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SEMI-ARID FOOD GRAIN RESEARCH AND DEVELOPMENT II
(SAFGRAD II)

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SAF

Draft Project Paper

Ouagadougou, Burkina Faso

May 20, 1986

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SAF-5A

Executive Summary

Authorization of this project will provide funds for the second phase of the Semi-Arid Food Grains Research and Development (SAFGRAD) project of the Scientific, Technical and Research Commission of the Organization of African Unity (OAU/STRC). This project will grant 15 million dollars for a five year life-of-project to support a long term research program in food crop development.

Recognizing the importance of sorghum, millet, maize and cowpeas to the people in the semi-arid tropical areas of Africa, the SAFGRAD II project is designed to increase the efficiency and effectiveness of agricultural research to increase production of these crops. Emphasis is on an increased leadership role by African national scientists. Collaborative research networks will be strengthened to plan, make productive use of resources, and broaden the base of support. The service capacity of the SAFGRAD Coordinating Office of the OAU's Scientific, Technical, and Research Commission (SCO) will be strengthened. SAFGRAD II is the second phase of what is anticipated to be a 20 to 25 year sustained program.

The project is designed to:

- redefine organizational relationships within SAFGRAD with emphasis on bringing leaders of national agricultural research systems (NARSS) to the forefront in order to take on a leadership role in networking and in the overall SAFGRAD process;
- make collaborative research networking the center piece of the SAFGRAD process;
- set clear practical service tasks for the SAFGRAD Coordinating Office (networking, publications, and interactions with NARSS) and upgrade internal capabilities to effectively achieve these tasks; and
- help NARSS to broaden and make more productive use of support for agricultural research, and through doing so, gain national government support for the SAFGRAD process.

The first two years provide transition for a redefinition of the SCO role, a building up of networking (and a phasing down of AID direct support for research), and evaluation of the on-farm testing program. Technical assistance is concentrated in the first two years of the project. Total project cost is \$15.0 million allocated as follows:

OAU/STRC/SCO (including ACPOs)	\$3,225,600 / 115
Networking:	
West Africa Sorghum	1,814,560
East Africa Sorghum/millet	1,589,520
Maize	2,632,175
Cowpeas	1,328,410
Project Management and Technical Assistance	1,500,000
Evaluation	200,000
Contingency and Inflation (12.8%)	1,709,735
	<u>\$15,000,000</u>

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SAFGRAD PROJECT PAPER

I. PROJECT DESCRIPTION

A. Background

1. The Problem

Sorghum, millet, maize and cowpeas are the staple foods in the diets of people living in the semi-arid areas of Africa (see ^{ANNEX E} map). At a time when these areas are experiencing severe drought and pest related famines, so common in recent years, as well as rapidly increasing population levels and changing urban/rural ratios, the governments of the 26 SAFGRAD member countries are faced with the question of how best to increase production of these commodities in light of limited financial and human resources, accelerating environmental degradation, and a weak institutional-support base.

One obvious solution is to bring farmers ^mimproved, adapted technologies to increase yields and reduce risk. This challenging task is made especially difficult because the SAFGRAD countries, in general, lack (a) adequately developed national research capacities and well-defined agricultural research strategies and (b) institutions to access and utilize relevant agricultural information and new technologies

being generated by the international agricultural research centers (IARCs) and by other national agricultural research systems (NARSs) with similar agro-ecological characteristics.

2. Project Background

The Major Cereals Research Project (OAU Joint Project 26), initiated by AID in cooperation with OAU/STRC in 1969, was a predecessor to the present SAFGRAD project. This early effort undertook to coordinate testing and multiplication of maize, sorghum and millet seed in the West African countries.

The present SAFGRAD Project was initiated in 1977 in an attempt to develop both research and extension networks in and among what became 26 member countries spanning an arc from southern and eastern Africa across the semi-arid zone of central and western Africa. Funding was provided to IITA for maize and cowpea research, to ICRISAT for sorghum and millet research and to Purdue University for farming systems research. The Accelerated Crop Production Officer (ACPO) activity was initiated in four countries in an attempt to bridge the gap between researchers and farmers through on-farm testing. In addition, France has supported a fifth ACPO in Togo

The initial five year SAFGRAD project was funded at \$13.9 million. Later, funding was increased to \$21.1 million and the project completion date extended to June 30, 1986. Recently, the International Fund for Agricultural Development (IFAD) committed \$3 million to support farming systems research in three countries as well as several staff positions within the SAFGRAD Coordination Office.

The Organization for African Unity's Scientific, Technical and Research Commission (OAU/STRC), whose Executive Secretary is located in in Lagos, has overall responsibility and has been responsible for providing policy guidance to SAFGRAD.

Day-to-day management and implementation is carried out by the SAFGRAD Coordination Office (SCO) in Ouagadougou. Currently, the SCO has a staff of twenty four, 16 of whom are AID-funded.

The current organizational structure provides for general policy, planning and project guidance to be provided by a Consultative Committee (CC) assisted by a Technical Advisory Committee (TAC). The former is chaired by the Executive Secretary OAU/STRC with membership composed of donors and representatives from the national agricultural research systems (NARSS); the latter includes one NARS representative from each of the four quadrants of Sub-Saharan Africa, the IARCs (ICRISAT and IITA), and other research-related organizations (e.g., INSAH -- the Institut du Sahel and SADCC -- Southern African Development Consultative Council) with the SCO International Coordinator serving as chairman.

30 No.

3. Previous Project Progress

The 1984 evaluation of SAFGRAD (as well as the 1982 audit) pointed out severe institutional, financial management, and, implementation deficiencies. Such a report card was neither unwarranted nor unexpected considering the breadth and complexity of the SAFGRAD milieu, the manifold actors involved, the newness of the project concept, and the magnitude of the problems the project was trying to resolve. Moreover, the evaluation did confirm the continued need for a SAFGRAD-like mechanism, albeit a more focused and efficient entity. Major findings included the following:

- SAFGRAD has made progress in solving operational and management problems. The financial management problems have been resolved with the hiring of an internationally recruited finance officer and an accountant as well as close cooperation of the AID mission. This aspect of project management now has the proper controls and is operating satisfactorily. A procedure of requiring administrative approval on all expenditures by OAU/STRC in Lagos has nevertheless proven to be cumbersome. While administrative management of the office is functioning well, the International Coordinator and the Director of Research are overly burdened with administrative duties.

- The Organization of African Unity Scientific, Technical and Research Commission (OAU/STRC) served as the coordinating organization, initially including 18 African countries, but later increasing to 25 with three more currently applying for membership.

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3/6

- IITA did research on maize and cowpeas with researchers working both in Ibadan, Nigeria and Kamboinse, Upper Volta. Considerable progress was made in developing improved cowpea varieties. In terms of project objectives the maize breeding program was less successful. IITA concentrated upon breeding and selecting for varieties which do well under moderate levels of fertility (70-40-30 kg/ha), and soil management, rather than under the low-input conditions of small farmers in the project area. Varieties developed by IITA yield well under "good conditions," but generally have not done as well as local varieties under the stressful conditions found in farmers fields.

overly negative

agronomy?
entomology?

why!

- ICRISAT had responsibility for research in sorghum and millet. The project Paper included groundnuts, an ICRISAT-mandated crop, but research in groundnuts was never included in their contract. A three man sorghum/millet research team was stationed at the Nigerian International ^{Institute} Agricultural Research Center (IARC) at Samaru, Nigeria. One person, a soil and water management scientist, was

IAR

Burkina Faso

stationed at Kamboinse, ~~Upper Volta~~. A regional sorghum/millet trials coordinator to work in eastern and southern Africa was added to the ICRISAT/SAFGRAD team in September 1982.

- The Farming Systems Unit provided under a contract with Purdue University, after an ineffective beginning, altered course and provided some useful information on the national level for Upper Volta (Burkina Faso). Aside from development of FSR methodology, the research has had little impact on a regional basis.

- Five ACPOs are currently located in member countries (Mali, Senegal, Togo, Cameroon, and Upper Volta). They provide linkage between research and extension. All operated somewhat differently, but are generally involved in on-farm research trials and work with both national research and extension programs. ^{TWO} Three ACPOs are expatriates and two are local nationals. The Togo ACPO is financed by French aid; the other four by AID. The work of the ACPOs in general is one of the strong aspects of the project. [As of April 1986, only ^{four} two ACPOs remain (Togo and Mali).]

no

*millet is
his ed
about 771*

*↓
Cameroon
Burkina*

- SAFGRAD also successfully organized and coordinated the following:

- ¹⁶Five workshops attended by approximately ⁹⁶⁰120 African scientists to exchange ideas and information and plan variety trials;
- Monitoring tours, small groups 6-8 scientists from neighboring countries, to conduct peer review of research and encourage professional excellence;
- A newsletter to cooperators in the SAFGRAD network to keep them abreast of project activities;
- Long-term training to ²⁶21 research scientists and short-term training for ⁷⁰70; ^{over 100}

no.

Perhaps the most fundamental issue raised by the 1984 evaluation team was a need for recognition by AID of the need for developing an institution within OAU/STRC to: (1) establish broad policy guidelines for research activities common within the region, (2) seek necessary funding from international donors, (3) organize and/or finance conferences and workshops that will develop professionalism and camaraderie among professional colleagues in both extension and research and (4) disseminate technical information among

member countries. The evaluation concluded that SAFGRAD does have a unique role -- it needs to be carefully designed and provided with the resources necessary to do the job.

4. Alternative Approaches to Project Design

Five alternatives were considered:

- No Project Option. Clearly the first option is to cut-off assistance to SAFGRAD. While this is an option that every design team for a long-term activity must consider, the team recommended against such choice, not because of any overwhelming success attributable to SAFGRAD I, but rather in response to the needs of SAFGRAD countries and the potential impact of a more focused SAFGRAD mechanism over the long-term. The judgement was that a serious vacuum would be created which would be a limiting factor in the development of African semi-arid agricultural production potential.

- Extension of the Existing Project. A one year extension would allow time to resolve certain preparatory concerns, but was not retained because some critical transition elements could not be fully resolved within this time frame. Specific concerns were nationalization of

leadership in the SAFGRAD coordination process; shifting of accent to networking; resolution of siting; and improvement of SCO operational performance.

- New Two-year Project. This alternative would allow major transition actions to be accomplished before initiating a long-term financial commitment. However, it was felt that a clear indication of continued and sustained support for the SAFGRAD coordination role was essential to achieve the fundamental type of transition needed.

- Transition to Multi-Donor Support. This four-year alternative would provide time to complete all the transition steps leading to a SAFGRAD III project with the aim of achieving multi-donor support as well as transferring the core support of the SCO function to other donors. While perhaps desirable at a future date, this alternative was considered too ambitious and potentially injurious to gains already made under SAFGRAD I. Moreover, such an alternative assumes future commitments beyond the design mandate.

- Phased Project. This five-year alternative calls for an evaluation at the end of the second year and release of a second tranche dependent on accomplishment of the essential transition elements. This option was selected because it

provides incentive for the transition with specification of conditions for continued AID support.

5. A Transition to the Future: Project Rationale

In order to increase agricultural productivity within the SAFGRAD zone, farmers will need improved technological packages and related support services. The project emerges from the basic premise that research results emanating from the IARCs and NARSS have relevance to other countries whose major staple foods are dominated by semi-arid crops. Specifically, the SAFGRAD mechanism is intended to help participant countries develop and strengthen the capabilities of their scientists and institutions to conduct agricultural research and through networking to share the research findings from all appropriate sources.

In the years ahead, it may be difficult to sustain current levels of financial support for agricultural research in the light of other competing priorities and potential decreases in donor support. This amplifies the importance of making research more cost-effective and relevant to national priorities by encouraging national research leaders to direct and participate in commodity research networks. This, in turn, will enable national programs to have a more direct

impact on the research agenda of the IARCs as well as their own NARSSs. Moreover, the development of collaborative commodity research networks will facilitate the development of national research systems that are practical, cost-effective, and promote cooperation among African researchers.

The second phase continues the long-term effort whose ultimate impact may not be fully realized for two to three decades. The design of SAFGRAD II is based on more focused and streamlined functions, a reduction of project components, a simplified policy forum and a phased process to bring NARSSs to the forefront in direction of the SAFGRAD process. The project is phased, with the first two years serving as a transition period that will result in:

- a shift in primary emphasis from resident research to collaborative research networking;
- creation of a simplified oversight structure with policy determination in the hands of national scientists and administrators committed to SAFGRAD objectives;
- completion of structural and staff adjustments at the SCO focused on specific service functions and streamlined management and;

- formal agreements with the Government of Burkina Faso that will assure smooth operations for resident IARC scientists and SCO staff.

The elements proposed in this project are fully consistent with AID's "Plan for Supporting Agricultural Research and Faculties of Agriculture in Africa". The project provides avenues whereby the Collaborative Research Support Programs (CRSP#s) and directly-managed centrally funded projects can play broader roles in the strengthening of national and international research as well as increasing the effectiveness of scarce research resources.

Following on the Bonn Economic Summit in May 1985, a multi-donor effort (including AID), the Special Program for African Agricultural Research (SPAAR) is being mounted to coordinate donor support for research to help African countries improve their agricultural performance. In addition, under the Cooperation for Development in Africa (CDA), bilateral donors, including the US, are endeavoring to improve coordination of donor support to agricultural research. This project is fully consistent with and supportive of these efforts.

B. The Project

1. Project Description

The project assists the Semi-Arid Food Grains Research and Development (SAFGRAD) program sponsored by the Organization of African Unity, Scientific, Technical and Research Commission (OAU/STRC) to enhance the capabilities of national scientists and institutions to conduct agricultural research. The project provides for a network mechanism to share the research findings of participating countries through interaction of the agricultural commodity researchers. This project provides support for a second 5 year phase of a 20 to 25 year program. Moreover, the project is part of a broader multi-donor financed program. Although AID's assistance is supportive of the overall program, its success is not dependent upon other donor support which is largely unpredictable at this particular time. SAFGRAD II emphasizes the strengthening of agricultural commodity research networks, concentrating on linkages within and among collaborating research systems to promote the development and transfer of new production technologies.

The priority components of the project are:

- Research networks for sorghum, millet, maize and cowpeas;

- Resident commodity research (for two years) in the above crops;
- A SAFGRAD Coordinating Office (SCO) and;
- On-farm testing for two years.

The AID project will concentrate its resources during the first 2 years on networking, resident agricultural research, the SCO, and on-farm testing. During the last 3 years, resources will be focused on networking and the SCO.

Particular attention will be given to the concentration of resources to develop a viable information section, provision for adequate travel by the International Coordinator, Research Director, and Network Liaison Officer, and to support workshops for the NARS directors to review policy and resource allocation matters.

2. Goal and Purpose

The goal of SAFGRAD II is to increase the productivity and production of maize, sorghum, millet, and cowpeas among small scale producers in the SAFGRAD member and cooperating countries.

The purpose is to increase the efficiency and effectiveness of agricultural research on identified staple food crops in the SAFGRAD region by:

- strengthening commodity specific research networks to plan, broaden their base of support and make productive use of resources;
- strengthening the service capacity of the OAU/STRC/SCO to facilitate the NARSS' participation in networking and obtain internal and external support for national agricultural research programs to accomplish this purpose.

3. Inputs, Outputs and Indicators of Performance

Project inputs will include support for the following:

- networking -- provision for network coordinators and support staff; means to conduct network meetings and monitoring visits; support for circulating newsletters and encouraging research scientists to prepare and circulate research findings and; training of NARS staff in networking and related subjects;
- resident crop research -- salaries and allowances for researchers, support staff, and operating expenses for two years;

- SCO -- recurrent cost support for salaries and related benefits; technical assistance to improve internal operations; and means to increase service capability (travel funds, publications, and other carefully targeted purposes);

- on-farm testing -- salaries and support for ACPOs in Mali and Burkina Faso for two years and support to evaluate the ACPO experience;

- project evaluation -- two major evaluations are contemplated. The first, at the end of two years, will evaluate whether the SAFGRAD process is bearing fruit, whether the transition steps in SCO are being accomplished and whether the four networks are functioning according to established principles of successful organization and operation (see II.B.4.a.). The second, at the end of the fourth year or early fifth year, will assess results and provide the basis for judging whether to prepare a SAFGRAD III. Other, topic specific evaluations may be conducted as needs arise.

- project management -- project funds will be used to finance contract support for project management (see section II.B.).

Project outputs and indicators of performance will include the following:

- effectively operating collaborative research networks -- West Africa sorghum, East Africa sorghum and millet, and maize and cowpeas starting in West and Central Africa -- in which:
 - research for each network is reported and reviewed annually;
 - future research activities are identified, planned, and allocated among participants annually, e.g., uniform variety trials;
 - varieties and agronomic practices are released in each relevant commodity crop by participating NARSS based upon network testing;
 - ICRISAT and IITA provide effective coordination and responsive technical back stopping;
 - advisory committees, composed of active researchers from the NARSS and IARCs, meet at least biannually to give broad technical direction.
 - network priorities are reflected in NARS decision making.

- effectively functioning Oversight Committee, composed of prominent African national researchers, administrators and/or university faculty, meets at least annually to review progress and determine broad policies for SAFGRAD;
- effectively functioning service oriented SCO, staffed by competent persons, that implements policies established by the Oversight Committee; exercises oversight on networking; analyzes and plans for the future and; facilitates information exchange and other support, as identified previously;
- on-farm testing methodology is evaluated and, if favorably reviewed, steps are taken to implement and integrate a program of benefit in the NARSS.
- clarification of opportunities to which donors might respond at the regional and national levels.

Means of verification will include the following:

- review of government statistics which measure change in adaption of improved technologies, yields and production;
- review of written reports from the respective networks and SCO which address the EOP status and outputs respectively identified for each;

- meetings convened by Oversight Committee and advisory committees; types and level of involvement in annual workshops and monitoring tours in support of the networks

4. Project Components

To set the stage for describing project components, it is important to understand this project complements other AID funding mechanisms that provide support in three major and closely related areas of agricultural research:

- AID provides up to 25 percent of core funding to the Consultative Group for International Agriculture Research in support of IARCs (40 percent of core operating budgets of IARCs is directed to Africa and 37.5 percent of IARC staff are located in Africa);
- USAID missions provide support to NARSS in 19 of the 26 member and 4 cooperating SAFGRAD countries; 12 of these countries receive significant support contributing in building effective research systems.
- AID funded CRSPs and directly managed centrally funded projects either carry out research or provide support to research in selected areas.

This project supports and complements these centrally funded and mission funded efforts and is composed of the following components:

a. Networking

Independent, uncoordinated country by country approaches to agricultural research and the accompanying development of much needed research personnel and institutions by themselves, are costly and not likely to succeed in significantly raising agricultural production in the SAFGRAD countries. It is possible, however, to assemble a critical mass of scientists by collectively joining scientific activities in the various countries and focusing their work on specific problems, i.e. networking. Problems that transcend national borders may be addressed more effectively by institutions that are interregional or global in scope. These institutions, in turn, can provide support to national programs in specific problem areas.

The development of strong networks can facilitate planning of strategic components of research to solve problems, foster horizontal and vertical exchange of scientific knowledge, and lead to cost effectiveness in research and

more rapid and extensive application of improved technologies. This approach was a major contributor to the success of the "Green Revolution" in Asia.

The same principles of networking that succeeded in Asia are being initiated for important commodities in the SAFGRAD countries. The IARCs have taken an initial role in facilitating the networks by providing technical backstopping and training as well as performing research requiring highly trained scientists and sophisticated equipment and facilities. Network management can be designed in such a way that researchers in national programs play an important role in network planning, monitoring and coordination. Over time, national agricultural research systems will assume leadership of the scientific networks, with international and regional centers providing a critical support role.

Certain principles of successful organization and operation of research networks are necessary in the SAFGRAD region to insure success. The following principles must be adhered to during implementation of the project:

- a common problem must be evident -- several countries within SAFGRAD eco-geographical regions must share interest in research on a specific commodity or problem.

- o technical leadership is essential -- some entity, preferably an apolitical one such as an IARC, with access to funds for technical purposes must give leadership to the initial organizational effort.

- o scientists and research administrators in the SAFGRAD region must be interested -- key scientists and research administrators must respond positively to coordination efforts;

- o participants in SAFGRAD networks must work together collaboratively;

- o a continuing regional coordinating body is essential -- participants must establish a standing advisory committee to provide overall technical leadership and direction for the network;

- o participants of SAFGRAD countries must take specific leadership responsibilities -- participants must agree that leadership for specific components of the work will be identified by mutual agreement and that technical assistance, research, and training (from any source) will be considered a part of the network;

- scientists must work together on specific problems -- scientists from within the SAFGRAD region must meet periodically to:
 - identify objectives to be achieved;
 - identify technical problems related to the commodity or problem and place them in priority order;
 - identify specific topics to be studied in all countries and other activities to be undertaken by only one or two countries on a SAFGRAD regional basis and;
 - decide who will take the lead and which SAFGRAD countries will participate in developing and executing each regional effort.

- participating SAFGRAD countries must be willing to fund that research carried on in their respective countries which has primarily national impact.

- good communication among participants is essential -- meetings of the regional advisory committees and participating scientists should be frequent (at least once each year). Such meetings are essential to make

decisions concerning operation of the network, activities to be undertaken, budget allocations, assignments of leadership for specific activities and developing positive working relationships.

This project will support collaborative agricultural research networks, following these principles, on sorghum in West Africa, sorghum and millet in East Africa, and maize and cowpeas starting in West and Central Africa. In addition, the sorghum and millet network of Southern Africa will be closely linked to the networks of West and East Africa through jointly planned monitoring tours and workshops. The joint meetings will be sponsored by the advisory committees, ^{IITA} ICRISAT, the Oversight Committee, and the SCO.

b. Resident Commodity Research

The SAFGRAD I project provided resources to initiate a major resident commodity research program in Burkina Faso by IITA and ICRISAT. During this second-phase project, a redefined role for SAFGRAD will involve phasing out AID support for resident research activities; assumption of responsibility for support of research by the core budgets of the IARCs; and targeting of AID project resources on

network coordination. AID and other donors are increasingly improving the production of new technologies to provide the drive for network interaction with bilateral and multi-lateral (IBRD, IFAD) support and IARCs are contributing through their core programs.

This project will support resident commodity research on sorghum, millet, maize and cowpeas for two years. The resident research work under the project will primarily take place in Burkina Faso. This resident research will be supported by a regional research program that undertakes the implementation of region-wide trials, i.e., uniform variety trials in maize, sorghum, millet and cowpeas. The outputs achieved from plant breeding and agronomic practices in the four project supported crops during the past seven years has built a sound base for increasing new technologies and knowledge. For example, several cowpea lines are now under on-farm testing in several countries of the region. It is reasonable to believe that some of these cowpea materials will prove acceptable to farmers in the next couple of crop years. As these materials become farmer-acceptable, it will be necessary for the nationally sponsored technology transfer institutions to disseminate the seeds on a wide scale. On-farm testing is also being carried out on sorghum, maize and millet plant materials; it is reasonable to believe that some of these varietal lines will be acceptable to farmers.

Thus, the resident research in the areas of plant breeding and agronomic practices will achieve two objectives: (1) national agricultural research scientists and institutions will be strengthened and; (2) new technologies will be developed in areas of new plant varieties and cultural practices.

c. SAFGRAD Coordination Office (SCO)

Scientists, acting as researchers, by themselves face several difficulties in carrying out their professional tasks. In particular, they need political support which transcends national boundaries if they are to achieve the full potential of networking activities. The project supports the SAFGRAD Coordination Office (SCO) in Ouagadougou operating under OAU/STRC to carry out the following roles:

- work with NARSS and associated networks to identify broad research policies for sorghum, millet, cowpeas and maize;
- serve as observers on commodity research network advisory committees (composed of national scientists) for the purpose of promoting achievement of SAFGRAD policies and objectives;

- help overcome political problems that affect cooperation between countries and international programs;
- help overcome operational problems which limit effectiveness of networks by encouraging NARSSs and other sources to allocate adequate funding for conducting trials;
- facilitate movement of scientists, germ plasm and research supplies among countries, including support for network meetings;
- facilitate information exchange through frequent newsletters, scientific reports, etc., including reports of successes to national governments and NARSSs;
- assist NARSSs to broaden the base of research support, including assistance from donors, and to make more productive use of available resources.

The SCO will operate under the direction of an Oversight Committee composed of prominent African agriculturalists (Annex J.) which will have responsibilities to:

- review work plans and provide guidance on how SAFGRAD could provide effective technical services to national research programs of member countries;

- facilitate the realization of food grain and related networks that could be supported and administered by scientists of participating countries;
- provide guidance in management and policy issues of SAFGRAD; and
- review annual technical progress of SAFGRAD activities for interaction with the Sponsoring Group (and later with donors in observer capacities) to ensure further financial support.

d. On-Farm Testing

Improved technologies only pay-off when they are adopted by farmers. In order to achieve this impact, research must be tested under farm conditions. In principle, on-farm research should be a function of NARSSs. However, not all NARSSs have developed this linkage successfully nor have methodologies been developed to provide adequate assurance the new technologies will be better than traditional technologies under similar conditions.

The Accelerated Crop Production Officers (ACPO) program serves as a technology transfer mechanism between the

national research institution and the national extension institution. Its program activities are to conduct, monitor and report on the testing of relevant technologies carried out at the on-farm level. The findings of the ACPO program are reported back to the scientists conducting crop research and extension workers as well as to farmers.

The ACPO program was evaluated positively during SAFGRAD I. However, there has been considerable variation in methodology between locations, and successful performance by ACPOs appears to be associated more with individuals than with the system. All agree to a need for bridging the gap between research and the farmers. The project will assist in an orderly transition to allow time to identify next steps and, if follow-up is indicated, permit the SCO to secure other donors support. This project will support ACPOs in Mali and Burkina Faso for two years and support an evaluation and project preparation to achieve transition.

e. Donor Support

Support from other donors has not been made a condition nor has a specific target been set because this project must be justifiable without such contingency. However, broadening the base of donor support and sustaining or expanding the

assistance level for national agricultural research primarily, then for SAFGRAD activities, is essential. Over time, it is hoped that by so doing, a firmer basis will be found to generate core support for a streamlined SCO operation.

The project will address donor support in two ways: (1) by clarifying tasks for which donor assistance may be attracted, where the need and nature are apparent, e.g., support for on-farm demonstrations, crop research, and research or networking on technical themes (soil and water management, use of diverse cropping practices, inputs, etc.); and (2) by improving lines of communication with donors, directly, through OAU/STRC/Lagos and SCO, as well as by assisting the IARCs in their bilateral relationships. The evaluation at the end of the second year will look at progress in this area.

IFAD is currently the only other donor providing major funding to SAFGRAD (the French are supporting one ACPO). The design team has communicated the proposed project plan to IFAD and expressed the desire that IFAD consider funding on-farm research (ACPOs) if the proposed evaluation proves positive. The Special Program on African Agricultural Research (SPAAR) provides one forum to seek additional support for research activities.

5. Roles and Responsibilities of OAU/STRC/Lagos, the Oversight Committee, the SCO, and the Networks

The project is predicated on a mutually supporting, closely linked division of responsibility of all parties, but particularly between the SCO and the networks.

a. SAFGRAD Coordination Office (SCO)

The SCO is primarily a service organization with responsibility for:

- implementing the broad policies established by the Oversight Committee concerning the technical dimensions of the networks operations;
- supporting network operations in specific ways that can be identified in advance (as discussed in I.B.4.c.);
- supporting network operations in more general ways that often cannot be identified far in advance but must be pursued, as they arise such as, resolving political problems that affect cooperation between countries and international programs and identifying needs and arranging opportunities to improve trained manpower.

b. Networks

Networking is primarily a technical process in which management is carried out under the direction of and by, professionals trained in and actively involved in research. The advisory committees of the respective networks have responsibility to set agendas for annual meetings, monitoring tours and commodity oriented problem specific workshops. The network coordinators will purchase tickets and make arrangements, as necessary, to support planning, implementing, analyzing and reporting on trials.

Initially the IARCs will provide network coordinators. The advisory committees will be composed of practicing researchers primarily from the NARSSs. The coordinator role will eventually shift to the NARSSs although not until such time as it can be done without reducing the capacity of the NARSSs to carry out research.

Implementation of the four commodity networks of this project initially will be the primary responsibility of the International Institute of Tropical Agriculture (IITA) and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

- International Institute for Tropical Agriculture (IITA). IITA commenced its activities with SAFGRAD in 1977. Under the project, IITA will conduct maize and cowpea research at the Kamboinse experiment station and six other smaller research stations located throughout Burkina Faso. The maize and cowpea research will be focused primarily on breeding, agronomy and entomology. AID support for this research will be phased out at the end of the second year of project operations. A minor amount of agronomic research and, if needed, attention to trial seed multiplication will be carried out by the network coordinators during the last three years of the project.

7
In addition to the research conducted in Burkina Faso, IITA will undertake regional research activities in maize and cowpea crops in about 10 to 12 SAFGRAD member countries. Also, IITA and the SAFGRAD Coordination Office will undertake the formation of networks for each crop, commencing with the organizational development work in 1986. Organization of the two networks will be the responsibility of IITA. Coordinators for the maize and cowpea networks will be provided by IITA with funds allocated in this project. Each network will establish an advisory committee composed of African scientists to help direct and guide the operations of the network.

- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) ICRISAT began its cooperative research program in the Sudanian-Sahelian zone of West Africa in 1975. Under this second phase of the project, ICRISAT will continue to carry out agronomic research during the first two years of the project, in part under AID funding, on sorghum in West and East Africa. The agronomic research in West Africa will be carried out at the Kamboinse Research Station located in Burkina Faso. A sorghum network has already been established for a large number of countries in West Africa (10-12). ICRISAT has been providing leadership, along with the SCO, in organizing the West Africa Sorghum Network. During the life of this project, ICRISAT will provide a full time coordinator to assist the African scientist-led advisory committee to operate the network.

no!
17.

The East Africa Sorghum and Millet network has been operational for about ~~three~~^{four} years. The Coordinator for this network has been and will continue to be provided by ICRISAT. This network is composed of 6 to 8 countries, with the advisory committee of African scientists to provide direction and guidance to the network. This project will provide support to the network throughout the next five years.

no!

c. Relationships among the respective parties

Each of the main parties has specific roles:

- The OAU/STRC/Lagos has a political role in facilitating network operation and securing broader donor support for networks and NARSSs;
- The Oversight Committee establishes broad policies and objectives for SAFGRAD;
- The networks are implemented by researchers of the NARSSs and IARCs with coordination by the IARCs; and
- The SCO plays a service role in facilitating successful performance, consistent with SAFGRAD policies and objectives, by the networks and NARSSs.

To carry out this division of responsibility between the respective parties to achieve mutually desired objectives requires that:

- Each party respect the roles set out and;
- Each party take extra efforts to assure that the other parties are fully informed about activities.

Plenary Sessions ?

network advisory committees?

Thus trip reports and correspondence should be exchanged among the networks and SCO. The SCO should attend as observers at network advisory committee meetings and attend annual workshops and monitoring tours. Similarly, the network coordinators should attend as observers at the Oversight Committee meetings. Observers would be available for questions and comment on matters under discussion.

same individuals?

The NARSS are represented on both the Oversight Committee of the SCO and the advisory committees of the networks and serve as a bridge between the two.

Regular meetings of the network coordinators and the SCO would further improve linkages. Coordinators might meet with the SCO semiannually to coordinate schedules for advisory committee meetings, annual workshops, monitoring tours, etc. in order to facilitate SCO scheduling so it can attend all these meetings.

6. Relationship between SAFGRAD and INSAH

It appears that specific roles and understandings are emerging between SAFGRAD and INSAH. For example, under the SAFGRAD II project, the commodity network advisory committees composed of NARS scientists will be responsible for planning the uniform

variety trials and monitoring and evaluating network activities. The forthcoming INSAH PID review should provide further clarification; at least the stage should be set for making refinements during the design of the INSAH project if AID decides to support INSAH.

7. Budget

A total of \$15 million will be required to finance AID supported activities of SAFGRAD II. These funds will be obligated incrementally over the life of the project, beginning with an initial obligation of \$3.4 million in FY1986. A minimum obligation of \$3.4 million will be required in FY1987, \$3.0 million each in FY1988 and FY1989 and \$2.2 million in FY1990. These levels are based on the requirement to incur approximately fifty percent of total expenditures during the first two years of the project. Front end loading of the project is essential to effective implementation and is a function of the following strategic design decisions:

- support for resident research by the IARCs will be limited to the first two years of the project after which AID funding of IARC involvement in SAFGRAD will be limited to network coordination;

SAFGRAD II SUMMARY BUDGET

COMPONENT	Year 1	Year 2	Year 3	Year 4	Year 5	Total
I. SAFGRAD COORDINATING OFFICE (SCO)						
A. Salaries and Allowances	194,100	218,000	228,800	240,400	252,400	1,133,700
B. Technical Assistance	60,000	60,000	30,000	30,000	28,400	208,400
C. Operations	209,500	184,800	237,300	205,300	219,000	1,055,900
D. Capital	56,200	25,000	5,000	16,400	5,000	107,600
E. Accelerated Crop Product. Program	390,000	330,000	-	-	-	720,000
Sub-Totals	909,800	817,800	501,100	492,100	504,800	3,225,600
II. WEST AFRICA SORGHUM COLLABORATIVE RESEARCH NETWORK (ICRISAT)						
A. Salaries and Allowances	222,800	233,940	135,170	141,930	149,030	882,870
B. Operations	142,000	170,100	121,480	147,580	134,100	715,260
C. Overhead	33,420	35,090	20,280	21,290	22,350	132,430
D. Capital	30,500	48,500	5,000	-	-	84,000
Sub-Totals	428,720	487,630	281,930	310,800	305,480	1,814,560
III. EAST AFRICA SORGHUM/MILLET COLLABORATIVE RESEARCH NETWORK (ICRISAT)						
A. Salaries and Allowances	210,800	221,340	121,940	128,040	134,440	816,560
B. Operations	119,000	136,210	97,590	113,290	109,380	575,470
C. Overhead	31,620	33,200	18,290	19,210	20,170	122,490
D. Capital	59,000	-	-	16,000	-	75,000
Sub-Totals	420,420	390,750	237,820	276,540	263,990	1,589,520
ICRISAT SUB-TOTALS	849,140	878,380	519,750	587,340	569,470	3,404,080
IV. COMPEA COLLABORATIVE RESEARCH NETWORK (IITA)						
A. Salaries and Allowances	250,240	389,160	142,430	147,500	152,830	1,082,160
B. Operational	242,400	325,850	133,320	137,980	143,000	982,550
C. Overhead	43,740	54,860	20,060	20,010	21,030	159,700
D. Capital	71,000	28,000	5,000	-	-	104,000
Sub-Totals	607,380	797,870	300,810	305,490	316,860	2,328,410
V. MAIZE COLLABORATIVE RESEARCH NETWORK (IITA)						
A. Salaries and Allowances	375,360	389,160	142,430	147,500	152,830	1,207,280
B. Operational	335,600	334,600	145,780	149,120	152,720	1,122,820
C. Overhead	62,100	54,860	20,060	20,025	21,030	178,075
D. Capital	59,000	60,000	5,000	-	-	124,000
Sub-Totals	832,060	843,620	313,270	316,675	326,580	2,632,175
IITA SUB-TOTALS	1,439,440	1,641,490	614,080	622,135	643,440	4,960,585
VI. PROJECT MANAGEMENT AND LONG-TERM TECHNICAL ASSISTANCE						
A. Sr. Agriculture Officer	175,000	175,000	175,000	175,000	175,000	875,000
B. Project Officer	150,000	-	-	-	-	150,000
C. Q&M Advisor	175,000	175,000	-	-	-	350,000
D. ACCOUNTANT	25,000	25,000	25,000	25,000	25,000	125,000
Sub-Totals	525,000	375,000	200,000	200,000	200,000	1,520,000
VII. EVALUATION						
Sub-Totals	-	100,000	-	-	100,000	200,000
VIII. INFLATION FACTOR 6.4%						
Sub-Totals	3,723,380	3,812,670	1,834,930	1,901,575	2,017,710	13,290,265
IX. CONTINGENCY 6.4%						
Sub-Totals	-	-	-	-	-	854,868
TOTAL 1980 COST						
Sub-Totals	-	-	-	-	-	854,868

- AID support for the Accelerated Crop Production Officer Program will be discontinued after the first two years of the project and;
- project technical assistance to facilitate the organizational transition of the SCO will be heavily concentrated during the early years of the project.

It is anticipated that the project will be authorized prior to June 30, 1986 and that the effective date for undertaking authorized activities will be July 1, 1986. In the event project agreements are not negotiated and signed by that date, they will include a provision to allow reimbursement for expenditures which took place between July 1 and the date on which agreements were actually signed. This is essential to avoid a disruption in program activities initiated under SAFGRAD and continued into SAFGRAD II. While first year budget requirements exceed the planned FY1986 obligation, this will not present a problem as initial expenditures for the first year of SAFGRAD II operations will take place during the last quarter of the fiscal year. The obligations schedule thereby provides for forward funding of activities into the following fiscal year.

*not
extend
Phase I?*

8. Issues

a. How will sustainability be addressed?

Sustainability will be advanced in two ways: (a) transfer of leadership to individuals selected from among persons actively associated with NARSS; and (b) broadening the base of assistance for and maintaining continued support for agricultural research.

The former raises two concerns. First, will the NARS leaders accept the authority offered (and what is the incentive for them to do so)? This is the heart of the national commitment sought. The design team concluded that by concentrating on those countries that recognize what they may gain from SAFGRAD and by picking the leaders based on demonstrated interest and talent, there is reasonable prospect for favorable response. The second concern is how the leaders will be picked. This will be through consultation among OAU/STRC and the leaders most active in the networks; the mechanism is described in Annex J.

Broadening the base of donor support for national research likewise has two dimensions: more focus by SCO and OAU/STRC/Lagos on encouraging donor and national government support for agricultural research and better definition of

within their own countries or within SAFGRAD ?

opportunities for donor investment together with a strategy for attracting donor participation. The changes proposed in SAFGRAD II place SCO in a better position to execute these tasks.

- b. Given the service rather than donor orientation proposed for SCO, how will the Secretariat gain legitimacy in the eyes of NARS leaders?

Regional organizations as conduits for donor support appear attractive to national agricultural research systems because they bring the means to finance service activities or immediate needs. The design calls for the SCO to pursue more focused activities with more limited expectations, e.g., the regular newsletter, but activities for which it may develop continuing NARS acceptance. This, too, is an element of risk; one about which the design team feels reasonably comfortable.

- c. How will problems of operating in Burkina Faso be addressed?

Two types of problems are noted: (a) physical facilities and research conditions at Kamboinse research station; and (b) problems with the Burkina Government as regards

supervision of Burkinabe personnel. The former is a physical constraint, but does not go to the heart of SAFGRAD II, both because it may be alleviated and because AID will withdraw gradually from funding crop research.

how?

- least
a problem
whoever
looks up
search funding
∴ no prob.?

The latter affects work of the IARCs and may be a special problem in reorganization of SCO. There will be need to negotiate the staff reorganization with the GOBF at the highest level; even so, careful monitoring will be essential. The SCO plans to recruit a senior Burkinabe Director of Administration. Relocation is not considered at this time.

no
main
prob.
will
remain
at
Kambin

The design team has described a process of change as it thinks it should come about. The process of change, admittedly, is difficult. The OAU/STRC management needs to make a decision about whether it accepts our assessment and is willing to undertake the risk in view of alternative use of AID funds.

II. IMPLEMENTATION

A. Implementation Plan/Schedule

The project agreement to implement this project will be negotiated between USAID/Burkina Faso and the OAU/STRC office

headquartered in Lagos, Nigeria. The OAU/STRC/Coordinating^{on} Office located in Ouagadougou will serve as the facilitator for service activities required to increase the effectiveness and efficiency of the national agricultural research systems in SAFGRAD member countries. The SCO will focus its efforts on negotiating with governments, securing donor support and related matters. To help the OAU/STRC office play its role, a Sponsoring Group and an Oversight Committee will be established to provide guidance in the broad areas of government policies affecting agricultural research and suggest program areas for other donor support. The Sponsoring Group and Oversight Committee each will be scheduled to meet once a year, but can meet more frequently should it be necessary. It should be noted, that the Sponsoring Group will be phased out at the end of the second year of the project implementation.

The following schedule lists critical project actions necessary for the accomplishments of project purpose and successful implementation of the proposed SAFGRAD II project:

<u>Date</u>	<u>Activity</u>	<u>Action</u>
June 1986	Project Paper Approved	AID/W
June 1986	Project Paper Authorization Cable	AID/W
June 1986	Grant Agreements signed between USAID/B and (1) OAU/STRC/Lagos (2) IITA/Ibadan, (3) ICRISAT/Hyderabad + ACPOS + SCO + PASTA	USAID/B & REDSO/WCA

?	July 1986	Initial Conditions Precedent Met	OAU/STRC
	July 1986	Recruitment initiated for project management team and long-term technical assistance	USAID/B & AID/W
	July 86	E. Africa 5+m Workshop	
	August 1986	Recruitment initiated for SCO professional staff positions	SCO
	September 1986	Research monitoring tours	IITA & ICRISAT
	September 1986	Advisory Committee meetings for sorghum/millet networks	ICRISAT
Sept?	October 1986	ACPO Workshop	SCO
	December 1986	NARS directors meet and Oversight Committee selected	SCO
	January 1987	Oversight Committee meets	SCO
how?	February 1987	Advisory Committees organized for cowpea and maize networks	IITA
and get to organize for E. Africa	February 1987	Advisory Committees for sorghum and millet meet	ICRISAT
	March 1987	Short-term TA in office skills	SCO
	June 1987	First year conditions precedent are met	OAU/STRC
	July/August 1987	Annual workshops	IITA & ICRISAT
		? (or) monitoring tours	
?	Aug/Sept 1987	Problem-oriented workshops	IITA & ICRISAT

only all in Feb

January 1988	Oversight Committee meets	SCO
<i>el</i> ?, February 1988	Advisory Committees meet	IITA & ICRISAT
May 1988	Midterm evaluation	USAID/B
June 1988	All staff adjustments within SCO completed	SCO
June 1988	AID support for ACPOs in Burkina Faso and Mali phased out	USAID/B
July 1988	AID support for resident research phased out with staff resources of IARCs devoted to networking	IITA & ICRISAT
<i>el</i> ? July/August <i>Sept</i> 1988	Annual workshops <u>or</u> monitoring tours	IITA & ICRISAT
? Aug/Sept 1988	Problem-oriented workshops	IITA & ICRISAT
December 1988	NARS directors meet	SCO
January 1989	Oversight Committee meets	SCO
<i>el</i> ? February 1989	Advisory Committees meet	IITA & ICRISAT
July/Aug <i>Sept</i> 1989	Annual workshops <u>or</u> monitoring tours	IITA & ICRISAT
? Aug/Sept 1989	Problem-oriented workshops	IITA & ICRISAT
January 1990	Oversight Committee meets	SCO
January 1990	Final evaluation	USAID/B
<i>el</i> ? February 1990	Advisory Committees meet	IITA & ICRISAT
March 1990	PID team recruited for SAFGRAD III	AID

July/Aug 1990	Annual workshops of monitoring tours	IITA & ICRISAT
Aug/Sept 1990	Problem-oriented workshops	IITA & ICRISAT
October 1990	PP team recruited for SAFGRAD III	AID
January 1991	Oversight Committee meets	SCO
February 1991	Advisory Committees meet	IITA & ICRISAT
June 1991	Project moves into third phase	USAID/B

B. Project Management

Experience with a bifurcated project management structure in SAFGRAD I provides a strong incentive to assure clear, unified project management by AID in SAFGRAD II. Full responsibility will be with USAID/Burkina. The Mission has agreed to this arrangement. It will call upon REDSO/WCA as needed, for assistance in such areas as legal and contracting services. The project will fund a senior agricultural project manager and an accountant to assist USAID/Burkina and its Office of Agriculture in carrying out its responsibility.

X
Project
Mgmt.
1991

The Senior Agricultural Project Manager must be an experienced agricultural research administrator with specific skills in networking. He will monitor the implementation of all project components and activities and be the working link between

USAID/Burkina and OAU/STRC. He will consult regularly with commodity network coordinators and key national scientists, a task which will require frequent travel. This person may be provided under a contract or a PASA arrangement. A profile of this position is given in Annex G.

1 { In view of the expanded USAID/B coordinating and liason role envisioned under the increased responsibility to be delegated to the SCO, especially in the area of financial monitoring and tracking of project financial progress, it is deemed necessary to retain one local accountant under a personal services contract to maintain the financial integrity of the project at USAID/B. This contractor will be directly responsible to the USAID Office of Financial Management and will act as the Mission financial expert in coordinating any financial detail with the SCO, including such voucher review as deemed warranted by USAID, budgeting, review of project implementation letters relating to budget revisions, liason with the SCO in applying AID financial regulations as deemed appropriate, and maintenance of USAID financial records and files in relation of the overall project as well as preparation of such internal and external financial reports as warranted.

It is expected that this position will encompass a close and direct liason with the USAID Senior Agricultural Project Manager and the Operations and Management Specialist relative to

financial status, advice, and guidance thereto and with OAU/STRC/Lagos to keep them advised of current project financial status to the extent required.

C. Technical Assistance

Technical assistance to the SCO will be concentrated during the two-year transition period at the beginning of SAFGRAD II to enable the office to refocus its mandate and operations as a service oriented organization. An Organization and Management Specialist will be recruited for a two year assignment with responsibilities for:

*will SAFGRAD
develops
documentation
center*

- building an information service unit capable of producing and disseminating professional publications, regular newsletters and reports in a timely fashion;
- structuring a delegation within the office which frees SAFGRAD management to accomplish its professional tasks;
- streamlining staff functions to increase efficiency;
- *Planning training activities*
- strategically planning means of facilitating the flow of people, material and information between national programs and of leveraging enhanced resources into the national programs.

Given ~~provision~~ the Organization and Management Specialist is given in Annex H.

*Is meeting on research
networking to facilitate
... of accumulation of seeds considered?*

The project also provides for 12 person months of short term technical assistance to be carried out in a series of one to two month TDY assignments. This assistance is to be focused on specific skill development needs within the staff and includes such areas as proficiency in use of the computer/word processing system to be provided, editing skills, office systems and other areas identified to increase productivity of the core staff.

D. Procurement Plan

delegation
refer to
be modified
USAID/Burkina Faso will make a grant to the OAU/STRC/Lagos. The OAU/STRC/Lagos will delegate to OAU/STRC/SAFGRAD ^{ion} ~~Coordinating~~ Office (SCO) located in Ouagadougou to carry out implementation such as local procurement and local and international recruitment of SCO staff. AID will exercise oversight in these procurement actions.

Sub-grants under the overall OAU/STRC grant will be handled by USAID/Burkina Faso. There will be two separate sub-grants let under the project to (1) the International Institute for Tropical Agricultural and (2) the International Crops Research Institute for the Semi-Arid Tropics. These international institutions will procure commodities and services as provided for under their sub-grants.

USAID/Burkina Faso will contract for required professional services, i.e. Senior Agricultural Project Manager, Accountant, and the Operations and Management Specialist. It is proposed that these three positions be contracted through a personnel services contract mode, USDA/PASA, or an 8-A set-aside.

See Annex L. for specific details on procurement.

E. Monitoring/Evaluation

Major responsibility for monitoring of SAFGRAD II will rest with USAID/Burkina for general project management as well as financial management. While the Mission Director will have overall responsibility, the Mission Agricultural Development Officer and the Mission Controller will have operational responsibility for the project. The Senior Agricultural Project Manager will monitor performance of all components of the project (OAU/STRC/Lagos, Oversight Committee, SCO, and networks) with an adequate travel budget to carry out his responsibilities. He will develop a monitoring plan with the SCO which will rely on regular reporting. It is anticipated that the Controller will hire, locally, a qualified Accountant to see that project accounts are managed properly.

↳ whom?

Two evaluations are scheduled during the life of the project, one at the end of the second year and the other at the end of the fourth year or early in the fifth year. It is expected that these evaluations will be done by individuals who are not closely involved in project management. A three-person evaluation team composed of contractors and/or AID direct-hire employees will assess progress toward achievement of project goals and objectives outlined in the project paper for each of the evaluations.

The mid-project evaluation will be a basis for making changes in project direction if deemed necessary at the time. The evaluation will cover such subjects as network performance, institutional performance of OAU/STRC/Lagos and the SCO, progress on institutional transition, and impact and support for SAFGRAD objectives (performance of NARSSs, donor support, etc.). One important decision to be made after this evaluation is the fate of the ACPO program, in particular the on-farm testing aspects of the project. An SCO-sponsored review of the ACPO program is to be undertaken during the first year of the project. The results of this review should be available for the mid-project evaluation team.

The final evaluation near the end of the project will measure project achievements against project objectives and recommend future courses of action that may include a follow-on project.

This should be carried out as soon as possible

Project objectives?

It is clearly anticipated that the development of research networks for the four major food grains will be a long-term effort.

It should be the responsibility of SCO to organize the PC and act as its Secretary

F. Conditions Precedent and Covenants

Desirous of avoiding a hiatus[?] in project activities, funding in the amount anticipated for disbursement over the first 12 months will be available. To avoid excessive recourse to conditions precedent, the grantee will covenant to accomplish some of the necessary actions within the first year:

1. evidence that the reorganization plan for SCO has been approved and initiated; *who approve it?*
2. evidence that there has been delegation from the Executive Secretary, OAU/STRC/Lagos to the SCO Coordinator of the authorities essential to placing responsibility for financial management for SAFGRAD II within the SCO. *should be mess bet in writing!*
3. make best efforts to reach agreement to merge the two accounting systems of the SCO in a manner acceptable to AID and other donors. *Is it not that OAU system is preferable?*

Release of the second tranche, following the evaluation at the end of the second year, will be conditioned by accomplishment of essential elements of transition by the end of the third year, viz.:

1. evidence that the Oversight Committee is functioning as the policy, technical and operational decision making body of SAFGRAD;
2. evidence that the research networks are operational with NARSS representatives assuming an increased leadership role;
How would SAFGRAD ~~could~~ effectively facilitate that?
3. evidence that OAU/STRC/Lagos and IARCs are meeting performance targets as agreed to between USAID/Burkina and OAU/STRC and the IARCs as will be specified in project implementation documents;
4. evidence that the reorganization of the SCO has been completed.

Is the reorganization of SCO - is expected to bring about efficiency?

III. SUMMARY OF ANALYSES

A. Organizational Analysis

The organizational requirements for SAFGRAD II are driven by the need to move into a new phase of this 20 to 25' year effort -- a phase which builds on experience of the past seven years and establishes a solid framework for long-term development into the future. Consequently, the first two years of this project will be devoted to an orderly phaseout of support for activities which are not essential to the core focus of the next phase and a realignment of roles and responsibilities as described earlier in this paper. The transition will result in an inter-linking set of functions with the following organizational responsibilities:

- OAU/STRC/Lagos the grantee with responsibility for facilitating work of all parties at the administrative and political levels;

- OAU/STRC/SCO the locus of interaction among the parties with responsibility to provide critical information and problem solving services;

- IITA and ICRISAT provide staff for organizational development of the networks, including network coordinators and conduct resident research during the first two years of the project;
In funding expected from other sources for research support?
- Oversight Committee the policy body of SAFGRAD made up of eminent research scientists and administrators from member countries;
- National Agricultural Research Systems the source of network members who both set the direction and are primary beneficiaries of output from the networks;
- USAID/Burkina as representative of the grantor, provides technical and project management support.

The organizational analysis consists of two parts: relations among organizations involved in the SAFGRAD process and internal organizational considerations for SCO.

1. Redefining roles and relations among the participating institutions has been based upon the following principles:

- a. NARS leaders will become the policy makers for SAFGRAD management and move into a lead position within the networks;
- b. OAU/STRC, as the African regional umbrella organization, has an important role with specific responsibilities for which performance targets can and should be established;
- c. the SCO can be most effective in a service oriented role that is focused on information exchange and facilitates the work of all parties to SAFGRAD; and

None now?

- d. the IARC's are best positioned to take the initial lead in coordinating network operations;

when

How would the IARCS pass this responsibility to NARS and regional programmes?

2. Internal organizational requirements for the SCO have been defined to be consistent with the following guiding principles:

- a. SCO senior staff should respond to NARS leaders;
- b. a delegation of authority from OAU/STRC/Lagos to the SCO, particularly in financial management (approval of all vouchers) and staffing, is necessary for efficient operations of the SCO;
- c. the leadership of SCO must be relieved of day-to-day administrative and financial tasks so that they can devote

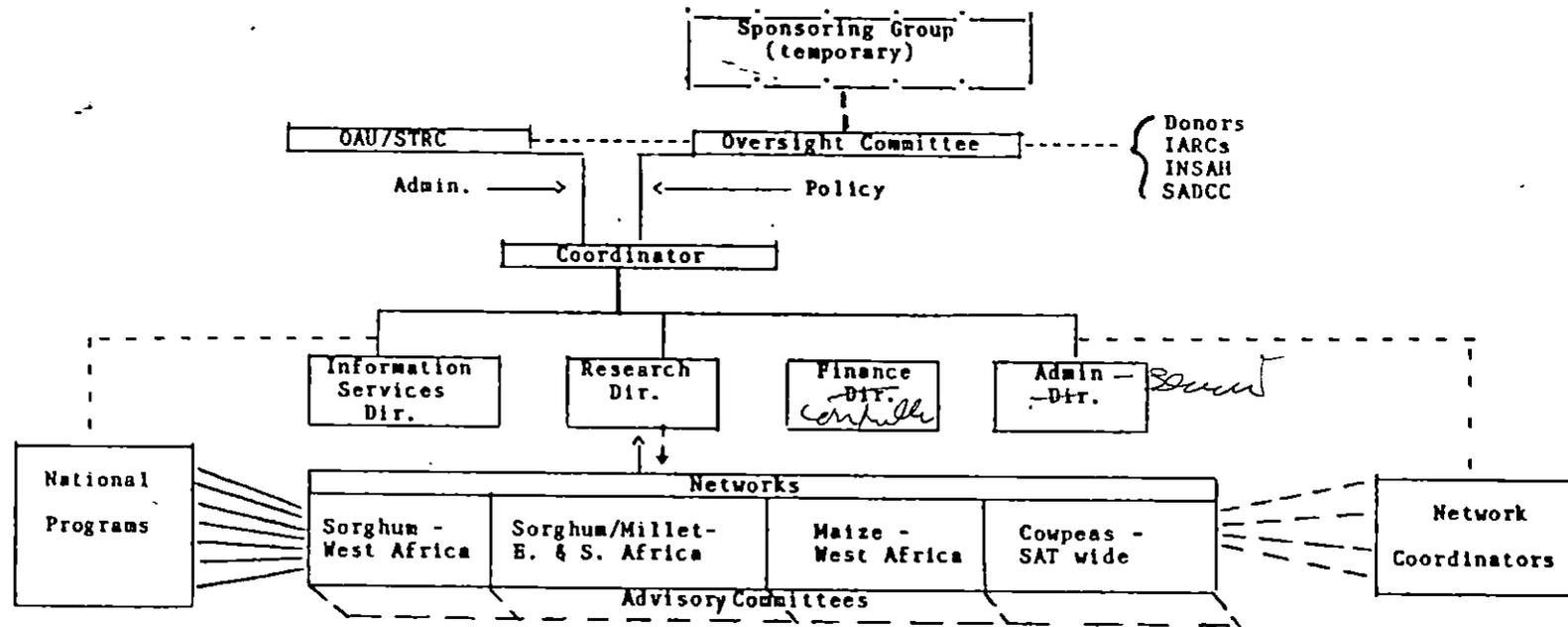
attention to research networking, exchange/feedback and assisting NARSS to obtain support;

- d. financial and administrative management units are necessary within SCO to effectively assume internal leadership responsibility in these areas; the structure and talent for the financial management unit are present within the organization;
- e. internal capabilities must be developed in communications, including editing, language facilitation and publications;
- f. networking liaison capability must be developed within the research unit: *How is this linked with JARCS responsibilities?*
- g. professional staff recruitment to fill critical service functions must not lead to an overall increase in numbers;
- h. O & M assistance will be provided to gradually change practices and help the organization adjust to its mandate;
- i. in-service training will be provided for staff (and possibly some third country participant training if shown to be cost effective), particularly to increase productivity, develop word processing and computer skills, and (improve contract administration); and

not doing this

→ (not clear?)

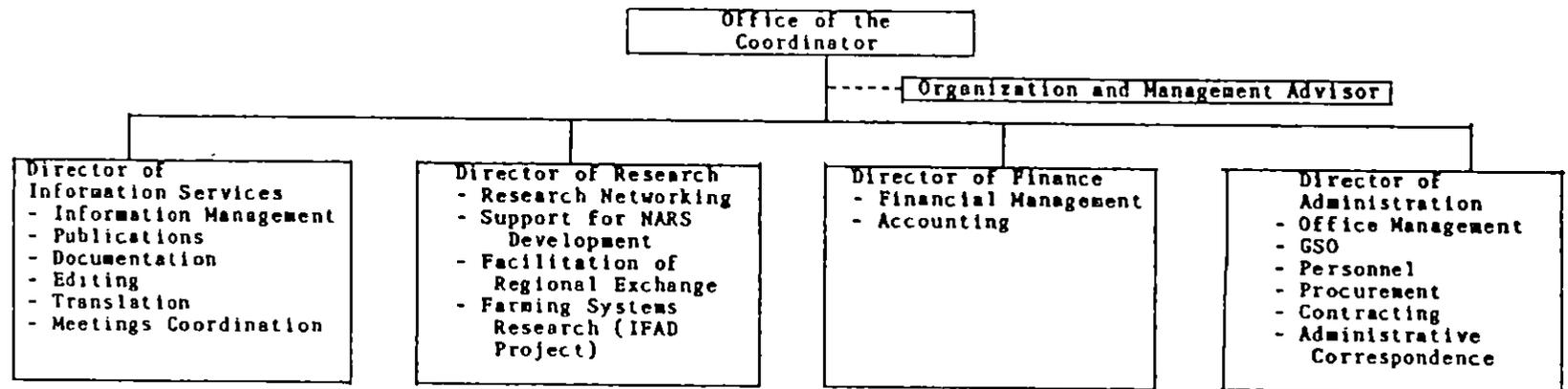
SAFGRAD ORGANIZATIONAL RELATIONSHIPS



Key :

- line relationships
- - - advisory/facilitating relationship
- . - . temporary organization

FUNCTIONS OF THE SAFGRAD COORDINATION OFFICE



STAFF POSITIONS

- Coordinator*
 - Secretary
- | | | | |
|--|--|--|---|
| <ul style="list-style-type: none"> - Director of Information Services* - Editor - Translator - Documentor - Secretary/typist# | <ul style="list-style-type: none"> - Director of Research*# - Networking Liaison Officer - Secretary# | <ul style="list-style-type: none"> - Controller*# - Accountant* - Accounting Clerk# | <ul style="list-style-type: none"> - Director of Administration - GSO - Office Manager*# - Receptionist/telex operator - Drivers (2)# - Guards (2) - Messenger/janitor |
|--|--|--|---|

* internationally recruited positions
 # IFAD funded.

- k. make more effective integration of AID/IFAD support to SCO will increase efficiency.

At present, there are four senior professionals and an office manager as international employees of SCO and 19 local hire employees (see following charts on Functions of the SAFGRAD Coordination Office and SAFGRAD Organizational Relationships and Annex I.). The revised staffing pattern related to functions for organizational units and staff requirements has resulted in total staff numbers being reduced by two.

B. Technical Analysis

The semi arid tropics (SAT) of Sub-Sahara Africa encompass a broad, arable belt of land ranging from 300 to 900 km wide and about 4,000 km in length from the Atlantic to the Abyssinian Massif and then runs along the eastern coast from the eastern lowlands of Ethiopia to South Africa. In West Africa this region typically lies between the 10th and 20th North parallels and is classified according to annual rainfall belts:

- Northern Guinea Savannah: 900 to 1,000 mm
- Sudanian Savannah: 600 to 900 mm
- Sahelian Savannah: 300 to 600 mm

Constraints. In general, the rainy season in the more southern Guinea zone begins earlier and continues longer with 4 to 5 months of precipitation exceeding evapotranspiration. To the north the rains begin later and end sooner, but a 2 to 3 month growing season is minimal for arable cropping. Total annual rainfall averages do not accurately indicate seasonal fluctuations of 50% or more, prolonged intervals between rains, and high intensity of precipitation -- all of which delimit the kinds of crops grown and cultivation practices used.

Other physical factors regulating cropping throughout the semi-arid topics of sub Sahara Africa are: (a) high soil surface temperatures; (b) low water infiltration; (c) strong tendency for soil compaction and crusting; and (d) a potential for soil erosion when continuous cultivation is practiced. Moreover, the soils are fragile and degradation takes place rapidly under some forms of management. Added to the many physical deterrents to food crop production in the semi and tropical zone are such constraints as fungal, bacterial and viral diseases, insect concerns as to stem borers, leaf feeders, head and pod seed insects and birds. There are also a variety of weed problems, including striga.

Production Systems. In general, farmers have developed a wide array of farming systems over the years. These farming systems have been adapted to the various soils, rainfall and other

cultivation practices. The choice of the dominant cereal -- maize, sorghum or millet -- depends on rainfall and the nature of the soils. Moreover, the traditional farming systems are highly diversified to include cereals, legumes, livestock rearing and gardening, often intercropped. Traditionally, farmers have farmed extensively using low amounts of purchased inputs. Farmers try to reduce risks caused by weather, pests and market fluctuations.

Technology Generation. Sorghum is grown on an estimated 16 million hectares, millet on 13 million hectares, maize on 11 million hectares, and cowpeas on 8 million hectares throughout the SAFGRAD region. To meet the demands of the high stress conditions, this project is building on 7 to 8 years of development activities started under the first SAFGRAD project using two international agricultural research centers - IITA and ICRISAT which have been conducting research at the national and regional levels.

Cowpea Research. The cowpea research of IITA focuses on breeding and agronomy. The primary objectives of the breeding program are (1) striga resistance, (2) drought resistance and (3) insect resistance. In the case of agronomy the objectives are (1) mixed cropping and (2) management of monocrop cowpeas. Approximately 63 scientists work on cowpeas throughout the 29 SAFGRAD member and cooperating countries.

The cowpea research conducted under SAFGRAD by IITA and the national agricultural research systems has resulted in one new variety being released by Burkina Faso. In addition, on-farm testing of selected germ plasm is currently being carried out in Burkina Faso, Mali, Ghana, Nigeria, Benin, Cape Verde, Gambia, Mauritania, Niger, Senegal, Chad and Cameroon. The regional cowpea research program being carried out in IITA will serve as the technical basis for the cowpea network in SAFGRAD II.

Maize Research. The maize research program of IITA focuses on breeding and agronomy. The breeding program focuses on genetic improvement to develop (1) early and medium maturity high yielding varieties and (2) drought resistance varieties. Agronomy research objectives have been to (1) assess soil, climatic and management factors (2) establish suitable management practices for maize under low and high management and (3) improve maize yields under drought conditions. About 200 scientists work on maize in the region. Research has resulted in release of one variety in Ghana; other varieties are in advanced testing in Mali, Cameroon and Burkina Faso. On-farm testing of maize varieties is being carried out in Togo and Benin. During the life of SAFGRAD II, the on-going regional maize research program will be the technical basis for the maize network.

Sorghum and Millet Research. ICRISAT's sorghum research program has encompassed both breeding and agronomy. Major research objectives are: (1) yield stability under low management and high stress, (2) good seedling establishment, (3) downy mildew resistance, (4) appropriate maturity/photosensitivity (usually 90-100 days), (5) good acceptable product quality (grain and forage) and (6) striga resistance. About 175 national research scientists work on sorghum and millet in the SAFGRAD region. During the life of the SAFGRAD project, the breeding and agronomy activities have produced 8 varieties that are now being field tested in 10 or more countries in West Africa. The sorghum and millet network in East Africa and the sorghum network in West Africa are already established and this project will continue to provide funding for strengthening network operations.

Millet research will be centered at the ICRISAT Sahelian Center, Niamey, Niger. Research at the Center is funded by resources external to this project. Research conducted at the Center focuses on the Sahelian Zone. The principal breeding objectives are resistance to striga, downy mildew and drought. Improved strains of millet are not yet ready for intermediate and long duration crops, but early strains for late plantings are available. Advanced lines of the former will probably go into regional tests in 1986 and should be ready for release in 1988 or 1989.

C. Economic Analysis

Results of over 50 studies covering a range of commodities in various areas throughout the world have convincingly demonstrated that economic returns to agricultural research when done successfully, have been very high -- much higher than most alternative investments.

It is difficult to calculate benefits from research ex ante because the outputs and adaptability cannot be predicted with accuracy; technological improvements can result from any of several lines of research, and many factors, not all controllable, influence adaptation. However, three types of technological improvements, begun under SAFGRAD I and extending into SAFGRAD II, provide indications of potential returns:

1. Tied ridging would break-even on overall project costs if the technology were applied in 280,000 hectares over a 20 year period -- only 15 percent of the total potential area calculated for Burkina, Mali, and Nigeria.
2. The entire project will pay for itself by year 16 if an improved variety (for example, Framida, E-35-1 or 1002) is sown on only 1 percent of the sorghum area in the SAFGRAD participation countries.

3. The break-even point for adoption of stress-tolerant maize is cultivation on 7 percent of the total available maize land in the SAFGRAD participating countries.

Thus, the probabilities of positive economic returns to SAFGRAD II are very high.

D. Social Soundness Analysis

The ultimate beneficiaries of technologies generated through SAFGRAD sponsored research are 225 million farmers in 26 member countries. The semi-arid tropics include some of the world's poorest people -- existing on some of the world's least endowed areas in terms of natural resources. Population pressures are increasing intensely on existing lands and pushing farms into lower, more marginal lands. If the project can develop more productive technologies for sorghum, millet, maize, and cowpeas -- which is what these people eat and from which they derive some income -- it can impact very positively on their lives. It is essential however that the technical orientation of the research be consistent with African concerns and values, which is a major reason for the project facilitating a transition in leadership to African national leaders and scientists.

E. Environmental Analysis

Limited use of pesticides in anticipated agricultural research will not have a significant adverse effect on the environment, assuming that the risks associated with such use are reduced to a minimum by observance of standard practices. The long-term objectives of the project emphasize development of pest control methodologies which will suffice in the absence of pesticides. The potential for increased availability of a nutritious and stable food supply in the "hunger belt" of Africa more than off-sets risks associated with the use of these chemicals. More detail is given in Annex D.

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African Union Specialized Technical Office on Research and Development

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