questions than on bringing to light concrete results. For this reason, they should be accompanied by a briefer and less technical document which provides the coordinator's and the consultants' assessment of key areas for future work. These recommendations will serve as a basis for regional discussion leading to identification of research priorities for the next few years.

Preparation of both the literature reviews and the recommendations should take into consideration, and where appropriate build on, the UNSO consultant work identifying key issues for research on soil and water conservation and forestry in the Sahelian countries. In order to avoid building two parallel processes for identifying research priorities, further follow-up specifically on the UNSO recommendations will be incorporated within the PADRES agenda-setting process.

When finished, the literature reviews and the recommendations should be sent to outside reviewers for validation and comment. This will help ensure that important work has not been missed, and will provide initial feedback on how the priorities perceived by the INSAH staff accord with those of outside experts. At least three reviews should be completed during the first year of the project.

## 2. Build a network of researchers

At the same time as the initial reviews are being prepared, the coordinator and the program assistant should be identifying the people who should participate in the development of research priorities. This will include three types of people. First, the coordinator should identify the researchers working on NRM issues, whether they be within the NARS, in other government agencies, in the universities, or elsewhere. These people must cover a range of disciplines, to include both natural scientists and social scientists. The contacts established by the UNSO consultants on forestry and soil and water conservation will provide a good basis for starting this part of the network-building.

Second, the coordinator should work on identifying research users: the people who make decisions based on the research results. These people may include government policy makers, civil servants making operational decisions about resource management or agricultural extension, development agencies or committees, and the resource users themselves - the farmers and herders. It will be important to bring these people (or their representatives, in the case of farmers and herders) directly into the process as early as possible, in order to ensure that the identification of priorities is driven by a demand for the output and not solely by the intellectual interests of the

researchers. Clearly it will not be possible to bring in all of the individuals involved, because they are too numerous; however a mechanism to ensure representation of the major perspectives will be important.

Third, the coordinator should begin working with the donors to bring them into the priority-setting process. This will involve identifying the individuals in the major donor agencies who design and manage natural resource projects and research, to ensure that their perspective, like that of the users, is considered from the start.

Identifying the participants in the network will require some time and investigation, including trips to at least some of the CILSS countries and discussion with as many of the people involved as possible. Some of this travel may be carried out jointly or shared with the analytical coordinator, since many researchers on natural resource management may be interested in contributing to both the overall NRM network and the GIS network.

### 3. Distribute the literature reviews and recommendations

When each review and set of recommendations has been returned by the outside reviewers, they should be sent to everyone in the network, as well as to people in the West who may be interested. With the review should also be a notification of the upcoming meetings (see below) to discuss the work done and identify priorities for the future.

Very wide distribution of the reviews and recommendations will be an effective way to accomplish several things. First, it will put INSAH on the map with respect to research on NRM in the Sahel, and show that the PADRES project is producing useful concrete results. Second, it will be a mechanism for identifying additional work which may have been missed and bringing more people into the network. Third, the suggestions for future research directions will stimulate people's thinking along those lines, and bring out new ideas and discussion about priorities in the Sahel.

### 4. Priority-setting meetings

By a year into the project, the coordinator should be ready to hold the first meetings to discuss research priorities for the future. The purposes of such meetings will be several. First, they will provide a forum at which researchers can present their work to their colleagues and obtain feedback and criticism. Second, they will provide an opportunity for interaction between researchers and the end users of their products, in order to ensure that the needs of the users are taken into account in identifying research questions and priorities. Third, they will allow the group as a whole to identify key areas which need further work, and on which future research should focus. The first set of meetings will replace the validation workshops which were previously planned in order to follow up on the UNSO consultant studies.

The meetings could take several forms, at the discretion of the coordinators of the two NRM components. One option is to hold regional meetings for both researchers and research users, which will serve both to present research and to discuss user needs. Alternately, the program could hold regional meetings at which researchers could discuss technological and methodological issues, while leaving the confrontation of researchers and users to the national level, at which the discussion could be more focused on specific issues of local interest. This would have the advantage

of keeping the gatherings to a more manageable size and reducing the amount of travel required; it would have the disadvantages of requiring far more meetings and losing the regional perspective of the discussion. A third option is to hold separate meetings for different disciplines within the NRM arena, for example grouping soil and water conservation into one session and forestry into another (leaving agroforestry in the middle); this could help concentrate the efforts of each session on a narrower range of topics and keep the work more manageable.

The regional or national NRM meetings could also incorporate a consideration of the application of spatial information and GIS tools to research on natural resources, organized by the coordinator of the analytical component of the program. Sessions specifically on GIS would focus more on research methods than on priority-setting, because research which uses GIS should not be considered a different field from other NRM research; it is simply using a different tool. Holding the GIS meetings jointly with more general research methods meetings would be an effective way to introduce the tools to those researchers who had not yet incorporated them into their work.

Depending on how many people are interested in being part of the network, the coordinator will have to decide whether the meetings can be open or should be restricted to invitees. Ideally anyone interested would be able to attend, and INSAH would invite particular individuals or organizations whose participation it considered essential. However if the numbers involved are too large more restriction might be necessary.

The exact design of the meetings to be held will be determined by the two coordinators, based on their assessment of the needs and interests of their networks of researchers and research users.

Several outcomes are to be expected from the first meeting (or round of meetings). First, the participants should arrive at some consensus about key research topics which they feel are important to the region as a whole. Second, insofar as possible, engagements should be obtained to fund or carry out work on those areas, so the group knows who is taking them on. Third, research questions which can best be addressed by INSAH itself, because of their regional dimensions, may be identified through the meetings. Those questions would constitute some of the analytical work to be taken on through the analysis component of the NRM program.

#### 5. Ongoing process

The first set of meetings would launch what would become an ongoing, iterative process of reviewing research results and identifying further needs. This ongoing work could include several kinds of activities:

- The coordinator would keep in touch with the researchers who had agreed to take on particular topics, provide technical advice if useful, and following their work.
- Researchers who had achieved interesting results would be strongly encouraged to write them up and submit them to INSAH.
- Eventually the NRM program would begin publication of a refereed research journal or occasional research reports, which it would disseminate widely in the Sahel. (See below.)

- Each year the coordinator would send out an update on ongoing research, including summaries of any research reports received from the national researchers.
- At least one priority-setting conference would be held each year to present new work done over the year and see what refinement of research directions was needed. Eventually these conferences might evolve into something analogous to academic conferences in the West, where the researchers and the research users would group according to specific interests, research results would be presented, users would express their views as to the utility of the output, and donors would develop a sense of what they might consider funding in the future.
- The coordinator would meet with the other two PADRES coordinators to identify areas of overlap or areas where interdisciplinary linkages will be important. They will review each other's information about ongoing research, and will disseminate information as needed about connections across the disciplines. They will also participate in each other's annual conferences, and each conference will include at least one session dedicated to discussing links between the primary topic and those of the other two programs.

## 6. NRM Research Publication

The PADRES project will be supporting the provision of a scientific and technical editor who will assist the publications work of INSAH as a whole. Beginning in the second or third year of the project, the NRM program should rely on his or her services to develop a journal or occasional annals in which to publish research results in the area of natural resources management in the Sahel. The lack of technical publications is one of the major reasons why research results do not circulate in West Africa, so this will be meeting a clear need. Moreover, the national research systems are frequently criticized for not producing any results; to the extent that that is a misimpression based on lack of information, such a journal will help correct it.

Development of such publications will require putting together an international jury of reviewers who will determine whether the articles merit publication; this could include the same people who validated the initial literature review. Having such a review board is essential if the journal is to have international credibility. As with the literature review, technical publications be circulated as widely as possible.

## 7. Research Mini-Grants

The overall joint NRM program will be equipped with a fund with which to provide mini-grants of \$10,000 to \$20,000 each to national researchers working on issues of regional importance. This is not intended to turn INSAH into a funding agency. However, the mini-grants will be intended to encourage researchers to think regionally, by helping overcome the funding constraints which may hamper their activities. There are no specific restrictions on how the funds may be used; thus they might be used to purchase equipment or data, hire research assistant or consultant services, or to support thesis research by graduate students in natural resource management. The two NRM coordinators will, jointly with others in the PADRES program and at INSAH, develop procedures through which the grants are awarded. The first grants for NRM research could be awarded in the second year of the project.

#### IV. NATURAL RESOURCES ANALYSIS COMPONENT

##### A. INSAH Interest in GIS

INSAH's interest in working with applications of spatial information and GIS to natural resources stems from several realizations:

- information is a major lack in the Sahel for policy making and research on natural resources
- GIS is an important analytical tool of great promise in the analysis of resource management techniques and policies, because it makes it possible to combine data in new ways and to understand the spatial dimensions of new approaches. For INSAH effectively to support and understand research and policy analysis on natural resources, it must have direct experience working with this tool.
- in the areas under its jurisdiction, INSAH is likely play an active role as an analyst of questions which are better addressed at the regional than at the national level. GIS is one of the tools which it will need to use to carry out such analysis, so it must have be equipped to do so, in terms of skills, hardware, and software.

##### B. Background and Context

In the interest of coordination across the different branches of the CILSS system, it is important that INSAH's venture into GIS be designed in the context of work which is ongoing or planned at AGRHYMET and the Executive Secretariat, as well as in other organizations active in the Sahel. Appendix B discusses in some detail some of the issues involved in using spatial analysis software and developing spatial databases, describes the range of tasks involved, and identifies some of the key actors already engaged in carrying out each task. In this section it is necessary to consider only a few of the general issues and some of the work planned within the CILSS system.

###### 1. Data Collection vs. Data Analysis

It is important to distinguish between database development and management on the one hand, and data analysis on the other. The activities of collecting primary data and of standardizing data collected at local and national levels so they are compatible at the regional level are both part of building regional databases. This extremely time-consuming, meticulous work; for example, development of the meteorological databases at AGRHYMET has taken some fifteen years. Ongoing **managing** of such databases also requires much work; collecting data on a regular basis, forwarding it to a central system, correcting it, and making it routinely available to users.

Analytical work can be separated entirely from development of primary databases. The analytical user typical has a question in mind, and is looking for the information which would help answer it. Finding the information requires looking for databases, coefficients, and parameters which can be combined in order to carry out the desired analysis. In the process, the necessary information is brought in-house so it can be analyzed. When the necessary information is not available the analyst may be forced to restructure the question or make do with poor data. In the

process he or she builds a collection of data in-house and develops a good sense of what kinds of data are available and what is seriously lacking.

INSAH's interest in working directly with GIS is as an analytical user rather than as a database developer. To the extent that data are collected within the Institute, they will be secondary data gathered from other sources rather than primary data gathered in the field. This means that INSAH will not embark on the extremely time-consuming activity of building databases, although it will become expert in the needs for such activity within certain domains. It also means that INSAH will not come into competition with or duplicate the work of other institutions which are taking on database development responsibilities.

## 2. Programme SAGE

The Executive Secretariat-led Programme Sahélien d'Appui à la Gestion de l'Environnement (SAGE) is planning a series of activities which very closely parallels the ecological monitoring program described in INSAH's Five-Year Plan, and which may overlap in significant ways with some of the activities planned for the natural resource analysis component of PADRES. The PADRES effort must take this into account in its design and implementation.

The SAGE program was first proposed in 1988 as the Programme de Suivi de la Dynamique de la Désertification (PSDD). It has been the subject of much talk and at least one international conference (held in Niamey in 1990), but as a concrete program of activities it is still wishful thinking.

In 1990, terms of reference were developed for a one-year feasibility study for the PSDD. They were prepared by a French remote sensing company, and focused on assessing the feasibility of building a region-wide GIS using both remote sensing and ground data collection. These terms of reference were substantially revised over the course of 1991, shifting the focus from the technical dimensions of how databases could be developed to the more institutional and political issues of identifying information needs and evaluating how effective the use of spatial information has been in the recent past. A steering committee for the feasibility study met several times during 1991 to revise the terms of reference. At its last meeting (May 1991, in Ouagadougou) it recognized that the proposed program was broader than "monitoring desertification", and should be understood as supporting environmental management through better access to information. It therefore changed the program's name to SAGE, and the feasibility study to a "preparatory study". Although both names are still in use, this paper will use the new ones.

The final terms of reference for the SAGE preparatory study call for first an inventory of existing uses of spatial information to address environmental issues in the region, and an identification of information needs. "Spatial information" is defined very broadly to include anything which could be assigned a location; thus it includes not only data about the physical environment, but also data about population size and growth, ethnic groups, prices, consumption trends, economic behavior, cultivation practices, etc. The inventory, to be conducted by consultants within the nine countries, is to lead to development of a set of recommendations for what the SAGE Program should do to help meet information needs. The actions considered likely to be included within the program itself might include database development, management and distribution, coordinating a process to resolve data standardization problems, supporting information development and use at the national level, etc. The institutional location of the SAGE

program itself was to be defined in the course of the preparatory study; at this point the people involved consider AGRHYMET the most likely institution because of its prior experience in building primary databases.

As of this writing the financing for the SAGE preparatory study was almost, but not entirely, sure. The Coopération Française is willing to finance a portion of the study, but not all of it. Other donors have expressed a willingness to contribute; this is to be finalized at a donor meeting to be held in December in Brussels. If it turns out that no other donor is willing to contribute, the French will apparently withdraw their offer as well. However, if there is other support, the study is scheduled to begin in early 1992. The Coopération Française has designated a full-time person, François Lavenu, to manage the study out of the Executive Secretariat. He plans to relocate to Ouagadougou by the end of 1991, and will begin recruiting consultants to visit the member countries in January 1992.

### C. Program Activities

In keeping with its objectives and mandate, INSAH sees its activities in the application of spatial analysis tools to natural resource management as focused in three general areas. First, they want to develop a sense of where the region is with respect to the use of GIS in research on natural resources management and build a network of contacts with GIS users. Second, they will be analytical users of spatial databases developed by others, in order to answer regional resource management questions. Third, as they gather experience with the tools, they will support national research which uses them, and will contribute to the identification of new research directions which rely on using spatial information.

These activities can be carried out through the following series of steps:

#### 1. Inventory and Network-Building

The natural resources analytical coordinator should begin his or her work with an inventory of existing activities in the region in the use of spatial data and analysis tools. This activity will serve three purposes. First, obviously, it will allow INSAH to identify what is going on in the Sahel in the application of GIS tools to natural resource management. Second, it will allow the analytical coordinator to build the network of contacts with national researchers using GIS. Third, it will enable INSAH to gather information about data which it may want to use in its own analytical work, and to identify important analytical issues to which it may wish to devote attention at a regional scale.

Because the data used to analyze natural resource questions are also used to analyze many other questions, many of the people who are most active in building or using spatial databases may not see themselves as involved in natural resources management or research. For this reason, the network of contacts developed by the analytical coordinator probably will not overlap entirely (or be a subset of) the network developed by the overall NRM coordinator. Nevertheless the two should work together in their network-building activities during the first year of the project, and should build on each other's contacts wherever appropriate. This will help ensure collaboration and coherence between the two programs.

The analytical coordinator's inventory and networking activity will overlap closely with portions of what either the SAGE preparatory study or the SAGE program are expected to do. For this reason, the PADRES PP team, the INSAH staff, and the Coopération Française coordinator of the SAGE preparatory study agreed that the analytical coordinator provided to INSAH through PADRES should participate fully in carrying out the SAGE preparatory study, assuming the timing of the two projects permits.

Integration of the PADRES and SAGE efforts would serve two purposes. First, it would avoid duplication of effort in finding out who is doing what with spatial information, since the SAGE inventory and the PADRES information-gathering activities would be very similar. Having one of the two projects rely on the other's results would not be adequate, because each project also needs to build a network of contacts with users in the member countries, which can only be done through direct visits. Therefore a joint effort seems more efficient than two separate ones. Moreover, given the similarity between the proposed efforts, INSAH would hardly strengthen its credibility with the national researchers as a coordinating agency if it couldn't even coordinate its own activities with those of its umbrella institution!

Second, INSAH participation in the SAGE preparatory study would ensure that the final activities and organizational structure of SAGE would be fully consistent with INSAH plans in related areas. Whether or not part of SAGE is eventually based at INSAH, INSAH participation will ensure that the relationship between PADRES GIS work and SAGE is complementary rather than competitive. Moreover, this relationship will be defined through a process of cooperative development of the two programs, rather than by either one of them defining its activities and pressuring the other to follow its directives. Since neither program is likely to be willing to simply follow the lead of the other, integration of the development processes through INSAH participation in the SAGE study seems like a useful approach to further collaboration.

The mechanisms of this collaboration have yet to be worked out. In particular, the question of who will pay for the participation of the analytical coordinator in the SAGE study is unresolved. This concerns both salary and costs of activities, especially the travel involved in inventorying existing practices. These costs could be covered either through PADRES or through the donor funding to the SAGE study, or they could be shared. The arguments each way concern, of course, who can best afford it, but more importantly what funding mechanism will best ensure that INSAH will be most fully integrated into the SAGE planning process rather than being viewed as a dispensable addition tacked on as an afterthought. From this perspective, INSAH feels that its input will be taken most seriously if its participation is funded by the SAGE study, and not by PADRES. This will have to be negotiated with the other donors and with the coordinator of the SAGE study in the coming months.

The inventory phase should lead to identification of priority areas in which the national researchers need technical, methodological, or resource support to further their work on applications of GIS to natural resource management issues. INSAH will then determine which issues it is best equipped to work on, and those issues will guide further work of the analytical coordinator. If the SAGE Program gets under way quickly after the preparatory study, PADRES activities could be included in a SAGE component based at INSAH; however if SAGE is slow in getting started, PADRES activities will not wait.

## 2. Analytical use of GIS

By the middle or end of the SAGE preparatory study (or once its own inventory is completed, if cooperation with SAGE proves unworkable), INSAH should be in a position to begin direct use of spatial information systems in the analysis of problems with a regional dimension. It is recommended that the analytical work carried out at INSAH be based in a single test zone, selected because of the existence of a concrete NRM problem which lends itself to analysis using GIS tools. This analytical work will serve both to provide useful results to Sahelian decision-makers and researchers and to help develop INSAH's in-house skills as analytical users of GIS.

Questions for analysis could originate in several places. First, the inventory process will identify both analytical questions which have an important regional dimension and methodological problems which are common to many countries. INSAH may begin working on these problems in order to develop solutions which could be of benefit to national researchers.

Second, the NRM coordinator, and possibly other PADRES coordinators, may identify issues which warrant analysis at the regional level, and they or their research assistants will begin working with the IS coordinator to address those issues.

Third, it has been suggested in various discussions that through the restructuring of the CILSS system INSAH may come to play the role of a "think tank" for the CILSS system, providing analysis and research as an input to Executive Secretariat efforts at political coordination. To the extent that this occurs, the Executive Secretariat may be generating analytical questions for INSAH to address; who would actually carry out that work is a question to be answered when the situation arises.

Fourth, it has been suggested that INSAH may become in some respects the monitoring and analytical arm of the SAGE program once it is finally implemented. This would give INSAH responsibility for carrying out prospective studies of natural resources issues at a Sahelian scale. Such activity will rely on the services of the analytical coordinator and perhaps other PADRES staff. Mechanisms through which this would occur will, of course, be developed during the course of the SAGE preparatory study; INSAH's participation in that study will help ensure that whatever is planned is consistent with INSAH's objectives, mandate, and capabilities.

The analytical coordinator would play an active role in both carrying out and supporting the analysis of resource management questions. Based on knowledge gained during the inventory of ongoing practices, s/he would identify sources of data; provide basic GIS training; offer user assistance in working with the software; and help think through how the technology could be applied to particular applications in agronomy, agriculture economics, or natural resource management. The NRM program assistant is expected to spend a substantial portion of his or her time actually doing analytical work on resource management issues, with supervision and advice from both program coordinators.

## 3. Basic GIS Training

During the first year of the project the analytical coordinator should also offer basic training in GIS use to the NRM program staff and to other PADRES staff if they are interested. The purposes of this training, which should be short and flexible in structure, are several:

- to build in-house capacity so as to strengthen the coordinators' ability to understand and evaluate research using these tools, and
- to give the NRM coordinator and the program assistant the skills to do their own analytical work.

Although training should begin during the first year of the project, it is likely to continue on an intermittent basis throughout the life of the project. Since it is to be targeted at a small group of people, it can be informal and can be designed to meet individual needs as closely as possible. Training should be oriented towards helping the other project staff understand how spatial and tabular analysis tools can be used to answer questions about the relationships between physical, social, and policy factors with respect to managing the Sahelian environment.

Later in the course of the project, INSAH's GIS facilities and capabilities might also be used to provide some informal training to analysts from the CILSS countries. Although they will not have the resources with which to run formal courses, INSAH could house graduate students or researchers who want to spend time learning to use the technology and working on specific research questions. Such people could hold research assistant positions within the PADRES project, or could come with other funding to work at INSAH.

#### 4. Support to National Users

Based on the priority areas for INSAH support to national GIS use to be identified through the inventory, the analytical coordinator will begin organizing national or regional meetings at which Sahelian researchers can discuss common methodological and technical problems. The exact topics to be addressed in these meetings will be determined by the coordinator based on the inventory; however a few points are worth noting.

First, one important source of support to researchers may be the establishment of software user groups at the national level. Such groups serve to build a network of people using the same packages within a single city, so that they can draw on each other's expertise when problems arise. This can be a very important source of technical support for new users, in particular; such groups are very common throughout the west. While efforts to establish similar networks are already underway in some Sahelian countries as part of larger information systems development activities (Mali, Niger, Burkina Faso - see Appendix B), in countries with less developed research systems INSAH could make an important contribution by encouraging the development of GIS user groups.

Second, it may be useful to establish national-level linkages between the users of GIS technology and the producers of both spatial and tabular data. This will help to encourage the harmonization of information needs and supply at the national level. UNSO is currently preparing a Strategy for Environmental Information Systems, which can offer both the coordinator and the national countries some guidance on the issues involved in defining information needs and ensuring that data suppliers meet them. (See Appendix B for discussion of the UNSO Strategy.) Again, INSAH should be careful not to duplicate the efforts of other organizations already working in the more experienced Sahelian countries, but should focus its efforts on countries where such work is not already underway.

Third, the analytical coordinator may want to work with the overall NRM coordinator in incorporating some GIS sessions into the regional meetings for NRM researchers and research users. Through joint meetings both researchers unfamiliar with the technology and users of research results would get some exposure to its potential. Regional meetings would also provide a general opportunity to discuss problems and results with a broader audience, and would allow researchers working on similar problems to identify each other.

The design of the particular meetings to be held is left up to the judgment of the analytical coordinator, working in collaboration with the overall NRM coordinator.

#### 5. Research Mini-Grants

The NRM program as a whole will also be equipped to furnish mini-grants to national researchers working on natural resources issues of regional importance. Since there will be only one grant fund for the overall program, this is discussed above under consideration of the general NRM component.

### V. LINKAGES ACROSS THE PADRES PROJECT

PADRES will consist of three programs, one in agronomy ("agricultural research", including pest management), one in agricultural economics ("food security"), and one natural resources management. However, given the cross-cutting nature of Sahelian environmental problems, it is essential to consider how linkages will be made across these three programs. This section discusses some of the conceptual issues involved in doing interdisciplinary work, and then suggests some specific mechanisms through which the PADRES coordinators can insure linkages across the different programs.

#### A. Disciplinary and Interdisciplinary Work

The framework used to categorize the problems addressed by PADRES has evolved out of the history of agricultural research in the Sahel and the gradual inclusion of additional disciplines and perspectives into our understanding of the issues to be addressed in solving problems. It is essentially disciplinary; one area focuses on the biological dimensions of agriculture, the second on agricultural economics, and the third groups several disciplines of soil science, hydrology, forestry, etc. It responds to how people historically have defined their areas of expertise, and allows us to sort out people doing research into more or less orderly groups based on the disciplines from which they take their analytical frameworks.

The difficulty with this approach, of course, is that in the real world problems cut across disciplines. A minimal approach to building interdisciplinary bridges calls for us to understand the aspects of a given problem which can be addressed through each discipline, and be aware of how each discipline takes as a given what others may question. For example, when faced with an objective of increasing crop yields, the agronomist might think in terms of developing a variety which produces more grain per hectare, taking the soil, price of grain, and alternate food sources as a given. By contrast, the agricultural economist interested in increased yield might look at the impact of a change in grain prices on the farmer's propensity to invest in weeding or other uses of time which increase output. Each analyst takes as a given or as a constraint factors which another

analyst would work on varying, and each analyst focuses on the impact on output of varying only some of the input parameters - prices in one case and seed varieties in the other.

One way to conceptualize an interdisciplinary approach to developing a solution is as an approach in which the interdependencies of the disciplinary models are made explicit. Thus in the example above we can explicitly recognize that the agronomy and agricultural economics frameworks for looking at how to increase yields each take as a given what the other experiments with varying. This lets us build a single combined model in which, say, the impacts of a change in both seeds and prices can be looked at together. This approach does not require a change in the way each discipline frames the issues, but it does require us to identify the points at which several frameworks incorporate the same parameters. Through those common parameters we can link the models to arrive at a combined one through which we can develop a more complex understanding of the world.

A more complex approach to interdisciplinary problem-solving might actually involve integrating the questions asked by different disciplines into a unified rather than combined model of a set of relationships. What this would look like is not at all clear, however. Realistically, we will probably be doing very well if we can get people to understand each others' frameworks well enough to take the combined approach to interdisciplinary work; looking for actual interdisciplinary models seems like too much to ask for.

#### B. Establishing linkages within PADRES

If PADRES is to be structured around three independent disciplinary programs, we must think about how they will go outside their disciplines to take into account each other's work. What mechanism will ensure that this happens?

One option would be to have the project run by a technical (rather than administrative) team leader. He or she would provide interdisciplinary intellectual oversight, to ensure that each of the agendas developed reflected the links to the others. S/he would also serve in a sense as a mediator, to keep the disciplinary coordinators in communication with each other rather than allowing them to go their own ways.

Although intellectually this might be an interesting solution, institutionally it would make the PADRES project into a somewhat separately hierarchy within INSAH, which is undesirable in terms of INSAH management. Moreover, finding the kind of person who can play that role might not be easy. It does not necessarily require training in any particular subject matter - although clearly the person would have to be familiar with the issues involved - but it does require an ability to think strategically and broadly which can be hard to find. In addition, this could be difficult within the funding constraints of the PADRES project.

A preferred approach is therefore to spell out a process through which the three coordinators are expected to work with each other to ensure a combination of frameworks. The steps involved may include:

- sessions(s) at the start of the project at which the three coordinators (and others who are interested) meet to go through a more detailed overview of the disciplines which will be covered under each program and identify as many areas of possible linkage as they can.

- explicitly set out process for flagging areas of overlap in doing literature reviews, discussing specific research efforts, etc. This involves an understanding of where interdisciplinary linkages are likely to be important and a continuous effort to be aware of them.
- insofar as possible, the coordinators should attend each others' meetings in order to follow the work of their colleagues.
- periodic synthesis meetings at which the coordinators (and others who are interested) review their findings and make the linkages in order to develop a single broad view of how activities relate to each other. The output would be the identification of important areas where linkages are effectively being made in research or application of research results, and flagging areas where more linkages should be made.
- at each of the research conferences or workshops held by the three programs, include at least one session which explicitly addresses the linkages across the components of the PADRES project, to ensure that researchers are aware of relevant work in other fields.
- undertake joint analytical projects. To the extent that the three programs of PADRES will be doing analytical work, the linkages across them could be greatly strengthened by developing these undertakings jointly, so that they were working together to build models which linked the questions asked by the different disciplines. Insofar as it is possible, developing such approaches to in-house analytical work is strongly recommended; this will, of course, depend on the questions which are identified as having priority within each program and on the interests of the individual program coordinators and assistants.
- use the small grants to fund interdisciplinary work. This may be a quite effective way to encourage national researchers not only to think regionally, but to go beyond their own disciplines in looking for approaches to problem-solving.

For mechanisms like these to be effective, the coordinators must be serious about wanting to build bridges across their disciplines; otherwise it will always be easy to pay lip service to interdisciplinarity and actually do nothing.

## VI. PERSONNEL AND EQUIPMENT

### A. NRM Coordinator - Terms of Reference and General Considerations

UNSO has offered to fund the natural resources coordinator, and applications for this post have already been solicited. The UNSO terms of reference include the following tasks:

- help the national structures of the CILSS member countries to carry out projects and programs of regional interest in ecology and environment,
- offer his or her assistance to national research institutions for the elaboration and analysis of national research and development programs on ecology and environment,

- assure regional coordination and monitoring of research activities on ecology and environment carried out in the Sahelian region,
- establish each year an overview and synthesis of research in the area of ecology and environment, and
- contribute to the diffusion and application of the knowledge gained from research on ecology and environment.

These terms of reference were deliberately left quite open by UNSO and INSAH, in order to allow the coordinator to develop a more specific work plan him or herself. The activities proposed by the PADRES project therefore fall easily within these terms of reference.

Several questions remain with regard to the collaboration between UNSO and USAID in this portion of the PADRES project, however. The budget allocated by UNSO for the NRM expert is much lower than what is planned for the PADRES coordinators funded by USAID. This suggests that INSAH may not be able to recruit someone of the calibre desired for its activities, and that there will be a major discrepancy within the project in levels of compensation for senior staff. Moreover, although UNSO plans to provide the NRM expert, they do not plan to fund his or her activities, so without PADRES support the effectiveness of the UNSO expert will be limited. This raises a number of questions which could not be resolved during preparation of the project paper:

- Will UNSO be willing to increase this person's salary to make it comparable to the others funded by PADRES?
- Should USAID consider supplementing that budget with additional resources?
- If the UNSO expert is to be hired at the rate initially planned, will AID be interested in funding his or her activities?
- What are the mechanisms for recruiting and hiring an expert whose salary is funded by one donor (or possibly split across two) and whose activities are funded by a second?
- Given that INSAH has already advertised this position and received applications, will this process have to be repeated?

All of these questions will have to be resolved in the coming months in discussions between INSAH, UNSO, and USAID. Although this linking of the support provided by two donors may cause some management complications at first, the fact that they are interested in collaborating establishes a good precedent for inter-donor cooperation in general, and every effort should be made to resolve the difficulties which this may pose.

#### B. NRM Coordinator - Qualifications

If the salary is increased for the NRM coordinator position in order to attract very high caliber candidates, the following qualifications for the position are suggested:

- Training at the PhD level in one of the natural sciences or natural resources management; specific disciplines could include ecology, soil science, forestry, range management, etc.
- Interest and experience working on both scientific and policy aspects of natural resource management.
- Sahelian nationality or other African preferred; other candidates will also be considered.
- Experience carrying out and managing interdisciplinary applied research
- Must be a flexible, creative person interested in interdisciplinary work, good at working with people, teaching, etc.
- Should be comfortable working in both French and English.

C. Natural Resources Analysis Coordinator - Terms of Reference

The natural resources analysis coordinator will be responsible for the following tasks:

- Carrying out an inventory of existing use of GIS and spatial data in the CILSS countries, in collaboration with the SAGE preparatory study if possible.
- Organizing informal training on use of spatial analysis tools for INSAH staff.
- Identifying needs for GIS support at the national levels, and organizing national or regional meetings in order to provide that support.
- Carrying out and helping other INSAH staff to carry out analytical work on natural resources management using GIS tools.
- With the overall natural resources coordinator, defining criteria for awarding research mini-grants and ruling on applications for funding.
- Working with the other PADRES coordinators to build linkages across the three programs of the project.

D. Natural Resources Analysis Coordinator - Qualifications

The qualifications for the natural resources analysis coordinator for PADRES include the following:

- Training at the masters or PhD level in the natural sciences (ecology, environmental sciences, soil science, hydrology, forestry, etc.) with strong emphasis on application of GIS tools and remote sensing data to the analysis of natural science questions.
- Five years work or research experience in application of spatial analysis tools in the natural sciences; this may include time spent doing dissertation or thesis research.

- Familiarity with arid lands resource management and ecological problems.
- Experience teaching people to apply information technology to their work in formal and informal settings. Ability to understand unfamiliar analytical problems and see how the technology can help address them. Ability to learn and figure out new software tools easily, ability to solve unfamiliar software problems.
- Ability to work in French and English is preferred, French alone is acceptable.

#### E. Program Assistant

Implementation of the PADRES work plan in natural resource management will be supported by a program assistant who will help carry out the literature reviews, make contact with researchers, carry out analytical research once regional topics are identified by the national researchers or elsewhere, and generally assist the two coordinators in carrying out their duties. Individuals are expected to hold this post for one to two years. This position is seen as an opportunity for Sahelian graduate students, or those who expect to do doctoral work, to gain experience and possibly do thesis research. The assistant is expected to learn about his or her field by participating in literature reviews, and to learn about applications of information technology to his or her discipline by working with the NRM analytical coordinator on regional analyses. The qualifications for this position are:

- Currently enrolled or prospective doctoral student in a discipline related to natural resources management, from either social or natural sciences.
- Familiarity with or interest and aptitude in working with computers.
- Willingness to work independently and creatively, ability to figure out how to solve problems without extensive direct instruction.
- Ability to work in French and English preferred, French only is acceptable.

#### F. Hardware and Software for Analytical Work

The analytical coordinator will have at his disposal modest but relatively powerful software and hardware for doing spatial analysis. INSAH will try to avoid the conflict which is now rampant in the Sahel over which GIS software will be used, by ensuring that it is compatible at least with the rest of the CILSS system, and insofar as possible having the capacity to transfer data files across packages-with ease.

The IS/GIS unit is expected to have the following equipment:

1. One high-power PC GIS workstation

This will be a powerful personal computer (386/33 mhz or 486/33 mhz IBM-compatible PC, a mathematics coprocessor, 8 megabytes of RAM, at least 220 megabytes of hard disk space, 2 serial ports and 1 parallel port, and a 16" color monitor with 1024x768 resolution) intended for use

with PC ARC/Info and other spatial analysis tools. This workstation will have a 24x36 inch digitizer and an 8-pen plotter attached to it.

This machine is essentially intended as an ARC/Info workstation, because ARC/Info is expected to be one of the major software tools used by AGRHYMET and other users and suppliers of spatial data. INSAH should therefore have the equipment and the skills to work with this software if they are to provide useful support to others in the region and to be compatible with others in the CILSS system.

2. One less powerful PC GIS workstation

One less powerful PC (386/25 mhz, 100 megabytes of hard disk space, 2-4 megabytes of RAM, VGA color monitors) will also be available for GIS work. This will run other less powerful GIS packages, including IDRISI, Atlas/GIS, and other packages which are in common use in the Sahel. Access to IDRISI will be important, both since it is widely used by people who received the UNITAR GIS training, because it is an excellent training tool, and because it is a raster system whereas the others are vector. Access to Atlas/GIS will be important because it is a relatively simple and inexpensive vector system which is becoming common in Sahelian national governments.

APPENDIX A

NATURAL RESOURCES PROGRAM - PRELIMINARY BUDGET

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
<b>OVERALL NATURAL RESOURCES MANAGEMENT PROGRAM (JOINT USAID/UNSO)</b>						
<b>A. PERSONNEL</b>						
NRM Coord. & Benefits	(UNSO)	(UNSO)	(UNSO)	(UNSO)	(UNSO)	(UNSO)
<b>B. ACTIVITIES</b>						
Sahel Travel	\$20,000	\$10,000	\$10,000	\$10,000	\$10,000	\$60,000
Regional Meetings a)		\$60,000	\$60,000	\$60,000	\$60,000	\$240,000
National Meetings b)		\$40,000	\$40,000	\$40,000	\$40,000	\$160,000
Services & supplies c)	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$30,000
Publications		\$10,000	\$10,000	\$10,000	\$10,000	\$40,000
<b>SUBTOTAL</b>	<b>\$26,000</b>	<b>\$126,000</b>	<b>\$126,000</b>	<b>\$126,000</b>	<b>\$126,000</b>	<b>\$530,000</b>
<b>C. EQUIPMENT</b>						
Computer & Software d)	\$9,000	\$1,000	\$1,050	\$1,103	\$1,158	\$13,310
Furniture e)	\$10,000					\$10,000
<b>SUBTOTAL</b>	<b>\$19,000</b>	<b>\$1,000</b>	<b>\$1,050</b>	<b>\$1,103</b>	<b>\$1,158</b>	<b>\$23,310</b>
<b>D. OTHER DIRECT COSTS</b>						
Research Mini-grants f)	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
TA/Consultants g)	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$50,000
<b>SUBTOTAL</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$300,000</b>
<b>OVERALL NRM PROGRAM TOTAL</b>	<b>\$105,000</b>	<b>\$187,000</b>	<b>\$187,050</b>	<b>\$187,103</b>	<b>\$187,158</b>	<b>\$853,310</b>
<b>NRM ANALYSIS COMPONENT</b>						
<b>A. PERSONNEL</b>						
Analysis Coordinator h)	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$300,000
Coordinator Benefits i)	\$127,093	\$68,642	\$63,674	\$75,677	\$89,372	\$434,458
Program Assistant	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$150,000
Secretary	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$75,000
<b>SUBTOTAL</b>	<b>\$232,093</b>	<b>\$173,642</b>	<b>\$168,674</b>	<b>\$180,677</b>	<b>\$204,372</b>	<b>\$959,458</b>
<b>B. ACTIVITIES</b>						
Sahel Travel	\$30,000	\$10,000	\$10,000	\$10,000	\$10,000	\$70,000
Regional Meetings a)		\$30,000	\$30,000	\$30,000	\$30,000	\$120,000
National Meetings b)		\$50,000	\$50,000	\$50,000	\$50,000	\$200,000
Services & supplies c)	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$30,000
<b>SUBTOTAL</b>	<b>\$36,000</b>	<b>\$96,000</b>	<b>\$96,000</b>	<b>\$96,000</b>	<b>\$96,000</b>	<b>\$420,000</b>
<b>C. EQUIPMENT</b>						
Computer & Software d)	\$40,000	\$2,000	\$2,100	\$2,205	\$2,315	\$48,620
Furniture e)	\$5,000					\$5,000
<b>SUBTOTAL</b>	<b>\$45,000</b>	<b>\$2,000</b>	<b>\$2,100</b>	<b>\$2,205</b>	<b>\$2,315</b>	<b>\$53,620</b>
<b>D. OTHER DIRECT COSTS</b>						
Research Mini-grants f)	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
TA/Consultants g)	\$30,000	\$10,000	\$10,000	\$10,000	\$10,000	\$70,000
<b>SUBTOTAL</b>	<b>\$80,000</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$60,000</b>	<b>\$320,000</b>
<b>NRM ANALYSIS TOTAL</b>	<b>\$393,093</b>	<b>\$331,642</b>	<b>\$326,774</b>	<b>\$338,882</b>	<b>\$362,688</b>	<b>\$1,753,079</b>
<b>COMBINED NRM PROGRAMS TOTAL</b>	<b>\$498,093</b>	<b>\$518,642</b>	<b>\$513,824</b>	<b>\$525,985</b>	<b>\$549,846</b>	<b>\$2,406,389</b>

**FOOTNOTES:**

- a) Includes 3 regional meetings per year for policy research, dialogue, planning, design and result presentation, at \$30K each
- b) 5-7 annual meetings at a unit cost between \$8,000 and \$15,000
- c) Includes misc. supplies, communications and mail
- d) Includes computer software and hardware
- e) Includes desks, chairs and air conditioners
- f) 5-7 annual grants of \$12,000-\$20,000
- g) Scientific and technical assistance from international institutions
- h) Includes salary at international scale
- i) Includes all the standard AID expatriate benefits

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## APPENDIX B

### INFORMATION SYSTEMS ACTIVITIES IN THE CILSS SYSTEM

In the last few years institutions active in agriculture and natural resource management in the Sahel have recognized the importance of information in decisions about how to use and manage the physical environment. In consequence, efforts are under consideration or underway to identify data needs and to build databases which are expected to meet those needs. Efforts are also underway to coordinate the data development and analysis activity; the INSAH work on applications of GIS to natural resource management may be seen as one such effort.

#### I. WHY COORDINATE?

For several reasons, it is important that there be some coordination among the data development efforts. First of all, base data collection is expensive. It is therefore important that resources be allocated to this task carefully through a process which tries to take into account which information needs are the most pressing and where the investment in IS development can be expected to bring the greatest returns. Second, to the extent that data are shared rather than single-purpose, a consensus approach to identifying information needs is essential. Third, if data are to be shared across users and analyses are to be compatible, some agreement must be reached about data standards; the scale at which data are gathered, the classification systems used to describe physical features, and so on. Without standardization it is impossible to share data, and the conclusions derived from different analyses cannot be compared.

It does not follow from these arguments that all data must be developed jointly, however. Information users have differing needs, which are not always compatible with each other, and there are real costs involved in standardization and collaboration. The coordination of data development efforts must be seen in terms of trade-offs; for each decision about standardization, what will we gain and lose, who will be the gainers and losers, and do the gains justify the losses? If we do not recognize the legitimate reasons for allowing each data user or developer to go his or her own way, we will not be effective in promoting harmonization.

#### II. GIS AS AN ANALYTICAL TOOL

##### A. What is a GIS?

The discussions around use of information systems for environmental management in the Sahel are often framed in terms of geographic information systems, or GIS. It is useful to review what a GIS is, how it is used, and how it relates to other kinds of information systems, in order better to understand the issues involved in using the technology.

The term "GIS" is used to mean two different things:

- Narrowly defined, it is a software tool with which to analyze spatial - rather than tabular - data.
- Most broadly, GIS is used to refer to the databases which can be managed and analyzed using spatial analysis software.

In the Sahelian context the term is used both ways. This can be a source of conflict when the meanings are confused, however. While many organizations may want to use GIS software as an analysis tool, there would be considerable duplication if they were all building geographic databases. When one group says "we want a GIS" and another says "but we're building it, you shouldn't" they could easily be using the term to mean different things.

"Spatial data" are data which are identified by location. This, too, can refer to two things:

- In a broad sense, any data which can be assigned to a geographic location can be considered spatial. For example, population data may be thought to be spatial if they are by arrondissement or by country. Such data are usually stored in a tabular format, in a database manager or a spreadsheet, with each record corresponding to one arrondissement, country, or other unit of analysis.
- More narrowly, however, spatial data may be defined as those for which the record identifier is the precise location in space. Soil or vegetation types are spatial in that sense; each unit of area - say, a ten meter square (or "cell") - is assigned a value for the soil or vegetation type found there, and is identified by its location in a coordinate system such as latitude and longitude. While such data can be summarized in a tabular format - say, by assigning to each arrondissement the predominant soil type of the cells falling into the arrondissement - clearly much information is lost in doing so. All digital data obtained from satellite remote sensing are spatial in this sense, so a GIS is an essential tool for using remote sensing data in analytical work.

It is useful to make the distinction between spatial and tabular data by considering information on land under cultivation, which has often been cited as an major gap in existing databases. A spatial database on land under cultivation would indicate for each cell whether or not it was cropped. A tabular database, by contrast, would only include the number of hectares cultivated within each arrondissement (or other unit), without any way to know which ones they were. For someone interested in estimating crop production by arrondissement, the tabular data might be adequate. For someone interested in knowing which land is cropped, only the spatial data will suffice.

The ability of a GIS to represent and manipulate data which are linked to their location in space has several implications:

- First, a GIS can represent data visually in the form of maps as well as tables, graphs, or plots. GIS can be used to replace manually drawn maps, but more importantly

it can represent the outcome of an analytical process in a form which is intuitively more clear to many people than a table of numbers would be.

- Second, the spatial nature of GIS data permits manipulations which are not possible using other tools. For example, using locational information a GIS can easily identify all the places within a specified distance of a particular site.
- Third, the spatial nature of the data stored in a GIS makes it possible to work with information for which the unit of analysis or geographic unit is not the same. For example, data by arrondissement could be combined with data by watershed, soil type, and rainfall zone into a unified spatial framework, in order to combine the information into a single analysis.

Thus a GIS is a software tool with capabilities useful in managing and analyzing spatial data. The simple fact of using GIS software will not in itself solve problems, however. Three different elements are essential.

- a GIS software package like ARC/INFO, Atlas/GIS, or IDRISI
- an analytical model or set of rules explaining the relationships among a set of variables
- a database

All three of these are needed in order to analyze environmental problems, but they are distinct. The collection of spatial data on land use, resource stocks, rainfall, etc., will lead to creation of a database - whether or not it is stored in a GIS. However a database alone will not solve problems, any more than raw census data will predict population trends over time. A database combined with a conceptual model explaining the relationships among the variables will provide answers to questions of interest to planners and decision makers. GIS software tools - along with other software - enable analysis of data and efficient implementation of models. In any consideration of how GIS can address natural resource management issues, therefore, we must be clear about the roles of all three elements. A GIS is not a monolithic entity which will solve problems without the user clearly formulating them first.

## B. Using GIS for Analysis

An analytical process can be described in terms of three general steps. The first is to define the question to be answered. It could be very general - "is the Sahara spreading south?" - or more specific - "what will be the impact of expanded agriculture in Tambacounda on the depletion of forest resources?"

The second step is to articulate how we think the world works. In order to approach any analytical question we need to develop rules which explain the relationships among different phenomena. The structured development of such rules involves an iterative process of proposing a hypothesis, testing it against empirical data, refining the hypothesis on the basis of the results, retesting it, and so on. When done rigorously it might be called model-building or hypothesis testing, and could rely on statistical tools, econometric techniques, laboratory analysis, or other

scientific research tools. When done in a somewhat less structured way, this might involve developing conclusions from a series of case studies in which both the data and the process of arriving at conclusions are more subjective. When data are not available to systematically test hypotheses, rules may be drawn from individual experience or through structured consensual approaches like the Delphi method. The key element of this step, whether it involve scientific testing or not, is that it leads to the development of a set of rules about how the questions of interest work.

The third step is to spell out the implications of those rules for what will happen under different assumptions about public policy, change in the natural environment, behavioral changes, etc. In our context this involves being able to implement the rules in a software environment which makes it easy to calculate how the variables of interest will change over time, how they will influence each other, the implications of changes in assumptions, and so on. For spatial data, a GIS provides an excellent software environment for doing such testing.

When carrying out an analytical exercise using GIS or a tabular database manager, we can use the analysis tool in a variety of ways. The simplest and perhaps most common kind of analysis is queries of a database, which involve identifying all records meeting specified criteria. In a tabular database management system this might mean finding all rainfall stations at which no rain was recorded in March; this is a non-spatial query. In a GIS it might involve locating all the land within one hundred kilometers of the capital where the water table is at least one meter and the soil makes it possible to grow eucalyptus trees. Since the data are identified according to their location, this is a spatial query.

Database queries of this type - whether or not they are a spatial - are a "boolean" process. That is, each location is either satisfactory or unsatisfactory with respect to several criteria, and we are identifying the places which are satisfactory according to all criteria. No new information is created within the database from such analysis, but information or knowledge is passed to the user. When such queries constitute the whole of an analytical process, they may be based on some rules about the world (e.g., planting eucalyptus trees near the capital is expected to have some desired impact), but those rules may be entirely implicit.

The second kind of analysis involves using data about the world and its behavior to derive new information. For example, information about land under cultivation, ground water, soil type, rainfall, and "greenness" indices might be combined in a weighted formula to predict crop yields during the growing season. The results of those calculations might then be compared with population distribution to identify areas where food shortages can be anticipated. This approach requires a much more sophisticated knowledge of how the world works in order to build a model of crop yields than is required to build a boolean choice model. In many cases substantial research is still required to build such models; this research will be an important part of how GIS software and data are used in the near future.

The third kind of analysis involves modelling not simply a single observed relationship among a set of input variables but the actual process by which the inputs lead to the output. This makes it possible to build dynamic models which "grow" over time in response to changes in the inputs, allowing a much more complex analysis of the impacts of policy reforms or other changes. Such models can take into account the interactions among a variety of forces, showing how a whole system evolves over time. For example, a general equilibrium model of the United States economy

which simulates the change of key indicators over a series of years may be considered to be a process model. In a spatial environment, GIS tools might be used to build a process model which simulates the movements of people and the growth of cities within a region according to predefined rules. A key feature of such models is that the outputs of one iteration become an input into the next time period, and the system could keep growing in a self-contained way simply in response to its own rules. Clearly the predictions made by such models can be very useful. However, even more than in the previous case, the difficulty here lies in building a model which reflects reality accurately enough to generate useful predictions.

GIS work of the first and second types is more common than process modelling, for several reasons. The first and second types of analysis are much simpler than the third, and can generate interesting results in a short time period. While process models might offer more exciting results in the long run, there are tradeoffs to be made between the cost of the analysis, the degree of precision needed, and how soon a result is needed. For most policy purposes, the importance of the decision may warrant simple analysis, but is not likely to justify the investment required for highly sophisticated modelling. Moreover, in many cases we may know that there are relationships among phenomena, but we do not yet understand the process by which they operate. Decision makers may therefore be forced to use simple boolean decision criteria because they do not know how to build more complex models of the relationships.

### III. APPROACHES TO INFORMATION SYSTEMS DEVELOPMENT

#### A. Supply-driven vs. Demand-driven Approaches

The development of information systems to support environmental management, of which geographic information systems are a subset, may be seen as supply-driven or as demand-driven. Proponent of these two approaches often conflict with each other, so it is useful to understand both of them.

A demand-driven approach takes as its point of departure an analytical question, to be answered, builds a model with which to address the question, identifies the data needed to use the model, and builds databases accordingly. From a policy or management perspective this clearly makes sense; the history of information systems development is rich in expensive systems which did not answer the right question and so were of no use, and this approach limits that risk.

In-practice, however, implementing a demand-driven approach is not as easy as it might appear, for several reasons. First, the question immediately arises of whose demand we are trying to satisfy. The needs of local administration, development projects, national decision-makers, international researchers, and donor agencies are not always the same, and they may lead to investment in quite different data. Although these can be integrated in some cases, doing so requires a conscious effort to understand the needs at all levels and see to what extent they are compatible.

Second, potential users of information are often not at all clear about what they need. This is particularly true of national government agencies responsible for planning and policy-making.

While policy analysis is an accepted government activity in the West, it is much less common in the Sahel. The need for information with which to assess the impacts of different policies is therefore not apparent.

Third, potential users are often not familiar with the tools for working with spatial data, so they do not think in terms of using them. It is hard to express a demand for product which you do not know exists, as is often the case with GIS, remote sensing products, and other relatively new information sources and tools.

Fourth, the potential suppliers of data are usually highly articulate about what they can provide, and this can easily be heard as a demand rather than an offer of supply. In African countries, as in the West, supplying data can be a lucrative activity. The high costs of developing data are usually covered by the public sector or by donors, so at a minimum the supplier sees all of his costs covered for a period of years during which databases are being developed. Moreover, in many African countries suppliers sell their data, or sell analyses of them, rather than the information being in the public domain. A portion of their operating revenues come from those sales. They have, therefore, a strong incentive to present potential funders with nicely structured proposals as to what they would like to supply, since they stand to gain an asset which will be a source of income into the future. However, there is no necessary link between products they are interested in supplying and the actual needs of anyone within their own governments.

The supply-driven approach to developing information systems can be characterized by the activity of data suppliers seeking to make money selling data whose development costs were subsidized, as described above. It can also be characterized more charitably, however, in terms of the need to educate the potential users about the kinds of information available in order for them to express a real demand. From this perspective the question of whether to be demand-driven or supply-driven is something of a "chicken-and-egg" problem; supply should respond to the demand, but the demand in turn is stimulated by seeing what kinds of products are possible, and so on.

In terms of donor intervention in information systems development, a compromise between supply-driven and demand-driven approaches is probably necessary. On the one hand, it is clearly important to identify existing and potential demand, and to help decision-makers understand how they can do their work better by relying on information about their environment. However, this will require some education of the decision-makers about what kinds of products exist and about the cost-effectiveness of producing them. Encouraging a dialogue between suppliers and demanders may be the best way to accomplish this.

## B. Data Access and the Costs of Data Development

The development and use of databases raises a set of related issues about who should pay for them, how the costs should be covered, and who should have access to the data. This section brings out some of these issues and suggests some principles for how they might be resolved.

The starting premise of this annex, and of much of the donor work on IS in the Sahel, is that more effective environmental management decisions will be made at regional, national, and local levels if better information is available about the impacts of different choices. Since use of information for objective decision-making is not a well-accepted process in the Sahel, especially in

government, it is worthwhile to encourage this insofar as possible. To do so, the price of information should be kept as low as possible so that it will not be a deterrent to data use.

However, supplying information is expensive. It can be thought of as involving three distinct costs. First, there is an initial investment required to design and implement data collection systems, learn new technologies, build institutions to manage the process, document the database, and develop the general infrastructure of information use. This should be a one-time cost for any particular database, and it will be high. Second, there is an operating cost involved in maintaining a database; ongoing data collection to keep it current, data processing and cleaning, equipment maintenance, and so on. Third, there is a marginal cost associated with providing information to any individual user. This should be very low; it covers the tapes or diskettes onto which the data are copied, the time required for someone to copy them, and a copy of the data documentation.

If we wish to encourage information use, we probably want to think of this effort as a public service which should be subsidized, rather than as a commercial investment which is expected to be profitable. Thus we might charge the purchaser of the data only the marginal cost, and both the investment and the operating costs would be covered by donors or the government.

However, many national data supply organizations in the Sahel are expected to run as at least quasi-commercial ventures. Neither their investments nor their operating costs are fully covered by the government or by donors; they are expected to supplement public sources of funds through the sale of their products. For this reason, their monopoly on supply of particular types of information, and their consequent ability to control the price, is essential to their survival. This makes them into data hoarders rather than data suppliers, and makes it very hard for end users to access the base data in order to analyze it themselves. This problem suggests that donors who are interested in supporting information use be aware of the institutional dimensions of its supply, because they can strongly influence the effectiveness of donor support.

#### IV. WHO IS DOING WHAT IN INFORMATION SYSTEMS DEVELOPMENT

The development, management, and use of information systems in the CILSS countries, and the regional coordination of those processes, can involve a number of different steps, which need not (and indeed should not) all be carried out by the same organization. This section discusses the major tasks to be accomplished and reviews which organizations are already taking some action on these tasks.

##### A. Assess information needs

The demand-driven approach to information systems development requires an assessment of what kind of information is needed, and by whom, in order to organize IS development around expressed needs. This can be a quite complex process, since information needs depend on the decisions to be made, and each user is making different decisions. The needs assessment process can therefore be carried out at different levels - local, national, regional, global - and for different kinds of users.

## 1. National Efforts - UNSO and the World Bank

At the national level, both the United National Soudano-Sahelian Office (UNSO) and the World Bank are involved in assessing information needs. UNSO has also supported efforts to identify needs for spatial information in Mali and to coordinate GIS development in Niger, through the information components of the Plans Nationaux de Lutte Contre la Désertification. The Bank has supported a similar effort in Burkina Faso, and is considering one in Niger, both through the National Environmental Action Plans.

The work of both UNSO and the Bank is very much oriented towards helping potential users to determine what kinds of information would be useful to them, and organizing the data supply institutions around meeting those needs. This has involved meeting individually with potential users and suppliers and organizing workshops at which they develop a better understanding of the role of each government agency with respect to the use or supply of information. Through these workshops it is hoped to build a network of individuals and organizations which play a role in the IS arena, through which future data development efforts will be designed. To strengthen the information users, the Bank is also exploring mechanisms for funnelling their support to information systems development through the end users, so as to ensure that the products finally produced will respond to real needs.

UNSO has prepared several versions of a strategy on environmental information systems (initially called a "platform") one of which was widely circulated during the winter of 1991. In its latest form (still not officially released by UNSO) it sets out a strategy for identifying information needs, which UNSO proposes to undertake in the countries with which it works. This process involves working with data users and data suppliers to develop a better understanding of what the needs are and how they can realistically be met. It focuses very much on the user side, since it is rooted in a conviction that the users should determine what products are offered rather than this being a suppliers' decision.

## 2. Regional Efforts - Programme SAGE

At the regional level, an effort to identify IS needs and priority issues is to be launched at the CILSS Executive Secretariat in early 1992. This project was first proposed in 1988 as the Programme de Suivi de la Dynamique de la Désertification (PSDD). It has been the subject of much talk and at least one international conference (held in Niamey in 1990), but as a concrete program of activities it is still wishful thinking.

In 1990 the idea was developed that there be a one-year feasibility study for the PSDD. Terms of reference were prepared for the feasibility study by a French remote sensing firm; they focused on **assessing** the feasibility of building a region-wide GIS using both remote sensing and ground data collection. These terms of reference were substantially revised over the course of 1991, shifting the focus from the technical dimensions of how databases could be developed to the more institutional and political issues of identifying information needs and evaluating how effective the ongoing uses of the technology have been. A steering committee for the feasibility study was created which met several times during 1991 to revise the terms of reference. At its last meeting (May 1991, in Ouagadougou) it recognized that the proposed program was broader than "monitoring desertification", and should be understood as supporting environmental management through better access to information. It therefore changed the name to Programme Sahélien

d'Appui à la Gestion de l'Environnement (SAGE), and the feasibility study to a "preparatory study". Although both names are still in use, this paper will use the new ones.

The final terms of reference for the SAGE preparatory study call for first an inventory of the existing use of spatial information to address environmental issues in the region, and an identification of information needs. "Spatial information" was defined very broadly to include anything which could be assigned a location; thus it includes not only data about the physical environment, but also data about population size and growth, ethnic groups, prices, consumption trends, economic behavior, cultivation practices, etc. The inventory, to be conducted by consultants within the nine countries, was to lead to development of a set of recommendations for what the SAGE Program should do to help meet information needs. The actions considered likely to be included within the program itself might include database development, management and distribution, coordinating a process to resolve data standardization problems, supporting information development and use at the national level, etc. The institutional location of the SAGE program itself was to be defined in the course of the preparatory study; at this point the people involved seem to consider AGRHYMET the most likely institution.

As of this writing the financing for the SAGE preparatory study was almost, but not entirely, sure. The Coopération Française is willing to finance a portion of the study, but not all of it. Other donors have expressed a willingness to contribute, but this is to be resolved at the donors meeting on the CILSS relance scheduled for December in Brussels. If it turns out that no other donor is willing to contribute, the French will apparently withdraw their offer as well. However, if there is other support, the study is scheduled to begin in early 1992. The Coopération Française has designated a full-time person, François Lavenu, to manage it out of the Executive Secretariat. He plans to relocate to Ouagadougou by the end of 1991, and will begin recruiting consultants to visit the member countries in January 1992.

## B. Primary Data Collection

Primary data collection refers to building and maintaining the institutional and technical systems to collect data in the field. Field data collection involves actually gathering statistical data on the ground, through surveys, physical measurements, or other methods.

### 1. Data collection

For local databases - i.e. those that cover an area smaller than a country - this is often done by individual projects, local development organizations, or other institutions working at the local level. It may also be done by national organizations hired to do detailed surveys for a project or a local administrative unit. For example, the Bureau National des Sols in Burkina Faso will do soil surveys on contract to anyone who wishes to hire them. For national databases - i.e. those that cover a whole country - this is almost always done by the national government, often with substantial support from donor agencies.

### 2. Support for building data collection systems

A number of regional projects are providing substantial support to the CILSS country national governments in the development of data collection systems. AGRHYMET has played a pivotal role in building the network for collecting meteorological data, by training many

meteorologists, providing and maintaining the equipment for collecting data, and helping build the institutions which gather the data and centralize them at the national level. In the past two years they have also begun to archive NDVI data from the NOAA receiving station; this does not involve the institution-building of the meteorological database development, since the data arrive and are treated at a single point. DIAPER has played a similar role in supporting the development of agricultural statistics. Phase 2 of the FED-financed Projet Surveillance des Ressources Renouvelables proposes to provide such support for developing land cover data; the USAID project at AGRHYMET is also interested in supporting the production of land cover maps. With the exception of the NDVI archives, however, the base data collection is always carried out by the national governments.

Developing a data collection system should be thought of in two phases. The first is the investment phase, during which the equipment is purchased and the institutional mechanisms developed. In the second the system is operational; in which data are collected, equipment repaired, new data collectors trained, and so on. The magnitude of work involved in maintaining an operational system depends in large measure on how often the data must be updated. A system which collects decadal data on weather conditions must be continually updated, whereas a database on soil types should never need updating. Land cover data might need updating once in five or ten years.

The initial investment is more difficult and more expensive than operations, but both involve significant costs. A data collection system will not run itself without substantial operating funds, and in fact we are now seeing a significant degradation of the meteorological data network because the recurrent costs cannot be met by the host country governments. As with all projects, therefore, donor agencies interested in supporting base data collection should think carefully not only about how the first round of data might be collected, but also about how the ongoing costs of keeping the system operational will be met.

### C. National Database Management and Supply

Managing a database involves receiving the data from the field stations or other sources, correcting them, pretreating them if appropriate (e.g. satellite data), entering the data, and making them available routinely to those who request them. For local databases, this is done by whoever is building them, with the exception that such data are often not routinely available to other organizations. For national databases this is usually done by the government agency responsible for the system.

Managing databases is time-consuming, tedious work. However, if it is not done well, the database is not useful - or worse yet, it is used despite the glaring inaccuracies in the data. Many systems now existing in the Sahel suffer from such glaring inaccuracies, and analysts who try to work with them arrive at completely anomalous results because the data are so bad. Any effort to support IS development in the Sahel will have to place a major effort on educating database managers about the importance of taking this job seriously, or the investment in data collection is wasted.

Supplying data to the public also takes time and thought. Databases exist which could be of use to the public, and which are not classified for security or financial reasons. However making them available requires explicit attention to the form in which information is provided, the

documentation which explains what the data mean and where they come from, and the pricing system and mechanisms for collecting money if data are sold. None of these tasks is very difficult, and they should become totally routine, but they do take time and attention. For lack of direct attention and staff, they can too easily be shifted onto high-level personnel whose time is better spent on more skilled tasks.

#### D. Building and Managing Regional Databases

##### 1. The Task Involved

Building regional databases in the Sahel typically involves a major investment in bringing together data collected at the national level and combining them into a single system. It is a great deal of work, essential for two reasons. First of all, the data cleaning and verification is usually not done well at the national level, so it must be done by the regional organization. When there is extensive historical data, as with the meteorological databases built at AGRHYMET, this can involve years of work, since the volume of data is huge. Second, the data structures used by the national systems frequently are not compatible with each other. Sometimes it is not even possible to convert them into a unified structure in which data are comparable across the region; when it is possible, it is time-consuming.

In some cases there may also be an institutional dimension to the data dissemination issues. As discussed above, databases may represent a source of power, control, and revenue to national agencies which build and manage them. These institutions may be very reluctant to make the data available in electronic form to a regional system, because this would be tantamount to giving away the monopoly position which gives them control over information and in some cases financial resources. This is an area in which there is still substantial work to be done.

When the investment is completed, the management of regional databases involves routine operations similar to those which should be carried out at the national level. This is meticulous and labor-intensive, and must be done accurately. However it lacks much of the intellectual challenge of creating the databases in the first place. It is necessary to give careful thought to how this task will be handled. The individuals who designed the systems are not likely to be interested in managing them. However if this is not handled well then the investment in design will be wasted.

##### 2. AGRHYMET

AGRHYMET has a fair bit of experience in developing regional databases, and its phase 4 plans include going further in this direction. The first two phases of the AGRHYMET program involved substantial investment in developing a network of weather stations across the Sahel, managed through the national weather services of the nine countries. While these stations do not always operate as smoothly as could be hoped, they provide data which forms a basis for development of tabular databases on meteorological conditions. These data have been combined with historical records to allow development of three systems; the American-funded CLIMBASE, the French-funded Atlas Météorologique, and the Belgian funded historical data archive. Because AGRHYMET itself funded the creation of these data collection systems, and because the National Weather Services do not depend on them for their revenues, there have not been problems of national reluctance to transfer the data to the regional center.

AGRHYMET work with NOAA and Meteosat remote sensing data has also led to development of an archive of decadal Normalized Difference Vegetation Index (NDVI) images, more commonly referred to as greenness maps. AGRHYMET staff are now working on production of other real-time images from remote sensing data.

For a number of years AGRHYMET plans have included the development of a Système Régional de Banque de Données, a regional data bank intended to include data of seven types: meteorological, agricultural, hydrological, crop protection, rangelands, remote sensing products, and geographic base data. To date only the meteorological data base has received substantial attention; in the last few years remote sensing products have begun to emerge. In the other areas some data are available, but they do not constitute a regional data bank, because they are incomplete, such data as do exist are not compatible across countries, they have not been verified or corrected, missing values have not been estimated, and so on.

Although the details of how this work is to be done have not yet been spelled out, at least some of it is expected to be undertaken by AGRHYMET in its fourth phase. In addition to the planned seven-theme data bank, both USAID and the FED have expressed interest supporting development of a database on land use and land cover. It will be important for these efforts to be coordinated across the donors, to avoid duplication of efforts. Moreover, the Phase 4 documents available so far do not touch on the issue of how any of those databases should be managed once they are created; this is an important question which should be addressed from the start.

### 3. Programme SAGE

The SAGE Program whose preparatory study is discussed above may also be interested in becoming an actor in the building of regional databases. The details of SAGE interests, and the mechanisms through which they might be implemented, will not be clear until after the preparatory study is completed. Since both SAGE and AGRHYMET are part of the CILSS system, it is highly desirable that those planning new database development efforts at AGRHYMET be fully integrated into the SAGE preparatory study, so that the two planning processes become a single CILSS-wide effort. After all, it is hard for anyone in the CILSS system to talk about coordinating the Sahelian countries when even within CILSS the different institutions don't know what each other is doing. Moreover, since with its experience in database development AGRHYMET is well-suited to house much of the SAGE Program, it is fitting that the plans for that program have major AGRHYMET input. As discussed for other programs, the SAGE study must address not only what databases will be created, but how they will be managed once they have been built and how data will be supplied to the public.

#### E. Data Standardization

Building regional databases by compiling national data requires a major effort to deal with data standardization systems. Essentially the issue involved here is that each data collection organization - whether it be local or national - will come up with the data coding and structures which best respond to its needs. However if data are to be combined, they must all have the same coding and structure; so how do we reconcile them?

This is an area where compromise will be required if success is to be accomplished. A couple of examples might make this clear. There are now several differently widely accepted systems for classifying soil types, including one supported by the FAO and another supported by the US Geological Survey. Translating from one to another is not easy, because soils are grouped into classes which cannot be disaggregated to regroup into a different classification scheme. For historical reasons, often related to who was supporting them, different soil mapping activities used different classification systems. If a single regional database is to be built, it must choose a single classification system. Then all future soil surveys would be done using that system, and the integrated database would not be compatible with the work already done using other systems. Clearly everyone who is already working with soils data will have a strong incentive to push for the classification system chosen to be the one which he or she already uses, because the costs of converting will be very high.

Another example is also of some interest. In the context of the village land management programs (*gestion de terroirs villageois*) now underway in Burkina Faso and other countries, much interest has been expressed in using indigenous soil classification schemes to work with villagers on determining how to use their land. This is an effective way to work at the local level, since the villagers are familiar with their own systems, and those classifications are good predictors of the productivity of particular soils. However, they are very localized. These systems evolve in response to the soil prevalent within a small area, and may not even be compatible with those in use only a few hundred kilometers away. Moreover, they are limited only to the soil types found within that small area, and have no classifications for soils which the villagers have never seen. Thus although they are quite effective for local decision-making needs, they are useless even for building national soils maps, much less regional ones.

Standardizing data coding formats is not an easy task. The European Community launched a project to build a single land use/land cover for Western Europe, and spent two and a half years negotiating an agreement about data classifications which all the countries would agree to. Moreover, the level of difficulty is directly related to the level of detail in the data. For small-scale maps of a large region, it might be possible to come up with just a few land cover classifications; for example, agriculture, forest, savanna, desert, urban, and water. For some very general purposes this would be adequate, and it would probably be fairly easy to agree on such general categories. If, however, the data are to be used for local level analysis, then the agriculture, forest, and savanna classes would have to be disaggregated considerably in order to make them useful. It is at these detailed levels that reaching agreement across a large region is difficult. The result is typically a hierarchical classification system, where correspondences can be established at different levels of detail for different input data sets.

Some of the areas in which it will be important to standardize data coding and structures in order to build regional databases are the following:

1. **Political boundaries and prominent spatial features.** As more organizations begin using GIS, there must be a single set of digital base maps which everyone uses, or no one will agree about where political boundaries, water bodies, mountains, and other features are relative to other data. This is a purely technical problem (except where boundaries are actually disputed) which arises when users digitize their own base maps. The inaccuracies of digitizing ensure that each set of base maps is slightly different from the others; this can be corrected by having one standardized set which everyone uses.

2. Classification or coding systems for variables such as:

- soil
- vegetation types
- land use/land cover
- population and demography
- rainfall, temperature, humidity, wind, and other meteorological variables
- road networks and other transportation systems, volume of transportation, speed of traffic flow
- economic data such as food prices and quantities sold, timber prices and quantities sold, and many other variables which will be important inputs to policy analysis
- social factors such as distribution of ethnic groups, land tenure systems, health indicators, education levels, access to public services, etc.
- other variables which will emerge over time

3. The scale at which regional data will be collected, i.e. the size of the area represented by a single cell in a digital map. When overlaying data in a GIS, the validity of the combined product is only as good as the least detailed of the inputs. For this reason it is useful to standardize the scale of data collected for regional analysis, to avoid wasted investments in very detailed data on some topics which will be brought down to the least common denominator by other less detailed inputs.

4. Data interchange formats. Although everyone may not use the same software, the existence of data interchange formats can ensure that data can be shared across systems.

The issues of nomenclature and standardization have not yet been addressed directly in a systematic way, although some work obviously some work has been done in these areas in order to build the existing regional databases. The SAGE program has been suggested as a mechanism through which this problem can be addressed at the regional level. If so, it should be sure to incorporate the active participation of AGRHYMET, DLAPER, FEWS, the Phase 2 of the FED Projet de Surveillance des Ressources Renouvelables, and other regional projects which have already addressed these issues with respect to regional databases on meteorology, agriculture, food prices, and land cover, respectively.

F. Data analysis and operational use

Data on the environment may be used to analyze biophysical issues in an effort to understand the physical environment itself; to analyze human-environment interactions in order to determine how different public policies might affect the use of natural resources; and to determine how well the information tools themselves reflect the state of the environment. Environmental data can also be used to make routine operational decisions about how to use resources; a farmer may use weather data to decide when to plant, or a forester may use fuelwood price and quantity data to decide whether to invest in plantation forestry.

In general, users of data will be dispersed throughout the Sahelian countries and indeed throughout the world. Anyone who has a question that can be answered by using such data should be a user; it is for this reason that access to data and efficient data supply systems are important.

Within the CILSS system, there sometimes appears to be competition among organizations which want to do certain kinds of data analysis. In the context of the CILSS reliance there will presumably be some attention given to the roles of the three institutions and the division of responsibilities among them. One of the divisions of labor that has been suggested is that AGRHYMET be a data production shop, INSAH a data analysis shop, and the Executive Secretariat a political arm using policy analysis provided by INSAH. Whether such a strict division of labor is necessary is not entirely clear. It is clear that INSAH wants a greater analysis role than it has had. It is equally clear that as the major producer of data within the system, AGRHYMET is likely to take some role as an analyst and methodological researcher, especially on use of remote sensing data, which requires specialized skills which INSAH is not likely to have in the near future. It is probably not useful to define one institution or the other as the analyst; what is essential, however, is that they be aware of what each other is doing, and avoid duplicating each other's efforts.

#### G. Environmental Monitoring

The term "monitoring", as opposed to "analysis", refers to reviewing general data on the state of the environment (or anything else) to trace how it is evolving over time and flag major changes or problems. Monitoring is typically used to identify areas which may become problems, and in which additional work is needed. Monitoring could be narrowly targeted, as in the famine early warning systems designed to inform decision-making about allocation of food aid, or quite general, as in overall efforts to look at rainfall patterns in order to tell heads of state whether things are getting better or worse. Monitoring and flagging problems is not the same as identifying solutions to those problems; this calls for detailed analysis.

Environmental monitoring at a regional scale is a task which the CILSS system wants to take on through the SAGE Program. Indeed, that program was initially designed to "monitor the dynamics of desertification", although it has been shifted to involve a more active role in data development and analysis. This is expected to lead to the production of regular "state of the environment" reports for the Sahel, which should provide summary statistics and indicators of use to both CILSS member countries and donor organizations. Which CILSS organization actually takes responsibility for this task should be determined in the course of the SAGE preparatory study.

#### H. Data Clearinghouse

It has occasionally been suggested that a central source of information about statistical data on the environment would be a useful tool for both Sahelians and westerners trying to locate data. How information would be supplied by a clearinghouse is an open question. One option is to build an on-line database to store information about other databases; where they are, what variables they contain, for what time periods and geographic areas, how they are accessible, how much they cost, whom to contact for information, etc. A second option would be to publish the same information in the form of a book which could be widely distributed throughout the Sahel and to interested organizations in the West.

The French Observatoire du Sahara et du Sahel, through UNSO, did an initial inventory of such data, which has been published in a document distributed by UNSO. The SAGE preparatory study should also lead to the collection of data which could go into such a

clearinghouse. UNSO has expressed some interest in building an on-line system for storing and retrieving such information, working with the OSS data. This is an activity which could logically be situated at INSAH, which has already built on-line bibliographic databases with information about research on the Sahel.

Building such a clearinghouse is not an easy task. As with the statistical databases discussed above, such a clearinghouse - whether information is published or on-line or both - would involve both a significant initial investment and major operating costs. Some of the initial investment has been made through OSS, and more will be made by the SAGE preparatory study. However such a system is only of use if it is kept up-to-date. Keeping the information current is not likely to cost much less than collecting it in the first place, since it will involve re-contacting every system about which there is information in the clearinghouse in order to find out what has changed and get new data. Donors interested in getting involved with such a project should plan how that task will be accomplished and paid for before they invest in starting up the system.

#### I. Training in IS Use

If GIS tools are to become widespread in the CILSS countries, much training will be needed in their use. Formal training is now being provided by UNITAR, at sites in Geneva, Nairobi, and in the future at AGRHYMET. Informal training is going on wherever the software is being used; for example, the Centre de Suivi Ecologique in Dakar has trained Senegalese civil servants who have used the technology in order to carry specific analytical projects relevant to their jobs.

## V. RECOMMENDATIONS

### A. Coordination within the CILSS System

The CILSS institutions must harmonize their activities in the area of information systems development and management. In particular, the SAGE preparatory study should be carried out with fully integrated participation from AGRHYMET, INSAH, and possibly CERPOD. Similarly, the USAID and FED proposals to build land cover databases should be integrated into a single project carried out jointly.

### B. Demand-driven data development

Data development should follow a process of

1. identifying decisions that have an impact on the environment (whether or not the environment is their target),
2. determining what information could lead to better choices, and
3. developing databases to meet that need.

This process should be explicit about who makes the decisions, and whose information needs are to be met by different systems. Individuals or organizations interested in supplying data are not likely to be well equipped to make those judgments, because they typically have vested interests in building particular systems. Suppliers should provide data to inform the design of the systems, but cannot identify the needs.

#### C. Institutional Dimensions of Data Access

Donors supporting database development should be aware of the institutional dimensions of national data supply, and the pressures which may exist to hold a monopoly on data. Support for data supply efforts should be contingent on institutional changes which eliminate those pressures and which ensure that funding for national data supply agencies is consistent with low-cost public access to information.

#### D. Planning for Database Management and Supply

Any effort to build databases or clearinghouses for information about databases should plan not only for what kind of data are to be collected, but for the institutionalization of the data collection, management, and supply system; how the operating costs will be covered; how much the data will be sold for if they are not free; and who will cover both recurrent costs and investment.

#### E. Regional Data Standardization

A regional effort to address data standardization, while difficult, is probably useful. One strategy might be for it to be managed through the SAGE Program; however, whoever manages it must ensure the active participation of all institutions which have already addressed these issues through building regional databases, and all data collectors at the national or sub-national level whose data are to be standardized.

#### F. Specialization in Data Development: Diversification in Data Analysis

The development of regional databases should be handled by specialized organizations who have divided up the data needs so as to avoid duplication (e.g. meteorology to AGRHYMET, food prices to FEWS, agriculture to DIAPER, population to CERPOD). However all data whose development is funded with public (Sahelian or donor) funds should be in the public domain, and should be available to anyone for free or for the marginal cost of reproducing it. Decision-makers at all levels should be encouraged to use and analyze data in order to support their own decision-making.

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**ANNEX 5 D**

**PADRES Project Paper**

**FINANCE AND ADMINISTRATION**

**Frank Cajthmal**

**December, 1991**

This annex to the PADRES Project Paper is comprised of several separate sections. The overview summarizes the recommendations and major findings of two separate analyses, one of institutional considerations and the other of financial considerations. The body of technical annex addresses the major institutional questions about INSAH which are important background to the design of the PADRES project. The six appendices which follow the body of the annex address the Project Administration and Finance (PAF) unit to be established by PADRES, the PAF accounting procedures, the CILSS procedures manual, the position descriptions for the PAF, current CILSS staffing levels and the budget.

## OVERVIEW OF INSTITUTIONAL AND FINANCIAL ANALYSES

### A. Institutional Analysis: Recommendations

- A formal organizational structure based on organizational outputs, with relatively autonomous projects within it, appears to be an excellent means of (a) emphasizing the importance of organizational output for a service organization and (b) managing scarce human resources. It is recommended that INSAH apply this structure, which has been effective in the past, to the three programs of the PADRES project as well as to the PAF.
- INSAH's recent leadership has developed an excellent institutional base for promoting and coordinating agricultural research interests within the Sahel. In the current leadership, the Scientific Coordinator can also serve to provide continuity and expand INSAH's leadership. USAID's support for INSAH should reflect these considerations, and especially address the need to develop emerging leadership within the institution, as well as assist new INSAH leadership in continuing to develop its organizational planning and management capabilities. Specifically, it is recommended that INSAH use one of several action planning models to develop a more formalized institutional development plan.
- INSAH currently utilizes a manual system for tracking its accounting and financial transactions. It is recommended that INSAH computerize its financial and accounting system. To promote greater internal revenue generation, INSAH needs to move more toward a cost accounting system by activity. INSAH's resource management system needs to include data on staff time, computer use, attribution of facilities and services to the various working groups and the tasks which they perform. These changes in resource management practices will require creating a Project Administration and Finance unit (PAF), which should be supported financially by the project. Finally, given the increasingly complex management requirements of the organization, it is recommended that INSAH design and implement a management information system to cover key management concerns and institutional development indicators.
- USAID is developing a multifaceted relationship with INSAH. INSAH is an important means to accomplishing the objectives of USAID's agricultural research strategy in the SAHEL. This strategy is supported by various organizational components of USAID (e.g. REDSO/WCA's Regional Office, USAID/Bamako and participating USAID missions and offices within the Sahel). The structure of the project has certain implementation features which should facilitate INSAH's provision of services within the region. However, these same features will require a considerable amount of communication between INSAH and the USAID system. USAID should hire a full-time Project Liaison Officer, whose work will be increasingly important to the success of the

## PADRES project.

The above recommendations derived from the Institutional Analysis have been used to provide specifications of the project outputs dealing with expanding INSAH's institutional leadership and improving its internal systems of resource management. The summary recommendations have also been used in designing project implementation roles and responsibilities and allocating sufficient project resources for implementation assistance and management improvements.

### B. Institutional Analysis: Major Findings

The institutional analysis addresses INSAH's organizational setting and background, its management and administrative systems; its resource base and management practices, its organizational output, and its links to other organizations. The analysis was based on data gathered from interviews largely within INSAH and from a general review of all available documents and reports. The major findings of the analysis and their application to PADRES are presented in the five sections which follow.

#### 1. Objectives, Strategies and Output

INSAH's principal organizational objective is to assist Sahelian researchers coordinate and disseminate agricultural research variables into the economic development process of the Sahel. The functions and evolving organizational form of INSAH clearly support the organization's objective. In pursuit of this objective, INSAH uses activities and techniques similar to those used in the past to improve the Sahel's agricultural research data base; namely, [a] coordinating research and studies; [b] providing technical coordination within the region; and [c] disseminating information through publications and networking.

INSAH has exerted considerable effort to define its own organizational objectives and operational strategies congruent with the needs and aspirations of CILSS member states and contributing donors. As a result, external perceptions of INSAH's purpose and organizational capacities, both among member states and donors correspond closely to INSAH's own expression of its objectives and strategies. Among USAID field missions, knowledge of INSAH activities and capacities remains inadequate.

Given resource limitations, INSAH has achieved only modest success in collecting, organizing and publishing agriculture research, developing research methods and assisting national agricultural research centers. INSAH has, nevertheless, responded to needs expressed by member states and donors and the quality of output has been high.

#### 2. INSAH's Resource Base

Staff Resources. Presently, INSAH employs 49 persons: 11 professionals (including two organizational managers) and three administrative accounting officers. INSAH staff is supplemented by several visiting technical assistance personnel. The general professional skills mix of INSAH reflects a shift from a specialized agricultural research coordination institution to a broader scope institution. There remains a high concentration of agricultural research skills, although the general skills mix is improving with the addition of a socioeconomic program coordinator for food security, and with the recent hiring of the Scientific and Technical Coordinator (September, 1991). The skills mix should improve further with PADRES's planned recruitment of coordinators for agriculture and natural resource management (GIS), a science editor, and two accountants for the PAF. The technical qualifications of INSAH staff

are appropriate, but there is a requirement to maintain up-to-date skills, especially in the area of computer sciences and automation of accounting financial systems. Recruitment practices are well-documented and practiced. INSAH has previously made use of temporary consultants to obtain supplemental skills needed on a short-term basis.

Financial Resources. In the recent past, INSAH has drawn most of its financial resources from many sources [CEE, FED, ACDI, USAID and UNSO]. The work program for October, 1990, through September, 1991, for example, required that the previously mentioned donors provide 55% of the resources required under the budget. With the additional CILSS member state contributions, the financial support provided has covered most of the project expenses which INSAH incurred [personnel, operating, capital costs, training and research assistance to other Sahel agencies]. Essentially, however, the source of finance has been a major management concern. The planned expansion of INSAH, the diversification of its program, and the planned financial assistance of USAID will create a substantially more complex situation and one which will require greater management attention.

Physical Plant. INSAH's physical plant [i.e. its buildings, vehicles and equipment and computer facilities] are not expected to be adequate for the near future. Buildings are provided by the government of Mali and not well-suited in basic design and location. General support services, travel, communications, utilities, etc. have been problematic and are not expected to improve unless greater resources are allocated for these purposes. Organizationally and programmatically, INSAH is heavily dependant on manual data processing and relies very little on micro-computer technology. It is recommended that computer facilities and equipment be enlarged and updated, and eventually include the installation of a Local Area Network [LAN] to provide administrative and accounting support for the Project Administration and Finance unit. This area must be given high priority and support in terms of INSAH's physical infrastructure.

### 3. Internal Organizational Structures and Processes

While INSAH has a limited resource base and currently manages its limited resources well, the management systems that it has used are largely informal. Existing management systems reflect [a] the small scale of operations of INSAH's previous operations, [b] its reliance on CILSS to provide much administrative support and [c] the previous reliance on multiple donors for its basic resources. INSAH must further improve its personnel and financial management systems.

The internal organizational structures that INSAH uses are highly collegial. Its internal divisions are organized according to major organizational output categories and are overlaid by less formal working groups organized around various subject matter topics. This type of structure has the advantage of emphasizing the output of services provided by the institution while providing flexibility in terms of adjusting to the evolving workload. Staffing patterns, however, still reflect major emphasis on agricultural research coordination activities.

The decision making process within INSAH is also highly collegial. Program leaders are delegated substantial authority for program implementation. In the past, decision-making for INSAH was nominally shared with certain external groups, namely the CILSS Executive Secretariat. This process has been revised by granting INSAH operational autonomy within the CILSS framework.

### 4. Leadership

Organizational leadership within INSAH is essentially vested in the positions of Director and Scientific Coordinator with specialized leadership accruing to the heads of the various INSAH Departments and Divisions. This system has been relatively successful in managing INSAH. Organizational leadership now needs to be expanded and reinforced by upgrading and expanding the group's qualifications and experience with the addition of the Agricultural Research, Natural Resource Management (GIS) and Scientific Editor Coordinators. The leadership will face a substantially increased workload both in terms of regional international collaboration and work with the CILSS member states. The leadership also faces more management responsibilities given the increased resources and expanded program envisioned over the next five years.

#### 5. Organizational Linkages

External relationships with CILSS, host country institutions and donor organizations are well defined and adequate and have been functional for at least four years. Considerable effort has been invested in establishing and maintaining both formal and informal relationships and linkage mechanisms (i.e. National CILSS Coordinating Units, Donor Conferences, etc.). These linkages represent a very important resource for INSAH to draw upon as its program evolves, and especially as INSAH becomes increasingly involved in development and policy recommendations. Current leadership has been instrumental in establishing these linkages. As INSAH's program diversifies, it will be important for INSAH to broaden its linkage and networking mechanisms within the Sahel. Specifically, its networks should include senior government decision-makers, economic planning officials and key individuals in both the public and private sectors.

INSAH has a set of informal relationships with non-Sahelian international organizations such as the Southern African Development Coordinating Committee (SADCC) and the Southern Africa Coordinating Committee on Agriculture Research (SACCAR). The type and function of the relationship varies from organization to organization. Some are essentially cooperative working relationships that share resources available from one or both of the organizations involved. The workload which these external relationships place on the management of INSAH will increase as the number of relationships increases. INSAH management may wish to designate a specific administrator to deal with these types of relationships and the channelling and management of resources they necessarily entail.

#### C. Financial Analysis: Recommendations for INSAH and for the PADRES PAF

- All funds provided to finance INSAH by donors should be accounted for by INSAH even in cases where payments are made directly by the donor organizations rather than by INSAH. Each donor organization should send INSAH a monthly statement of expenses paid directly by the donor with sufficient detail to enable INSAH to account for the payments made.
- Proper financial, accounting, management and treasury control and reporting systems should be designed and implemented as quickly as possible. These systems should be computerized using the model of the CERPOD Rapport definitif, Mission d'Etude du Systeme de Gestion, Contract no. PIO/T 688.0978 - 390136, Cabinet Sakhir Diagne, Dakar, Senegal, 24 October 1990, recommendations and automated utilizing a Local Area Network (LAN) with the SunSystem Accounting System software (or similar accounting application software package (i.e. ACCPAC)) similar to the system currently being prepared for the SPARC project. This could be done through a technical assistance contract.

- Further training should be given to the current INSAH accounting staff in the new systems and in general accounting. This would be achieved as part of the technical assistance contract for the design and implementation of accounting systems. The objective is to merge the INSAH accounting system into the structure permitted under the PAF system by functional accounting area over the duration of the project with the INSAH accounting fully integrated at the end of the project life. However, this objective will have to be reassessed in the light of the CILSS Executive Secretariat interest in developing a standardized framework in the context of the ongoing restructuring of the CILSS system. The PADRES accounting system must be coordinated with the SPARC and APEX projects.
- Standard contracts for donor financing specifying the contribution levels towards overhead expenses should be drawn up and used for all future donor financing. This could be achieved by a technical assistance contract with a legal advisor to provide a standard contract.
- All donors must be required to pre-finance their programs based on a quarterly and annual budget prepared by INSAH and the respective donor. USAID contributions will need to follow U.S. Treasury policies concerning systems of accounting and control.
- Any revenues earned by INSAH during the five years of the project, 1992-1996, should be treated as a capital subvention rather than being offset against expenses. The revenues should be paid and held in a separate interest bearing bank account.
- The Project Accounting and Finance unit (PAF) should undergo a financial audit annually. This would be achieved as part of a technical assistance contract for an audit by a RIG/A recognized international certified public accounting firm.
- INSAH's organizational ability to sustain itself is linked to improving its funding base. INSAH should, therefore, continue to cultivate a multi-donor financing base, actively seeking new donors whenever possible, and making additional efforts towards financial diversification and restructuring of financing arrangements. INSAH should maximize revenues and seek endowments from donors and other interested parties.

#### D. Financial Analysis: Major Findings

The financial analysis attempted to analyze the costs and effectiveness of the PADRES project, in order to determine the adequacy of funds, judge whether the project outputs would be produced at the lowest practical costs and assess whether the cash flow would make the project financially viable. However, because the project benefits are intangible and unquantifiable, it is not possible to compare financial costs and benefits. This analysis takes into account the priorities of USAID and other prospective donors. USAID's priorities are linked to the project strategy, which is to strengthen INSAH's capacity to coordinate research and disseminate information, and to support and assist the development of national research policies and food security and natural resource management policies.

Costs have been estimated based on the historical/current market cost method, adjusted where appropriate to take into account INSAH's increased activities. Inflation has been assumed to be 5% per annum and the physical contingency has also been calculated at 5%. A rate of exchange approximating the current rate has been used to convert local costs to dollars.

The major findings of the financial analysis are addressed in the following sections.

1. Background

Since 1986, total funding provided by USAID to INSAH (excluding the CERPOD program) has accounted for virtually none of the total finance and overhead costs of INSAH. Funds provided under PADRES are expected to be sufficient, when combined with funds already released by other donors, to permit INSAH to function through December, 1998, when program funding under the proposed project is estimated to be exhausted.

2. Cost

The project financing is designed to enable INSAH to carry out the five year program of the project, with focus on the development of appropriate research policies, strategies and programs throughout the CILSS member states. The principal line items in the budget are as follows:

3. Personnel

In order to achieve its expanded program under five year project, INSAH has identified in the budget an increase in personnel from 49 to 66. The proposed personnel are as follows:

Agriculture Research Coordination

- Research Management Specialist
- Scientific Editor
- Research Assistant
- IPM Associate
- Secretary

Food Security

- Program Coordinator
- 2 Research Assistants
- Secretary

Natural Resource Management

- NRM Coordinator (funded by UNSO)
- NRM Analysis Coordinator
- Program Assistant
- Secretary

Administration and Management

- Senior Accountant
- Intermediate Accountant
- Secretary (?)
- 3 Drivers (shared across the project)

These personnel requirements reflect both INSAH needs and increased USAID emphasis on project management aspects of the project. As an autonomous administrative and financial entity under the CILSS, INSAH is responsible for most administrative burdens for the project. To a large extent, the

increase in administrative staff, particularly for the PAF, reflects these responsibilities.

In addition to hiring new staff, INSAH is proposing a new salary and benefit scale for newly hired staff which is included as part of this project budget. This compensation plan will need to be rectified with the U.S. local compensation plan used by USAID/Bamako. The primary reason for proposing this salary scale is to attract the quality of staff required for the positions and to guard against the possibility of losing staff to other international organizations because of the uncompetitive rates which exist under the CILSS scale. This consideration is particularly important given the amount of experience that will be gained by the staff over the five years of the project. The effects on the budget of both the increased number of staff and the increased salary scales are shown below:

#### 4. Revenue

It is not possible to estimate INSAH revenue accurately, and therefore revenue should be treated as a capital contribution.

#### 5. Exchange Rates

Since most of INSAH's expenditures are in local currency and any income received is foreign exchange, the INSAH budget is particularly sensitive to exchange rate fluctuations. A 10% devaluation of the dollar would lead to an increase of \$1.3 million in costs expressed in dollar terms, and would have to be accommodated by reducing PADRES activities. An adverse movement in exchange rates of 30% would increase budgeted costs by \$3.7 million and would require drastic cuts in the PADRES project.

#### 6. Other Donor Financing

Increased standardization of donor financing is required in order to insure that donors share equally the overhead costs of INSAH in accordance to their amount of financing and based on a rational shared cost basis.

#### 7. Financing Methods

USAID, through the Development Fund for Africa (DFA), will provide grant funding to INSAH to carry out the PADRES project. The project is open to contributions from other donors. USAID funding will cover core staff salaries, commodities, operating costs, travel and other direct costs. The project will also finance the USAID Project Liaison Officer and will procure the required short-term technical assistance for INSAH staff. Local cost financing will be implemented using host country procurement and limited USAID direct procurement. Offshore procurement of goods and services will be handled by USAID directly. These financial arrangements have been previously used with the CERPOD project over the past nine years.

#### 8. Adequacy of Funds

The project budget shows that about \$9.5 million is required in order to carry out the overall program and to achieve USAID objectives. In this budget, the only cost funded by another donor is the Natural Resources Expert to be provided by UNSO.

#### 9. Cash Flow

INSAH has no financial resources of its own and therefore all donors must pre-finance their projects. Therefore, INSAH will be required to voucher for advances on a monthly basis to account for advances received from USAID.

#### 10. Economic Considerations

The economic impact of the project will be that improved decision making will lead to more efficient and justifiable use of scarce resources.

#### 11. Cost Effectiveness

The measure of cost effectiveness is whether the goals and purposes of the project are being achieved at the lowest practical costs and whether the unit cost of the outputs is reasonable. INSAH is the only regional research coordinating institution in the Sahel. The only feasible alternative approach to achieving the project purpose would be to support individual coordinating institutions in each of the CILSS member states. This strategy would be neither cost-effective nor efficient. The expected outputs of the project are research coordination and analysis and information dissemination to CILSS member countries. All of these outputs have been previously successfully achieved. INSAH staff have gained valuable experience and expertise in carrying out this work. There are, therefore, considerable cost savings in using a regional organization that has already proved itself capable of satisfactorily achieving outputs (though only on a modest scale) rather than directly and individually supporting several national research organizations to do the same work. USAID's strategy is to promote INSAH's development of services and enhance effectiveness and reputation. This approach responds to the expressed policy of the CILSS member states.

#### 12. Budget Sensitivity

The overall INSAH total budget is sensitive in a number of areas, particularly dependence on CILSS member state support. Other donors are providing approximately 55% of overall INSAH costs and USAID contribution to INSAH overhead through PADRES will be essential. Other donors have agreed, in principle, to contribute to INSAH overhead if a rational cost sharing basis is established (hence, a strong argument for a new cost accounting system) but this has not been reflected in the budget calculations for this project.

#### 13. Complexity

Efficient implementation of the PADRES project requires that funds under INSAH control be effectively and efficiently managed and controlled. The financial accounting and management procedures need to be improved to permit the efficient management of financial resources and to improve the financial reporting systems so that they will provide all donors with comprehensive information regarding the use of their funds, other donors' funds and the financial position of INSAH.

#### 14. Future Financing of INSAH and Sustainability

INSAH is currently financed through donor CILSS support for program and overhead costs. Such financing covers only current expenditures and do not assist in making INSAH financially self-

sufficient. Given that INSAH is a research coordinating and information dissemination institution, it is highly unlikely that it will ever generate sufficient revenues to cover its costs, nor should it be expected to do so.

INSAH's organizational sustainability, however, is linked to improving its funding base. INSAH has already taken important steps to diversify its financial resource base by moving to a greater multi-donor financing base. Additional efforts will be made toward financial diversification and restructuring of financial arrangements.

Through USAID financial assistance, INSAH will further improve its financial base by establishing management systems which will permit it to identify the costs of service provision, and by establishing computerized accounting systems that will enable it to accurately calculate and control overhead expenditures. These improvements will provide INSAH with accurate data which will be used to calculate exact overhead costs for future projects.

## TECHNICAL ANNEX FOR FINANCE AND ADMINISTRATION

### I. INSTITUTIONAL DEVELOPMENT OF THE INSTITUT DU SAHEL

Between the years that saw the creation of CILSS in 1973 and the Club du Sahel in 1975 and the final implementation of the Ottawa Strategies in 1977 [revised in 1985], the development phase of INSAH was completed.

Following the tragedy created by the severe drought of 1972, it was realized that there was no single place or institution in the Sahelian region to assemble basic data relating to the research situation in the region. In addition, there were no scientific and technical publications being written in the region on the long-term development of the Sahel. National research institutions did exist in the different CILSS countries. These institutions often served as the field centers for the international research institutions. Nevertheless, none of the national institutions focused on the priority themes of food self-sufficiency and control of desertification and certainly not on a regional basis. Hence, in the view of the policy makers at the time, there was a need to incorporate this focus into the long-term rehabilitation programs for the region. At the same time there was a need to avoid the costly duplication among the research efforts being conducted in each country of the region. With this background, the idea of creating the Sahel Institute was developed to fulfill the functions which no other institution in the sub-region was performing. From this perspective, the institute was viewed as a "permanent necessity", as a head of state of a CILSS member described the CILSS system in subsequent literature.

While the idea of the creation of INSAH was developed as early as 1973, it was not until 1978 that the institute finally began operation. Between the years 1973 and 1978, various pre-development stages were encountered.

In 1974, the United Nations General Assembly passed a resolution calling on the international community to make an accelerated effort to respond to the 1973 requests of the CILSS Heads of States. On the basis of this resolution, the UNDP was requested in 1975 to study the scope, objectives and operational requirements of the proposed institute.

The UNDP report received a thorough review during a conference of Sahelian Researchers' Organizations held in Bamako, Mali, during April, 1976. The conference assigned the following four objectives to the institute:

1. Collection, analysis and diffusion of research results;
2. Promotion, harmonization and coordination of research;
3. Transfer and adaption of technology; and,
4. Promotion, harmonization and coordination of training.

These objectives were endorsed by the 6th Session of the CILSS Council of Ministers held in N'Djamena in December, 1976.

In October, 1977, almost one year later, a meeting of national research officers and international experts working in the Sahelian region was held in Ouagadougou to prepare the work program of the institute and to identify its possible interactions with the network of worldwide research institutions as well as the donor community. Finally, in December, 1977, the creation of the institute was formally

by EDF. This project saw INSAH play a key role in the coordination of agricultural research, which is one of the major functions of the institute.

In addition to these projects, INSAH received substantial institutional support from donors to cover administrative expenses. This support was provided mainly by the USAID and the UNDP. This support became even more important when the contributions of member states fell below expected levels and failed to cover a significant portion of INSAH's administrative expenses.

Starting in the early 1980's, CILSS (including INSAH) gave the outward impression of a poorly-run institution. Donors, in particular, felt that management was lax; that political considerations conflicted with certain decisions; and that the overall program lacked coherence. To remedy this situation, a first mission of Sahelian experts was carried out in 1983. It was followed in 1984 by a mission conducted by non-Sahelian consultants whose report, referred to as the "Palin Report", served as the basis for a structural re-organization of CILSS.

This report was to cover the entire CILSS system, but INSAH received only superficial treatment. In the subsequent decisions of the Extraordinary Council of Ministers meeting on the restructuring of CILSS, the mandate of INSAH was modified and the following changes were added:

- reflections on and definition of priority regional research teams; and
- regional research planning [Article 5, Chapter II, of the Statutes of the Institute].

The Board of Directors was replaced by an Executive Council while certain departments of INSAH were consolidated. Donors perceived that these modifications were insufficient in alleviating difficulties pertaining to administration. For example, the numerical strength of INSAH was increased by two additional staff after the structural re-organization. The re-organization created a lack of confidence among certain donors, especially USAID, which then decided to withdraw institutional support of INSAH in December, 1986. At the same time, institutional support by the UNDP ended. This simultaneous termination of support by the two primary donors created a period of financial disaster for INSAH.

As a result of the critical situation confronting INSAH, particularly due to the withdrawal of institutional support by USAID and the UNDP, the CILSS Council of Ministers, at its 22nd Ordinary Session, instructed the Executive Secretary to do everything possible to revitalize the institute. To address this problem, the Council of Ministers of the Sahelian states decided to increase their financial commitment to INSAH and requested the Executive Secretary to establish a multi-national team of Sahelians and donors to study methods for revitalizing INSAH.

The above reviews saw INSAH go through a "Reaction and Revitalization Phase" from 1985 through 1988 which included a FAO mission in 1985 to formulate INSAH's first Five-Year Plan (1986-1990). Unfortunately, the first Five-Year attempt never materialized. However, INSAH successfully instituted its first formal Five-Year Plan in 1990 and has just completed the second year of the plan.

Key management changes occurred at INSAH during June, 1991, when both the Administration Manager and Financial Controller were dismissed. The Administration Manager had been at INSAH since 1978, the Financial Controller had been at the Institute since 1981.

A decision had been made by the Council of Ministers in January, 1991, to reduce staff

the review of personnel statutes of the nine member states of the CILSS.

Review of the CILSS Administration and Accounting Procedures Manuals currently in force (A Summary of Policy and Procedures Manuals has been prepared and attached as Appendix 3 to this Annex) has determined that, although developed in 1986, neither procedures manual has been reviewed or updated since their adoption in 1987. Upon recommendation of the Council of Ministers in January, 1991, both procedures manuals are scheduled for a complete review in the near future. It is recommended that in developing the terms of reference for the review of the Administration and Accounting Procedures Manuals, a review of the CILSS personnel evaluation policy should also be included. French resources have been identified as the source of funding for the reviews. At present, no uniform policy exists concerning the evaluation of personnel within the CILSS. Each institution has its own policy of personnel evaluation.

Staff Training and Development at INSAH/CILSS is summarized with the observation that no training policy currently exists for personnel at Senior levels within the CILSS structure. In addition, there are no provisions within existing CILSS statutes for long-term training. In fact, current statutes specifically preclude payment of personnel benefits for staff members on long-term training. Accordingly, staff training within CILSS is conducted only on a short-term basis.

CILSS's position on training reflects a philosophy that Senior staff development and training is gained through the broader perspective of professional association while performing assigned duties. Therefore, Senior staff training opportunities are non-existent. Organizational assumptions are that Senior staff possess all positions qualifications required upon signing their contracts.

Intermediate staff development within the CILSS structure, although available, is subject to the constraints of the CILSS budget. In general, CILSS/INSAH staff training and development in the past have been inconsistent and sporadic. It is INSAH's view that intermediate staff is in critical need of upgrading. A problem exists within INSAH that the institute cannot provide intermediate staff with increased levels of responsibilities upon their return from training. Unless this problem can be corrected, INSAH feels it will be difficult to retain the intermediate staff upon return from training because of staff frustrations caused by a lack of advancement potential. Advancement issues aside, intermediate staff, upon return from training, normally do not leave the institute for increased remuneration elsewhere. In fact, within the Bamako geographical area, the institute currently pays in excess of the local employment market. A problem area does exist with recruitment of intermediate staff by other international organizations. This type of recruitment is usually successful because of the issue of the lack of advancement potential already discussed.

To improve staff development, it has been proposed that a position of junior expert be created under donor funding. The junior expert would be an understudy position eligible for additional training. At present, adoption of this proposal is not certain.

With reference to remuneration of professional staff, there exist two sources of funding. CILSS staff are paid on the basis of a unified structure. There exists, however, a parallel CILSS/Donor approved salary structure which is higher than the CILSS unified structure for donor recruited professional positions. The long-term CILSS objective is to reduce the anomaly that exists between the two scales. It is envisioned that the establishment of parity between the pay scales will take five years or more to correct. One primary problem associated with eliminating the disparity between current levels of remuneration is that member state concurrence will be required.

management problems can finally be addressed. Prior to filling the Scientific Coordinator position, departments were has to provide their own coordination. Now, with the addition of global coordination capabilities, the individual department efforts will be strengthened. A major challenge over the next two years will involve consolidating activities around the Scientific Coordinator. In particular, efforts will be made toward motivating staff to begin thinking and working as a team.

Within INSAH's organizational structure, the lack of a Scientific Publications Editor within the Information Division of the DDIF is viewed by Senior management as the Institute's weakest link. With the exceptions of The Gambia and Senegal, which have generated approximately seven series of publications on research, there exists no publication facility within the INSAH region. During July, 1991, the University of Abidjan visited five of the nine CILSS countries for the express purpose of reviewing the publication policies at a regional level. At present, publication efforts exist only in the form of small working groups operating under the Scientific Coordinator. It is envisioned that existing weakness in this area will be corrected upon recruitment of the of Scientific Editor. This position will be donor funded under the PADRES project.

The remaining weak area in the management of INSAH remains the Department of Administration and Finance [DAF]. Review of the Department of Administration and Finance [DAF] within INSAH has resulted in the recommendation that the PADRES Project Administration and Finance unit [PAF] must focus exclusively on the demands of the project and anticipated demands from other donors. It is observed that the current CILSS financial structure is too cumbersome and does not provide a guarantee that the system, as currently structured, will sufficiently meet Project accounting/financial management requirements. It is recommended that the PAF unit's staff include one (1) Senior Accountant, one (1) Junior Accountant and (1) Administrative Assistant. The best potential source for candidates for the accounting positions has been determined to be Senegal. Regardless of the source of candidates, emphasis is to be placed on the development of an appropriate position profile and job description prior to the recruitment effort.

In discussions concerning the internal organization of the institute, INSAH envisions reorganizing the DDIF into programs rather than as divisions as it is currently organized. This change will depend on the CILSS restructuring, including the dissolution of most of the operating functions of the Executive Secretariat (which has been formally recommended) and the effect this restructuring will have on INSAH. Regardless of the ultimate CILSS restructuring, INSAH prefers to maintain the concept of Departments and Programs.

(NOTE: At present, the restructuring of CILSS has not been funded. The restructuring objective is to have the CILSS represented by a significantly reduced staff. The Executive Secretariat is expected to transfer its projects to INSAH, AGRHYMET, or national structures that are better capable of handling them. Although the Executive Secretariat will retain an advisory role on the overall orientation of the institutions, the Executive Secretariat will not get down to the level of developing the Five-Year Plans. Both INSAH and AGRHYMET will have considerable flexibility in developing their respective work plans.)

## II. USAID/BAMAKO'S POSITION ON ADMINISTRATIVE SUPPORT OF THE PADRES PROJECT

- The Director feels that a single institutional contractor is not the direction that INSAH should take on the PADRES Project.
- With the exception of the Project Liaison Officer and the expatriate Agriculture Research Coordinator, all contracts will be negotiated by INSAH. This will require a USAID certification that INSAH has the necessary systems and ability to award and administer contracts. USAID will fund INSAH and will inspect the books regularly and management occasionally. Space for the PLO will be provided within the mission (for which the project will be billed) and periodic inspections of INSAH's accounting books will be made by the USAID/Bamako Controller's Office.
- The Mission agrees that the Project Administration and Finance Unit [PAF] should be located within the DAF of INSAH. Mission feels that additional staff should be added to the DAF rather than creating a separate, independent, unit.
- The Mission feels that INSAH was weakened in the past by an overabundance of USAID institutional support, even when CILSS member states failed to contribute to INSAH. It is the mission's concern that AID's responsibility is not to detract from INSAH's new roles of responsibility and self-reliance. The key to the long-term survival of INSAH will be the continued support of CILSS member states.
- With reference to co-management with AFR/SWA, the Mission's position is that it prefers not to manage regional projects. The preference is to have AFR/SWA manage the entire effort. USAID/Bamako's role in this project will be to provide project support.

## III. INTERNAL CONTROL AND INSAH FINANCIAL MANAGEMENT PRACTICES

Prior to reviewing the effectiveness of current INSAH internal control, it is important to reference previous CILSS audit reports which identified deficiencies caused by poor management within the previous administration. The report ("Implantation de Systèmes de gestion: Compte-Rendu de Mission, Projet AGIR", December, 1988) made a critical, in-depth, review of the operating procedures of the institution and determined that there are major areas of weakness which needed to be addressed within INSAH. In particular:

- There was a lack of a systematic and uniform method of performance evaluation.
- There was insufficient institutional autonomy with reference to staff recruitment and administration of personnel.
- There was a lack of detailed job descriptions for all assigned personnel.

- There was an absence of a comprehensive uniform budget plan which facilitated periodic review and analysis.
- The orientation of the accounting system towards external reporting ignored internal accounting control considerations.
- The existence of numerous accounting systems running parallel with one another [separate accounting systems to meet the needs of individual donor-funded projects and programs] required repetitive manual operations without any resulting institutional benefits.
- There was a lack of in-depth reviews of cost associated with INSAH publications.
- There was weak enforcement of existing accounting procedures within INSAH at certain levels within departments.
- Available job descriptions did not reflect staff work actually performed.

The report recommended that word processing and Lotus 1-2-3 be introduced to meet personnel information requirements within the institution. While word-processing has been introduced, the personnel and administration functions of INSAH have yet to be automated.

A review of past INSAH internal control concerns has eliminated any question of financial fraud. Past internal control problems concerned a misuse of scarce resources and an ignorance of procedures. The waste of resources (expenditures for administrative needs, paper, etc.) meant that resources were ultimately not available for activities or for research.

A review of the annual audit report from this period ("Rapport du Commissaire aux Comptes, année, 1988" Secrétariat Exécutif, CILSS) noted several deficiencies in resources management and judgmental errors made on the part of previous management which continued to hamper current efficient operations. In particular:

- The annual audit detected errors in recording fund transfers from the Executive Secretariat and member states of CILSS to the bank accounts and in the accounting documents of INSAH reflecting the recording of receipts.
- The auditor found it necessary to adjust the effective expenditures of INSAH for the current period by 9,719,000 FCFA to reflect expenditures incurred by the previous Director General of the Institution. As of the audit date it was also determined that certain expenditures of the prior Director General of INSAH still remained to be justified.
- The audit reports noted that fully 84% of actual expenses incurred by INSAH for the period were for salary and personnel costs. This left less than 16% for activities and programs. Finally, the audit concluded that payments in arrear by member states of their allocated portion of the institutions annual budget were paralyzing the effectiveness of the Institution's projects.

In the past, too much money was spent on functional costs and not activities. There were no visible outputs. This environment created an impression of mismanagement within the minds of the donors and ultimately caused USAID and UNDP to suspend funding in 1986 because development

contributions had become basically nothing more than institutional support. Hence the reason why the PADRES project is planned specifically around activities. In fact, for the year ending September, 1990, only 56% of funds were allocated for personnel and administration. The remaining funds were available for activities of the institute.

Though efforts have been made to correct problems caused by previous management, problems still persist. Specifically, mismanagement caused 1990 bills to be paid with funds from the current operating year. (A decision was made to pay only essential bills from the prior year, such as utilities, from the extraordinary budget.) Previous management problems caused by borrowing from the available project funds of one project to pay for the activities of another project have been corrected.

The present project accounting system captures funding manually by project. Consolidation for total project/program funding and sources of financing is a cumbersome manual procedure that is not frequently performed. When added to the burden of meeting the reporting demands of individual donors in accounting for individually sponsored donor projects, the existing INSAH accounting staff has little time available to prepare useful Management Information reports or to conduct project financial reviews/analysis of any significance. For example, the current data collection documents INSAH utilizes for recording payroll are adequate for the manual preparation of payroll by project. For financial analysis and for consolidation for Management Reporting purposes, this method is not efficient. Similar data, once entered into the payroll data base of an automated accounting system, will allow for analysis of labor distribution analysis by project and for INSAH in total and of labor costs by category. In addition, it will provide an analysis of allowances and withholdings.

Essentially, all donors require the same accounting and financial data but in their own proforma. However, because all accounting is manual, donor reporting requirements require the INSAH accounting staff to spend most of their time recording routine transactions and summarizing the information into the individual donors' required formats. An automated accounting system will provide the accounting staff with timely data that allows for both in-depth reporting and in-depth analysis. Accounting data, once entered into the automated system, can, through use of the report generator facility of the automated system, be systematically formatted and reported in the proforma required by individual donors.

In summary, these continuing concerns over past management practices present a persuasive argument for establishing a separate PAF for the PADRES project. Finally, the strongest argument for establishing a separate PAF centers around the continued delay of member states in making required payments of their allocated share of the CILSS operational budget. Member states contributions remain at 50% of allocations required under the CILSS budget through 30 September 1991. The existence of the PAF will ensure that PADRES activities are not hindered by these payment delays.

The physical flow of accounting information at INSAH reflects that actual project accounting is done at the project site. The Project Administration and Finance unit [PAF] of the PADRES Project will be physically located at INSAH. (NOTE: The proposed INSAH overhead rate for the PADRES project is a flat rate of 10% established and approved by the Council of Ministers in 1986. This will be the budgeted overhead rate for the project.)

The project will require a full-time Project Liaison Officer. The remuneration package for this position is estimated at \$130,000 per year, which is the current actual cost of the corresponding position at CERPOD. If a Sahelian or FSN is recruited to fill this position, then the annual cost can be reduced by approximately one half. A full-time position was identified for an individual to represent the

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project/INSAH's position to USAID. In addition to a Project Liaison Officer, the project administration staff will consist of a Senior Accountant (Project Administrator), an Assistant Accountant and an Administrative Assistant.

The primary objective of the staffing of the PAF will be to remove the program coordinators from administration and allow them to concentrate exclusively on their technical responsibilities. Other PAF staffing objectives will be to eliminate the duplication of administrative services currently being provided. In addition, it is recommended that the PAF accounting system not be modeled on the CILSS system but on the CERPOD system currently in operation. The CILSS system is a combination of both public and private accounting procedures which, in general, are perceived as weak.

Once project staff is recruited, there will be no provision for additional training of PAF accounting staff within the project budget. It is noted that the current INSAH Senior Accountant will retire within the next two years. It is recommended that the current INSAH junior accountant be promoted to the Senior position upon the incumbent's retirement and trained with the PAF staff in developing and upgrading INSAH's technical accounting ability.

On the issue of audits, the most recent audit of INSAH took place in March, 1991. It has not been determined if recommendations developing from that audit have been implemented. In addition to the periodic audits by the CILSS auditor, there is an annual audit performed by the Ministry of Treasury.

Lack of trained auditors within INSAH will continue throughout the project life. Limited auditing capability is currently provided by CILSS. CILSS audit capacity consists of one auditor operating from the CILSS Financial Controller's Office. The auditor concentrates entirely on the three institutions within the CILSS structure. CILSS auditing has no donor budget and is funded by CILSS member state contributions. Donors provide their own auditors/evaluators as determined by individual donor's requirements. Periodic Project audits will require committing project funds for the annual audit by an independent outside auditing firm.

#### IV. INSAH INTERNAL CONTROLS

##### A. Review Coverage

Based on audit report deficiencies previously noted, an internal accounting/administration review of INSAH was conducted between 1 November and 16 November 1991 to determine whether recommendations of the previous audit reports had been implemented. The review included detailed inspection of the following areas:

- CVs of the DAF staff with the objective of determining whether or not the proper level of competence exists within the section.
- Published job descriptions of the INSAH DAF staff.
- Performance evaluations of the INSAH DAF staff.
- Non-current asset listing [types, valuation, etc.].

- Petty Cash journals and procedures.
- Bank accounts, including the reconciliations of active bank accounts.
- Purchase Journals and the purchasing system of INSAH.
- Procedures for accounting for and purchasing consumable operating supplies.
- Procedures for contracting services.
- Procedures for recording the donation of equipment and supplies.
- Procedures and schedules for recording depreciation of fixed assets.
- Methods for recording improvements on non-current assets.
- Insurance policies in effect.
- Procedures for processing INSAH payroll.

The review of the accounting/administration procedures currently followed at INSAH concluded that the major weakness lies in an inability to elaborate procedures. CILSS procedures manuals exist, but they have never been broken down by task/function within INSAH. For example, procedures exist for purchases, but their implementation varies considerably between institutions (i.e. CILSS establishes one purchasing policy, CERPOD has another, etc.). CERPOD recently implemented its first detailed policy manual for accounting (dated 20 August 1991).

## B. Detailed Findings

Specific observations on INSAH accounting are:

### 1. Cash management

In the area of cash management [i.e. reconciliation of bank accounts and control of the petty cash account] strong internal controls are in effect. A review of the active bank accounts for the month ending 31 October 1991 determined that all accounts had been reconciled and discrepancies noted. Petty cash accounts are maintained by project in accordance with statutory regulations in effect within the CILSS system. The petty cash accounts are replenished following established procedures and expenditures are then recorded in the accounting records for the project at the DAF. Petty cash accounts are audited annually as part of the annual review of the Commissioner of Accounting.

### 2. Payroll Accounting

The payroll account is under sufficient internal control procedures. Payroll is prepared on a project basis and maintained at the DAF of INSAH. Net payroll is funded by CILSS directly into the individual payroll accounts of the projects for subsequent net amount disbursements. All previous audit report recommendations concerning improvement in payroll accounting procedures and record keeping have been adopted by INSAH, to include adoption of the forms recommended by the audit report.

Specific areas for improvement in payroll require INSAH adopting a method for charging staff member time against specific projects and activities to provide a better cost accounting base for determining actual overhead costs associated with INSAH activities.

### 3. Fixed Asset Accounting

A recurring deficiency noted by previous audits which still has not been corrected is in the area of fixed asset accounting. Specifically, all acquisitions of fixed assets are not accounted for. This is particularly true in cases where financial backers have acquired the assets direct on behalf of the Institute. For fixed assets actually recorded, there is no system established for accounting for depreciation of assets and recognizing their eventual obsolescence. A review of balance sheet activity notes an absence of any allowance accounts for either amortizing or depreciating non-current accounts. Accounting records existing outside the accounting books of the Institute reveal an absence of a fixed asset register and a complete file on all fixed assets. No separate accounts exist for recording improvements to fixed assets either by type or by classification. Presently, all capital improvements to fixed assets are recorded as operating expenses during the period in which they are incurred rather than being capitalized and depreciated. A previous audit report [year ending 1988] recommended periodic physical audits of fixed assets and for creating permanent records reflecting date of acquisition, valuation at the date of acquisition, classification by type, and source of financing.

A physical inventory was prepared following these guidelines in early 1989. However since that date the list has reflected only acquisitions of additional non-current assets and no fixed asset disposal. There is still no organized method of recording fixed assets. In addition, no method exists for depreciating non-current assets.

Disposal of fixed assets, for example approximately eleven automobiles in the past several years, are not recorded in the accounting records. Records of asset disposal exist only in memorandum form within file records that are incomplete. No standard policy exists within INSAH for determining when disposal of a non-current asset should occur. Disposal is an arbitrary decision. Disposal valuation is achieved by engaging a local appraiser who assigns a disposal value to assets being sold. At present, a list of non-current assets has been developed reflecting items which are no longer viewed as serviceable and candidates for disposal. A memorandum dated 4 October 1991 created an ad hoc committee for the disposal of these assets. To date, the committee had not met and the specialist's appraisal report establishing the disposal value of the assets had not been received.

### 4. Inventories

Physical inventories of consumable/operating supplies occur only once a year or whenever there is a change of position where a joint inventory is conducted to determine accountability by the outgoing and incoming responsible managers. Inventory balances are maintained only for physical amounts on hand. Valuation of inventories based on accepted principles [i.e. FIFO, LIFO or Average Value] are not maintained. As with fixed assets, donated supplies or supplies purchased directly by donor organizations on behalf of INSAH are not recorded in the accounting records.

### 5. Insurance

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A review of insurance schedules for INSAH determined that no consolidated register or insurance schedules exist. Individual policies for the six INSAH vehicles are available. At present, INSAH maintains only liability insurance on its six vehicles. INSAH has no comprehensive insurance coverage for any of its assets or facilities [i.e. fire, theft, etc.]. INSAH elects to be self-insured against exposures to potential loss. A review of insurance policies in force determined that the organization maintains liability and collision insurance on its six operational vehicles. There are no "all-risk" policies currently in force. With reference to facilities and other non-current assets, as well as supplies and materials, there are no insurance policies currently in force and the organization adopts a policy of "self-insurance" against unanticipated loss of organizational assets. There is no provision in the CILSS budget for additional insurance coverage and a consolidated register of insurance policies in force is available.

#### 6. Journals

A review of various journals was performed. Purchase Journals, Cash Disbursement Journals, etc., were reviewed. INSAH's entire accounting system is maintained exclusively in manual records. The recent decrease in staff and a reorganization of the department determined that the majority of available staff time is spent in collecting and recording routine accounting transactions. No time is spent in either analytical accounting or financial management analysis. The current system of manual accounting does not facilitate a quick summary of project expenditures by budget line item or aggregate summary by project/activity. All such analysis requires item by item review in each of the journals and subsequent summary on a manually prepared spread sheet. This process becomes repetitive when INSAH staff prepares documents to meet the reporting requirements of the individual donor agencies. As stated previously, most donors require essentially the same information, but in a different pro forma. The current INSAH system does not facilitate a quick response to various donor requirements and, at best, is a laborious time-consuming exercise for the DAF staff.

#### 7. Vouchers

Although a voucher system does exist for purchases, there is no voucher register maintained nor are the voucher forms pre-numbered and accounted for in chronological, sequential order. In addition, except for guidelines established within the CILSS regulations, no well-defined policy has been established concerning the routine purchase of operating supplies and materials.

#### 8. Personnel Evaluations

Review of personnel records established that INSAH conducts personnel evaluations on an annual basis. A standardized INSAH form does exist for the evaluations. The current form rates staff members on a scale of 1 to 5 [5 being the highest] on the rated staff member's performance observed throughout the year. These observations are compared with the specifics of the evaluated staff member's job description. Evaluations had previously been done by the Director of the DAF. The current system provides for a review by the Director-General of INSAH but does not allow for a review or comment by the evaluated staff member. A review of the evaluation policy of INSAH is in process. A revised draft evaluation form/policy document [Memo No 053/IS-DG, 28 October 1991] from the office of INSAH Director has been placed in circulation to the various department/division heads of the Institute for comment. The proposed revision of the personnel evaluation procedure is tied to established performance objectives. The revised form allows for the staff member being evaluated to comment. In addition, the proposed revision establishes bench-mark standards and criteria by which to judge staff performance.

## 9. Administrative Cost Calculation

The current accounting system does not allow for the calculation of administration costs and the allocation of same to the different Department/Projects. In addition, the system does not measure the indirect administrative costs of the institution [energy, pro-rated rent, general administrative costs, depreciation, etc.]. Although the overhead rate established and charged ranges between 10% and 15%, the actual overhead required to cover administrative costs is considerably higher. Financial backers generally are not opposed to the concept of shared institutional costs estimated on a reasonable basis. At present, overhead rates are negotiated differently with each donor to cover general administrative costs. Overhead rates being incurred, therefore, are directly affected by the negotiating capacity of the institution.

### C. Recommendations

#### 1. Accounting

- An automated system of accounting should be instituted for calculating the administrative/institutional costs and their effects on different projects;
- Actual General Costs incurred need to be closely monitored;
- The SunSystem or equivalent accounting software currently in use by CERPOD should be adopted, including additional modules of administration and finance; and,
- A new Chief Accountant and a Junior Accountant should be recruited for the PAF;
- A special commission for recruiting charged with recruiting the two accountants should be established. Membership in the commission should include members of the permanent commission for recruitment at INSAH, a representative from the USAID/Bamako Controller's Office, other prospective donor agencies, and the Scientific and Technical Coordinator.
- Put at the disposition of the Director of INSAH the technical assistance required that is capable of elaborating the budget process and financial administration process. The assistance would provide the INSAH Director the ability to determine with some degree of exactitude the annual charges associated with work performed and determine the resource needs [both human and financial] and areas which may eventually require additional financing. This will culminate with an annual end of year audit of accounts to assure that accounting weaknesses are under control as well as the needs of internal accounting/financial control of the current and projected financial backers of the organization.

#### 2. Budget Administration Recommendations

- The budget system should function as a building block for planning and analysis;
- A permanent method should exist for addressing the requirements of ad hoc activities or for technical assistance;
- Budget proposals must be presented in a uniform format;

- A consolidated budget should be presented identifying precise sources of financing;
- Procedures need to be implemented to correctly identify the forecasted needs of the Center at least three months prior to the end of the fiscal year;
- A periodic budget review should occur at the end of each quarter;
- Global needs of the institute should be analyzed;
- Elaborate the organization plan for the intermediate term; and,
- Establish and maintain a file of potential consultants for providing services in the absence of proper internal resources.

### 3. Personnel Administration and Human Resources Management

INSAH has no global system for personnel administration or evaluation. Within the CILSS framework, a normal stratification of personnel by category and by step exists within an established salary grill. For technical staff, there is no problem with levels of remuneration, because the grill takes into account qualifications and performance. The same, however, is not true for administrative personnel. For example, examination of the grill will determine that secretaries and technical staff are on the same grill at the same steps. The grill was designed by the CILSS Council of Ministers, but placement of individual staff within it is the internal decision of the Director-General of INSAH.

- A profile should be prepared for every post within the organization.
- A reconciliation of the contents of the dossiers of the individuals with the post profile should occur.
- Personnel should be interviewed to determine whether or not they are adequate for performing specific tasks detailed in the position profile.

## APPENDIX 1

### GUIDELINES FOR IMPLEMENTATION AND AUTOMATION

#### I. OBJECTIVES

The short-term objective [under six months] of the information project for financial administration is the improvement of INSAH administration of accounting operations and budgets with the end product being the production of periodic financial reports on both the Institute and of projects/programs within it.

The intermediate objective [under two years] of the information project will be to install an integrated centralized system for the treatment of financial information which will permit [considering actual and future needs of INSAH] the ability to supply projects/programs and various organizational structures within the Institute the management information data that is necessary for effective project administration. Installation of this system will do the following:

- Improve operating efficiency and eventually allow centralized financial planning within INSAH.
- Permit the adoption of uniform administrative procedures for the projects within the Institute.
- Restructure the administrative function with the objective of reducing dependence on external assistance.
- Provide for the analysis and interpretation of financial results rather than just the collection and recording of accounting data.
- Result in the production of accounting reports that reflect the individual requirements of member states of CILSS, donor organizations, etc., and permits them to make and monitor their contributions according to their constraints or particular needs.
- Provide relief of INSAH administrative efforts by eliminating repetitive manual operations.

#### II. COSTS AND EQUIPMENT

##### A. Overall Cost Breakdown

The cost of the information project is estimated at \$192,650. Estimated distribution of automation costs are as follows:

	<u>BUDGET AMOUNT</u>
Reconfiguration of organizational tasks/functions	\$10,400.
Materials, equipment and supplies	132,250.[Item 1 (below)]
System Configuration	32,000.[Item 2 (below)]
System implementation	15,000.
System Validation	<u>3,000.</u>

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Total: \$192,650.

The cost breakdown by major classification follows [NOTE: A separate budget for contingencies at 10% of the total is included as a bottom line adjustment to total cost.]

<u>Materials and Equipment:</u>	<u>Budget Amount</u>
Preparation of purchase orders	\$ 5,000.
Purchase of Equipment	68,000. [Item 3 (below)]
Purchase of Furniture	15,750. [Item 4 (below)]
Purchase of software programs	38,200. [Item 5 (below)]
Purchase of supplies	<u>5,300.</u> [Item 6 (below)]
Subtotal:	\$132,250.

<u>System Configuration:</u>	<u>Budget Amount</u>
System definition	\$ 6,000.
System configuration	12,000.
Implementation/Validation of System	<u>14,000.</u>
Subtotal:	\$32,000.

<u>Equipment Purchase:</u>	<u>Budget Amount</u>
One file server	\$12,300.
Two work stations	14,500.
[2] 132 column printers	2,400.
One UPS power stabilizer	1,300.
One photo-copier large capacity	20,000.
One fax machine	1,500.
Supplies	1,000.
Installation of system [including cables, connectors, wiring, etc.]*	<u>15,000.</u>
Subtotal:	\$68,000.

#### B. PAF Equipment Breakdown

The equipment to be purchased for the PAF is described in greater detail below. Prices are current from a contract executed for CERPOD dated 5 July 1991. The supplier of the CERPOD Local Area Network is:

Center for International Research  
P.O. Box 12194  
Research Triangle Park  
North Carolina, USA 27709

The equipment to be purchased for the PAF includes:

1. File Server

[1] Compaq Deskpro 386 33L, 33 MHZ, 300 MB Hard drive, 8 MB RAM, VGA Monitor, Controller Card, 5.25" HD FD, 3.25" HD FD, Serial and Parallel Ports	\$8,275.
[1] 320 MB Internal Tape Streamer	1,943.
[1] UPS 220V 1.2 KVA 60 Cycle	1,332.
Novell ELS 2.12 Level 1 [4 user]	821.
Ethernet Network [3 computers]	722.
[2] Epson LQ 2550 132 column printers	2,368.
[2] 10 foot Parallel Printer Cable	34.
[22] Epson LQ 2550 printer ribbons	233.
Network Cables, connectors, etc.	<u>300.</u>
Subtotal:	\$16,028.

2. Work Stations

[2] Compaq LTE 386S/20 Model 60 20 MHZ, 2 MB RAM upgrade to 3 MB, 60 MB HD, 3.50 " HD FD	\$10,506.
[2] Enhanced keyboard	378.
[2] Base unit	2,220.
[2] Disk Drives	400.
[2] VGA monitors	<u>1,056.</u>
Subtotal:	\$14,560.

3. Office Furniture

Two Ordinary tables	\$1,500.
Two printer tables	750.
Four swivel chairs	1,500.
Two 1.5 CV air conditioners	3,750.
Seven file cabinets and bookcases	5,250.
Three standard office desks	<u>3,000.</u>
Subtotal:	\$15,750.

4. Computer Software

Wordprocessing [Wordperfect 5.1 network]	\$3,500.
Harvard graphics	3,500.
Lotus 1-2-3 [network version]	7,700.
SunSystem Accounting [following modules]	20,000.
General Accounting/General Ledger	
Analytical Accounting	

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Budgeting	
Purchases Journal	
Cash Journal	
Fixed Asset Administration	
Job Order Costing/Inventory Module	
Paradox 3.5	<u>3,500.</u>
Subtotal:	\$38,200.

5. Purchase of Supplies

25 boxes continuous feed 132 column paper	\$1,900.
100 reams A4 copy paper	1,900.
3.5" diskettes	100.
5.25" diskettes	45.
Printer ribbons	200.
Internal Tape Streamer [10]	800.
Protective non-static equipment covers	<u>360.</u>
Subtotal:	\$5,300.

C. SunSystem Accounting Software

The SunSystem accounting software has a number of strengths which suit it for INSAH use. It should also be noted that the ACCPAC system provides the same capabilities. While ACCPAC is used extensively throughout Southern and Eastern Africa, it appears that the SunSystem is heavily used throughout Western Africa and the Equatorial region of the continent. Areas of major strength of the SunSystem automated accounting system are:

- The system offers on-line interrogation. For example, when posting to accounts, if a user cannot remember the correct account number, the user can interrogate the system by requesting a list of valid account numbers from which to post. The user can identify the correct account number, position the cursor on the correct account number and after pressing the carriage return the correct account number will be entered into the field indicated.
- The system will not allow posting unless a valid account number is entered. In addition, the system requires double-sided entries. No single-sided accounting entries can be forced on the system.
- The system permits utilization of several levels of security codes and passwords. Levels 0 through 9 define which accounts the user can access for viewing or posting and allow for the denial of access to accounts where access is not authorized.
- The system allows for the combination and consolidation of accounts for the purpose of financial analysis. The combinations can be structured for total activities for all projects or a combination of selected accounts within projects, etc. In addition, the system allows for automatic calculation of key ratios and variances based on predefined user financial analysis requirements.

- The system facilitates a maximum of ten separate general ledgers in simultaneous operation. Within each of the general ledgers, an infinite number of individually numbered projects/programs (limited only by the amount of available hard disk memory) with corresponding detailed accounting and budgeting is possible.
- The system allows for detailed account and transaction analysis through a five level coding utility.

The management information reports that are recommended for routine generation by the SunSystem accounting system and the recommended reporting cycle are summarized below:

<u>Type of Report</u>	<u>Reporting Period</u>	<u>Date of Required Information</u>
Budget Position by Program	Quarterly	End of Quarter
Current Research Project List	Annually	Start of Year
Status of Overall Budget	Quarterly	End of Quarter
State of Donor Financing	Quarterly	End of Quarter

The SunSystem module responds to the needs of accounting by project for multi-donors and it is convenient when we consider Projects, Divisions and Sections as "cost centers" for analytical accounting purposes. Other possible complimentary modules of the SunSystem include:

- Fixed asset administration
- Multiple currency accounting
- Purchases/Supplies
- Inventory Management

The system allows for a two tier treatment of accounting. The systems internal coding structure facilitates simultaneous public and private accounting.

### III. PROPOSED PAF STAFFING

Recruitment of the senior and intermediate PAF staff will be done jointly by INSAH and the USAID/Bamako and will have an upgraded CILSS salary scale labelled CILSS/Donors. The remainder of the PAF staff positions (support staff) will be recruited directly by INSAH and paid according to normal CILSS remunerations. This combination of contract types has the advantage of guaranteeing highly qualified and motivated staff while minimizing personnel costs and channelling a larger proportion of the budget to activities. The method employed to recruit the project accountants is through [1] advertising in each of the CILSS member states and [2] sending messages through USAID to the various regional missions. CERPOD experience determined that the applicant pool in Mali alone was significant, 110 Malians applied for the accounting vacancies at CERPOD. It is suggested that this method be followed in recruiting the PAF senior/intermediate staff.

Staffing Levels Within the PAF:

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	<u>Category</u>	<u>Type of Contract</u>	<u>Estimated Annual Cost</u>
PAF Administrator	Senior	CILSS/Donors	\$36,000.
Accountant	Intermediate	CILSS/Donors	25,000.
Admin Assistant	Intermediate	CILSS/Donors	15,000.
Driver/Messenger	Support	CILSS	7,500.
Total PAF Salaries:			<u>\$83,500.</u>

CERPOD's contractual arrangements with their PAF unit do not provide for an allowance for housing. The presumption is that, with the exception of the PAF Administrator, who will be recruited from within the Sahel Region, other PAF staff will be recruited from Mali. INSAH overhead is to be paid by USAID annually [flat rate as established under the CILSS system of 10% per annum].

#### IV. PAF DIRECT COSTS

For planning purposes, the following items are recommended for the INSAH project:

##### ANNUAL COSTS:

Annual financial audit of the project	\$35,000.
Project Liaison Officer Office Rent	8,500.
Utility, Telephone, etc. for the project each year	12,000.
Annual cost of gasoline per project vehicle [300. FCFA per liter, 12 km per liter, 20,000 km per year per vehicle]	3,400.
Annual full comprehensive insurance per project vehicle per year	4,000.
Annual vehicle maintenance per vehicle per year [tires, oil and lube, preventative maintenance, etc.]	800.
Translator services per year	5,000.
Office supplies/consumables	<u>10,000.</u>
Total Annual Costs:	<u>\$77,700.</u>

##### INVESTMENT COSTS

Project support vehicle, 4X4 Jeep Cherokee or similar vehicle	30,000.
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Purchases of consumables are to be done locally where available on a quarterly bulk purchase based on the requests of the Program Coordinators. Purchases will be done centrally within the PAF by the Unit Administrator following the recommendations which follow in this technical annex to the project paper.

## V. PAF IMPLEMENTATION SCHEDULES

### A. Automation Schedule

An estimated work schedule reflecting the time frames required to accomplish the implementation of the automation of the accounting is as follows:

#### TIME FRAME OF EXECUTION

Mobilization Expressed in First Six Months of Project

Task	1	2	3	4	5	6
1. Reconfigure section tasks	XX					
2. Preparation of contracts	X					
3. Purchase of equipment		XXX	XXX	XXX		
4. Purchase of furniture		XXX	XXX			
5. Purchase of software		XXX	XXX	XXX		
6. Purchase of supplies			XXX	XXX		
7. System study/design	X					
8. System configuration			X	XXX	X	
9. System formation				X	XXX	X
10. System implementation						XXX
11. System validation						X

### B. Training Schedule

The period identified as system formation will be the time period when, in addition to the recruitment and staffing of the PAF, personnel assigned to both the Department of Administration and Finance at INSAH and the Project Administration and Finance staff receive training on the automated system, to include system maintenance and familiarization with system software. A recommended training schedule follows:

Personnel	Intro to Computer Course 1 Hours	Spread-Sheets Course 2 Hours	Word-Process Course 3 Hours	Account System Course 4 Hours	System Mainten Course 5 Hours	Total Hours
Director General	-	-	-	10	-	10
Admin. Sec./DG	25	-	25	-	-	50
Chief DAF	25	25	-	25	-	75
Junior DAF	25	25	25	25	25	125
Senior PAF	25	25	-	25	-	75
Junior PAF	25	25	25	25	25	125
Sec/PAF	25	-	25	-	-	50
<b>TOTALS</b>	<b>150</b>	<b>100</b>	<b>100</b>	<b>110</b>	<b>50</b>	<b>550</b>

C. Integration and linkages with INSAH staff

The core programs of PADRES are integrated into DRMA with whom active interaction is to be encouraged. However, for overall supervision and in matters such as production of the required technical progress reports and elaboration it is proposed that the Scientific Coordinator of INSAH assume this task. The specialists in editing shall be located within the DDIF/Division of Information and work closely with RESADOC. The Project Administration and Finance unit [PAF] will be linked directly to the office of the Director General of INSAH for daily administrative and financial management of the project.

D. Sustainability

It is likely that at the end of the five year project, INSAH and CILSS will not have developed a sufficient financial resource base to absorb the PADRES project staff. Provided that satisfactory project results are obtained, continued donor support of the project will be needed to sustain the project beyond five years. One component which will be reduced or possibly eliminated at the end of the five year PADRES project will be the Project Administration and Finance unit [PAF], which will be incorporated into the INSAH DAF over the time period covered by the project. It is proposed that the INSAH DAF be incorporated into the accounting process so that by the end of the second year of the project, all of INSAH's DAF activities will be on the PAF system.

## VI. PROCUREMENT PLAN

All procurement under the project is financed under the Development Fund for Africa [DFA] and thus subject to the AID/W Procurement Guidelines currently in effect.

A. General Procurement Responsibilities

- INSAH is the implementing agency for this project. INSAH is responsible for carrying out local cost financing through host country contracting in accordance with AID Handbook 11 and

Handbook 1, Supplement B, procedures.

**B. Source/Origin**

The authorized source/origin for commodities and services financed with funds, provided by this project, is AID Geographic Code 935. However, procurement from U.S. sources will be maximized. Technical assistance for evaluation/audits will be procured through AID/W centrally funded or REDSO regionally funded contracts and a U.S. personal services contract (PSC). The commodity procurement element of this project is small at \$173,750. At present, it is expected that some of this amount will be procured from U.S. sources.

**C. Commodities**

The following illustrative list of commodities will be procured under this project:

<u>Commodity</u>	<u>Estimated Cost</u>	<u>Planned Source/Origin</u>
3 Vehicles	\$90,000.	US
Standardized Computer	68,000.	US
Office Equipment	15,750.	Western Africa

With the exception of the office equipment, commodities listed above will be of U.S. source. Office equipment available locally will be procured as shelf-items in accordance with Handbook 1, Supplement B, Chapter 18.

**D. Delivery**

Delivery will be accordance with the implementation plan of the Project Paper.

**E. Transportation**

The small value and quantity of commodities and the fact that some will be procured locally will result in minimal or no use of U.S. carriers.

## APPENDIX 2

### ACCOUNTING PROCEDURES AND GUIDELINES

#### I. PURPOSE OF GUIDELINES

These Guidelines establish the INSAH standard procedures for the accounting, reporting and budgeting of PADRES project funds. It is the responsibility of the Project Administration and Finance unit [PAF] Administrator to ensure strict adherence to the procedures and regulations of INSAH. Every financial transaction involving the use of project funds should be reviewed and approved by the Unit Administrator.

The procedures and regulations outlined in the Guidelines are specific to INSAH. In no way is compliance with the requirements of INSAH intended to satisfy or be a substitute for the requirements of other donors. At the same time, compliance with other donor requirements may not be substituted for those of INSAH.

#### II. THE INSTITUT DU SAHEL

INSAH forms a part of the CILSS. It is headed by a Director who is responsible for the management and administration of the program and project funds of the Institute. The Director operates under the supervision of the Executive Secretariat of the CILSS.

The INSAH staff includes budgeted position of a Financial Controller, Department of Administration and Finance, various Division and Program heads in addition to others involved with the internal administration of INSAH. Project PAF personnel will be dealing primarily with the Project Liaison Officer assigned to handle the various programs.

The Project Liaison Officer, through the Director, functions as a liaison officer with officials involved with the various aspects of implementing this development project. The Project Liaison Officer monitors overall project progress and activities and is responsible for presenting individual programmatic issues, including budget-related matters to the Director and USAID for consideration.

The USAID/Bamako Controller's office receives and reviews Expenses Reports in order to ensure compliance with USAID regulations for the use of project funds. The Project Accounting and Finance [PAF] unit will supervise the actual transfer of all disbursements.

The activities of the INSAH PAF are to be reviewed by the USAID/Bamako Controller's Office periodically to consider all major programmatic and financial issues related to project implementation, as well as internal policy matters concerning INSAH. The USAID/Bamako Controller's Office can call for special audits as well as on-site inspections by staff at any time it feels such actions are required.

### III. ACTIVITY CYCLES

In general terms, there are three types of activity cycles being carried on simultaneously within INSAH: the reporting, budget and funding cycles.

#### A. The Reporting Cycle

The Financial Report for the Project will be due at USAID within the first 10 business days of the month. No disbursements will be made to the project if the report is not submitted.

The Progress Report for the project is due every six months within the first 10 business days following 30 June and 31 December. For portions of the project that is operating on a contract basis, the project must still submit the financial reporting package as applicable and the Progress Report in accordance with the quarterly schedule. Even though stage payments will be considered on a payment due basis, funds will not be released if the project has fallen behind in its reporting.

#### B. The Budget Cycle

A calendar of budget activities and detailed instructions for the preparation and submission of budget materials will be circulated. Budget revisions will be considered during an annual reprogramming session. Any requests for revisions due to a project scope must have received prior approval from the Director, INSAH. Requests for budget adjustments in the form of line item variations in excess of 15% require the USAID/Bamako Controller's Office approval and will only be considered at the beginning of the 3rd and 4th quarters.

#### C. The Funding Cycle

The project request for a disbursement of funds will be reviewed by INSAH and then presented to the USAID/Bamako Controller's Office for consideration at one of its regularly scheduled meetings with the project. Once final approval has been obtained, the funds are transferred to the project bank account through the INSAH main account. If all reporting requirements have been complied with and a Funds Flow statement submitted within the first 10 business days of the month, the project should be in receipt of the funds by the end of that month. In general, procedures for financing requests by the project will proceed as follows:

- Formulation of a complete programs description document [per CILSS Manual of Procedures dated April, 1986].
- A detailed budget of the funding requirements spaced out over the life of the project.
- The necessary approvals of concerned authorities [i.e. Ministries and others, if appropriate.]
- According to the project needs, the technical framework the entity will utilize.
- A Bank Account will be opened in the projects name. It will be an autonomous account for the administration of deposits and will require double signatories for the issuance of a check against the separate account funds. USIAD funds will not be co-mingled with other funds.

#### IV. ACCOUNTING SYSTEM

The PAF Unit Administrator is responsible for all aspects of cash management involving use of project funds. INSAH does not insist upon the establishment of any particular accounting system. At the detail level, the basic accounting system may be adapted to the local project requirements as well as to the standards of an outside donor. INSAH does require, however, that whatever system is followed, it should insure minimum standards of accountability and control as well as provide for the reporting of financial transactions. To meet this requirement, the project's accounting system must be able to satisfy basic internal control considerations to safeguard the assets of the PADRES project throughout its life. Internal control, within the context of the PADRES project, will be a coordinated plan of INSAH establishing and applying adopted procedures for the purpose of:

- Protecting and safeguarding assets
- Insuring the reliability of financial information and management
- Promoting efficiency in operations
- Stimulating conformity with prescribed procedures
- Accomplishing the previously established project objectives

The Director General of INSAH, because of his position, will bear overall responsibility for the system of internal control within the institute.

It is recommended that a satisfactory system of internal control procedures within INSAH will require establishing controls in the following areas:

- An organizational plan and organizational chart which are clear and logical and establish lines of authority and responsibility for tasks and functions of production, recording and protection of assets;
- A detailed system for authorizing transactions;
- Detailed procedures for recording transactions;
- Procedures establishing tasks and the steps detailing the execution of functions for each task identified;
- Insuring that competent personnel who possess the ability and requisite experience to execute their assigned tasks in a satisfactory manner are recruited under the project;
- INSAH is to establish norms of quality and define expected performance for personnel. These norms will have to be communicated to all personnel; and,
- Periodic financial audits [independent of normal operations] will have to be conducted to verify

the integrity of the system.

**A. Separation of Functions and Tasks**

The essential separation of tasks consists of separate tasks for authorizing, recording and maintaining accounting transactions. These are the intermediate steps of internal control. Separation of tasks facilitates the detection of errors and discourages abnormal activities. There always exists, however, the possibility that two or more persons can work together in collusion to circumvent the system established for internal control. To reduce this possibility, no one person should be responsible for all important phases in a transaction. Specific areas of accounting vulnerability exist in:

- Purchasing
- Recording of salaries
- Cash operations
- Accounts payable

To reduce exposure in the above areas, no one person should be responsible for more than one of the following phases of the transaction:

- Authorization and recording of transactions
- Receipt of cash or goods
- Disbursement of cash or inventory
- Verification or modification of transactions
- Placing orders for goods or services

**B. Systematic Periodic Reporting**

The purpose of periodic reporting within the framework of internal control is to detect the fraudulent use or deviations of project assets, e.g. comparing vehicle utilization with maintenance records of vehicles with the expenditure reports for the purchase of gasoline for project vehicles. To meet this requirement, the project's accounting system must be able to:

- Systematically record all financial transactions involving project funds;
- Systematically account for and justify the manner in which all funds were spent, assigning costs and classifying all expenditures by budget line item;
- Consolidate all financial information for reporting purposes; and,
- Readily provide financial management information as required.

Examples of reports to be generated periodically are:

- ☒ Report on committed funds by project against the total budget for the project
- Report on the petty cash fund
- Report on the reconciliation of bank accounts
- Report on the status of donor accounts

To meet these objectives in a systematic and verifiable manner INSAH requires that, at a minimum, the project accounting system include:

- A voucher system
- A cash disbursements journal
- A check register
- A petty cash system [organized on an imprest fund basis]
- A procurement system [including the use of purchase orders]

INSAH does require that project funds be accounted for according to the principles of cash accounting. This means that receipts and expenditures are recorded at the time of actual receipt and/or disbursement.

## V. AUDITS

USAID reserves the right to audit the financial records, accounting books and operations of the project. A formal request will be sent to the PAF Unit Administrator in advance of an audit. Auditors must be allowed to examine all financial books and records maintained by the project. Project staff must be available to provide information and explanations as needed and auditors must be given access to all facilities in order to carry out on-site inspections.

INSAH auditors will present their findings to the Regional Inspector General's (RIG/A) office in Dakar and to USAID/Bamako Controller's Office. The RIG/A's Office may request that further investigations be carried out. Only after the RIG/A Dakar Office has reviewed and accepted as approved the auditor's findings will a formal audit report be issued. All documentation necessary to substantiate the findings expressed in the audit report will be kept on file in the INSAH office.

It is the responsibility of the PAF Unit Administrator to make a formal reply to the audit and to ensure that any actions needed to comply with the audit recommendations will be undertaken.

## VI. MANAGEMENT OF PROJECT FUNDS

### A. Bank Accounts

The project will maintain a separate non-commingled interest bearing bank account to handle only PADRES project transactions. Where the implementing unit (project, etc.) is responsible for the management of more than one program within the project, each one receiving project funds, separate bank accounts will be maintained.

If project activities are such that the use of branch accounts is advisable, two or more bank accounts may be maintained: the main or primary account, and a branch account. Transfers from the INSAH account shall always be made into the primary account, maintained at the management unit level. All cash inflows must pass through the primary account.

Each bank account shall be interest bearing and clearly identified by project name, project number and the implementing agency.

PAF Unit Administration shall provide INSAH with sample signature of those persons authorized to withdraw funds. INSAH shall be immediately informed in writing of any changes in the status of bank account[s], such as newly designated signatories, opening of branch accounts, etc.

There shall be no inter-fund borrowing involving the use of project funds and funding from other donor or government sources.] Any transaction involving FCFA specifically allocated from United States government generations are to be kept separate and distinct from other donor funds used in the project as well as from revenues provided from other government ministries or organizations.

### B. To Open a New Account

As soon as the project agreement has been formalized and the project budget incorporated into the operation, the PAF Unit Administrator shall apply in writing to the Director of INSAH to request the opening of a new bank account. The PAF Unit Administrator will be notified as soon as INSAH obtains an account number.

### C. Record-Keeping

The project will receive notification letters from INSAH through the Project Administration and Finance Unit regarding transfers of funds into the primary account. From that point onwards, if delays in the receipt of funds are experienced, the project should follow up directly with the bank.

It is expected that a record of all activity affecting the bank account[s], as evidenced by deposit slips, debit and/or credit notices, copies of bank statements, etc. as well as some form of check register, will be maintained on file by the project management at the Project Administration and Finance Unit.

### D. Accounting

Movement of funds from the primary bank account to a branch location represents a transfer of project assets. This type of transaction should never be reported as an expense.

When referring to cash balances or cash on hand, the amount reported should equal the sum of all month-end bank account balances plus all Petty Cash balances on hand [i.e at the head office and at field locations, as applicable].

#### E. Custody of Checks

Blank checks issued by the bank in block or book form must be in numerical sequence. The project must notify the bank immediately if any checks are missing from the sequence. At no time should more than one checkbook be in use. Checks must be used sequentially.

The loss of any check must be reported to the bank immediately with instructions to stop payment. These instructions must be confirmed to the bank in writing.

Checks should always bear the name of the payee and must not be made payable to "Bearer" or "Cash". Checks issued to transfer money to Petty Cash should be made payable to the staff member in charge of handling petty cash as follows: "Mr./Ms. XXXXXXXXXXXX, Petty Cashier".

Checks should only be signed by authorized signatories after a payment voucher has been prepared. Under no circumstances should a bank signatory pre-sign either a blank check or a partially completed check.

#### F. Outstanding Checks

Project records should not carry outstanding items beyond 60 days from the date of issuance of the check. After that time period has passed, the PAF Unit Administrator or payor should notify the bank that the check in question has been canceled and that no payment should be made for it if and when the bank is presented for payment.

Project records are not affected by bank conversion of ordinary checks into circular checks for the payee. At the time of conversion, the project or payor's bank account is charged for the amount of the check.

## VII. PETTY CASH

#### A. The Imprest Fund

The project may choose to operate a Petty Cash [PC] fund in order to keep cash expenditures conveniently on hand for making small ordinary expenditure. Petty Cash [PC] will be maintained on an Imprest Fund basis: The PAF Unit Administrator will set a ceiling for the maximum amount of cash to be kept on hand. In no case should this balance be permitted to exceed the amount allowed under current CILSS accounting regulations.

The PC fund is established and maintained by transferring cash from the bank account. Every month the PC opening balance for cash on hand should equal the maximum allowable amount. PC may be replenished [i.e. returned to the opening balance level] as often as necessary during the month. This is done by drawing additional checks made out to the name of the PC Custodian and transferring the cash.

The PC transfer should never be made out to "Cash" or "Bearer".

U.S. Treasury procedures should be used to account for PC. The PC fund should never be used for the purpose of making personal loans or cashing checks.

#### B. Record-Keeping

The project accounting system must provide for some form of PC record-keeping [a journal, PC register, special PC vouchers, etc.] These procedures should mimic the State Department Cashier's manual. Every PC transfer must be supported by a Payment Voucher and a breakdown of the expenditures by budget line item. PC transfer Payment Vouchers should be prepared and approved by someone other than the Custodian of the PC Fund.

Every PC transfer must be recorded in the Cash Disbursement Journal. However, the posting of actual expenses is only reflected at month-end when all PC expenditures will be consolidated and recorded by means of a single Adjusting Entry in the Cash Disbursements Journal. This step reflects the expense of Petty Cash.

If PC activity has been recorded properly during the month, then the following will occur:

- Opened the month's activity with the maximum balance on hand;
- Recorded every PC transfer check in the Cash Disbursements Journal, supporting each entry with a Payment Voucher and an itemization of expenditures;
- At month-end drawn a final check to return the PC amount to the maximum level balance you opened the month with; and,
- Summarized your PC activity, recording it with a single adjusting entry to the Cash Disbursements Journal: Credit Petty Cash in the amount equal to the total amount of transfer checks drawn to the PC Custodian during the month, and Debit each appropriate "line item" expense.

The petty cash account should be periodically reconciled in the following manner:

A. Balance per the petty cash journal account	30,000. FCFA
B. Justified Disbursements	(18,500.)
C. Reimbursable Advances	<u>(6,850)</u>
D. Subtotal of activity not in Accounting Records [B+C]	(25,350)
E. Balance Against Accounting Records [A-D]	4,650
F. Actual Petty Cash on Hand	<u>(4,650)</u>
G. Difference [E-F]	0 FCFA

It is recommend that the PAF:

- Establish a ceiling for the petty cash fund

- Establish a ceiling for petty cash expenditures
- Establish a minimum cash balance on hand before replenishment

## VIII. PURCHASES

### A. Procedures

Procedures for recording the steps in the purchase of supplies and services are accomplished as follows:

- Issuing a purchase order.
- Recording receipt of the goods or services ordered.
- Settling the amount due on a statement for goods and services delivered.

### B. Methods

There are three methods of issuing a purchase order:

- Request for bids and proposals.
- Contract negotiations with a number of suppliers.
- Placing a direct order with a sole supplier.

It is important in the purchasing process to make the distinction between the purchase of consumable goods and fixed asset (durable goods) acquisitions.

### C. Guidance for durable good purchases

The following guidance is provided for non-current asset [durable goods] purchases based on specific value amounts. If the value of the goods/services purchased is less than 500,000 FCFA, a proforma invoice and quotation should be received from at least three suppliers.

- A proforma quotation/invoice is received from a supplier.
- The purchase order is properly completed with necessary justifications and authorizations.
- Proforma quotations are received from three suppliers with a written justification prepared explaining the final choice of supplier.

For goods/services purchased with a value greater than 500,000 to 10,000,000 FCFA, a request for quotations should be issued. The process of selection of suppliers must be rigorously followed for the

purpose of optimizing the quality/price of purchase of goods and services for the project. The recommended procedure for purchases follows. [NOTE: For purchases greater than 10,000,000. FCFA, a review of procedures in effect for the Republic of Mali concerning public purchases is recommended.]

- Prepare a list of prospective suppliers.
- Prepare a formal invitation to bid including: instructions; the formula for submission; general conditions; proforma plan for delivery and method of payment.
- Review submissions under critical evaluation procedures established before a request for bids is issued and make a choice concerning the supplier
- Approval is received from the appropriate authority.
- A purchase order is issued.
- If an advance is required, a bank guarantee will be required from the supplier.

Direct order from a sole supplier is recommended when goods/services are being acquired directly with donor funding.

D. Supplies and Materials

The consumption of supplies should reflect the economic realities of the transactions. Correct economic valuation will allow for the correct analytical charge for either the Division or Project Accounts. In addition to periodic complete physical inventories, materials and supplies must be valued. Valuation can be accomplished by using one of the three standard methods:

- LIFO (Last In First Out);
- FIFO (First In First Out); or,
- Average Cost.

It is recommended that for supplies and materials which are immediately consumed, INSAH's current accounting remain unchanged. For supplies that are not immediately consumed, a system of accounting should be established which includes:

a. When acquired/purchased

	<u>DEBIT</u>	<u>CREDIT</u>
Supplies On Hand	XXX	
Suppliers' Payable/Bank Acct		XXX

b. When consumed

	<u>DEBIT</u>	<u>CREDIT</u>
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Supply Expense  
Supplies On Hand

XXX

XXX

INSAH should put into place a system for identifying services requested by project to permit correct charges by project for analytical accounting purposes. For each category of supplies, it is necessary for INSAH establish the minimum stock levels and the security stock levels

Once suppliers' quotations are received, they are compared with budget allocations. After verification of available budget amounts by the PAF, the Unit Administrator then authorizes the issuance of a Purchase Order. [The supplier receives a copy of the purchase order, which also must be attached to the supplier's statement, once submitted. The original of the purchase order remains within the PAF.]

#### E. Settlement

Settlement of all suppliers' invoices will be made through the bank account of the Project to the bank account of the Supplier. Supplier's statements, when scheduled for payment, are recorded in the accounting records as follows:

	<u>DEBIT</u>	<u>CREDIT</u>
Expense or Capital Account	XXX	
Suppliers' Accounts Payable		XXX

A procedure should be put into place which identifies at the beginning of each period demands anticipated based on the number of articles on hand and those consumed during the prior period. A request for price quotations on the list of items anticipated should be obtained from several suppliers. Quotations should reflect the duration of the price quotation, payment terms, method of payment, etc.

#### 1. Suppliers' Statements

The approval process should take the following steps:

- Upon receipt of the statement by the accounting section the document [with a copy of the Purchase Order and Shipping Receipt Attached to the statement] is registered in the payable register. After recording in the register, the statement with supporting documentation is forwarded to the Division, Section or Project which received the goods for approval and are returned to the PAF for entry into the accounting system:

	<u>DEBIT</u>	<u>CREDIT</u>
Expense Acct or Asset Account	XXX	
Suppliers Payable		XXX

- Supplier's statements must be settled within settlement terms previously agreed upon:

	<u>DEBIT</u>	<u>CREDIT</u>
Suppliers Payable	XXX	

## 2. Payment Procedures

Between the 20th and the 25th of each month, the PAF should prepare a payable list and make a request for checks. The payable list and the checks should then be transmitted by the PAF Unit Administrator to the Director General for approval and signature. After the Director General's signature, the check is returned to the PAF Unit Administrator for co-signature.

### F. Monitoring

Periodic accounting inspections by the USAID/Bamako Controller's Office Staff will be made to evaluate the degree of internal control for the project. Those elements of the organization who refuse to submit to the requested controls will experience a cessation in their portion of Project funding.

### G. Proforma and Bids

When purchasing consumables and supplies, it is recommended that:

- A list of suppliers of materials and supplies currently being consumed be compiled for the purpose of negotiating purchase of required supplies for a given period from a sole supplier. The objective is to obtain the best possible price for purchasing in quantity from a sole supplier the supplies required routinely during the period. This method is recommended for purchases less than 100,000 FCFA.
- For supply orders between 100,000 FCFA and 500,000 FCFA, a proforma quotation from at least three suppliers should be obtained.
- For supply orders that exceed 500,000 FCFA, a request for bids (similar to that for non-current asset acquisitions) should be the method utilized.

### H. Purchasing Procedures

It is recommended that a complete step by step process for purchasing of goods and services (both consumable and durable goods) be developed detailing the tasks/recording keeping functions of individual involved in the purchasing process. This procedure process must address the following areas:

- Steps required and areas of responsibility in compiling a list of suppliers.
- Steps required and areas of responsibility in preparing a request for bids.
- Steps required and areas of responsibility in negotiations with suppliers.
- Steps required and areas of responsibility in the purchase of consumable.
- Steps required and areas of responsibility in issuing purchase orders.
- Steps required and areas of responsibility in recording the receipt of goods/services.

- Steps required and areas of responsibility in recording the receipt of suppliers statements.
- Steps required and areas of responsibility in settling suppliers statements.
- Steps required and areas of responsibility in recording the transfer of goods/services to various projects/programs and the ultimate disposal of assets.

I. Disbursements

1. Vouchers

Each disbursement made with project funds, including transfers to Petty Cash, shall be supported by a payment voucher. No particular format is suggested, but the Payment Voucher must include the following information:

- Voucher number
- Provision for signatures showing persons responsible for the preparation, review and authorization of the payment voucher
- Amount expended
- Budget line item against which the payment is charged
- Method of payment: petty cash or check
- Description of the goods and/or services purchased

All entries in accounting journals which use memorandum entries must be numbered and consist of the following:

- Project number
- Payee
- Check number or cash receipt
- Net transaction amount
- Purpose of the transaction
- Account concerned: debit or credit
- Appropriate approvals for posting

Memorandum entries must have the following justifications attached:

- Supplier's statement; original purchase order; original delivery documents; original receipt

## documents

- If applicable, original request for travel advance
- List of salaries paid
- Credit advice
- Justifications for travel
- All other documents supporting the memorandum journal entry

INSAH requires that all financial transactions be supported by appropriate vouchers. Additionally, receipts in support of vouchers, in the form of bills and invoices (dated and stamped "Paid") are to be maintained in the project files.

Vouchers do not have to be submitted to INSAH as part of the quarterly reporting package.

INSAH reserves the right to request presentation of specific vouchers if questions arise and may have access to all records for auditing purposes.

## 2. Completion of the Voucher

Every transaction must be recorded and supported by a voucher. A sample Payment Voucher is completed as follows:

- **Date** - Record the actual date on which funds are disbursed or a check drawn.
- **Voucher Number** - Every transaction should be assigned a number in sequential order. The numerical sequence begin again at the start of a new month. No duplicate voucher numbers should be used within a given month; a record should be maintained for all voided voucher numbers.
- **Name of Payee** - Enter the name of the person or entity to whom a check is drawn or the name of the person receiving Petty Cash.
- **For** - Briefly describe the purpose for which the payment is being made.
- **Charge to Approved Budget Line Item** - The budget line item functions as an account for the purpose of posting transactions. Any line item listed here must agree with the categories contained in the approved INSAH budget.
- **Amount** - Record the exact amount of the check drawn or cash expended. If a combination of check and cash is used, note the amounts accordingly.
- **Petty Cash or Check Number** - If payment is made from Petty Cash, check accordingly. If a

check is used, record the check number.

- Prepared By, Reviewed By, Approved By - Different people should perform each of these duties. The person preparing the voucher should not dispense the cash; the reviewer may make cash disbursements. All vouchers should be approved by the Project Manager.

#### J. Fixed Assets

Unless otherwise specified in the Project Agreement, all fixed assets purchased with project funds must remain the property of the project during the life of the project. Ownership goes to the implementing agency [INSAH] at the completion of the project. The Project may not sell or trade fixed assets purchased with project funds without obtaining specific INSAH and USAID/Bamako Controller's Office approval. If fixed assets have a remaining service life INSAH and USAID/Bamako Controller's Office authorize a sale, proceeds from the sale of fixed assets revert back to INSAH.

It is recommended that a chronological register of assets by nature of the asset from all sources of acquisition should be maintained. In addition, the estimated useful life of the asset must be established. Finally, there must be a calculation of a corresponding amortization table for the assets.

- A complete inventory of fixed assets should be undertaken/
- A file for fixed assets by type and category should be established. Justification records supporting the existence of fixed assets should be obtained.
- For assets not in the accounting system records and for which documentation is not available, donors of the asset should be contacted directly requesting copies of the justification documentation and the asset should be entered into the accounting records of the organization.
- A fixed asset register should be developed which establishes individual files for categories of equipment and puts into place a system for monitoring fixed assets with a view towards renovation.
- A complete physical inventory should be accomplished at least annually to better control the materials at the disposition of projects and to better reflect the requests of projects

##### 1. Classification

The following are categories of items which qualify as fixed assets:

- Land, including in-kind contribution;
- Land improvements such as fences, water systems, etc.
- Buildings [at purchase or contract price]
- Fixed equipment [Which may be attached to buildings]
- Furniture

- Movable equipment such as office machines, tables, chairs, cabinets, typewriters, calculators, computers, vehicles, etc.

## 2. Protection of Assets

Physical security or the protection of assets is best accomplished by limiting access to assets to only authorized personnel. Effective protection is accomplished by a division of duties. The concept of limited access applies equally to the access to accounting and inventory records. Physical protection extends to the protection against destruction, deterioration or abuse. In summary, protection of assets can be reduced to two words: limited access.

Asset protection can be accomplished by maintaining:

- Perpetual inventory records
- Taking periodic physical inventories
- Access to cash is limited to using bank accounts for disbursement by checks and only with double signatures
- Establishing procedures for authorizing disbursements
- Frequent reconciliations of the petty cash account
- Monthly reconciliation of the bank accounts

## 3. Record-Keeping

The project should set up a system for identifying each item classified as a fixed asset. A register should be maintained containing the following details:

- A description of the item;
- The asset identification number [serial number where appropriate];
- Location of the asset;
- Date of purchase or construction;
- Original cost of the asset;
- Reference to a payment voucher number
- Estimated useful life
- Estimated salvage value at end of useful life
- Method and rate of depreciation of useful life of asset

In instances where assets are purchased directly by a donor or other agency, the above information will still be recorded.

#### 4. Fixed Asset Administration

In the absence of a system establishing the existence of organizational fixed assets, there obviously exists no system for improvement or repair of fixed assets. A system should be implemented which periodically evaluates the state of equipment and will give perfect knowledge of resultant requirements for maintenance. NOTE: Fixed assets acquired directly through donor are not recorded in the accounting records because the acquisition did not require the expenditure of resources of the organization. Recommended quarterly inventory of fixed assets to determine existence and serviceability.

#### K. Contracts

For the purposes of INSAH, a contract is defined as a legally enforceable, binding agreement made between two parties, to supply goods and/or services at a fixed price. Services refers to contractual arrangements made for consulting, studies, etc., in addition to the standard construction type activities. Goods applies to a binding agree to purchase specific items, as opposed to permission to purchase.

##### 1. Record-Keeping

It is the responsibility of the PAF Unit Administrator to maintain updated files on each contract obligation. The following information should be readily available for each contract:

- Type [Consulting, study, construction, etc.]
- Data on expenditures to date
- Schedule of stage payments
- Estimates of activities remaining

##### 2. Contractors

Contractors must adhere to the following standards and fulfill certain requirements in order to receive project funds:

- The contractor must be prepared to perform the work specified in the contract, as evidenced by his having the necessary backup funds as well as adequate resources to fulfill his obligations. The contractor must be able to provide the technical staff necessary to execute the contract. In addition, the contractor must not have been involved in illicit activities in the past.
- For Public Tenders. Contracts must be tendered publicly in accordance with the prevailing regulations of the government of Mali and the internal guideline of CILSS. No project funds will be advanced to the project until all tendering formalities have been complied with.

### 3. Documentation

The Contractor or PAF Unit Administrator must provide INSAH with the following information during the preparatory stages of contract proposal and review:

- A complete set of specifications or scope of work;
- A bill of quantity [if applicable];
- A projected work schedule which should be tied into a schedule of stage payments and a general cost estimate.

### 4. Reporting

The PAF Unit Administrator shall be responsible for providing INSAH with the following information on a quarterly basis, regardless of the status of the work completed per the stage payment schedule:

- A description of work completed to date under each contract [where applicable], including information on materials, equipment and personnel expenses.
- A detailed comparison between actual progress achieved and the initial work schedule, with explanations as to why delays and slippage occurred.
- Proposed corrective action relating to [2] above.
- A target work schedule for the next quarter including a projection of stage payments due, if any.

### 5. Disbursements for Stage Payments

Release of funds for stage payments will be considered on an as needed basis whenever necessary during a quarter. The actual disbursement will be contingent with the regular reporting requirements of INSAH. The Request for Stage Payments should be completed and submitted along with any supporting invoices or certificates.

The request should contain the following information:

- Project - list the name of the project.
- Request Number - each request submitted should be numbered in sequential order.
- Contract - identify the contract by the official name and contract number.
- Stage Payment/Invoice Number - if payment is determined on a percentage basis, note what percent is being requested. If the payment is based on a series of certificates or invoices, enter the identifying numbers.

- **Amount Requested** - enter the amount of this payment request.
- **Total Contract Amount** - enter the total amount of the INSAH obligation.
- **Payments to Date** - itemize the dates and amounts of payments made so far. The current amount requested is not included here.
- **Balance due** - this amount is the balance before the release of funds being requested.
- **Submitted by** - the Project Liaison Officer should review and approve the request as signified by his signature

#### 6. Activity/Time/Cost Schedule

This summary schedule serves as a point of reference for reporting and projections. The first step in preparing the schedule is to determine the major activity components which are essential to project completion. This breakdown should be realistic and measurable in terms of time and cost. Next, estimate how much time is needed to complete the activity components and determine what percent of work is completed with this activity. Then assign a cost to each activity and determine what percent of the total cost this represents. Finally, link each activity to the appropriate stage payment.

#### L. Budgets

Each PADRES program makes an estimate of its approximate needs based on the functional nature of the program activities. It is difficult to determine resources required by line in the absence of a consolidated budget and budget program. Establishing such a program will require an in-depth analysis of the administration of INSAH.

The budget should be presented in a proforma established for the institute by program. A consolidated budget will then be prepared examining the possibilities of identifying diverse sources of finance as well as expenditures. The budget provides an information base for decision making by:

- budgets prepared by account title and classification
- nature of and aggregate amount of committed expenditures
- aggregate actual expenditures incurred
- budget balances by title and classification
- cumulative amount of funding by source

#### M. Line Item Variations

It is the responsibility of the PAF Unit Administrator to insure that no commitments or expenditures are incurred which will result in cost overruns in the approved annual budget. However, as the budget was based on an estimate of expenditure by line item, the distribution of the total amount may or may not prove to be satisfactory as the fiscal year progresses.

For a variety of reasons [which must be justified] it may be advisable to change the line item allocation within the overall approved budget amount [i.e reducing some line items and increasing others]. This is referred to as line item variation.

There are two categories of line item variation:

- Transfers of more than 15% of an approved line item per the original budget. Formal INSAH approval is required for this type of variation. Requests will be presented to the USAID/Bamako Project Liaison Office for consideration on a quarterly basis, at the beginning of the 3rd and 4th quarters of the fiscal year and must be accompanied by a Funds Statement for that quarter. A project must not request line item variations during the first six months of the fiscal year.
- Transfers which do not exceed 15% of the approved line item per the original budget. Formal INSAH approval is not required for this type of variation. However, the form must be submitted in order to inform INSAH of project decisions regarding the budget and, since variations are cumulative, to allow INSAH to keep track of the net effect of these decision.

Variations are cumulative in nature. For example, if three adjustments to the same line item are made during the fiscal year, each one amounting to less than 15%, but all three taken together exceed 15%, and the 15% would be exceeded with the third variation, paragraph [1] immediately above applies.

## N. Funding

At the beginning of each quarter, the Project Manager requests a transfer of funds to the project bank account. The amount of the transfer should be determined by projecting cash requirements for the coming three month period. The Funds Statement is the formal mechanism for presenting this request. It should be submitted along with the Quarterly Reporting Package as soon after the start of the new quarter as possible.

### 1. The Funds Statement

The Funds Statement is an estimate of the amount of money needed to carry out the project activities during a given three month period. Cash accounting is the basis for the calculation. Expenditures should be projected based upon expected time for the receipt and use of funds. To complete this form, the project must have an idea of what activities are planned for the quarter, what inputs are needed to carry out these activities, and what the approximate cost of each input will be. The particular working conditions of the project and the amount of time required to accomplish each task should be considered.

### 2. Cost Categories

Basically, the project is dealing with two types of costs: fixed and variable. Fixed costs are those costs which the project must meet regardless of the stage of implementation. Permanent salaries, rent expense, insurance are examples of fixed costs. If the money is actually disbursed on a monthly basis, fixed costs are spread evenly in the quarter. If a fixed cost is paid on an annual or semi-annual basis, it should be recorded in the month of disbursement.

Variable Costs are those costs which change with the amount of use or frequency of occurrence. Certain categories of variable cost [such as office supplies] may involve regularized spending and may be estimated on the basis of prior experience. These costs may be spread evenly across the three months

For a variety of reasons [which must be justified] it may be advisable to change the line item allocation within the overall approved budget amount [i.e reducing some line items and increasing others]. This is referred to as line item variation.

There are two categories of line item variation:

- Transfers of more than 15% of an approved line item per the original budget. Formal INSAH approval is required for this type of variation. Requests will be presented to the USAID/Bamako Project Liaison Office for consideration on a quarterly basis, at the beginning of the 3rd and 4th quarters of the fiscal year and must be accompanied by a Funds Statement for that quarter. A project must not request line item variations during the first six months of the fiscal year.
- Transfers which do not exceed 15% of the approved line item per the original budget. Formal INSAH approval is not required for this type of variation. However, the form must be submitted in order to inform INSAH of project decisions regarding the budget and, since variations are cumulative, to allow INSAH to keep track of the net effect of these decision.

Variations are cumulative in nature. For example, if three adjustments to the same line item are made during the fiscal year, each one amounting to less than 15%, but all three taken together exceed 15%, and the 15% would be exceeded with the third variation, paragraph [1] immediately above applies.

## N. Funding

At the beginning of each quarter, the Project Manager requests a transfer of funds to the project bank account. The amount of the transfer should be determined by projecting cash requirements for the coming three month period. The Funds Statement is the formal mechanism for presenting this request. It should be submitted along with the Quarterly Reporting Package as soon after the start of the new quarter as possible.

### 1. The Funds Statement

The Funds Statement is an estimate of the amount of money needed to carry out the project activities during a given three month period. Cash accounting is the basis for the calculation. Expenditures should be projected based upon expected time for the receipt and use of funds. To complete this form, the project must have an idea of what activities are planned for the quarter, what inputs are needed to carry out these activities, and what the approximate cost of each input will be. The particular working conditions of the project and the amount of time required to accomplish each task should be considered.

### 2. Cost Categories

Basically, the project is dealing with two types of costs: fixed and variable. Fixed costs are those costs which the project must meet regardless of the stage of implementation. Permanent salaries, rent expense, insurance are examples of fixed costs. If the money is actually disbursed on a monthly basis, fixed costs are spread evenly in the quarter. If a fixed cost is paid on an annual or semi-annual basis, it should be recorded in the month of disbursement.

Variable Costs are those costs which change with the amount of use or frequency of occurrence. Certain categories of variable cost [such as office supplies] may involve regularized spending and may be estimated on the basis of prior experience. These costs may be spread evenly across the three months

of a particular quarter. Other types of variable costs are incurred irregularly for projected activities such as seminars, surveys, etc., and must be estimated on the basis of required inputs.

[NOTE: Increases to Petty Cash and Advances to branch bank accounts are not considered to be use of funds or expense. This type of transaction represents the transfer of cash assets from one location to another.]

The funds summary is based upon a simple formula:

Beginning Cash Balance	
Plus:	Cash Receipts
Less:	Total Cash Outflows
Equals:	Ending Cash Balance

The beginning cash balance includes bank accounts plus petty cash. These amounts, in addition to the quarterly disbursement to be received (i.e. cash receipts) represent the total amount of cash available to the project for the quarter. Total Cash Outflows are subtracted from the sum of the beginning Cash Balance and Cash Receipts.

O. Accounting for and Charging for Services

A system for billing for services can not be coherent without perfect understanding of total structural charges of the organization. A method of analytical accounting should be put into place which can capture actual cost of services performed. For example:

<p>a. <u>DIRECT COST</u>. Associated with actual cost incurred:</p> <ul style="list-style-type: none"> <li>- Salary of personnel utilized</li> <li>- Machine time [computer time, fax, etc.]</li> <li>- Actual cost of consumable; supplies, etc. and other necessities required to accomplish the objective</li> </ul> <p style="text-align: right;">Subtotal A</p>
<p>b. <u>INDIRECT COSTS</u>. Arrived at by application of the appropriate rate:</p> <ul style="list-style-type: none"> <li>- Administration rate</li> <li>- Director of the Institute</li> <li>- Joint Services Provided</li> </ul> <p style="text-align: right;">Subtotal B</p>
<p>c. <u>CONTINGENT PER DIEM</u>. [The rate calculated must be greater than that of the CILSS system] Or, actual disbursements.</p> <p style="text-align: right;">Subtotal C</p>
<p>d. Application of the variable overhead rate of the applicable financial backer of the project.</p> <p style="text-align: right;">Subtotal D</p>
<p><b>TOTAL COST: [SUM of A+B+C+D]</b></p>

It is recommended that INSAH adopt a method of charging staff time following the model below:

Name, First Name: \_\_\_\_\_  
 Function: \_\_\_\_\_  
 Cost Center: \_\_\_\_\_  
 Period [DD/MM/YY]. \_\_\_\_\_

Project/Activity CODE	Hours by day of Week							Totals
	1	2	3	4	5	6	7	
_____								
_____								
_____								
_____								
Chargeable Time:								
- Vacation Time								
- Sick Time								
- Administrative								
- Other:								
_____								
_____								
Non-Chargeable Time:								
Total Cumulative Time:								

**P. Reporting**

The procedure for requesting advances of project funds will proceed as follows:

**1. Monthly Advances**

In conformity with the approved budget, all monthly advances of funds will be effected by clearing the project's bank account.

**2. Calendar**

Quarters will end on the 31st of March; 30th of June; 30th of September; and, 31st of December of each year. The first round of each year will consist of the first four months of operation. All of the remaining quarters will consist of three months in accordance with the following conditions:

- Project accounting must be in accordance with established instructions as described under system accounting.
- The monthly financial reports listed below must be submitted to the PAF Unit Administrator and Project Liaison Officer before the 10th day of the month following the end of the month and must be approved by the appropriate authority.

301x

### 3. Requirements

The project must submit a financial reporting "package" within the first ten business days of the month. These reports must follow the appropriate USAID/Bamako Mission Order. Examples of the types of reporting are as follows:

- Copies of Bank Statements for the past month
- Bank Reconciliations for the month
- Cash Disbursement Journals
- Quarterly Expense Reports
- Report by project management by activity. [Technical report on project execution; objectives; problems encountered; accomplishments; and, steps taken to solve problems. Necessary revisions of project objectives, if any.]
- Project balance sheet
- Petty Cash Fund Analysis
- Treasury Developments affecting the project [i.e. projected flows]
- Issued check list for the month
- List of advances and committed funds
- Budget forecasts for the following month

The project must submit a semi-annual progress report within the first ten business days of the month following 30 June and 31 December.

### 4. The Bank Statement

At the close of each month, the project shall obtain duplicate copies of bank statements [including branch account statements]. One copy shall be sent to INSAH as part of the quarterly reporting package; the other copy should be kept in the project's files.

### 5. The Bank Reconciliation

Bank reconciliations shall be prepared on a monthly basis. A separate reconciliation shall be completed and submitted to INSAH for each bank account maintained by the project. For control purposes and to ensure separation of duties, bank reconciliations should be prepared and approved by two different people.

In order to strengthen internal control of project funds and support financial records, at month-end the bank account[s] shall be reconciled: i.e. a comparison is made of charges recorded and deposits made

per the check register with charges and deposits per the bank statement and deposit slips.

The balance as of the latest business day of the month in question, which is not necessarily the final entry on the bank statement, is the amount to which the check register is reconciled. In other words, only transactions which occurred during the month being reconciled are taken into considerations.

Differences occur between the bank records and the project records because:

- cash inflows and cash outflows per the project records may not have been recorded by the bank because of delays in presenting checks for collection; month end deposits are not reflected in current month bank statement but may appear in the following month;
- bank adjustments for service fees, correction of errors, etc., might not be reflected in the project books;
- errors exist in the project records;
- errors by the bank in posting, etc.

#### Q. Cash Disbursements Journal

The CDJ provides detailed support for the Quarterly Expense Report Summary. All disbursements made by cash or check are recorded in the Cash Disbursements Journal [CDJ]. Only actual transactions are recorded [i.e. do not list voided checks, etc.].

The CDJ is prepared monthly but submitted on a quarterly basis. Therefore, there will be three CDJ statements, one for each month of the quarter, submitted in each quarterly financial package.

At the beginning of each month, the CDJ opening balance for the bank and Petty Cash Fund should be entered in the new CDJ. Each disbursement during the month corresponds to an approved budget line item and functions as an account. Each check written should be posted as a Credit to the Bank Account and a Debit will appear in the appropriate line item as an expenditure. This transaction posting reflects the basic "double-entry".

#### R. Quarterly Expense Reports

This report is a summary statement of project expenditures for the quarter just ended and a consolidated update of receipts and expenditures to date. Information contained in the report should include:

- Approved Budget and Line Item - Each line item and heading per the approved INSAH budget.
- Total Quarter Expenditures - Total expenditures per each line item.
- Current Year Budget - The approved budget line item allocation, including any approved

revisions.

- Current Year Disbursements - Cumulative total disbursements to date transferred to the project account through the quarter just ended.

S. Six-Month Progress Report

INSAH should require that a Progress Report be submitted every six months. The purpose of the Report is to provide information on actual accomplishments and compare this with the targeted work plan. The information to be provided should be thought of with three factors in mind: timing, quantity and quality of the operations. The Progress Report should include the information below, which may be presented in a summary form:

- Identify and quantify what was considered to be the project's major accomplishments for the six month period just ended. Activities should include meetings, trips, etc. Preparation for some future event also qualifies as an activity for this purpose.
- Identify factors which restricted project performance such as delays in receipt of key inputs, personnel/staffing problems, funding difficulties, etc.
- Specific actions planned to deal with problems identified above. If none, indicate why.
- Quantify objectives as much as possible in terms of inputs and outputs. Include the procurement and making operational of a major capital investment item as an activity.
- In general and somewhat more qualitative terms, relate the activities identified above to overall project goals. Is the project on target? Is revision or adjustment of the projected annual plan necessary?

## APPENDIX 3

### SUMMARY OF PROCEDURES MANUALS

#### I. GENERAL PROCEDURES MANUAL

This section summarizes the CILSS manual of procedures, "Manuel de Procédures," Comité Permanent Interétats de Lutte Contre La Sécheresse dans le Sahel [CILSS], Secrétariat exécutif, April, 1986. The manual details the organizational placement, title and functions (including detailed responsibilities) of each CILSS functionary. Although developed in 1986, the manual has not been reviewed or updated since its adoption in 1987. Upon recommendation of the Council of Ministers in 1991, it will be reviewed and revised within the near future with French financial assistance.

##### A. Club du Sahel

The Club provides a forum where the donors and beneficiaries of aid can study the best strategies of development to adopt. It is not a bureaucratic structure and is not rigidly structured. It serves as an information center and logistics base for experts working with the CILSS. It brings together the nine countries of the Sahel and donors [either countries or organizations] to decide on programs and development financing within the Sahel Region.

##### B. Conférence des Chefs d'Etats

The role of the Conférence des Chefs d'Etats is to track and monitor the strategic direction of CILSS. The conference meets every two years.

##### C. Conseil des Ministres

The role of the Conseil des Ministres. Based on instructions received from Les Chefs d'Etats, the Council of Ministers has considerable flexibility in providing a strong lead towards actualization of goals. The Council is composed of the Ministers of Rural Development of the Member Countries. The Council meets in ordinary session annually to discuss the following points:

- The activity report of the prior year
- The state of project/program execution
- The activity program for the coming year and new steps being taken to accomplish program objectives
- Approve the budget for the year and the report of the Commissioner of Accounting for the prior year
- Forecast the budget for the coming year
- Review the report of the Financial Controller

The Council of Ministers can come together for an extraordinary session if requested by either a member state or the Regional Coordinator. The Head of the Council is appointed by the Ministers for a period of two years and takes the title of Regional Coordinator. Decisions are made by the Council by the taking of a voice vote. To be approved, the voice vote must be unanimous. The cost of travel and lodging of the Ministers and experts are the responsibilities of the member states.

**D. Regional Coordinator**

The regional coordinator:

- Presides over the Council of Ministers
- Represents CILSS both nationally and internationally
- Signs in the name of CILSS for technical assistance and on matters which pass with both governments and specialized organizations which correspond to the operating decisions of the Council

**E. Executive Secretariat**

The role of the executive secretariat is to:

- Prepare and execute the decisions of the Council of Ministers
- Watch over and maintain a coherent CILSS system
- Supervise the two specialized Institutions [AGRHYMET and INSAH]

The executive secretariat includes the following:

- 1.- Executive Secretary
- 2.- Office of the Executive Secretary
  - a.- Office Manager
  - b.- Advisor
  - c.- Special Secretary
  - d.- Courier Section
  - e.- Information/Documentation Section
  - f.- Public Relations Section
- 3.- Financial Controller
- 4.- Finance and Administration Department [DAF]
  - a.-Personnel and Supply section
  - b.-Finance section
  - c.-Accounting section
- 5.-Planning and Research Department [DEP]
  - a.-Research and strategic planning section

- b.-Statistical planning section
- c.-Evaluation section
- 6.-Project and Program Department [DPP]
  - a.-Plant and animal production section
  - b.-Ecological/environmental section
  - c.-Water resources section
  - d.-Human resources section

**F. Executive Secretary**

The ongoing responsibilities of the executive secretary are to:

- Prepare and execute the decisions of the Council of Ministers
- Prepare [in collaboration with national efforts] projects and programs to combat drought and promote Sahelian development
- Put into operation projects and programs adopted and conduct periodic checks on their execution
- Prepare [in collaboration with national efforts] programs for the purpose of restoration of uninhabited regions
- Pursue and coordinate as much bilateral financing to fulfil the projects and programs of the Executive Secretariat and the specialized Institutions of the CILSS. And to call upon, in case of the Directors of the specialized Institutions to help fulfil this task
- Formulate proposals that are judged beneficial within the political framework of the Sahelian territories; to reestablish ecological equilibrium between natural resources and human/animal populations
- Sole responsibility before the Council of Ministers for the satisfactory working of the specialized institutions. The Directors of the specialized institutions are hierarchial dependant on the Executive Secretary for the preservation of their financial and administrative autonomy
- Report on the competence of national structures and functions

The intermediate term responsibilities of the executive secretary are to:

- Prepare an inventory of existing projects and proposals
- Establish a regional mobilization plan of intervention in the case of future droughts
- Propose a network of warehouses for necessary seeds at strategic locations and at certain levels within member states
- Put into production selected seeds, particularly the variety of cereal grains adapted to local climatic conditions

- Make recommendations towards coordination and integration of regional strategies
- Collect data on research and action in the Sahelian zone and report with the different specialized Institutions
- Research the consequences of drought on animal resources and forage resources and establish a regional program for regenerating herds
- Define the one political tenant for insuring the provision of water for the permanent cattle population

The overall responsibility of the executive secretary is to:

- develop a global development strategy to avoid the return of disaster.

Special activities of the executive secretary include to:

- Conduct extensive climatic research, including satellite photo-imagery to anticipate and determine the effect climatic factors on agricultural production and to improve a system of climatic alert
- conduct research on graze land utilization and water resources within the Sahelian region
- Develop agricultural production that favors the most appropriate method of irrigation
- combat desertification [educational programs, environmental protection, etc.]

Special administrative tasks of the executive secretary are to:

- execute the budget decisions of the Council of Ministers.
- Sign mission orders for senior staff
- Sign all correspondence originating within the Executive Secretariat
- Engage in a dialogue for external assistance for the express purpose of resulting in one concerted assistance plan for financing research, projects and programs adopted by the CILSS

#### G. Financial Controller

The Financial Controller is named by the Council of Ministers. He reports directly to the Executive Secretary but remains independent in the execution of his duties. He is accountable to the Council of Ministers. His responsibilities include to:

- Assure the control of accounting transactions
- Assure that payments made by the Director of Administration and Finance are payments authorized under the budget

- When denying approval for processing a transaction, notify the Director of Budget in writing within 48 hours
- If the refusal to process is contested by the Director of Budget, the matter is referred to the Regional Coordinator for final determination
- have access to all accounting books and journals. He must be prepared at any moment to report to the Regional Coordinating Minister on the financial situation with the CILSS. He must, at any moment, be prepared to make unannounced reviews on controls and report to the principal directors
- Act in a capacity as advisor on program establishment and annual budgets. The Financial Controller sits on the ad hoc budget committee

The financial controller must meet the following reporting requirements:

- An annual financial report to the Council of Ministers
- Quarterly reports are required to the Directors

#### H. Management

Management's role is to:

- Assist the Executive Secretary in the preparation and execution of his tasks
- Manage and administer personnel and apply regulations relative to personnel
- Study all administrative and financial questions of CILSS
- Properly manage CILSS
- Account for the receipts and expenditures relevant to budget execution
- Assure recovery of amounts due CILSS for advances made
- Manage the Special Fund and other CILSS funds

Management is headed by a Director named by the Council of Ministers for a period of five years [renewable] upon proposal by the Coordinating Ministers after advise from the Executive Secretary. Management provides three functions:

- Personnel and Supply Section
- Finance Section
- Accounting Section

The heads of the sections are named for a period of three years [renewable] by the Executive Secretary. They are chosen from among the best of the senior staff within the Executive Secretariat.

1. Finance Section

The principal tasks are the preparation and execution of the budget of the Executive Secretary and enforcing the financial regulations of CILSS. Specific duties include:

- Analyze the final results of the budget
- Establish and report annually on the prior years budget
- Centralization of the budget function of CILSS
- Prepare required documents for payment of salaries
- Establish periodic review of budget expenditures
- Monitor expenditures made under the budget

2. Personnel and Supply Section

Specific duties include:

- Maintaining individual personnel records for each CILSS employee from the date of recruitment until the end of employment
- Supply information concerning vacancies within CILSS and to publish advice concerning the vacancies
- Maintain medical records of CILSS employees
- Determine the location of fixed assets [including the source of finance, etc.]
- Determine the state of fixed assets
- Manage the automobile pool [insurance, depreciation, purchase of automobiles, etc.]
- Maintain fixed asset records [valuation, depreciation, capital improvements, etc.]
- Maintain records on the transfer and disposal of fixed assets
- Prepare purchase orders and all other documents concerning requests for bids and proposals
- Insure that orders are received and services rendered
- Maintain daily attendance records

- Maintain current regulations concerning personnel

### 3. Accounting Section

The accounting section is charged with the management and the safeguard of funds and other assets of the Executive Secretary. Specific duties include:

- Recording the receipts under the budget of CILSS and from all other sources
- Pay the operating expenses of CILSS
- Protect and safeguard the funds and other assets of CILSS
- Make an accounting of receipts and expenditures made under the CILSS budget
- Establish periodic and annual accounting reports, as required
- Manage and reconcile the bank accounts

#### I. Section Heads

The role of the section heads is to coordinate and execute approved projects and programs within four departments:

- Crop and animal production department
- Ecological/environmental department
- Water resources department
- Human Resources department

Department heads are appointed for one period of three years by the Executive Secretary. They are chosen from among the best of the senior staff of the Executive Secretary. Department heads are charged with:

- Maintaining a coherence of activities
- Establishing adequate statistical information
- Organizing Inter-Sahelian Assistance
- Periodic reporting on CILSS programs
- Planning of CILSS projects and programs

[NOTE: In each member country, a corresponding CILSS program to combat drought has been established.]

#### J. Technical Committee

The technical committee meets no more than once each year with the purpose of following the programs within the CILSS system by examining the annual progress reports of work and by ordering research reports, as required.

#### K. Management Council

The management council is made up of the executive secretary and the director-generals of AGRHYMET and INSAH. It meets twice per year, and is presided over by the executive secretary. Its responsibilities are to:

- Identify areas of duplication across the institutions
- Assure coherence within the CILSS system
- Standardize the budget presentation
- Examine institutional administrative issues
- Establish the priority among activities and programs under consideration

#### L. AGRHYMET

AGRHYMET is located in Niamey, Niger. Its duties include:

- Coordinate the various national activities of the AGRHYMET program
- Collect and disseminate information

AGRHYMET has two advisory councils, a scientific council and coordinating council.

#### M. INSAH

INSAH's role is to coordinate and standardize scientific research within the framework of combating drought within the Sahel. Specifically, it is charged with:

- Collecting and dissemination of all relevant research information that is new within the region
- Creating and developing Sahelian research resources [within the levels institutinal competence]
- Defining regional research priorities
- Developing a regional research plan

There are two councils within INSAH, the Scientific Council and the Consultative Council.

## N. Accounting

Each expenditure transaction has to be approved by the Executive Secretary or his delegate, the Financial Controller. The Executive Secretary is the Budget Director. He presents to the Council of Ministers an annual budget report at the end of each year. The report is submitted to the Regional Coordinator prior to submission to the Council of Ministers.

### 1. Purchases

Services, supplies and materials that exceed 2,000,000 FCFA must be made according to a negotiated contract. Purchases greater than 10,000,000 FCFA must be made under a request for bid process.

### 2. Expenses

Disbursement requests must be accompanied by justifications for the expense, including its purpose, the name and address of the originator, method of payment, all supporting information, date payment must be made, voucher number, annual budget amount approved for that expense, certification that the service was performed or the goods delivered, and delivery documents in the case of supply purchases. Claims for payment must be signed by the Director-General and the head of the accounting section. Signature cards of the Director and delegated signatories are maintained with the Financial Controller. In the case of delegated signatories, the Director must have also signed indicating the delegation. No person who has signed for or verified one portion of a particular transaction can verify or authorize another portion of the same transaction.

### 3. Activity Programs

Each year, CILSS managers will prepare their activity programs. Based on resources available and intermediate objectives, plans will be prepared in a manner in which results stated are achievable within the planning period covered.

The Project Identification File allows for a periodic evaluation of the degree of progress of the project. The Project File should be only two pages long. Page one of the file defines the project. Page two shows the steps to be followed in achieving the objectives of the project.

## BUDGET PROGRAM

### CYCLE

### ACTIVITY

### RESPONSIBILITY

August 1st meeting of the ad hoc committee  
for the budget

Financial  
Controller

- Work Calendar
- Review of the process
- Revision of process, as required

September	-Donor Meeting -Directives of Exec. Sec. -Program Preparation -Determination of Required Resources	Executive Sec Executive Sec All Directors  Adhoc Committee of budget
October	-Finalize CILSS Project Prog. -Budget Evaluation -Project Budgets	Director of Admin/Finance  Adhoc Committee of budget
November	-Presentation to Directors' Council -Presentation to Committee of Technical Experts -Presentation to Donors	Executive Sec  Executive Sec Executive Sec
December	-Presentation to Council of Ministers	Executive Sec

The annual activity plan approved by the Council of Ministers becomes the guide for all activities that are to be accomplished by CILSS during the year. The document describes in a clear and concise form the program of each manager. Precise in the nature of activities to be undertaken, the objectives to be attained and the resources required. A work calendar complete each activity plan.

The Executive Secretary, in consultation with the Management Council and the Donors, establishes the priorities which serve as the base of work for the Directors in preparing their annual work program. Each activity is described in a standard proforma.

The ad hoc committee on the budget is comprised of the Executive Secretary, the Head of the Office of the Executive Secretary, the Financial Controller, the Director of Administration and Finance, the Director of Projects and Programs, and the Director of Evaluation and Planning.

The Director of Administration and Finance quantifies resources required by activity. Needs are then compared with resources at his disposal. The Director of Administration and Finance then prepares a plan for the acquisition of resources required that are not at his disposal. Utilizing available historical and market price data, he calculates the cost of the resources required. The final step by the DAF is the preparation of a consolidated budget program which details the sources of funds for the coming period.

#### 4. CILSS Account Codes

The CILSS accounting coding system is as follows:

aa-xxx-yy

aa = the source of financing

xxx = the balance sheet activity account  
yy = the type of expenditure

#### NON-CURRENT ASSET ACCOUNTS

- 11 Furniture
- 12 Materials/Equipment
- 13 Vehicles
- 14 Construction
- 15 Major repairs

#### PERSONNEL AND ADMINISTRATION

- 21 Salaries and Allowances - Permanent Staff
- 22 Salaries and Allowances - Temporary Staff
- 23 Allowances [Medical Doctor, Regional Coordinator, Commissioner of Accounting, etc.]
- 24 Overtime
- 25 Bonuses
- 26 Social Security
- 27 Medical Costs

#### OPERATING EXPENSES

- 41 Travel Cost
- 42 Relocation Costs
- 43 Representation Costs
- 51 Vehicle Maintenance
- 52 Gasoline
- 53 Vehicle Insurance
- 61 Rentals - Office Space
- 62 Rentals - Vehicles and Materials
- 63 Building Maintenance
- 64 Maintenance - Equipment/Furniture
- 65 Construction Materials
- 71 Communication [telex, telephone, etc.]
- 72 Supplies
- 73 Documentation
- 74 Utilities [Water, electricity, etc.]
- 75 Finance Costs [Fund Transfers]
- 76 Finance Costs [Overdrafts/unexpected]
- 81 Secretarial expenses
- 82 Information costs
- 83 Honorariums - Consultants
- 84 Honorariums - Foreign Experts
- 85 Honorariums - Professionals

#### LIST OF ACCOUNT CODES DESIGNATION

000-099	Active Balance Sheet Accounts
100-199	Inactive Balance Sheet Accounts
200-249	Sources of Financing
250-299	Not Utilized
300-349	Executive Secretary Accounts

350-374	Financial Controller
375-399	DAF
400-499	Director of Research and Planning
500-599	Director of Projects and Planning
600-699	AGRHYMET
700-799	INSAH
800-849	Capital Improvement
850-899	Not Utilized
900-999	Not Utilized

#### 5. Unapproved budgets

If the current operating year budget is not approved at the beginning of the fiscal year, the budget for the previous twelve months will be temporarily used. For donor budgets, each is negotiated individually with each donor.

#### O. Annual Audits

CILSS accounting will be verified at the end of each fiscal year by a Commissioner of Accounting who is named each year by the Regional Coordinator. The annual report by the Commissioner of Accounting to the Council of Ministers must be accompanied by the observations and recommendations that have been judged necessary to promote the proper financial management within the CILSS.

#### P. Personnel Policies

The Council of Ministers approves the organization chart, determines the category, qualifications and number of employees within CILSS and establishes the base rate of remuneration. Candidates for vacancies are nominated without distinction to gender. The Executive Secretary is nominated by the Council of Ministers. For other functionaries and senior staff, they are nominated by the Council of Ministers, after being proposed by the Regional Coordinator. Intermediate level staff are appointed by the Executive Secretary of CILSS and sign individual employment contracts.

CILSS functionaries are observers and must maintain strict neutrality in matters of religion and politics within the boundaries of the member states where they perform their duties.

Candidatures for positions within the CILSS are received by the Executive Secretary and are divided into categories of senior level staff and intermediate level and clerical staff. For senior level staff candidates, the Executive Secretary transmits the candidates names to the Council of Ministers through the Regional Coordinator who advises the Council on the candidature of each candidate. The Council of Ministers then makes a decision on each candidate. For intermediate and clerical level staff, the Executive Secretary recruits within these categories and employs under individual contracts. Regardless of the level, all recruitment is done within the existing organizational and budget structure of CILSS.

CILSS employees must be a citizen of a CILSS member state, between the ages of 18 and 55, of good character, and able to meet the physical requirements to perform assigned duties as determined by CILSS. For other than the post of Executive Secretary, each senior staff candidate's file must include a current CV, a letter of proposal for the position, and copies of degrees

or diplomas. Senior staff are appointed for a renewable term of five years. CILSS pays for the travel of staff and their families recruited under the international plan to and from post as well as for baggage and household effects shipments within established weight limits.

Senior staff are required to notify CILSS no less than three months prior to the expiration date of their employment agreement on whether or not they intend to seek renewal of their contract. In the case of renewal, the employee must receive the permission of their country of origin to either renew or refuse. Member States can, upon three months notice to the Regional Coordinator, recall a staff member who has been placed at the disposal of CILSS.

Salary scales are fixed by the Council of Ministers. Intermediate and clerical staff can receive an annual bonus that is fixed not to exceed 25% of base salary. Annual bonuses are left to the discretion of the Executive Secretary. Salary increases of Senior staff can be made every two years upon approval of the Council of Ministers. Salary increases for Intermediate and Clerical staff can be made every two years upon approval of the Executive Secretary.

Senior staff receive extra allowances for acting as a department or division head, housing, and a vehicle. The Executive Secretary receives free housing, including water, electricity and telephone, and a vehicle for official use within limits established by the Council of Ministers. The Regional Coordinator receives an allowance of 600,000 FCFA/annum, and the Commissioner of Accounting receives 300,000 FCFA/annum, as established by the Council of Ministers. A family allowance of 2,500 FCFA per child for up to six children is allowed for all employees in all categories under the CILSS system according to an established table.

The annual leave policy provides for one month paid annual leave after eleven months of consecutive service. After twenty-two months of consecutive service, two months of paid leave is authorized. In instances where contracts end mid-term, unused accrued leave will be paid in lieu of the actual taking of leave. All annual leave is paid excluding allowances. Travel costs to and from post in cases of annual leave are paid for the husband and wife and up to six children by CILSS. The only criterion is that travel must be made by the most direct route and by economy class.

There is no standard maternity or sick leave policy within CILSS. The policy followed depends on the regulations and statutes of each member state where the staff service is being performed.

Established per diem rates within the CILSS are based on a daily rate which is allowed for each position. For example, the daily rate in effect for Europe is as follows:

Position	Daily Per Diem Rate
Regional Coordinator	40,000 FCFA
Director General	40,000
Senior Staff	30,000
Intermediate Staff	30,000
Clerical Staff	No Provisions

For countries where the cost of living is very high, the Coordinator can establish an individual allowance rate.

CILSS will make medical payments on behalf of staff, the staff is then required to reimburse

CILSS for 20% of the cost of hospitalization. In instances of medical leave of long duration, CILSS continues salary for a maximum of six months. CILSS sets aside 2% of gross salaries for the Social Security budget.

## II. SUMMARY OF FINANCIAL REGULATION PROCEDURES MANUAL

This section summarizes the CILSS Financial Regulation Procedures Manual ("Reglements Financier Interieur", CILSS, 29 January 1987), which is an annex to the Procedures Manual. This document details the organizational placement, title and functions (including detailed responsibilities) of each CILSS functionary. This document, although developed in 1986, has not been reviewed or updated since adoption in 1987. Upon recommendation of the Council of Ministers in 1991, this manual will be reviewed and revised in the near future with French support.

### A. Chapter 1: The Budget

#### 1. Article 2

The CILSS budget is the annual financial act which authorizes CILSS expenditures and matches expected receipts to insure coverage.

#### 2. Article 3

The budget provisions establish that management of receipts and expenditures are subject to periodic reporting. The budget and accounting year of CILSS begins on 1 January of each year and ends on 31 December of the same year.

#### 3. Article 4

The budget is prepared by the Budget Director and centralized for all activities and divisions. Project budgets are submitted and examined by the Management Council prior to transmission to the Council of Ministers for final approval.

#### 4. Article 5

The budget of CILSS is funded from assessments of individual member states, specific financial help from all sources, and diverse receipts. The request for funding emanates from the Executive Secretary for the assessment of member states. For specific financial help, it is in accordance with the procedures in force with the various donor agencies/organizations.

Regulations require that the annual assessments of member states are to be cleared for the current budget year no later than 30 April. When late contributions by member states of their annual assessments impedes the normal transactions and operations of the organization, the Coordinating Minister can authorize the Executive Secretary to take advances of required sums from the Special Fund. In each case, advances cannot exceed more than 25% of the global budget of CILSS for the year. Where the Special Fund does not permit, each major organization of CILSS is authorized to negotiate with local banks for

advances which do not exceed 25% of their individual budgets.

5. Article 7

Authorized expenditures under the CILSS budget are classified into personnel expenditures, material/supply expenditures, and capital investment expenditures.

6. Article 8

Specialized credits must be made in accordance with the Chapters and Articles authorizing programs and activities of the organization [with the exception of expenditures for personnel]. Transfer of credits between programs will be the decision of the Coordinating Minister.

7. Article 9

When the budget for the current operating year has not been approved by the Council of Ministers at the beginning of the current year, operation will continue with the expenditure budget of the prior successive twelve months temporarily in effect.

B. Chapter II. The Budget Director

1. Article 10

The Budget Director is the Executive Secretary for the Executive Secretariat and the Director Generals of the Specialized Institutions. Bank accounts are opened by their various offices and remain under their control.

2. Article 11

No expenditure can be authorized and paid without an authorization form signed by both the Budget Director and Financial Controller where the funds are actually controlled.

3. Article 12

Expenditures are paid after the review of justifications prepared by personnel where the expenditure originated.

4. Article 13

Expense disbursements are made only under the following circumstances:

- A payment number has been assigned and approved by the authorized Director.
- The Administration has committed budget funds.
- The name and address of the originators is included on the disbursement document.

- The method of payment and the date of payment is included.
- The statement of service performed or supplies purchased in addition to the proper recording in the inventory records register.

5. Article 14

Work, supplies, goods and services in the amount equal to 2,000,000 FCFA are to be the result of bargained contract. Purchases equal to 10,000,000 FCFA will be made under the request for bid process.

6. Article 15

For expenditure authorizations, the Director can delegate for either exceptional or permanent or for Joint authorizations to all parties concerned. The authorized signature for each individual delegated that has been authorized will be under the control of the Director, Administration and Finance.

7. Article 16

The fiscal year for expenditures closes on 25 December of each year.

C. Chapter III Management of Administration and Finance.

1. Article 18

The department assists the Budget Director in the preparation and execution of the budget:

- Prepares Project budgets
- Is accountable for: receipts, commitments and payment under the budget; the Special Fund; and, other Organizational Funds
- Responsible for the management of personnel and fixed assets
- Certifies the delivery of work, services and goods
- Has approval authority over work, services, and goods which do not require either the contract or request for bid process

2. Article 19

The Department of Administration and Finance produces period reports on the execution of the budget, cash-flows and bank reconciliations.

3. Article 20

Regulations require that, wherever possible, double signature checks will be utilized in making payments. For non-recurring expenditures in small amounts, an impressed petty cash fund not to exceed

150,000 FCFA will be utilized. Each payment under the petty cash fund will not exceed 10,000 FCFA. The petty cash funds will be periodically replenished (after a review of expenditure justifications by the concerned Director) and at the end of each fiscal year.

4. Article 21

The purpose of CILSS accounting regulations is to insure the validity of accounting transactions and payments made within the CILSS structure.

D. Chapter VI. Control.

1. Article 22

Operational control by CILSS is designed to insure the verifiability internal system of the Financial Controller and the external system of the Commissioner of Accounting.

2. Article 23

With reference to the Budget and Financial Management, internal control is the number one priority.

3. Article 24

The Financial Controller will insure control of commitments and of all accounts.

4. Article 25

The Financial Controller will insure:

- There is quality of management
- The validity of document origin with a concern towards conformity with existing regulations
- Commitment against the budget and the availability of funds
- Respect for the terms of commitments to pay

5. Article 26

In the instance of refusal to process a transaction, the Financial Controller must notify the Director concerned in writing within 48 hours. The Coordinating Minister is charged with the final adjudication in these matters.

6. Article 27

The Financial Controller has access to all books and registers. As required, he is authorized to

make written recommendations to management advising the Director on the most rational method of financial management.

7. Article 28

At the end of the fiscal year, the Financial Controller produces a report to the Council of Ministers reflecting:

- The status of undertakings
- Steps necessary for effective administration

8. Article 29

External control is exercised by the Commissioner of Accounting and Verification. It is a control that has been designed to reinforce the internal control system.

9. Article 30

The report of the Commissioner of Accounting is addressed to the Executive Secretary for transmission to the Council of Ministers. The Commissioner's report consists of:

- The status of the budget and supporting accounting
- Observations, remarks and suggestions which are judged most appropriate

10. Article 31

Financial regulations are covered by a manual of procedures put in place for the purpose of internal control.

11. Article 32

The present financial regulations unanimously adopted by the Council of Ministers cannot be modified without the unanimous voice vote of the Council.

### **III. SUMMARY OF PERSONNEL REGULATION PROCEDURES MANUAL**

This section summarizes the CILSS Personnel Regulation Procedures Manual ("Statut Particulier du Personnel", CILSS, 29 January 1987) currently in effect. This manual details the organizational placement, title and functions (including detailed responsibilities) of each CILSS functionary. Although this document was prepared in 1986, it has not been reviewed or updated since adoption in 1987. Upon recommendation of the Council of Ministers in 1991, this manual will be reviewed and revised in the near

future with French assistance.

A. Title I

1. Article 1

The statutes apply to all personnel within the CILSS structure.

2. Article 2

The Council of Ministers is the approving authority for all organizational structures, and determines the qualifications, categories and numbers of personnel plus establishes the base rate of remuneration for CILSS personnel.

3. Article 3

Nomination of employees of CILSS for employment or advancement is made without reference to the sex of the nominee.

4. Article 4

The Executive Secretary of CILSS and the Director Generals of the Institutions establish the normal work week accounting for the local custom and usage and practices of other organizations of an international character in the member state where located.

B. Title III

1. Article 9 - Categories of posts and personnel within CILSS:

- Hors Categorie (Outside the normal structure) [HC] - Includes the Executive Secretary and the Director Generals of the Institutions.
- Cadres Superieur [CS] - corresponds to division/department heads
- Cadres Moyen [CM] - senior level technicians
  1. Accountants
  2. Technical support
  3. Administrative assistant to the Director
- Personnel d'executif
  1. Office Staff [CE I, CE II, and, CE III]
    - a. CE I - Assistant Accountant  
Stenographer
    - b. CE II - Clerical Workers
    - c. CE III - Telephone Operators/Receptionists
  2. Specialized Workers [DI and DII]

- a. DI - Chauffeur
- b. DII - Security Guards
- 3. Non-specialized Workers [DIII]
  - a. Gardeners

## APPENDIX 4

### TERMS OF REFERENCE

#### A. PAF Unit Personnel

The tasks of the PAF personnel will be to:

- organize the work of the section and establish task assignments within the accounting section
- establish and follow a system of cost determination and the price of services
- collect and control the given accounts of the organization
- follow the administration of the budget
- administration of the treasury function of the organization
- follow the financial position of the projects
- elaborate on administration reports for the organization
- elaborate on financial reports for the organization

To realize these tasks, the PAF will need two accountants, one senior and one junior, in order to handle general accounting functions, deal with the treasury and bank functions, and deal with the management of organizational cash.

The senior accountant should meet the following qualifications:

- a minimum of a degree in accounting or business administration
- three years practical professional experience gained as either the head of the accounting department in a business department or a development project, or, assumed the responsibilities as the accounting assistant in a public accounting firm
- Knowledge of project accounting where a multi-donor arrangement exists
- Good practical informational accounting experience
- Working knowledge of DOS and current business software [Lotus 1-2-3, Wordperfect, Database and Accounting Systems]

The junior accountant should have the following qualifications:

- a diploma or university degree: or,

- technical certification in accounting; or,
- certification in professional accounting studies
- 3 years practical professional experience gained in either the accounting department in a business department or in a development project, or, assumed the responsibilities in a public accounting firm
- Knowledge of project accounting where a multi-donor arrangement exists
- Good practical informational accounting experience
- Working knowledge of DOS and current business software [Lotus 1-2-3, Wordperfect, Database and Accounting Systems]

**B. Project Liaison Officer**

The Project Liaison Officer [PLO] provides the primary professional and management services for USAID's supervision of the PADRES Project. In this capacity the PLO is responsible for guiding the Institut du Sahel [INSAH] in fulfilling USAID requirements and procedures in implementing the project, as described in the PADRES Project Paper. The PADRES is a regional project serving the Sahelian countries of Burkina Faso, Cape Verde, Chad, The Gambia, Guinea-Bissau, Mali, Mauritania, Niger and Senegal. The PLO will provide guidance to INSAH in coordinating its activities with the USAID Missions in these countries, with REDSO/WCA, and with AID/W, including the centrally funded agencies.

The major duties and responsibilities of the PLO are as follows:

- Monitor and assist project implementation on a routine basis. Identify and initiate actions to be taken to facilitate project implementation and to insure conformity with AID policies and procedures. Execute and/or follow up on these actions, and coordinate with USAID/Bamako, REDSO/WCA, Sahelian USAID Missions and AID/W and relevant AID cooperating agencies to insure their timely completion.
- Assist the development of annual work plans and budgets according to the Project Paper, and monitor on a continuing basis the conformity of expenditures with planned activities.
- Prepare documentation for an Annual Work Plan and Management Review.
- On the basis of approved Annual Work Plans, recommend appropriate action by USAID/Bamako on annual financial requests.
- Initiate and monitor project evaluations as described in the Project Paper and the annual work plan as required. In coordination with INSAH, make evaluation arrangements, including preparation of terms of reference, implementation plan and work schedule, the identification of team members and all other documentation and contractual matters. Participate in the review of evaluation reports, and in the publication and distribution of such reports. Guide and assist INSAH in applying evaluation recommendations to modify the project.

- Monitor all sub-programs in research and analysis and other sub-projects funded under the USAID agreement.
- Prepare documentation and follow-up as necessary to obtain short-term and long-term consulting services. Coordinate with INSAH in the performance of technical assistance activities and implementation of approved recommendations.
- Assist USAID in preparing documents as required, including the semi-annual Project Implementation Reports, quarterly financial pipeline reports, Mission Project Implementation Reports, Grant Agreement amendments, PIOs, PILs, etc.
- Review financial documents submitted by INSAH to USAID and based on personal knowledge of project activities, recommend appropriate action concerning approval for USAID Controller certification.
- Establish relationships with national and regional research agencies, and with the Sahelian USAID Missions, REDSO/WCA, AID/W and cooperating and private agencies receiving AID funding.
- Assist INSAH as needed in the areas of publications and dissemination, organizing seminars, and other information exchanges.
- Travel to the Sahelian missions, REDSO/WCA and AID/W as necessary to promote maximum liaison, coordination and use of INSAH's services nationally and regionally.

## APPENDIX 5

### INSAH STAFFING

The permanent personnel of INSAH at 30 September 1990, as established in the 1990 Activities Report, included the following categories:

Senior Staff [Cadre Superior (CS)]	36
Intermediate Staff [Cadre Moyen (CM)]	31
Clerical [Agents d'execution (AE)]	<u>46</u>

Total Staff at 30 Sept. 90                      113

The breakdown by department/function of the permanent staff of INSAH as of 10 November 1991 is as follows:

Function/Department	CS*	CM**	AE***	TOTAL
Director General	3	1	1	5
Financial Controller	0	-	-	0
Department of Administration & Finance	0	1	12	13
DRMA	5	4	6	15
DDIF	3	8	5	16
CERPOD [From 1990]	23	18	24	65
<b>INSTITUTE TOTALS</b>	<b>31</b>	<b>32</b>	<b>48</b>	<b>111</b>

CS\* = Cadre Superieur

CM\*\* = Cadre Moyen

AE\*\*\* = Agentd'execution

Senior professional and technical staffing levels within INSAH at 10 November 1991 were as follows:

<u>FUNCTIONAL AREA</u>	<u>STAFF MEMBER'S NAME</u>	<u>FUNCTION WITHIN AREA</u>	<u>NATIONALITY</u>
<u>Director General</u>	Dr. Jallow	Director General	Gambia
	Mrs. Toure Fanta Sy	Adminis Secretary	Mali
	Mr. Konate	Interpreter	Mali
<u>Financial Controller</u>	Mr. Gadiaga	Financial Controller	Burkina
	Deported 6/91		
<u>Department of Administration and Finance</u>	Mr. Konate	Director	Nigeria
	Mr. Traore	Chief Accountant	(Deported 6/91)
	Mr. Konate	Assistant Accountant	Mali
	Mr. Conde	Administrative Secretary	Mali
<u>DRMA</u>	Mr. Netoyo	Director	Chad
<u>-MIL Project</u>	Mr. Kere	Project Co-ordinator	Burkina
	Mrs. Traore Toure	Administrative Secretary	Mali
	Mr. Traore	Senior Technician	Mali
<u>-RCS</u>	Mr. Toure	Program Co-ordinator	Mali
<u>-PRISAS</u>	Mr. Diaco	Program Co-ordinator	Mali
	Miss. Sanoko	Administrative Assistant	Mali
<u>-UCTR/PV</u>	Mrs. Ba	Program Co-ordinator	Mali
	Mrs. Guindo	Administrative Secretary	Mali
	Miss. Dieng	Secretary/Accounting Asst	Mali
<u>DDIF</u>	Mr. Ba	Director/Chief	Mauritanian
<u>-Information Div</u>	Mrs. Ba Toure	Division Chief	Mali
	Mr. Coulibaly	Reproduction Technician	Mali
<u>-Documentation Div/</u>	Mr. Aw	Div. Chief/RESADOC	Senegal
<u>RESADOC</u>	Mr. Frenho	Adminis of Data Base	Mali
<u>-AGIR</u>	Mr. Cisse	Program Co-ordinator	Mali
<u>CERPOD</u>	Mr. Ouaidou	Director	Chad
<u>RESEARCH DIVISION</u>	Mr. Ouedraogo	Division Chief	Burkina
	Mr. Konate	Chief - Population Devel	Mali
	Mr. Guerye	Chief - Demographic Sec	Senegal
<u>TRAINING DIVISION</u>	Mr. Mbacke	Division Chief	Senegal
	Mr. Keumnye	Chief - Seminar Section	Chad
<u>FAMILY PLANNING DIVISION</u>	Mr. Traore	Division Chief	Mali
	Mrs. Diop	Chief - Systems Development	Mali
	Mr. Mbodji	Chief - Studies Section	Senegal
	Mr. Thome	Technical Advisor	Brazil
<u>INFORMATION DIVISION</u>	Mrs. Diarra	Division Chief	Mali
	Mr. Dolo	Chief - Systems Section	Mali
<u>INFORMATION DIV</u>	Mr. Diougue	Division Chief	Senegal
	Mrs. Soumare	Chief Document Translator	Mali
	Mr. Sow	Chief of Popularization Sec.	Senegal
<u>ADMINISTRATION/ FINANCE SECTION</u>	Mr. Doumbin	Section Chief	Mali
	Mr. Deo	Chief Accountant	Mali
	Mr. Haidara	Chief - Finance Section	Mali
	Mr. Doumbin	Chief - Administrative Sec	Mali

## APPENDIX 6 - BUDGET

Project Administration and Finance Unit (PAF) Cost Estimate:

Cost Category	Year One	Year Two	Year Three	Year Four	Year five	Total Project
<b>Commodities/Project Expenses</b>						
Computer Equipment	68,000	0	0	0	0	68,000
Furniture Purchase	15,750	0	0	0	0	15,750
Computer Software	38,200	0	0	0	0	38,200
Computer Supplies	5,300	0	0	0	0	5,300
Prepare Purchase Orders	5,000	0	0	0	0	5,000
Reconfigure Tasks/Functions	10,400	0	0	0	0	10,400
System Configuration	32,000	0	0	0	0	32,000
System Implementation	15,000	0	0	0	0	15,000
System Validation	3,000	0	0	0	0	3,000
Financial Audit	35,000	35,000	35,000	35,000	35,000	175,000
Project Liaison Office Rent	8,500	8,500	8,500	8,500	8,500	42,500
Project Telephone/Utilities	12,000	12,000	12,000	12,000	12,000	60,000
Project Vehicle Gasoline	3,400	3,400	3,400	5,100	5,100	20,400
Project Vehicle Insurance	4,000	4,000	4,000	6,000	6,000	24,000
Project Vehicle Maintenance	800	800	800	1,200	1,200	4,800
Translator Services	5,000	5,000	5,000	5,000	5,000	25,000
Office Supplies/Consumables	10,000	10,000	10,000	10,000	10,000	50,000
Insurance on Project Assets	2,000	2,000	2,000	2,000	2,000	10,000
Project Vehicle Purchase a)	60,000	0	0	30,000	0	90,000
INSAH OVERHEAD FROM USAID	60,000	60,000	60,000	60,000	60,000	300,000
Subtotals:	393,350	140,700	140,700	174,800	144,800	994,350
<b>Salaries</b>						
USAID Project Liaison Officer b)	60,000	60,000	63,000	63,000	66,150	312,150
PAF Administrator	36,000	36,000	37,800	37,800	39,690	187,290
Accountant	25,000	25,000	26,250	26,250	27,563	130,063
Administrative Assistant	15,000	15,000	15,750	15,750	16,538	78,038
Driver/Messenger	7,500	7,500	7,875	7,875	8,269	39,019
Subtotals:	143,500	143,500	150,675	150,675	158,209	746,559
<b>Benefits c)</b>						
<b>Allowances</b>						
Post Differential	15,000	15,000	15,750	15,750	16,538	78,038
COLA	2,000	2,000	2,000	2,000	2,000	10,000
Educational Allowance at Post	9,450	9,450	9,450	9,450	9,450	47,250
Education Travel	2,000	2,000	2,000	2,000	2,000	10,000
Separate Maintenance	0	0	0	0	0	0
Subtotal:	28,450	28,450	29,200	29,200	29,988	145,288
<b>Travel</b>						
Int'l To/From Post	16,000	0	0	0	16,000	32,000
Third Country	6,000	6,000	6,000	6,000	6,000	30,000
R&R x \$2,000	0	16,000	0	16,000	0	32,000
In Country	3,000	3,000	3,000	3,000	3,000	15,000
Subtotal:	25,000	25,000	9,000	25,000	25,000	109,000
<b>Per diem</b>						
International	4,000	4,000	4,000	4,000	4,000	20,000
Incountry	1,000	1,000	1,000	1,000	1,000	5,000
Subtotal:	5,000	5,000	5,000	5,000	5,000	25,000
<b>Transportation</b>						
Shipment of Effects	25,200	0	0	0	25,200	50,400
Storage	2,000	2,000	2,000	2,000	2,000	10,000

Air freight	2,250	0	0	0	2,250	4,500
POV	1,500	1,500	1,500	1,500	1,500	7,500
Subtotal:	30,950	3,500	3,500	3,500	30,950	72,400

Insurance

MEDEVAC	800	800	800	800	800	4,000
Health	2,589	2,589	2,589	2,589	2,589	12,945
Life	500	500	500	500	500	2,500
Subtotal:	3,889	3,889	3,889	3,889	3,889	19,445

Housing

Rent	12,414	12,414	12,414	12,414	12,414	62,070
Furnishing and Equipment	28,000	0	0	0	0	28,000
Repair	4,562	4,562	4,562	4,562	4,562	22,810
Utilities	8,690	8,690	8,690	8,690	8,690	43,450
Guards	4,138	4,138	4,138	4,138	4,138	20,690
Subtotal:	57,804	29,804	29,804	29,804	29,804	177,020

Project Totals:	687,943	379,843	371,768	421,868	427,639	2,289,061
	=====	=====	=====	=====	=====	=====

Footnotes:

- a) .2 vehicles purchased in year one; one vehicle in year 3.
- b) based on expatriate; if FSN, salary includes allowances and benefits can be reduced.
- c) All allowances are related to the PLO. If the PLO is a FSN, then all benefits, except for travel and per diem, can be eliminated.

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