ORGANIZATION OF AFRICAN UNITY

Scientific Technical and Research Commission

REPORT OF THE THIRD CONSULTATIVE COMMITTEE MEETING

9 - 10 APRIL 1984 OUAGADOUGOU, UPPER VOLTA

ORGANIZATION OF AFRICAN UNITY

SCIENTIFIC TECHNICAL AND RESEARCH COMMISSION

SEMI-ARID FOOD GRAIN RESEARCH AND DEVELOPMENT PROJECT

(JP 31 SAFGRAD)

REPORT OF THE THIRD CONSULTATIVE COMMITTEE MEETING

9 - 10 APRIL 1984

OUAGADOUGOU, UPPER VOLTA

SAFGRAD COORDINATION OFFICE

B.P. 1783 OUAGADOUGOU, UPPER VOLTA

TABLE OF CONTENTS

-----000-----

I. INTRODUCTION

The Semi-Arid Food Grain Research and Development (SAFGRAD) Joint Project n° 31 was started in 1977 to develop improved varieties of three cereal and two grain legume crops as well as suitable cultural practices for the small farmers in the semi-arid regions of Africa. The project is implemented through contracts with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) for millet, sorghum and groundnuts, the International Institute of Tropical Agriculture (IITA) for maize and cowpeas, and Purdue University for farming systems research in collaboration with research institutions of SAFGRAD member states.

Multi-donor funding is provided by the United States Agency for International Development (USAID), the French Aid and Cooperation Fund (FAC), and the International Fund for Agricultural Development (IFAD). Management of SAFGRAD is achieved through the Consultative Committee (CC) which provides policy guidance and programme oversight, the Technical Advisory Committee (TAC) which reviews research and training programmes and submits appropriate recommendations to the CC and, finally, the Coordination Office which implements the SAFGRAD programme as directed by TAC and CC. The administrative systems and inter-institutional agreements are provided by the Scientific, Technical, and Research Commission of the Organization of African Unity (OAU/STRC) in close cooperation with the respective donors.

In the process of reactivating the SAFGRAD Project, the CC met in November 1983 and the TAC in January 1984. This was followed by another CC meeting which constitutes the subject of this report.

II. THE MEETING

The third CC meeting of the Semi-Arid Food Grain Research and Development (SAFGRAD) JP 31 Project took place on 9-10 April, 1984 at the "ONCHO" conference hall of the World Health Organization in Ouagadougou, Upper Volta. It was attended by nine members (out of a total membership of ten) as well as by

observers representing member states, donor organizations, cooperating International Agricultural Research Centres (IARCs) and OAU/STRC. The representative of Guinea Conakry was unavoidably absent. The meeting was chaired by Professor A.O Williams, Executive Secretary of OAU/STRC.

(i) **The opening Session**

In his opening address, the Director General of Scientific and Technical Research (representing the Minister of Higher Education and Scientific Research) of Upper Volta, welcomed delegates to the third CC meeting of SAFGRAD and thanked them for having made Upper Volta a permanent member of both the CC and TAC. He reminded them of their previous recommendations to extend the farming systems research model of FSU to other parts of Upper Volta and the need to involve more local staff in the SAFGRAD research effort. He expressed the desire to have discussions with SAFGRAD on a more rational use of the limited facilities at the Kamboinse Research Station. Wishing them a successful meeting, he declared open the third meeting of SAFGRAD.

In his address, the CC Chairman outlined the significant events that had taken place since the previous meeting in November 1983. These included the TAC meeting in January 1984, the IFAD-funded consultancy on farming systems research (FSR), the USAID evaluation of the project and the initiation of the project identification document (PID) for SAFGRAD II.

Thanking the USAID evaluation team for the excellent work done and particularly for the support for an increased Accelerated Crop Production Officers (ACPO) programme, the chairman appealed to FAC and other donors to increase their financial contribution to SAFGRAD. He informed members of the Organization of African Unity's pledge to provide funds to SAFGRAD to upgrade the physical structures of the Coordination Office in Ouagadougou.

The Chairman thanked the representative of the Government of Upper Volta for opening the third CC meeting and invited the USAID (Upper Volta) Director for a brief statement. The Director reminded delegates of the past commitment of USAID and its desire to continue supporting SAFGRAD in the future. He told them about the PID team whose preliminary report on SAFGRAD II would be discussed during the CC meeting. Finally, he wished them success in their deliberations.

(ii) Discussion of the Agenda

The first order of business was to approve the minutes of the second CC meeting as recorded from page one to eleven of the report of the meeting. Certain corrections were proposed and the minutes were finally adopted as amended (See Annex I for the amendments).

(iii) Matters arising from the Minutes

(1) ACPO Report

The Coordination Office report on the ACPO was read and discussions focussed on the cost of running the ACPO-programme. While some members of the committee felt that it was rather high, the committee was informed that the budget of each ACPO programme varied from one country to another depending on the national research and extension systems, the origin of the ACPO, the number of technical support staff, etc... It was pointed out that the costs would be substantially reduced if the ACPO was recruited locally. After further discussion, the committee finally provided the following guidelines in regard to the ACPO programme :

a) It should be standardized with respect to programme content, budget and operational schemes;

b) It should be continuously supported by other SAFGRAD project components such as IITA, ICRISAT and FSU programmes, and by technical and administrative services of the Coordination Office;

c) Field days should be organized to exchange experiences, evaluate and standardize the programme.

(2) Training : Follow-up Report

Comments from the ICRISAT and IITA representatives showed that even though workshops, monitoring tours and regional testing of improved crop varieties provided some contacts with previous trainees, no formalized follow-up system had been set up regarding their placement, progress, etc... It was therefore proposed that a

follow-up system be developed on SAFGRAD trainees by the Coordination Office in due course.

Based on the performance and achievement during Phase I, the Chairman commented that the cost effectiveness was low particularly as only about 20 people were trained per year. It was agreed that both long and short term training should be directly coordinated by the Coordination Office. Universities and other relevant training institutions should be identified by SAFGRAD in consultation with donors and research cooperators for such training.

(3) Other Matters

INSORMIL - Progress regarding follow-up action on possible cooperation with SAFGRAD was raised. It was reported that INSORMIL was contacted for the TAC meeting but due to the short notice a representative could not be sent.

(iv) TAC Recommendation : Symposia

The TAC recommendation to organize Symposia on "drought effects on food production" and on striga was discussed. Considering the brief period left for SAFGRAD I and other constraints, the CC approved that only the symposium on "drought" be organized by SAFGRAD in cooperation with ICRISAT, IITA, and other agencies. The symposium, indicated the chairman, was of great importance to OAU/STRC which had often been accused of not having paid particular attention to the problems of drought. After a long discussion on this matter, it was agreed that the symposium should

- be simple, specific and educational, based on well defined themes which are directly related to relevant problems of stabilizing food production in sub-saharan semi-arid regions of Africa;

- utilize expertise within the African continent and ensure that most of the discussions are limited to African drought problems;

. lead to the identification of research priorities on drought stress which could be used later by researchers from affected member countries;

. be costed as soon as possible for the consideration of donors for funding ; ICRISAT, IITA and IRAT should be approached for assistance and other agencies such as INSORMIL and UNEP should also be contacted;

. be organized before the beginning of SAFGRAD II. The date and venue of the symposium should be decided by the Coordination Office and donors.

(v) **Farming Systems Research**

The meeting of the project management committee of the IFAD supported FSR was convened. Other CC members were invited to participate. The first order of business was to select a chairman of the committee. Mr John Becker's nomination was unanimously supported. The committee considered the report of the Coordination Office to select countries for IFAD-FSR support. General problems of FSR coordination within respective countries, for example, Upper Volta were mentioned. It was suggested that special implementing and coordinating mechanisms be developed within each FSR project. As decided during the previous project management committee meeting (Annex 4), Upper Volta was selected as one of the countries to receive IFAD-FSR support for the following main reasons :

a) National FSR is yet to be intiated and organized. Besides, the Government would welcome additional SAFGRAD assistance;

b) The FSR to be started by SAFGRAD will be complementary to on-going research activities;

c) As headquarters of the SAFGRAD Project, Upper Volta could serve as a training ground and for coordinating FSR networks;

d) SAFGRAD FSR support would cover only a small component of total FSR needs in Upper Volta.

The implementation of the IFAD-supported FSR was discussed. Although SAFGRAD usually implements its crop improvement and production programmes through special research contracts with International Institutes such as IITA, ICRISAT, etc..., the committee recommended that this FSR programme be implemented directly by SAFGRAD through direct interaction with national FSR programmes. In the case of Upper Volta, three options were discussed (Annex 5)

Furthermore, the committee emphasized the need for backstop support arrangements with IITA, ICRISAT and ILCA. The Coordination Office was instructed to go ahead and recruit scientists and finalize protocols of agreements for the FSR programme with Upper Volta and other interested countries.It was indicated that a new USAID bilateral FSR programme may be initiated in Upper Volta. Since there appeared to be insufficient coordination among agencies supporting or funding national FSR programmes, the committee suggested that SAFGRAD should exert extra effort to improve FSR coordination among member states.

(vi) **SAFGRAD Evaluation Report**

After a general introduction by the Chairman, there was a discussion on some general principles which could affect the Project in future. Some members felt that in such evaluations OAU/STRC should play a leading role in facilitating the work of the team. Others pointed out that abrupt changes made in the course of implementing the Project (contrary to specific objectives in the Project Paper) should be clearly justified. Allotment of more funds to some project components to the disadvantage of others was a good example. After a lengthy discussion on this matter, the Chairman commended USAID for having taken the lead and conducted the evaluation in which an eminent African scientist had participated as recommended by CC.

Some committee members felt that the evaluation report had not surfaced clearly the overall impact of the project. In reply, a member of the evaluation team commented that SAFGRAD research was started only a few years ago and that it

took a longer time to generate new technolgy which could bring about significant increases in food production. He stressed that the semi-arid regions of sub-saharan Africa, at the more difficult end of the research spectrum, would require even longer time to get results than is the case with more favourable agro-ecological zones. The SAFGRAD Project had introduced new varieties and agronomic practices which require longer time for evaluation and adoption by the national programmes. It was pointed out that the project as a whole had made an impact, for example, in strengthening research networks and in promoting on-farm adaptive technology through its ACPO programme.

Finally, the committee went through the recommendations of the evaluation team and proposed some changes. It fully endorsed recommendations 1, 2, 4, 7 and 11-13 but only the first half of each of recommendations 10 and 14. Recommendations 3, 8 and 9 were not endorsed by the committee because 3 and 8 did not reflect Project objectives, while 9 was not considered appropriate for the remaining part of SAFGRAD I.

(vii) SAFGRAD Phase II

The essential elements of the PID for SAFGRAD II were discussed. It was pointed out that the project would maintain the major research components of SAFGRAD I although some important administrative and management changes may need to be introduced such as providing the Coordination Office with additional professional staff (Training and Extension Officer).

Other important changes proposed to improve the administrative and management capabilities of SAFGRAD were :

1. Delegation of authority to the Coordination Office by OAU/STRC, Lagos and defining responsibilities with regard to administrative and technical direction;

2. Improvement of research and management capability of the Coordination Office including negotiation of agreements with contractors.

While the PID reflected primarily the USAID-funded component of

SAFGRAD, suggestions were made that the document should be more comprehensive and include other components of the project. The PID-team commented that even though most of the ideas or concepts proposed were those of the consultants, the document was prepared in consultation with AID and the Coordination Office, reflecting ongoing USAID supported research and other components of the project. After a lengthy discussion, the Chairman suggested that the PID should be discussed while contemplating on a "master document."

Finally the Committee recommended that the PID process should continue. As to the comprehensive "master plan" it was agreed that the document which ought to be a component part of the "master plan" project, should reflect the philosophy, goals and direction of SAFGRAD, encompassing the major parameters and constraints of food production. A number of suggestions were given on how to develop this long-term plan of SAFGRAD. Some members suggested that an adhoc committee be established while others supported the formation of a Task Force with broader participation. The committee finally agreed on a Task Force comprising 12 members as follows : member states (4), donors (3), Coordination Office (2) and implementing agencies (3). The Coordination Office was instructed by the committee to activate the Task Force at the appropriate time.

A member of the committee expressed concern that SAFGRAD involvement was restricted mainly to West and Eastern Africa but was only negligible in Southern Africa. The Chairman assured him that since the policy of OAU is to support regional organizations, any SADCC efforts would be accorded OAU support as well as that of its affiliated organizations which include SAFGRAD. The committee recommended that SAFGRAD should contact the SADCC Consultative Technical Committee (CTC) on agricultural research for possible cooperation.

Based on the PID that was being discussed, the Chairman requested the research cooperators of SAFGRAD to indicate their minimum staff requirements for continuing the ongoing research programmes. These were supplied as follows :

1. IITA — 5 scientists (2 Agronomists, 2 Breeders and 1 Entomologist)

2. ICRISAT : 5 scientists- 3 in West Africa (1 Sorghum Agronomist, 1 Sorghum Breeder and 1 Soil Scientist) and 2 in East Africa (1 Breeder/Agronomist as Coordinator and 1 Entomologist).

3. PURDUE UNIVERSITY (FSU) : 4 scientists (1 Agronomist, 1 Agricultural Economist, 1 Anthropologist and 1 Training Officer).

4. ILCA : Stressing the need to integrate animal production into the cropping systems within SAFGRAD, three scientists were proposed (1 Agronomist, 1 Animal Scientist and 1 Sociologist - on consultancy basis).

The Committee thanked USAID and the consultants for the comprehensive project implementation document, as well as the evaluation draft report. Special thanks were bestowed upon Mr John Becker and Mr Robert E. Gray for their continuous support of the SAFGRAD project.

(viii) Dates of the Next Meetings

The Committee finally considered suitable dates for the next meetings of CC and TAC. The next TAC meeting was scheduled for 16-17 October 1984 and that of CC for 27-28 September 1984.

The meeting closed at 18.00 hours.

---------ooooo---------

III. RECOMMENDATIONS OF THE THIRD CONSULTATIVE COMMITTEE

The third Consultative Committee meeting of the SAFGRAD project took place on 9 - 10 April 1984 in Ouagadougou, Upper Volta.

(i) Technical Advisory Committee Report

The committee, after long deliberation on this report, recommended that :

1. The Coordination Office, henceforth, endeavour to cost TAC recommendations for budgetary implications before they are submitted to CC.

2. A symposium on drought be organised by the Coordination Office in collaboration with IITA, ICRISAT, ect.., before the end of Phase I of the project. It was suggested that USAID, IFAD, FAC and other donors should be approached to finance the symposium.

3. Linkages be established with the Association of African Universities to foster more effective training and research activities in SAFGRAD member states.

4. That the Grain-legume Technical Bulletin prepared by IITA be translated into French. The SAFGRAD Coordination Office should cooperate with IITA in this regard.

(ii) SAFGRAD Evaluation

The summary, major conclusions and recommendations of the draft report of the USAID-funded SAFGRAD project evaluation team were discussed.

Based on the document, the committee

a) Endorsed recommendations 1, 2, 4-7 and 11-13 without any changes, but only the first half of each of recommendations 10 and 14;

b) Suggested recommendations 3, 8, and 9 not to be included since they did not reflect the objectives of the project.

(iii) SAFGRAD Phase II

1. The project identification document (PID) and proposals for SAFGRAD II were thoroughly examined. After a lengthy discussion, it was recommended that :

a) The PID process initiated by USAID should continue;

b) A comprehensive (master plan) project document that reflects the philosophy, direction and goal of SAFGRAD be developed. The PID was recommended to be a component part of the "master project". To develop the broader SAFGRAD project, the committee agreed on a task force comprising 12 members made up as follows :

Members states	4
Donors	3
Coordination Office	2
Implementing agencies	3

2. Recommended that SAFGRAD establish linkages with SADCC through their Consultative Technical Committee (CTC) on agricultural research.

(iv) The Accelerated Crop Production (Officers) Programme

Considering repeated requests from some SAFGRAD member states and the recommendations of the USAID evaluation team, the committee recommended the present number of ACPO country programme by 3 to 4 additional programmes, preferably, through bilateral funding.

(v) Training

The TAC, CC, and the Evaluation Team noted that enough emphasis was not given to training. The Coordination Office was instructed to work out the mechanism for identification of candidates, schools and also organize follow-up action on trainees in the different member countries of SAFGRAD.

ANNEX I

AMENDMENTS OF MINUTES OF THE SECOND CC MEETING

Before adopting the minutes of the Second Consultative Committee meeting of 7-8 November 1983, the following amendments were made :

SECTION	AMENDMENT
2.2.3.1, lines 13-14	As to further plans, IITA research thrust emphasized early maturing varieties and development of drought and striga tolerance
2.2.3.2, p.5 lines 15-16	... groundnut research with the technical assistance of ICRISAT (see page 14). Last sentence delected.
2.2.6, p.8 second para. 1st line	The level of funding for SAFGRAD II was also indicated (see page 16).
2.2.8, line 2	..... as a grantee with the contractors as one of the beneficiaires.
2.2.8, second para; lines 1-2	It was suggested that the Coordination Office should develop budgetary guidelines ...

N.B The amended sections are underlined as indicated above.

ANNEX 2

THE ACCELERATED CROP PRODUCTION PROGRAMME

INTRODUCTION

During the second CC meeting in November 1983, it was recommended that the role and activities of ACPOs be reviewed by the Coordination Office and a report presented to the Committee.

The Following assessment of the ACPO programme has been developed, based on recent visits to one or more ACPO programmes by USAID Upper Volta and Coordination Office Staff. It also includes ideas from the original SAFGRAD project paper of April 1977, the mid-term evaluation of July 1981 and the most recent evaluation of the SAFGRAD project in February 1984.

BACKGROUND INFORMATION

One of the important components of JP 31 SAFGRAD has been the stimulation of food production in the semi-arid region of Africa through support to regional research. When the project was being planned, the idea of Accelerated Crop Production Officers (ACPOs) was proposed to respond to the common weakness in getting research information developed by the SAFGRAD Project to national research centres, getting new technologies tested on an ecological basis, transferring them to farmers and obtaining feedback from farmers and extension agents, regarding the suitability of new technologies for further testing at the research stations. The responsabilities of the ACPO, as defined in the original "project paper" included the following :

a. Conduct field trials and studies under various conditions to test the adaptability, deficiences and potential of various recommended crop varieties and practices ;

b. Provide a linkage to crop research and development programmes elsewhere in the region to enable the participating country to benefit from and contribute to regional progress ;

c. Where varieties and packages appear technologically superior and otherwise suitable, to coordinate with national research, and extension/development agencies to arrange broader national testing and demonstration of these varieties.

No single ACPO was expected to perform all the outlined functions. Since the ACPO was to be assigned to an individual country, he was expected to tune his programme to the specific needs of his host country. It was anticipated that most of the ACPOs would initially be expatriates contracted on a bilateral arrangement between the host country and a donor. His national counterpart was to be trained later so that he could solve broad issues on "translating research into benefits in farmers' fields".

The ACPO was to be fully integrated into the national agricultural research and development systems where he was expected to influence the direction of research and application of its results. Regional guidance for the ACPO was to be provided by the OAU/STRC Coordinator using materials and information developed by international, regional and national researchers as well as FSU. Initially ACPOs were projected for 18 member countries whose ACPO programmes were to be funded through bilateral arrangements with individual donors.

THE PRESENT SITUATION

Out of the present number of 25 SAFGRAD member countries, ACPOs have been assigned only to five ; namely, Cameroon, Mali, Senegal, Togo and Upper Volta. Except in Togo where the ACPO programme is financed by the French Aid and Cooperation Fund (FAC), the rest are funded by USAID. There is a need to establish similar programmes in other member countries and broaden the donor base for such programmes.

Some ACPOs are still so involved in both on-station and on-farm trials that they have very little time left to analyse their results and to be able to recommend suitable varieties for farmers for increasing food production and provide the liaison function between the national programmes and SAFGRAD. As the station research capabilities improve, ACPO involvement should be limited, as much as

possible to on-farm testing.

The ACPOs are reasonably well integrated into their national research and extension systems. Where this has not been very successful, efforts are being made by the national administrative bodies concerned to maximize such integration.

The ACPOs have been sucessful in playing their national functions. Their intended functions of liaison between the regional research centres and national programmes have been rather restricted . The latter functions have been carried out by national researchers from member countries involved in regional testing and who participate in annual workshops and monitoring tours.

RECOMMENDATIONS ON ACPO PROGRAMMES

1. A new ACPO programme will be considered only at the request of an interested member state.

2. Where a new programme is to be started, preference would be given to a qualified national of the country. Candidates from neighbouring African countries (to be financed by SAFGRAD) or from abroad (to be financed through a bilateral agreement with the host country) would also be considered. In either case, a special agreement regarding the activities of the ACPO would be made with SAFGRAD and the host country.

3. A national counterpart should be identified as early as possible and sent for training. Where he is found to be qualified, technically, he should be sent away for about 6 months or one year to acquire additional skills which would increase his output and improve his technical competence. Alternatively, provision should be made by SAFGRAD for him to undergo local training in one of the member countries already with a strong ACPO programme, for example, Cameroon or Mali.

4. In the event where important training programmes would be decentralized and be established, for example, in the Sahel, an effort should be made to include a practical course for ACPOs and their senior supporting staff.

5. Encourage ACPO visits among themselves as well as frequent visits of ACPO programmes by researchers of the international and regional research centres, particularly during the cropping season.

6. Field days and symposia should be organized from time to time. These will be attended by government officials, farmers, other ACPOs and SAFGRAD researchers from the IARCs. During the symposia, guest speakers should be invited from other countries within and outside Africa, where transfer of new technology from the research station to farmers has been successful.

7. The ACPO programme for each country should be reviewed, say every three years to determine :

   a) The most appropriate place in the research-extension chain to locate each ACPO programme in order to obtain maximum results for each member state.

   b) Any changes regarding national research, extension and/or other organizations which can best cooperate for a more successful ACPO programme.

   c) Where the ACPO should be placed administratively so that his output becomes more effective.

8. While maintaining the administrative and technical guidance of the Coordination Office, day-to-day financial matters should be transferred judiciously to local site management. Depending on the specific case, this authority could be vested in a local donor authority (FAC/USAID), the national director of agricultural research or his representative. This would expedite processing of routine paperwork, allow faster response to local problems and reduce the volume of inter-country communication which is often slow and difficult.

9. For financial matters, the Coordination Office will ensure adequate supervision. Visits regarding administrative and technical matters by the International Coordinator or the Director of Research can be arranged when considered appropriate.

10. An ACPO programme should not be approved for any country unless a certain minimum on-station research capability has been established. Improved varieties adapted to the particular ecological zone must first be developed by breeders and agronomists in the specific region before they are tested on-farm by the ACPO. Thus, a minimal amount of research infrastructure needs to be in place before an ACPO can be effective. However, SAFGRAD can effectively contribute to the strengthening of this capability through its judicious training programme.

11. Information exchange among ACPOs should be strengthened. Apart from attendance of TAC meetings, provision should be made for ACPOs to visit one another's programme periodically.

PREPARING ACPO CONTRACTS

In preparing ACPO contracts, consideration should be given to the following :

1. Administrative set-up: Ministries involved with agricultural and extension should be considered. If more than one, then other inter-ministerial agreements should be made to facilitate ACPO output.

2. Constraints of transferring useable research findings to the farmers in the country concerned should be clearly defined and understood.

3. There should be a clear definition of the ACPO's activities so that he does not become too overburdened and ineffective.

4. The ACPO's lines of authority should be clearly defined and well understood by himself, the host country, SAFGRAD, USAID and other interested parties.

5. The obligations of the different parties should be clearly spelt out in the contract.

PROFILE AND JOB DESCRIPTION OF THE ACCELERATED CROP PRODUCTION OFFICER (ACPO)

1. Profile of the ACPO

The ACPO should have specialized training in agronomy and research administration. He must be able to negotiate and cooperate with research and extension officers at the national/regional/international levels. Planning, management, implementation, evaluation, and reporting capabilities are all equally important and should be considered in the selection of the ACPO

Taking into account the description of their role, it is essential that ACPOs be chosen with great care. They should have qualities often difficult to get in one person : leadership, conception of development, organizational capabilities and human contact.

2. His Role and Responsabilities

The ACPO will serve as a catalyst and facilitate linkages between the research cooperators (IARCs) and national research and extension groups in an assigned country or area.

Preferably the ACPO will be provided by the participating country. He should be a well trained, experienced local agricultural officer : however, some expatriates will be required during the initial years of the SAFGRAD Programme until such time as replacements can be selected and trained.

The ACPO position will be supplied and fully financed (including logistics) by one or a combination of the following :

(1) Participating National Governments where qualified individuals exists ; and

(2) Donors (through SAFGRAD or bilateral arrangement with host country)

The ACPO will be integrated into the national research facility of the country where posted and looked upon as their specialist. He will function in close liaison with the station or national agricultural research director, OAU/STRC, and SAFGRAD researchers. The ACPO position will be established and filled on the basis of a request from the appropriate participing country. The ACPO will assist national researchers in planning and conducting field trials (utilizing regional and international research results) on national stations where applicable. Additionally, it will be necessary for him to assist national researchers/extensionists to put some field trials out on farmer sites in order to test improved varieties and related technology in the key ecological zones of the country. This may vary from country to country dependent upon the status of research and staff capabilities in the country of assignment.

He should serve as a link between researchers and farmers, collecting information and demonstrating the useful results to the farmers. He should however not substitute for the national extension agent.

The ACPO is, above all, charged with the pre-extension of results from farming systems studies which he complements. He should serve as the link between research and extension.

In cooperation with national officials, the ACPO will be expected to appraise the locally conducted research/extension/producer food activities to identify problems at the various levels (including those of small farmers) for transmittal to researchers. This would assure to the extent possible a two-way flow system of information from the researcher to the producer and back to the researcher.

The ACPO will participate in relevant food crop conferences and appropriate committee when deemed in the best interests of food crop research and production conducted under the SAFGRAD programme and in his country of assignment.

The ACPO will develop an annual work plan and budget which will be submitted to the SAFGRAD Technical Advisory Committee for review, recommendations, and approval. He will consult with

the OAU/STRC International Coordinator during the development of the work plan to assure conformity with overall coordination, management, and objectives of the SAFGRAD Programme.

ANNEX 3

SUMMARY REPORT OF THE THIRD TECHNICAL ADVISORY COMMITTEE MEETING

1.0 RESEARCH REVIEW

1.1. IITA/SAFGRAD maize and cowpea research activities

1.1.1. MAIZE

Most of the varieties developed performed under moderate input conditions. Some varieties that were identified as promising were BDS III, IRAT-100 (Upper Volta), TZPB and TZE-4 of IITA. Also Pool 16, SAFITA-2 and SAFITA-104 were identified as early maturing varieties. These varieties had been widely tested through regional cooperative trials in 20-22 countries and some had been either released (Upper Volta) or were in pre-release testing. It was also reported that maize breeding for drought tolerance had been initiated. Pool 16 and Jaune Flint de Saria were reported to have some capability of water-stress tolerance.

Maize agronomy studies showed that soil fertility, risk of drought stress, soil compaction and termite damage were major constraints to the apparent low yield of maize. Agronomic practices recommended for reducing risk of drought were : use of early varieties, tillage with oxen or tractor , tied-ridges, planting on lower slopes on hydromorphic soils, use of crop residue as mulch, and scarification to break the soil crust. Such agronomic practices improve the infiltration and conservation of water. Poor soil fertility

was reported to be due to deficiency of phosphorous and nitrogen which could also be corrected with moderate application of fertilizer. The yield of some local varieties was reported to increase substantially with improved agronomic practices equal to improved varieties, at least, in Upper Volta in the 700 - 900 mm rainfall zone.

1.1.2. COWPEA

IITA had organized a cohesive team of researchers to focus on SAFGRAD regional areas. The breeding effort on cowpea had been on identifying suitable varieties for the Semi-Arid zone. Some promising early maturing varieties were IT82E - 18, TVX4659-36 and 58-146 ; promising medium maturing ones include TVX4659-03E, YVX1999-01F, TVX4262-09D, KN-1, IT816-952 and IT81D-1157. It was reported that SUVITA-2 and TVX3236 were varieties adapted to several locations :

- Two improved varieties KN-1 and SUVITA-2 had been released in Upper Volta and were in pre-extension stage in some other countries.

- Work was in progress in the breeding programme to combine high yield, wider adaptation and multiple resistance to major insect pests.

- Research was in progress to screen extra-early (60 - days) maturing varieties in the semi-arid regions.

- Some varieties that had tolerance to striga (SUVITA--2 and 58-57) were identified.

- For maize - cowpea relay cropping systems, it was reported that photoperiod sensitive cowpea cultivars could be successfully relay cropped with maize by planting cowpea 3 to 4 weeks after maize planting. As regards photoperiod insensitive cowpea cultivars, it was reported they could be relay cropped if planting was done less than 5 weeks before maize harvest.

- Planting on tied-ridges in the Sudan Savana zone was reported to double yields of cowpea in comparison with planting on flat or untied ridges.

1.2. **ICRISAT** - The East and Southern Africa sorghum and millet research (in Nairobi) and soil and water management programme (in Kamboinse) were discussed.

1.2.1. Sorghum and Millet

- Considerable germplasm developed from the region was being evaluated ;

- 10-12 countries were participating in the regional sorghum and millet research network ;

- From the ICRISAT programme, several varieties of sorghum were released for different regions in Africa. For example : E35-1 was released in Upper Volta and SPV35, in Cameroon. Framida, a variety relatively tolerant to striga was introduced in several countries in Africa : Togo, Cameroon, etc...

- As to millet, some lines resistant to mildew were being identified.

1.2.2. Soil and water management studies recommended that :

- Mulching and crop residues had been shown to be extremely effective in conserving soil moisture especially under no-till conditions ;

- The use of tied-ridges reduced water loss by surface run-off and subsequently increased yields. Tied-ridges were more effective on alfisol slopes although it was labour-intensive ;

- Better yield results were obtained from better surface water management, better varieties, more fertilizer and, unfortunately, more actual hours of labour ;

- Animal traction had great potential as a source of draught power for construction of terraces and contour ridges.

The committee expressed concerned about the lack of adequate research reports of the sorghum and millet work based at the Institute of Agricultural Research (IRA) of Ahmadu Bello University at Samaru, Nigeria. The committee recommended that the Coordination Office follow up the matter and report on the status of that research programme. It should be noted that the programme was not discussed at TAC meeting although some reports had recently been received.

1.3. Farming Systems Research

The research report of Purdue University/SAFGRAD FSU generated good discussion. The methodology and how the proposed model was evolved were explained. FSU also indicated its limitations to include other components of FSR. In general, the following suggestions were given (which were also considered in the FSU future programmes) :

-That more emphasis be given to farmer-managed trials and cropping systems ;

-Studies on the improvement of the soil escpecially on the restoration of long-term soil fertility should be included in FSU Programme ;

The Chairman of the session finally summarized that :

i) The FSU methodology was a very interesting one ; it was one of the many FSR programmes being carried

out in Africa. It was essential that a link be established between FSU and other similar programmes with different approaches to encourage exchange of technical information and to learn from one another. In this regard, SAFGRAD through its FSR activities, should play an important role in the coordination and in maximizing the concerted effort of various FSR programmes in progress in different member states.

ii) The linkage between agronomic research and FSR was very essential. An FSR team composed of various disciplines should not be limited to the evaluation of technology alone but should also be able to influence research priorities and strategies of regional and international agricultural research centres (IARC's)

iii) It was evident that several agencies and institutes were involved in farming systems research. Although different approaches were being employed, it was important that the models evolved be discussed and studies expanded to different ecological zones for further validation.

In this regard, it was noted that only the FSU model was brought to the attention of the committee.

2.0 SUGGESTED RESEARCH EMPHASIS

2.1 Crops (Sorghum, cowpea, millet, maize and groundnut)

-Expansion of agronomic research with major emphasis on drought problems

-Applied crop improvement (breeding) research to tackle local and regional constraints of food production.

2.2. Soil and Water Management

- Restoration of soil fertility
- Conservation, harvesting and efficient utilization of water.

2.3. Intercropping : subsistence farmers in the semi-arid regions practise mixed cropping in order to minimize the risk of dependence upon one single crop that may be susceptible to environmental and economic uncertainties. Intercropping on farmers' fields may involve mixed cultivation of several crops such as sorghum and cowpea, maize and sorghum, cowpea and millet, etc... The committee stressed the need for close collaborative research among International Institutes (ICRISAT, IITA, CIMMYT, etc) in order to develop productive intercropping systems for the small farmer in the semi-arid regions of Africa.

2.4 Maize and Cowpea research for dry lands was recommended to be expanded in East and Southern Africa.

3.0 ACCELERATED CROP PRODUCTION (OFFICERS) PROGRAMME

3.1. Recommendation was made that this programme should be strengthened by receiving continuous guidance and support from the Coordination Office.

3.2. ACPOs should be encouraged to hold annual field days on a rotational basis.

3.3. Expansion of the programme to other countries should be planned and more donors should be approached for phase II of the project.

4.0 SYMPOSIA were suggested on sorghum, maize, cowpea and millet, and also on drought and striga before the end of phase I of the SAFGRAD project in order to assess and document research findings. The same technical information would also be useful for developing future research projects.

ANNEX 4 a.

SUGGESTIONS FOR IMPLEMENTING PROPOSED IFAD SUPPORTED FARMING SYSTEMS PROJECT

The FSR consultants report recommended that FSR programmes be started in Upper Volta, Mali and Senegal. The proposed FSR envisages looking into the overall farming systems set up. Considering the rapid deterioration of the resource base for productive agriculture, the programme calls for an integration of crop and animal production systems as well as long range soil improvement. The FSR studies currently adopted in most African countries lack some relevant FSR components.

RATIONALE FOR STRENGTHENING FSR IN UPPER VOLTA

The IFAD-FSR consultants review report seems to indicate that broader and long-term issues of Farming Systems could not be addressed by specific FSR projects but through coordination and linkages of various research systems. Programmes already initiated in Upper Volta by few agencies have specific objectives with major focus to complement components of respective projects. SAFGRAD - as a coordination unit could take advantage of existing FSR activities and synthesize a broader FSR programme that includes cropping and animal production systems, soil-water management, agro-forestry, etc... SAFGRAD through IFAD fund could strengthen FSR in Upper Volta by supporting specific deficient areas to complement existing programmes. Realizing the gaps and deficiencies of FSR in Upper Volta, the IFAD-FSR consultants have proposed and recommended additional input (man-power and other components of the project) to strengthen the Voltaic National FSR and other Research Systems . The SAFGRAD FSR team will work very closely with FSU and other ongoing FSR in Upper Volta and national research and extension organisations.

Another dimension of SAFGRAD is its regional emphasis. Taking advantage of some FSR projects, the ICRISAT and IITA

core crop improvement programme in Upper Volta and animal and crop production research of national programmes, SAFGRAD/FSR could serve as a backstop for other country FSR programmes to be started by the project. For example, the programme will serve as a centre for various FSR activities such as training, workshops, planning and programming of country-FSR and coordination of FSR-networks.

Furthermore, the third Technical Advisory Committee, realizing the various farming systems research activities in various countries, has recommended for SAFGRAD to exert greater effort in order to coordinate and harmonize FSR activities among member states. A strong SAFGRAD/FSR team in Upper Volta could facilitate coordination efforts in strengthening national FSR. One of the activities of the team will be to organize annual workshops to discuss FSR research results with project scientists, station based commodity scientists and representatives of other institutions engaged in related work. Occasional regional FSR workshops involving research workers in the field and technical scientists could also be organized by the team to discuss methodologies of farming systems employed in other Research Systems. Considering the overall FSR programme proposals, there does appear a strong case for strengthening SAFGRAD/FSR in Upper Volta mainly to :

1. Fill identified disciplinary gaps and strengthen national FSR,
2. Improve FSR coordination among member states
3. Consolidate knowledge already gained from several FSR activities
4. Provide guidance and backstop service to country FSR

SPECIFIC FSR PROGRAMME

Under Upper Volta conditions specific programmes will be developed through continuous interactions with scientists of IVRAZ, ORD - extension agents, technical scientists of ICRISAT, IITA, the ACPOs and FSR scientists. To coordinate FSR activities,

series of discussions will be held through the SAFGRAD Coordination Office. The National FSR is expected to emerge from such coordinated activities of programmes which also include man-power development.

COMMENTS ON MALI FSR PROPOSAL

In Mali USAID is ready to start (by September 1984) a ten-year support amounting to $ 17 million. Of course, some form of IFAD-FSR support could further strengthen the present level of FSR activities. If SAFGRAD is to initiate a programme, it seems that it would be a duplication of efforts. One alternative is to link the programme with existing research projects. The International Livestock Centre for Africa is already monitoring an agro-livestock production system in Mali. Perhaps through special OAU/STRC collaborative contract agreement with ILCA, the programme could be started within a relatively short time. On the other hand, considering the IDRC and the level of USAID support, other countries should be considered for IFAD-FSR assistance.

COMMENTS ON SENEGAL PROPOSAL

According to the studies made by the Technical Advisory Committee (TAC) on Farming Systems Research of the Consultative Group on International Agricultural Research (CGIAR), Senegal has the longest history, best conceived and most developed national FSR. The report further elaborated that :

"The basic concept of the programme is an integrated system of research to create and diffuse production systems, within a regional framework, in the country. The system provides a structure to gather information, assist in identifying agricultural zones or regions, analyze present production systems, evaluate possible new technical systems, study production factors, and involve the farmer in the design and decision process".

Furthermore, ISRA (Institut Sénégalais de Recherches Agricoles) already has FSR teams in five major regions covering different agro-ecological zones in Senegal. Although the Senegal

FSR is already strengthened, the national research officials, however, have indicated that staff input of highly experienced personnel may be considered. The FSR consultants'proposal is based on the overall needs to stabilize and improve the resource base for productive agriculture which is also the case in most sub-saharan African countries.

OTHER COUNTRIES TO BE CONSIDERED

The programme proposed by the consultants is equally relevant to a number of other African countries where the resources for agriculture are deteriorating in alarming proportions. Without much delay and with little modification, the proposed FSR programme could also be started in the following countries, where SAFGRAD already has agricultural research and development activities.

CAMEROON*

In Northern Cameroon SAFGRAD has been operating an ACPO programme for the last few years. In addition, the research and extension base of the region has gradually been strengthened. The major farming systems research activities in the humid and sub-humid zones of Cameroon are carried out by the International Institute of Tropical Agriculture (IITA). Farming systems research in the drier northern part of the country is just beginning.

BENIN* - Although SAFGRAD has not yet started an ACPO programme there, an agreement was signed with SAFGRAD since the last three years. This country has recently shown interest to receive FSR support.

NORTHERN GHANA - There is limited support in FSR in this region. The research and extension base is also conducive to initiate FSR

---

*Relatively more conducive to intiate Country FSR Programmes.

activities. Already the research group at the Nyankpala Station has made contacts with FSU in Upper Volta for collaborative research and is still looking for support in this field.

TOGO - In the Northern part of the country SAFGRAD has fielded an ACPO programme. Even though the national research and extension base has yet to be strengthened, an FSR programme would be useful.

MAURITANIA - Completely arid to semi-arid country. As a member state of SAFGRAD, it has continued participating in regional trials and workshops. A few years ago, Mauritania showed interest in the ACPO programme. The national crop and animal science research is yet to be developed. If a one or two-man FSR team is placed and integrated within the national agricultural research unit, it could provide much needed technical assistance in FSR and related fields.

ETHIOPIA - The peasant agriculture is one of the largest in Africa. About 25% of the country (250,000 sq.Km) is semi-arid where about four million people reside. The Institute of Agricultural Research (IAR), responsible for coordinating all research activities in Ethiopia, has established a small socio-economic unit which works very closely with technical scientists in crop science in evaluating packages of technology and transfer. Farming systems research, therefore, is at its initial stage of development.

SOMALIA - Its agricultural research and extension programme is being developed. FSR has yet to be organized.

SUDAN - Has a well developed agricultural research base. FSR is at initial stage of development. As a very large country, support in FSR from several sources may be necessary.

GUINEA - Virtually very little information is available on FSR activities in Guinea. Conakry.

IMPLEMENTATION STRATEGIES

Thus far, SAFGRAD has implemented its project through special contracts with the International Institute of Tropical Agriculture (IITA), International Crops Research Institute for the Semi-Arid Tropics and Purdue University. The FSR consultants'report calls for a relatively comprehensive and long range farming systems research . The major components of the FSR programme are the integration of :

- crops and animal production systems,
- long-term studies to restore soil fertility,
- agro-forestry : also as a component of the programme.

The focus of the proposed FSR programme is to improve the resource base for increased agricultural productivity and also to stabilize the deterioration of the rural environment. The programme requires an interdisciplinary team. OAU/STRC may need to consider immediately the following alternatives for implementing the FSR programme :

I. Special contractual Agreement with the following International Agricultural Research Centres.

1. International Institute of Tropical Agricultural, IITA
2. International Livestock Centre for Africa, ILCA
3. International Crops Research Institute for the Semi-Arid Tropics, ICRISAT.

II. Integration with SAFGRAD/FSU ongoing Programme

If the IFAD is to strengthen national FSR, then a special working relationship could be arranged with the national research programme IVRAZ, FSU and other programmes. This can be achieved through staff input in disciplines that FSU or other FSRs are not able to provide field staff.

III. Special SAFGRAD-Host Country Contractual Arrangement

This can be organized with the national research organizations where the FSR programme is to be conducted. The SAFGRAD/FSR will thus be integrated into the national research and extension systems. The international professional staff input would be provided through OAU/STRC in consultation with the international institutes and donors.

UPPER VOLTA

INTRODUCTION

In reviewing FSR activities in Upper Volta we have found a number of valuable positive features but also a number of gaps and imbalances in the overall research programmes that have seriously inhibited the development of any widely applicable, relevant technologies that could contribute towards the development of stable and more productive farming systems.

The proposals that follow take into account these weaknesses and also the proposition that Upper Volta should act as the coordinating centre for the Project's FSR activities. We have also borne in mind the current plans for restructuring research in Upper Volta and the need to integrate any new research activity into the national programme. Consequently, any proposals that we now make must be reconsidered in the coming planning meetings in February and April 1984.

OBJECTIVES OF FSR

1. To evolve sustained systems of production in the semi-arid zone for small or poor farmers whose systems have major cereal, (maize, sorghum, millet) and/or grain legume (cowpeas) components.

2. To develop an effective communication system between farmers, extension workers, research scientists and others, to ensure that agricultural research is relevant to the short and long term needs of poor farmers.

PROGRAMME

1. The monitoring of the major resource management systems of the Sahel-Soudan Zone.

2. The identification and prioritising of problems and research activities.

3. The investigation, testing and demonstration of alternative systems and components of systems at appropriate locations - stations, sub-sites, farms;

4. The training of local and regional research and extension staff in short formal sessions, seasonal seminars and through regular, informal contracts

PROPOSED STAFF

1. Agricultural Economist(team/leader)
2. Livestock Production Specialist
3. Soil Scientist
4. Agronomist with some emphasis on agro-forestry

ACTIVITIES

The activities of the FSR programme will be partly evident from the above job descriptions but may be summarized (including the Purdue activities) as follows :

1. Continue the monitoring of climatic, biological and socio-economic data at a much reduced level, but in more villages representing distinctive agro-ecological zones, or socio-economic groups of farmers, and in clusters of villages around them. Methods should involve regular and specific topic data collection.

2. Develop a much more active programme of resource management systems studies which involve ; trees, livestock, crops and other inputs in as many locations as possible (including sites in Mali and Senegal if appropriate). This includes some station based systems work, the setting up of researcher managed sub-sites or plots in appropriate villages and, if possible, using groups of farmers within villages to cooperate in major on-farm systems studies. The focus should be on building up fertility on a proportion of available land, not extending the cultivated area.

3. In the coming reorganisation of research the FSR team should make a major contribution to the establishment of a linked series of research activities which include breeding, agronomy crop production, cropping systems, crop/livestock/tree systems carried out in collaboration with station and off-station based scientists.

4. Develop training materials and methods for informal training and professional staff, short formal courses for local and regional staff and organise bi-annual seminars for all staff and related project personnel. The team should identify suitable locations for short term attachments for staff, e.g within other regional or national FSR programmes. Also, together with the Director of Research, suitable priority topics for research by local graduate students should be identified and appropriate local supervision arranged.

5. Develop a close working relationship with extension staff and other institutional staff involved in rural development activities that have relevance to the development of sustained farming systems.

OUTPUTS

1. The establishment of an effective programme that can be managed by Voltaic staff for the identification of farming system production problems.

2. Methods of carrying out research into these problems or means of communicating problems that cannot be directly studied to appropriate individuals or institutions who can.

3. The generation and testing of a range of alternative measures and technologies that give greater stability to farming systems in the area and greater food security for the majority of poor producers.

4. A training system based on local and regional resources that will result in the full localisation of all key posts within a period of four years.

5. A formal system of communicating research results and of agreements on research priorities and methods developed in cooperation with IVRAZ.

MALI

INTRODUCTION

It is proposed that SAFGRAD/FSR in other countries should consist of two-person teams working very closely with the national agricultural research programmes. We are confident that this modest approach, which is in contrast to the large, multidisciplinary team approach of USAID in Mali and Senegal, can be effective provided the SAFGRAD teams have adequate back up from their operating research stations and that they make full use of other institutions and personnel who are already involved in applied research and development activities. They should also have support from SAFGRAD/FSU in Upper Volta, particularly in social sciences and training.

PROGRAMME

1. Continue the monitoring of the existing agro-livestock systems in a range of agro-climatic zones in the Segou Region.

2. Use the information already available from earlier (particularly ILCA and ICRISAT work) and existing studies (ILCA and 1. above) to initiate an active farm, sub-site and station based experimental programme on components, sub-systems agro-livestock systems that will present a range of alternatives for poor farmers of the region.

3. Develop working relationships between station based researchers, extension staff and farmers.

4. Train local research and extension staff through regular, informal contact, short formal sessions, workshops and attachments to relevant FSR projects in the Region.

It is proposed that all personnel should be based at Cinzana station and operate in a broad series of agro-ecological zones in Segou Region.

STAFF RECOMMENDED

1. Agronomist/Agriculturist
2. Livestock Production-Specialist

ACTIVITIES - The team is required to :

1. Develop a method of initial and continuous monitoring of existing farming and agro-pastoral systems together with Malian staff and advice from the SAFGRAD/FSR team leader as necessary. The methods should include both regular and specific data collection on the characteristics and major problems of farming systems.

2. Establish in each major zone or for each distinctive farming group (excluding the wealthier groups), a research-controlled sub-site that can be used for developing a range of system alternatives. Linked research activities should be initiated at an early stage, at all appropriate locations including the main regional research site. Some of the Research trial activities should be linked to similar SAFGRAD work in Upper Volta and Senegal.

3. Develop training courses and materials for informal and formal training of Malian professional and technical staff. Identify suitable candidates for further training in the Region or outside.

4. Develop linkages and involment of research and extension staff in the application of farming systems research approaches.

OUTPUTS

1. The establishment of a modest but effective farming systems research approach that fulfils the need in regional research programmes for greater relevance in agricultural research.

2. The generation and testing of a range of alternative measures and technologies that give stability to existing farming systems and greater food security for the majority of poor producers.

3. A training system that can serve at a local, national and regional base for scientists in farming systems research.

SENEGAL

INTRODUCTION

Of the three countries visited, Senegal clearly has the longest history and experience in farming systems research. ISRA is also at an advanced stage of preparation in the setting up of 5 major farming systems teams that will cover most of the major agro-ecological zones in the country.

However, the programme has phased starting dates and there still appears to be at least one area where there are now acute problems of degradation and where the modest input proposed by the IFAD mission could play a useful role;

PROGRAMME - The two man team is required to :

1. Begin a wide ranging survey and study of the farming systems in the northern part of the groundnut area of Senegal, focussing on the areas severely hit by drought in the last few years.

2. Utilise this information, and the considerable information available from previous development programmes and from the main research station at Bambey, to initiate an active on-farm, sub-site and station based experimental programme. This programme should be primarily aimed at the rehabilitation of the agricultural ecosystem and the development of reliable food outputs from the system.

3. Develop effective working relationships between station-based researchers, extension staff and farmers.

4. Train local research and extension staff in the principles and practice of farming systems research.

PROPOSED STAFF

1. Agronomist/Agriculturist
2. Livestock Production Scientist

ACTIVITIES - The team is required to :

1. Develop a method of initial and continuous monitoring of existing farming systems, using the knowledge and methods already gained from previous work. (Some liaison with the SAFGRAD/FSR team leader and other social scientists in the Senegal system will be necessary at the outset).

2. Establish suitable researcher controlled bases, in each distinctive agro-ecological zone, for the examination and testing of a range of system and system component alternatives. Some of this activitiy should be at the main regional station and as much as possible should also be on farm lands.

3. Develop training courses for informal and formal training of Senegalese staff in the principles of farming systems research in the context of resource poor environments.

4. Develop linkages between research and extension staff and promote the integration of farming systems research into the Senegalese national agricultural research system;

OUTPUTS

1. The establishment of a modest but effective farming systems research approach that fulfils the current objectives of the Senegalese national research programme.

2. The generation and testing of a range of alternative measures and technologies that give greater stability to existing farming systems and ultimately greater food security for the majority of poor rural households.

3. A training system that can contribute to the national plan of greater competence and understanding of farming systems research.

THE FARMING SYSTEMS APPROACH TO RESEARCH : ON OVERVIEW IN THE CONTEXT OF THE WEST AFRICAN SEMI-ARID TROPICS

The farming systems approach to research does not contain any major innovations that could not be found in older, integrated research and development systems, despite the voluminous recent literature that would claim otherwise.

What the approach is attempting to do is to reinforce or rejuvenate areas and linkages that have become weak or ineffective within many agricultural research systems so that more relevant research can be undertaken. The reasons for these weaknesses are many, but they include institutional separation and weak linkages between them, the move away from solving problems faced by farmers to more specialized disciplinary and sometimes esoteric research on stations and the increasing specialisation into various scientific disciplines of most research scientists.

the addition of farming systems research teams to existing national research structures has presented an opportunity to correct these deficiencies. It should now be possible for scientists, extension workers and farmers to evolve more stable systems of production which will provide food security and income for the majority of poor households.

However, there is a danger that the introduction of FSR has raised expectations of spectacular early results in the same way the Green Revolution technology packages did 20 years ago. FSR can only work effectively as part of a broader research, extension and rural development system and any technology that is devised has to be an integral part of this system.

It is also important to note that the semi-arid tropics of West Africa are facing a number of circumstances that will have a major influence on future farming systems. These include : increasing rural population density, decreasing annual rainfall, amounts and the increasing dependence of individual producers on

external (to the village) aid and support. It would now appear that there is a need to make substantial changes to the methods of extractions of surpluses from these systems and also into methods of maintaining stability through the renewable resources if these ecosystems, and the people who depend upon them, are to survive.

We therefore consider that FSR has a number of important functions in operating within national agricultural research and development systems in the semi-arid tropics of West Africa, which are :

1. The development of an understanding of the total farm environment, the farm and the household system and the purpose and objectives of farming.

2. The facilitating of effective linkages between farmers, extension workers, research scientists and other institutions and individuals involved in natural resource management and development.

3. The utilisation of farmer knowledge of environment and resources, both from the past and present, and knowledge from analoguous situations, to evolve solutions to long and short term problems faced by farmers.

4. The early and continuing involvement in active, applied research work on farms and at sub-sites in each agroecological zone. This work should be designed to examine, test, and demonstrate a range of stable, productive systems that offer the largest groups of poor farmers attractive alternatives to existing practices.

5. The identification of priorities, and sequencing of problem solving in the long term development of farming systems. These may be superficially technical, such as the arresting of fertility decline but they may also have important policy dimensions which would involve additional intervention. FSR therefore has an important role in bringing to the attention of policy makers and planners, matters that require modifications

in policy at national or regional levels (eg pricing, land tenure, taxation, marketing access to inputs, group activities).

We consider that if any one of these important functions is absent or neglected, the FSR programme may be partially or wholly ineffective.

In addition to these functions, we think that FSR teams should consist of people who can work in an inter-disciplinary framework. Large teams consisting of many disciplines are not necessarily more effective than small teams containing people with strong interdisciplinary backgrounds. Also, large teams may only be able to operate in a relatively limited area whereas a number of small teams can often cover a wider geographical area and interact with a large number of farming groups.

FARMING SYSTEMS RESEARCH : THE NEED FOR SOIL FERTILITY RESTORATION AND MAINTENANCE IN THE SEMI-ARID AREAS OF WEST AFRICA

Decreasing soil fertility in the semi-arid regions following the shortening of the fallow period and the extension of the cultivated area is undoubtedly the most important problem *that farmers will face in the next few years, particularly in areas where population density is already very high. In the long term migration from these areas is inevitable if current practices continue. Mineral fertilizer use cannot build up or maintain soil fertility without the addition of more organic materials.

On Saria research station a 25-year experiment was conducted by IRAT on alternative ways of maintaining fertility. Various mineral fertilizers were used with and without organic manures. This work showed that by itself high mineral fertilizer use cannot maintain fertility as it raised soil acidity that had to be corrected by regular doses of lime. A small amount of manure (2.5 - 5 tonnes/ha) together with a small amount of mineral fertilizer was sufficient to maintain and stabilise soil fertility and also sustain an acceptable yield level.

Whenever the possibility of extending the cultivated area is limited, an increase in cereal production necessary to obtain food self-sufficiency can only be obtained by increasing yield following the rehabilitation of soil using a range of techniques designed to maintain soil fertility and improve the economy of water use.

At the current levels of production from most farm lands, the introduction of high yielding varieties of millet or sorghum can only be justified on the best soils which are very limited in area. In the present situation where limited organic manuring is carried out, all techniques designed to increase production through the use of new varieties and mineral fertilizer, even if they produce some promising results in the short run, will, in the long run contribute to the further deterioration of soil fertility. It is surprising that though most researchers recognise the seriousness

---

*This is, apart from rainfall amount and variability which clearly sets the limits on permanent arable cropping.

of soil fertility decline, most agronomic field research still concentrates on variety and fertilizer trials, and animal traction technologies that encourage farm area expansion. The IVRAZ-IRAT programme is exceptional in that manuring is an important component of the research and development programme. In Yatanga ORD (Upper Volta) all the amelioration techniques generated by a range of small projects, such as the use of small stock, fruit trees, forestry and fodder crops, are presented as a range of alternatives or alternative combinations for the farmers of the region.

In a major ORSTOM study in 1966 -1967 in the Yako region, 180 km W.NW of Ouagadougou, most of the fertility maintenance techniques outlined below were integrated into farming systems, even though some were carried out on a very limited scale (Kohler, 1971).

It is fully accepted that one farmer cannot adopt all the techniques discussed but it would seem to be a matter of extreme urgency that at least a range are tested and farmers are given the choice and support needed to implement those they consider feasible for their circumstances.

ACACIA ALBIDA AS A PERMANENT TREE INTERCROPPING AND FERTILITY RESTORER

This is the first measure to be introduced as, in all the locations in which it has been planted, even though its growth is slow, it is one of the most promising trees for the semi-arid zones. Its chances of adoption by farmers would be greatly enhanced given appropriate government support. The tree is found in all the Sahel-Soudan zones and it would appear to have originated from southern Africa. Its abnormal season growth indicates that it has not originated in the countries where it is currently growing. They may also indicate that man has had an active role in its distribution and that it has been of importance in the past. In the the Zinder kingdom of Niger a man who cut down one **Acacia albida** tree (Gao) without permission was beheaded.

The tree is found in areas where sandy or sandy-clay soils are present and where the water table is not too deep as it requires water during the dry season to develop full leaf canopy.

Despite this limitation, the areas where the tree could be planted are immense, and many authors confirm that with a full **Acacia albida** stand permanent cropping is possible without any decline in soil fertility. The tree clearly can contribute to the improvement of both physical and chemical properties of the soil. Also, the pods have a high feeding value for animals and the attraction of the trees in providing shade in the dry season results in concentrations of animal dung. The sometimes stated "problem" that the presence of the tree inhibits animal traction is fallacious as the tree has few surface roots and can be planted in rows 20m apart.

It is suggested that the introduction of **Acacia albida** and other, well adapted trees, should be a major priority wherever possible in the Sahel-Soudan zones.

Restorative fallows

Due to demographic pressure and to the expansion of farm areas cultivated using animal traction, fallows are decreasing in proportion to cropped area both in surface area and in time. However where organic manuring is limited, fallowing is the only effective way to restore fertility on cropped land. Any method which could speed up the restoration process is worth examining and testing. Some leguminous fodder crops such as **Dolicos lablab,** Siratro or Pigeon pea or grasses such as **Andropogon guyanus** and **Pennisetum penicelatum** (local) or **Cenchrus ciliaris** (introduced) can either be grazed by cattle and dung dropped in situ, or made into hay for dry season feeding in enclosed areas where manure can be collected for distribution later.

Intercropping of cereals with leguminous plants such as Dolicos lablab, Siratro or Niebe

Even though intercropping is very limited in the dry zones, it can be envisaged on land that has been cropped and is now moving

into a fallow phase because of declining fertility and low yield. Millet may be sown at very low density (maybe 5,000 - 10,000 hills /ha) and intercropped with a legume. The small return from the millet could generate interest in the companion fodder crop.

Green manuring

Though this technique may only be appropriate where animal traction is present, some plants with rapid growth such as **Macroptilium latheroides** can be sown as a preliminary to the installation of a pasture crop or even as a second crop following a short duration in adequate rainfall seasons.

Compost

All available remnants of crops, weeds and domestic refuse should whenever available, be used for composting. This is much the best way of recycling straw which, if ploughed in, will utilise additional nitrogen on decomposition. The objection to this technique is that it requires additional water for the effective decomposition of the organic matter. This could be overcome by having two pits so that the build up of compost can continue through the rainy season.

Mulching

This is an effective method of increasing soil fertility and reducing evaporative loss and erosion but requires a large amount of hand labour and also considerable quantities of material to be effective. As fallows decrease in size so does the available biomass also. However, whenever grass is available, it is a technique worth investigating.

Manure

All farmers are aware of the value of animal dung and many will collect dung for application on small areas or encourage the temporary stay of cattle on fields in rotation. However, the quantities of dung contributed by these methods is erratic and often inadequate. It may be necessary to concentrate the collection of manure at night by provision of enclosures or stall and supple-

mentary food. The rotation of small stock on small areas using temporary fences may also be possible.

Animal care and health

The high mortality rate (30-40%), for small stock in the area visited by the Mission, could be drastically reduced by the widespread use of vaccination and anti-parasitic drugs for all classes of livestock. This would increase the number of animals and, provided there is sufficient feed available, increase the quantity of manure produced. It may also encourage the growing of fodder crops, and the contribution to household income from livestock sales could be raised substantially.

Animal traction

In a number of programmes, animal traction using donkeys has been favourably compared (economically) to ox traction. However, this approach is limited as work with donkeys is almost always confined to simple weeding operations, whereas some form of ploughing is an important cultural method which increases water retention capacity on many soils. Also the introduction of oxen to farms on which there are none will familiarize the farm household with cattle which are an essential step in the gradual improvement of the farm system. With cows as draught animals, it would be possible to breed stock over a relatively short period. Buying young animals and selling 2-3 years later when they are heavier is a method of increasing household income. This is the current practice in the Sine-Saloum region of Senegal. Oxen will also produce significant amounts of manure whereas donkeys will not generate much unless there are large mumbers.

One of the main current objections to ploughing in Upper Volta is that under conditions of a short rainy season, the farmer is always anxious to sow rapidly with the first rains and ploughing may well delay the operation. This argument is only valid if the farmer was intending to plant all his land as the rains commence. This paper suggests that the farmer should concentrate on a relatively limited area (his better soils) and improve this land

with manuring, ploughing in early and tree olanting so that cereals can be planted on this land as, or just before, the rains commence.

Hedges

Hedges are useful for protection from wind and to provide shade and fodder. They are difficult to establish where farmers practice extensive cultivation but could be practicable in a more intensive system with small fields, protected in sequence. A hedged field of leguminous shrubs could provide some fodder and also contain cattle at night during the dry season.

Village wood lots

Most of the cereal straw is currently used as a fuel (or as housing material) but it may be more usefully utilised as a fodder (with or without the addition of urea) or for composting. The planting of village wood lots provide firewood and building materials and it is recommended that trees for these purposes included in any programme of environmental improvement at village level.

Mineral fertilizer use

Mineral fertilizer, in the form of rock phosphate, may only be of value where soil organic matter is at a reasonable level and where moisture supply is reliable. In this case crop yield response is likely to be substantial and the phosphate will also have useful residual effects. Nitrogen fertilizer is only likely to be of value where yield potential is high and consistent. The increasing cost of mineral fertilizer makes its use unlikely over much of the semi-arid zones unless the true cost is subsidised.

Improved varieties of crops

Improved varieties of crops, that are adapted to be better than average conditions, are unlikely to have more than a very limited value or impact (i.e only on the better soils in good rainfall years) in situations where farmers are facing increasing deterioration of their soils. Many farmers already have a wide selection of

locally selected cultivars that are adapted to a range of climatic and soil conditions to combat the extreme riskiness of their environment. This strategy may be an important one for crop improvement scientists to bear in mind.

Water management

Soil management techniques such as tied ridging are only likely to result in greater responses on an improved soil that has a good moisture retention capacity. On soils with very poor structure, ridges are difficult to maintain and plants grown on ridges may also be more susceptible to drought at early growth stages. Some form of local water conservation is obviously desirable on most semi-arid soils but there has not, so far, been any wide adoption of tied ridging among farmers of the semi-arid tropics despite more than thirty years of research into this technique. It may well be the high labour demand of the technique not only for construction but also for maintenance at a time when weeding is a major priority that makes it unattractive.

Conclusions

It is obvious that all of these techniques cannot be adopted by all farmers but at least most of them should be examined and tested in as wide a range of agroecological zones as possible as an integral part of farming systems research programmes.

In all farming systems research budgets, some provision should be made for financing the introduction of some of these measures. Support may also be possible from Forestry Divisions of the appropriate community development Ministry. It would seem to be important that farmers are intimately involved in the planting and maintenance of seedlings of **Acacia albida** fruit trees, wood lots, hedges, forage legumes or grasses, and should have access to drugs or vaccines for livestock, but the initial cost of introduction should not be passed on to the farmer.

The amount of money needed for this kind of action is small in relation to the size of current FSR budgets.

Our knowledge of these environments more than one hundred years ago and of their quality in the recent past indicates that there

is now an exponential rate of deterioration taking place and many areas have reached an irreversible state. In many areas of the region, arable soils without any kind of protection are exposed to sun and wind for 6-8 months of the year. The reversal of this process cannot take place without a concerted series of actions that will rehabilitate and maintain the environment. The protection of the soil and the return of increasing amounts of organic matter through a variety of measures are essential elements in this process. The long-term improvement of farm production systems and food security may only be possible through the improvement and integration of the livestock component of the system and the planting and management of trees and tree crops. The current orientation of agriculture involving the extension of the cultivated area through the use of animal draught mitigates against this as trees and stumps are removed for ease of ploughing and grazing areas reduced.

ANNEX 4b.

Second Meeting of the Project Management Committee Of IFAD - Funded Farming Systems Research of SAFGRAD Held in Ouagadougou, Upper Volta on 9 - 10 April , 1984

Minutes

Agenda : IFAD Supported Farming Systems Research

In attendance

Regular Members of the Committee

Prof. A.O Williams, Executive Secretary, OAU/STRC - Chairman	
Mr M.A Kesseba	IFAD Representative
Mr J.A Becker	USAID "
Mr Robert Nicou	FAC "
Dr Curtis R. Jackson	ICRISAT "
Dr Robert Ohm	SAFGRAD/FSU "
Dr J.M Fajemisen	IITA "
Dr J.M Menyonga	International Coordinator, SAFGRAD
Dr Taye Bezuneh	Director of Research, SAFGRAD, Secretary

Observers

Dr Mustapha M.B Sall	ILCA
Dr Woods Thomas	Purdue University
Dr Solomon Bekure	ILCA
Dr Mario Rodriguez	SAFGRAD/IITA
Prof. Akinola Agboola	Nigeria
Dr Robert Gray	USAID

The Committee considered countries recommended for FSR support. The IFAD representative indicated that there was no objection programme in three countries recommended by the consultants or in other countries mentioned in the proposal as long as the project would not be duplicating other similar efforts. The reasons that were advanced for starting the new SAFGRAD/FSR in Upper Volta were to :

1. Fill identified disciplinary gaps, and strengthen the national FSR ;

2. Facilitate the development of national FSR that could be integrated within the national research and extension system ; the project will build upon experience of existing FSR programmes ;

3. Improve coordination of FSR within the region using the on-going SAFGRAD research to back up workshop and training activities ;

4. Consolidate knowledge already gained from FSR activities .

It was evident that the Upper Volta national FSR has yet to be developed as an integral part of its national research system. The IFAD FSR support could facilitate this effort. After lengthy discussion on the matter, the Project Management Committee (PMC) decided that the first FSR programme be launched in Upper Volta as recommended (with regional FSR networking responsibilities at an appropriate time). The proposal to select the other two countries was deferred to the next meeting of the PMC (recommended to be held in October 1984 with TAC)

IMPLEMENTATION

The meeting continued on 10th April 1984. At that meeting, the proposed strategies were discussed and the following options were proposed for consideration :

1. The project be contracted to International Agricultural Research Centres, such as ICRISAT, IITA, and ILCA..

2. The programme be integrated into the existing FSU, ICRISAT, and other FSR programmes by filling identified disciplinary gaps and become complementary with ongoing programmes. OAU/STRC/SAFGRAD would directly execute the IFAD-FSR project.

3. Special host country contractual arrangements be established by OAU/STRC whereby the SAFGRAD/FSR is integrated within national research and extension systems.

The above three options for implementing the project were discussed. Members of the committee called for SAFGRAD to directly implement the project. As a result, the last two options (2 and 3) were accepted.

Furthermore, it was emphasized that backstop support arrangements be made with ILCA in addition to the already existing collaborative research work of IITA and ICRISAT. The committee agreed on the recruitment of a soil scientist, an agricultural economist, and a specialist in animal production for the Upper Volta programme by the OAU/STRC-SAFGRAD Coordination Office. Vacancy announcement should be sent to various institutions in Africa, International Agricultural Research Centres and to several foreign organisations. The short-listed candidates and a possible place for the interviews should be communicated to OAU/STRC, Lagos.

In addition, the Coordination Office was advised to effect the necessary arrangements and agreements with the Government of Upper Volta and report implementation status of the project to OAU/STRC, Lagos, before the next IFAD meeting.

As reflected in the first Project Management Committee meeting, the committee approved the nomination of Mr J.A Becker as the chairman of the Project Management Committee.

Secretary

Chairman

DRAFT SUMMARY REPORT OF SAFGRAD PROJECT EVALUATION (USAID)

I. EXECUTIVE SUMMARY

The SAFGRAD Project was initiated in 1977 as a $13.9 million, five-year project and has subsequently been increased to $ 19.6 million with the effective project completion date of March 31, 1985. Planned for support were improvements in three grains (sorghum, millet and maize) and two legumes (cowpeas and groundnuts) along with cultural practices appropriate to small farm, low-input, semi-arid farming systems and promotion of their adoption by farmers. Primary project activities included regionally coordinated research and support to national research field trials and outreach programmes to extend improved technology to farmers. The Organization of African Unity Scientific, Technical and Research Commission (OAU/STRC) was selected as the coordinating organization for the project which initially included 18 African countries, later increased to 25 with three more currently applying for membership.

Although a grant agreement was signed with the OAU/STRC Office in Lagos, Nigeria, an OAU/STRC Coordination Office was established in Ouagadougou, Upper Volta for administration of the project. Less than 20 percent of project funds were actually managed by this office. Nearly 75 percent of the funds were in direct contracts between AID and IITA, ICRISAT, Purdue University and individual contracts for Accelerated Crop Production Officers (ACPO). OAU/STRC was not a party to these contracts although the International Coordinator does approve project implementation documents.

IITA provided primary research efforts for maize and cowpeas with researchers working both at Ibadan, Nigeria and Kamboinse, Upper Volta. Considerable progress has been made in developing improved cowpea varieties. In terms of project objectives the maize breeding programme was much less successful since IITA has concentrated upon breeding and selecting for varieties which do well under moderate levels of fertility ($^{70-40-30}$) and soil management, rather than under the low input conditions of small farmers in the project area. Two

varieties developed by IITA yield well under "good" conditions, but generally have not done as well as local varieties under the stress conditions found in farmers' fields.

ICRISAT had responsibility for research in sorghum and millet. The Project Paper had included groundnuts, an ICRISAT mandated crop, but research in groundnuts was never included in their contract. A three-man team was stationed at the Nigerian Institute for Agricultural Research (IAR) at Samaru, Nigeria to do breeding and agronomic work on sorghum and millet. One person, a soil and water management scientist, was 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. Rapid turnovers of staff at Samaru, due to inadequate logistical support and difficult living conditions peculiar to Nigeria, resulted in less progress than desired in developing improved varieties and agronomic practices for sorghum and millet. The soil scientist at Kamboinse conducted useful soil and water management research, but could have done more if he had been provided necessary research equipment as specified in this contract with ICRISAT.

The Farming Systems Unit provided under a contract with Purdue University, after an ineffective beginning altered course and is now providing some useful information on the national level for Upper Volta. Aside from possible FSR methodology, the research is deemed to have little value on a regional basis.

Five ACPOs are currently located in member countries (Mali, Senegal, Togo, Cameroon and Upper Volta) to provide the 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 programmes. Two ACPOs are expatriates and there are local nationals. The Togo ACPO is financed by French aid. The work of the ACPOs in general was found to be one of the strong aspects of the project.

Management of the OAU/STRC Coordination Office in Ouagadougou, has made a considerable change in style of operation largely due to a critical audit conducted in mid-1982. Because of the audit the project

was brought to a virtual stand-still while both AID and the incumbent International Coordinator attempted to explain discrepencies. Now that the new International Coordinator and Director of Research are in place, a noticeable change of direction and sense of purpose has taken place. The USAID/UV Mission is working closely with them to ensure that acceptable accounting procedures are followed. Two internationally qualified Accountants have been hired to manage and control project funds. In addition the Technical Advisory Committee (TAC) and the Consultative Committee (CC) after a slow start are beginning to function as planned in establishing broad policy guidelines for the SAFGRAD regional research programme.

Though this evaluation is largely a terminal evaluation of the project, plans are underway for a follow-on SAFGRAD II project. We are of the opinion that a strong foundation exists in the OAU/STRC Coordination Office that could be developed into an effective facilitator for research activities in member countries. A number of suggestions are made for the design team, but perhaps the most fundamental issue is a recognition by AID of the need for developing an institution within OAU/STRC to establish broad policy guidelines for research activities common within the region, seek necessary funding from international donors, organize conferences and workshops that will develop a sense of camaraderie among professional colleagues in both extension and research and disseminate technical information to member countries. There is a role for SAFGRAD --- it needs to be carefully designed and provided with the resources necessary for implementation.

II. MAJOR CONCLUSIONS

1. The Project Paper basically ignored the issue of institutional develoment and as a result the project has had some serious management problems. If the project had an explicit institutional objective, a more positive approach may have been taken to create within OAU/STRC a capability to manage AID and other donors' resources to coordinate research activities of member countries. Despite poor organizational design, the project had succeeded in achieving most project objectives.

2. The new International Coordinator and Director of Research have assumed their duties. Both have the respect of their professional colleagues and are assuming responsible management of the office.

3. The Technical Advisory Committee (TAC) and the Consultative committee (CC) of SAFGRAD after a slow start have begun to function along the lines planned in the project paper. The TAC has met three times and is scheduled to meet again in July 1984. The CC met twice and another meeting is scheduled in April 1984. These committees provide a structure for representatives of African member countries and donors to influence programme content and to establish policies and mechanisms for carrying out their decisions.

4. While AID signed a grant agreement with OAU/STRC for nearly all of the SAFGRAD project funds, OAU/STRC until recently had responsibility for managing only about ten percent of all SAFGRAD funds. Most of the funds are committed in direct contracts between AID and IITA, ICRISAT and Purdue University. OAU/STRC is not a party to these contracts, although they do

approve project implementation orders.

5. The 1982 AID international audit was a major trauma for both AID and SAFGRAD resulting in a number of changes in the management of the Coordinator's Office in Ouagadougou. For a relatively small portion of the project funds, the OAU/STRC office was virtually paralized for over a year and USAID/UV devoted an excessive amount of time "clearing" the audit recommendations. As a direct result of the audit, the USAID/UV Mission has been working with the OAU/STRC to develop financial management procedures. Two chartered accountants have been hired by the OAU/STRC to manage the funds of AID and other donors.

6. The IARCs are having some success in developing improved grain varieties, but it is much to soon to see much on the way of results. Several promising lines with resistances to pests and diseases show considerable potential.

7. Soil and water management problems are not being adequately addressed and perhaps too much emphasis is placed on breeding.

8. The Accelerated Crop Production Officer (ACPO) is one of the bright spots in the project, and have been a major link between research and national extension programmes. Only five ACPOs are currently employed, four of them funded with USAID funds.

III. RECOMMENDATIONS

With only a year remaining in the project, little can be done to change project direction. We have therefore restricted our recommendation to those that project management can address.

1. Cowpea breeding and agronomic research should be continued at present or increased levels of funding with more emphasis placed on breeding plant types desired by farmers (indeterminate plant with leaves eaten as vegetables).

2. Recognizing that it is too late in the SAFGRAD project to change the maize breeding programme, it is strongly recommended that SAFGRAD through the TAC and CC clearly state the objectives of any future maize breeding programme and be firm in seeing that the breeding programme is being conducted in such a manner as to achieve those objectives.

3. The FSU should be fully staffed with expatriate researchers and a Training Officer in 1984 as stipulated in the Purdue Contract. However, if budgetary restrictions preclude hiring a Training Officer, FSU should investigate other source of technical assistance. The Centrally Funded Farming Systems Support Project could provide short-term technical assistance for training, development of training materials and networking.

4. During the remaining year of the project. FSU should work with appropriate Voltaic Government Officers to plan a series of workshops and seminars to present FSU findings and to get feedback on the perceived value of the findings.

5. Purdue University and the FSU team should seek ways to improve the analysis and publication of data already collected.

6. A number of specific recommendations are made for specific aspects of the ACPO programme. Most are suggestions directed

at the OAU/STRC Coordination Office.

7. The ACPO programme should be vigorously supported by SAFGRAD. All ACPOs need not be financed under SAFGRAD. There are many countries where trained nationals are available to undertake the role of ACPO. SAFGRAD should encourage these countries to create and man ACPO posts.

8. SAFGRAD should immediately contact ISNAR for assistance in improving its coordination activities with the research and extension organizations of its member countries.

9. Two senior staff members should be added to the personnel of the OAU/STRC Coordination Office : A Director of Training and Extension and a Planning and Organization Officer.

10. AID should include OAU/STRC as a major party in the nagotiation of contracts. This could be achieved by :

    - Making a grant to OAU/STRC who would then award the contract. As an accompanying measure AID should assist OAU/STRC in the legal and contractual matters at least in the initial stages, or ;

    - AID could retain the negotiation of the contracts under its responsibility, but include OAU/STRC as a major party and a consigner of the contract.

11. OUA/STRC Coordination Office should explore flexible contractual arrangements to achieve networking of FSR and ACPOs.

12. In the negotiation of contracts and implementation planning of the SAFGRAD project, efforts should be made to ensure that the various components of SAFGRAD activities receive the resources that are budgeted. Major changes in the implementation of the project should correspond to clearly stated policy modification.

13. The preparation of a procedural package based on OAU and AID procedures should be pursued as diligently as possible and implemented.

14. OAU/STRC/lagos should make a clear delegation of authority and responsibility to the OAU/STRC Coordination Office in Ouagadougou. This clarification of responsibility should parallel that taken between AID/W and USAID/UV and the OAU/STRC Coordination Office on fiscal and administrative matters.

ANNEX 6

SAFGRAD II

A PRELIMINARY DRAFT OF A PROJECT IDENTIFICATION DOCUMENT

(PID)

BACKGROUND AND SUMMARY

This PID proposes a second phase of the Semi-Arid Food Grains Research and Development (SAFGRAD) project. SAFGRAD has been operating under the auspices of the OAU Scientific, Technical and Research Commission (OAU/STRC) since 1978. The original project paper approved a five-year activity from 1977-1981 and AID funding of $ 13,9 million. Amendments increased the AID funding of $ 19,6 million and extended the project to March 1985. A mid-term evaluation and an end-of-project evaluation concluded that implementation has produced numerous positive results consistent with and contributing to achievement of the project purpose and goal. The latter team recommended extending the project into the second phase and offered several recommendations as to programme content

The present PID proposes AID financing of $15.0 million over a five-year period. Although financing is planned for five-years, it is proposed that the project be conceived in a ten-year framework.

The project goal and purpose are broadened in keeping with current AID priorities and strategies and to more adequately reflect current realities of the African institutional setting.

The project goal, as stated in the SAFGRAD I project paper was defined principally in terms of increasing "the quantity and quality of staple food crops effectively available to the increasing populations in the semi-arid zones of Africa". This is now broadened to include an equally important element, increasing farmers'incomes and improving farmer living standards. This provides a broader programming base than the more purely food crops orientation of the original project.

Although perhaps implicit in the initial project, the current

statement of purpose explicitly provides for a greater institutional focus of the project. The original project emphasized specific research and approximately 65 percent of all funds were spent on research. SAFGRAD II will continue direct involvement in research ; however, a greater proportion of resources will be used for strengthening national agricultural research/outreach systems of member states.

The essential elements of the project will remain as in the original project. However, significant shifts in emphasis among elements and details within elements are proposed. The main parts of the original project may be summarized as follows :

1. The establishment of teams of research personnel at appropriate research stations to (a) undertake specific research for improving varieties of the principal food grains and grain legumes, (b) develop improved cultural practices and soils/fertility/water management methods, and (c) conduct socio-economic studies within a Farming Systems Research (FSR) framework.

2. Establishment and support of mechanisms for linking research centres strengthened by the project, other research entities and the national research institutions of member states and for strengthening ties between national extension/outreach and research.

3. Introduction of a system for more effectively relating research to farmers'problems through the FSR approach.

4. Long and short-term training of professional and technical staffs.

5. Establishment of management and coordination structures under the OAU/STRC for administrative and technical direction and management of the project.

The more significant changes from the original project which are proposed are as follows :

1. Important changes in administrative and management arrangement are proposed :

(a) More clearly defining the responsibilities of the Coordination Office by assigning technical direction and management to the coordination office in Ouagadougou, while financial and administrative management is assigned to OAU/STRC in Lagos.

(b) Providing the SAFGRAD Coordination Office with the services of a Research Director (IFAD financed) and a Planning and Programming Officer to be funded under this project.

(c) Strengthening the administrative and financial role of OAU/STRC by making it a party to all contracts for services.

(d) Strengthening the research direction and management role of the Coordination Office by negotiating agreements with contractor(s) providing for full integration of contractor(s) personnel into an integrated team.

(e) Strengthening the direction and management role of the Coordination Office with respect to the Accelerated Crop Production Officers (ACPOs) by making that office along with the source of funding (SAFGRAD, bilateral, etc.) and the country concerned a party to contractual arrangements for obtaining the services and support of the ACPOs.

2. Some conceptual changes are introduced :

(a) Providing a clearer conceptualization of SAFGRAD as an institution with an evolving role.

(b) Defining distinct roles for SAFGRAD in the three broad ecological-geographical zones into which member states fit. These are (a) the Sahelian, Sudano and Sudano-Guinean zones extending across the middle of Africa from the Atlantic to the Red Sea ; (b) an East Africa zone ; (c) a Southern Africa zone comprising the SADCC countries.

(c) The ACPO role is seen as providing the linkages between national research systems and regional research whether by SAFGRAD or other institutions and as providing the linkage between research and outreach within the national systems. The ACPO role can be seen as a precursor to a more structured FSR approach. Once the FSR is well established within any given national system there would be no need for the ACPO.

(d) The role of FSR is substantially redifined. Rather than have an FSU as an entity distinct from the commodity and discipline research units, the entire core research staff is seen as working as one team in which the discipline, crops and socio-economic specialists will be integrated within an FSR framework.

(e) A more liberal definintion for low input technology is given to accommodate different ecological conditions and differences in cropping patterns. A clearer definition of the target groups is provided.

3. Some changes in emphasis and programme content

(a) The role of SAFGRAD in facilitating and coordinating regional research and in promoting exchanges among research workers and institutions (networking) will be given emphasis relative to its role in actually carrying out research.

(b) Greater importance will be given to research in soil fertility, water management, and other practices for reducing the risks associated with crops and animal production in regions of fragile soils and unreliable rainfall.

(c) Given that results to date suggest that soil fertility and moisture availability determine crop yield to a greater degree than does genetic potential, genetic improvement of crops will focus primarily on obtaining resistance to water stress, diseases and insects.

(d) Research on specific topics will be undertaken in priority areas which are not being adequately covered by national systems, regional programmes or the IARCs.

(e) Given that ICRISAT has established an important Centre for millet research in the Sahel and the intent of ICRISAT to establish a programme for sorghum in West Africa, support for work with sorghum and millet at Samaru will be discontinued.

I. Programme Factors

A. Country Strategies

Each of the 25 SAFGRAD members has placed food self-sufficiency as a priority development goal. During the past 10-15 years, few of these countries have been able to maintain food production levels adequate to satisfy the increasing food demands from population growth. A second priority is increasing production of export crops.

The strategies as well as the implementation instruments adopted by different countries vary widely. Nevertheless the basic theme is essentially the same -- the application of improved production technology. To date these strategies especially with reference to food crops have usually floundered because the improved production technology was either (a) unacceptable to the farmer, (b) did not result in yield increases commensurate with the additional effort and inputs required, or (c) required inputs not generally or readily available. The strategy has been more successful in the Sudano-Guinea zone where rainfall is more favourable and food crop production is more integrated with cash crops (cotton). While many exogenous elements affect the acceptability and utility of technologies which are promoted, much of the blame for non-acceptance must nevertheless be laid to the biological and physical limitations of the technologies themselves.

The failure of the SAFGRAD countries to produce sufficient staple foods, not to mention the decline in non-food agriculture, has serious implications for development. The well-being of some 70-80 percent of the population is severely compromised. Heavy outlays for imported food places serious strains on balance of payments to the detriment of capital goods imports, and food habits of large segments of the population become altered in favour of imported foods. The latter is particularly

pernicious in that this creates a demand for food which the countries cannot, and in all probability will never be able to, produce.

Thus, the failures of the agricultural sector and in particular the food sub-sector lies at the root of the rapidly deteriorating economic conditions of most of the Sub-Saharan African countries.

The development of applicable improved production technologies, the institutionalization of the process whereby continuing advance in technology development can be made and the institutionalization of mechanisms for promoting and achieving the widespread application of these technologies, though not sufficient, are at least necessary conditions for the achievement of the potentials of the agricultural sector.

B. Africa Bureau Strategy

The SAFGRAD project is consistent with the broad AFR strategy for fostering economic development in Africa by encouraging regional cooperation among countries including the strengthening of regional organizations. More specifically with respect to the agricultural sector the project is consistent with two of the three broad policy objectives established by the Africa Bureau (AFR Bureau Strategic Plan of May 1983). These are "the building of self-sustaining African institutions that provide appropriate technology, inputs and services at the time and in the quantity necessary for effective production and distribution of food products" ; and, "support for institutional and human resources development programme that provide the means for greater participation by farmers in the development process, including policy planning, to build popular support and acceptance of programmes necessary for self-sustaining growth".

In terms of providing orientation for selection of projects within the three broad programme objectives, one of the three priority areas identified in the strategy statement is support

for agricultural research. "-technology generating institutions have to be given a priority claim on resources because, without a viable base of farmer-acceptable technology (a production package), there is extremely limited opportunity for success of any other type of development effort, even policy changes". The direct involvement of the farming population in a FSR approach is a keystone in the AFR strategy.

The proposed programme for SAFGRAD II is also consistent with the strategy of the Science and Technology Bureau of AID (S&T). This strategy stresses strengthening the research capabilities of developing countries world wide, increasing the effectiveness of use of resources committed to research, and improving the relevance of research to production problems. The SAFGRAD approach emphasizes (a) research on priority problems for the semi-arid areas not being adequately addressed, (b) cooperation among research systems of member states and with IARCs and (c) strengthening exchanges and linkages among these through networking. The SAFGRAD II project is particularly responsive to the view that the "national programmes can derive substantially greater benefit from available research if there is more regional focus of research activities, greater regional cooperation among participating countries and greater coordination among donors".

Within this general strategy, two broad regional as well as numerous bilateral projects are being supported by AID. One, the multi-donor Cooperation for Development of Africa (CDA) agricultural research initiative, covers the entire sub-Sahara area except the Union of South Africa. The other, SAFGRAD, addresses problem specific to the semi-arid areas in 25 member countries. Within CDA, AID resources are concentrated in two areas -- the Sahelian group of countries and the Southern African (SADCC) group. The project designs for the two projects will be developed in close coordination and collaboration.

In sub-saharan Africa AID is currently supporting eighteen projects whose principal focus is agricultural research. Another 48 projects involve research components ranging from 10 per cent to 50 percent of cost . Among SAFGRAD member countries there are 40 bilateral research projects supported by AID. Research is the dominant element in seventeen of these. In addition eight regional projects inclu-

ding SAFGRAD touch on some or all of SAFGRAD member states.

C. Other Donors

SAFGRAD I has received support from two donors besides AID (FAC & IDRC). The non-AID contribution, however, has been small. A substantial contribution to SAFGRAD II is projected by IFAD. An initial contribution has been made for financing the Director of Research.

Numerous other donors are supporting research in SAFGRAD member countries through bilateral, as well as regional projects - (France, U.K, FRG, Belgium, Canada, the World Bank, UNDP, FAO).

Five of the CGIAR International Agricultural Research Centres (IARC) have headquarters in Africa and one (ICRISAT) is establishing two permanent sub- centres in Africa. Five other centres are involved in research activities in one or more of the SAFGRAD member states.

II. PROJECT DESCRIPTION

A. Perceived Problem

Low levels of production, poor yields and low labour productivity within an environment of unreliable rainfall, combined with infertile and fragile soils characterize the agriculture, and particularly the food crop agriculture, of most of the semi-arid lands of Africa.

The recent advances in developing varieties and production practices for the major food crops have found little application in Africa. These have involved either (a) a system of intensive production based on high level or inputs and better management of the environment through practices such as irrigation, or (b) an extensive system based on large scale mechanization which on balance yields a good return to labour and capital. In the semi-arid areas of Africa the production system remains extensive but on a miniscule scale. Production per unit of labour or per unit of land remains minimal, providing in many instances for bare survival.

The challenge to research in the semi-arid regions is to develop systems of production which increase returns to labour (incomes) either through technologies which intensify production on small farms or by technologies which enable the farmer to expand the land area cultivated (extensification)1/. In all probability improved systems will include elements of both approaches.

It is not sufficient for researchers to produce improvement in production technology. Weak institutional capabilities of most SAFGRAD countries occur not only with respect to research, but also in assessing perceived problems, in testing and adapting technologies to farmer conditions and in dissemination of proven practices. Because of these, strengthening of a whole array of institutions is an essentiel component of the development efforts.

B. Project Goal and Purpose

The goal of SAFGRAD II is to increase production of the basic food grains (millet, sorghum, and maize), and grain legumes (peanuts and cowpeas) by improvement of varieties, and by the development of improved farming systems and practices which may include livestock production. Achievement of the goal and dissemination of the improved production technology will contribute to higher incomes and improved living conditions of the rural population.

The purpose of the project is to :

a. Develop improved farming systems which maintain soil fertility, reduce soil erosion and water runoff, and increase yields of food crops ;

b. Carry out plant breeding and selection programmes on grain and grain legumes focusing on developing varieties resis-

---

1/ While the present population-land ratios in much of Africa will allow for expansion of extensive agriculture for the next 2-3 decades, continued population growth limits this approach.

tant to moisture stress, insects and diseases ;

c. Establish mechanisms, in collaboration with regional research organizations, for testing of new varieties and verifying improved technologies, and for promoting communication between the various research entities and institutions in the SAFGRAD countries ;

d. Verify and disseminate improved technology by on-farm testing under the ACPO (Accelerated Crop Production Officer) Programme.

e. Strengthen food crop research capabilities in the SAFGRAD countries by short and long-term (degree) training of key staff members.

f. Demonstrate and Implement a system for linking national research and extension institutions through ACPOs.

In summary, SAFGRAD performs two distinct but related activities ; an operational activity contributing to the development of technological innovations, and an institutional development activity. In Phase II more emphasis will be given to the latter.

A special effort will be made to expand the training programme ponding to particular needs of national research/extension organisations. Communication of research findings of regional interest among SAFGRAD countries will be fostered.

SAFGRAD is an instrument of an African institution (OAU/STRC). As an entity almost totally supported from the outside, SAFGRAD is viewed as a transitory regional institution whose role will evolve over time. The initial direct involvement and active role in implementation of research and in carrying out outreach and training activities should gradually give way to an increasing emphasis on coordination of research and facilitating exchanges and interactions among national agricultural systems as well as other research institutions. The evolutionary process should accelerate during Phase II to the extent that after the ten years proposed for the project, coordination information exchange and liaison should have almost

completely replaced its other roles. Eventually as the capability of national institutions are developed, the largely externally financed SAFGRAD should be replaced by dynamic African structures. This transition process will undoubtedly extend over a long period, measured in decades, during which continuous external support, albeit reducing over time, will be required.

C. Expected Achievements and Accomplishments

It is expected that :

1. Adaptive research will have developed farming systems that give increased production through maintenance of soil fertility, prevention of soil deterioration, better water utilization, and the use of improved varieties if available. These systems, some of which may include livestock production, can be adapted for use on the majority of farms in the different agro-acological zones.

2. Drought resistant varieties of cowpea that can better cope with disease and insect problems are available and being used.

3. "Production packages" for cereal grain and grain legumes based on the use of minimal amounts of imported inputs will have been developed and are being extended for farmer use through the ACPO programme

4. An institutionalized system for exchange of agronomic research information among scientists in the semi-arid zones of Africa will be in operation.

5. More than one hundred short and long term participants trained by the project will be engaged in agricultural research or production programme in the SAFGRAD countries.

6. Regional planning and cooperation in agricultural research in the semi-arid zones will have become institutionalized.

D. Project Outline and Inputs

The phase II project wil continue the principal components of the original project with certain modifications.

1. Administrative

The roles of OAU/STRC and the SAFGRAD Coordination Office in Ouagadougou are more precisely defined as follows : the OAU/STRC will be charged with definition and implementation of policy, in consultation with the Consultative Committee (CC), and administrative and financial management of SAFGRAD. The SAFGRAD Coordination Office will be responsible for technical direction and management of the regional research programme, the outreach programme through the ACPOs, research and outreach networking and training. In order to perform these responsabilities, the Coordinator will be assisted by two senior technical staff. A Director of Research (funded by IFAD) and a Planning and Programming Officer.

2. The Research Center (Kamboinse) and Regional Research

a. The Research team

A multi-disciplinary team will be assigned to Kamboinse :

1. Entomologist
1. Agronomist (cereals and grains legume production)
1 Agronomist (forage crops)
1 *Agronomist**
1 Agricultural Engineer (Soil & Water Conservation)
1 Plant Breeder
1 *Soil Scientist
1 *Agricultural Economist
1 *Animal Scientist

---

*To be funded by IFAD

**This agronomist to work with core team for the first year only.

The specialists will work as a team under the guidance of an appointed team leader. The SAFGRAD Director of Research will be responsible for establishing guidelines for the team to assure that the research is consistent with the project goal and purpose. The team will give priority to developing farming systems which increase production by improving soil fertility, reducing erosion improving tillage methods, increasing water utilization efficiency, and using fertilizers and improved varieties where appropriate. A special effort will be made to investigate the feasibility of integrating livestock and forage production into mixed farming systems.

Plant breeding will focus on cowpeas and other grain legumes to select varieties with insect, disease, and drought resistance.

Farming Systems research methodology will be an integral part of the research approach employed by the team. Selection of the particular researchable problems will be based on on-farm diagnosis of the principal constraints limiting production, the available and applicable technology in the areas of the constraints, and a thorough review of pertinent published and unpublished research. Research will focus broadly on the entire cropping programme or farming system.

The objective of the team research is to develop system of permanent cropping, combined with livestock production where feasible and economic, that maintain or increase yields and reduce soil deterioration. The production systems developed should minimize the need for imported inputs, and they should be capable of being adopted by a high proportion of the farmers.

It will be essential that scientists assigned to this activity work as a team. To the extent that these are drawn from one or another of the IARCs or other institutions, the team approach should transcend the mandates of the institution from which they come.

b. Restructuring Research on Millet and Sorghum

With the establishment of a major research centre by ICRISAT in the Sahel, research with millet within the SAFGRAD programme will be limited to cooperating with the Niger Centre, in regional testing of varieties and to studies concerning the place of millet in farming, systems, including regional testing of such systems.

Because of the many difficulties associated with ICRISAT work on sorghum at Samaru, this programme will be discontinued as a part of SAFGRAD. SAFGRAD, however, will encourage ICRISAT to establish a sorghum center in West Africa. SAFGRAD also will work cooperatively with ICRISAT in the research programmes at such a centre in the same manner as proposed for cooperation with the millet centre.

The ongoing USAID supported ICRISAT sorghum programme in Mali could provide the bais for SAFGRAD support of sorghum research pending resolution of the "Centre" question.

c. Levels of Technology and Production Inputs

With respect to the level of inputs it should be recognized that in order to bring about a reasonable and acceptable level if increase in productivity it will be essential to introducce certain off-the-farm inputs and probably also to increase farm inputs. Given the serious limitation on production potential imposed by the acute deficiency of phosphorous in most of the soils of the semi-arid regions, the application of phosphate fertilization will be a requiste for maintaining and increasing yields. An adequate level of available nitrogen must be maintained. A wider range of option is available in the case of nitrogen. Rotations, intercropping and relay cropping with leguminous species probably offers the best option short of use of imported chemical nitrogen fertilizers. A third critical need is to maximize the efficiency of water use. Intimately related to soil fertility and efficiency of water use is the maintenance of adequate levels of organic matter. Water maintenance are complicated problems and will require all the inge-

nuity that can be mobilized. A wide range of approaches should be investigated.

IRAT research extending over many years has provided considerable information on the principles underlying the soil deteriorating effects of continuous cropping and the use of chemical fertilizers. Certain techniques to counteract these effects and which can maintain/improve productivity of soil under continuous cropping have been developed. Recent work by others, including SAFGRAD scientists, confirm the IRAT results. The application of the techniques/practices developed, however, remain largely beyond the means of the majority of farmers. While certain practices require only additional labour, the potential gain from these do not appear to be sufficient to interest farmers to apply the additional labour .

If any significant increases in productivity (yields) are to be achieved it will be necessary to increase the use of production increasing inputs, including on-the farm (labour) and off-the-farm (better tools, fertilizers, chemicals, etc.). The often stated objective of developing a system of production capable of increasing production and productivity with zero or near zero inputs must be rejected.

Acceptable levels of inputs will vary with environmental factors, especially rainfall and soils of different zones within the semi-arid regions. Under favourable conditions, higher level of inputs -- off-the-farm (fertilizers, chemicals etc.) as well as on-the-farm (labour) can profitably be applied to take better advantage of favourable environmental conditions (intensification). In zones with less favourable conditions, use of fewer and low risk inputs should be preferred (mostly labour). It should be clear from the forgoing that a simplistic definition of the target farmer group(s) by the project is not appropriate. Rather the objective should be to reach the largest group for which there is a reasonable expectation that improved technology can be developed in a reasonable time and which that group will find profitable to apply.

A concentrate programme of research on the problems cited above will be the keystone of direct involvement of SAFGRAD in research. This is necessary because of the complexity of the problems and the requirement of a wide range of scientific specializations. The national research systems of few African states are able to address these problems alone.

Genetic improvement of varieties of the principal crops has been an important element of SAFGRAD I. Recognizing that production conditions most frequently preclude attainment of genetic potential in terms of productivity of most varieties, including many unimproved so called traditional varieties, it is clear that further efforts to increase the genetic potential of crop varieties with respect to yields should become secondary to other research. Genetic improvement to achieve resistance to insects, diseases, plant parasites (striga) and water deficiency stress will be investigated.

d. Farming Systems Research

Recognizing that FSR is a method of approach rather than a discipline and that FSR should be undertaken in close association with discipline and crop specialists, it is proposed that the core research group should work as a integrated team dealing with discipline and crops research within an FSR framework. Such a concept does away with a separate Farming Systems Unit (FSU) and avoids the tendency of separate units to become isolated one from the other.

Further analysis and synthesis of data collected during SAFGRAD I will provide a useful background for the FSR approach to be used by the core team proposed for SAFGRAD II. The FSR model developed by the FSU, after appropriate refinement, could serve as a training instrument in SAFGRAD II.

IFAD is developing a project within the SAFGRAD framework that, in addition to financing the Director of Research position in the Coordinator's Office, is considering esta-

blishing a FSR pilot programme that will involve two researchers in each of three countries. The details of the project have not been developed so it is difficult at this time to fit it to proposed inputs by AID. However, from what we know of the general project purpose and structures, the IFAD proposal should fit in well with the AID project. In fact we see the possibilities of fully integrating the IFAD inputs with those of AID in so far as they relate to Upper Volta. This will probably not be possible before the Project Paper (PP) stage of project development.

3. The ACPO Programme

The ACPO programme was conceived as a necessary tool for establishing linkages between regional research and national research as well as between research and national outreach/ extension. An essential element of the programme is the involment of the farmer in implementation of certain steps of the research programme.

The two SAFGRAD evaluations concluded that the ACPO programme was one of the most important and in practice was considered highly successful. This was largely based on the performance of two outstanding ACPOs. These observations are significant in that they point to the need for individuals with exceptional qualities on the one hand and the high potential impact which this type of programme can have.

The ACPO programme will be continued in SAFGRAD II. Overall direction and coordination will be by the Director of Research in consultation with responsible officials in the respective host country. ACPOs will continue to be assigned to individual countries in response to country requests and as financing is available. It is proposed that SAFGRAD II finance a core programme of 4 ACPOs in 4 countries. This core programme should be staffed by highly qualified expatriates. These programmes should provide training experience to selected individuals from other countries as well as to those of the host country. In this manner individuals can be groomed for assignment as ACPOs in other countries or for advanced trai-

ning. Further expansion of the ACPO programmes is seen as being financed on a bilateral basis.

A more precise conceptualization of the roles of the ACPO is suggested. The ACPOs role should be evolutionary and the function transitory.

The first ACPO in a country should preferably be a well qualified expatriate. As the ACPO programme develops and more nationals acquire experience, it should be possible to to use nationals during the intial assignment.

During the initial period of a new assignment of an ACPO the primary function will usually be to establish liaison between the regional research centre and other external research entities (IARCs, other National Research Centres) and the national research structure in the country of his assignment. Activities will consist chiefly of managing regional trials. Once a reasonable level of confidence in the technology being tested has been obtained, tests will be extended to farmers'fields. The farmers'fields should initially remain under the control of the ACPO and/or a local associate of the ACPO. The ACPO activities should be integrated with national research/extension systems.
A second phase of the ACPOs work will involve creating linkages between the national research structures and the national extension entity.

During each of the above phases, in-service training should be provided to nationals. Selected individuals should be given advanced training qualifying them to replace the expatriate ACPO.

As the linkages that are developed by the ACPO between and among research institutions and between research and extension become instititionalized, the ACPO position should disappear.

4. Role of SAFGRAD with respect to different geographical regions

With extension and/or potential extension of SAFGRAD to involve virtually all sub-saharan African countries with semi-arid areas, it is necessary to redefine the role of SAFGRAD.

By definition the project deals with problems of food grain legume production in the semi-arid regions. This broad definition does not take into consideration the wide differences in the ecological settings of the vast areas involved nor the specificity of the principal crops concerned. The original concept involved primarily the semi-arid zones of middle Africa extending from the Atlantic to the Red Sea. This zone represents a relatively homogeneous setting within which there are different levels of rainfall both in amounts and distribution. SAFGRAD I has principally addressed problems to this zone.

The expansion of SAFGRAD to include countries in East and Southern Africa introduced substantially different ecological conditions from those in the West-Middle Africa belt. It is proposed that SAFGRAD II should programme actions in these three different zones at 3 different levels of intensity. The major emphasis should continue to focus in the West-Middle Africa belt.

The Southern African region has an effective organization (SADCC/CTC) which is being strengthened with assistance from numerous sources. It is believed that the institutionalization of research networking and research and outreach linkages within the region can most effectively be pursued through SADCC/CTC.

ICRISAT is mounting a major programme on sorghum and millet in cooperation with SADCC. A regional FSR programme is being implemented by CIMMYT in East Africa and in the Southern Africa area. A regional maize improvement programme is also being initiated in the same area, and a major grain legume improvement programme is being developed in cooperation with SADCC. These programmes should provide a sufficently wide range of research and research networking.

A coodinator for sorghum and millet improvement from ICRISAT is posted in Nairobi. This coordinator has initiated a limited sorghum breeding programme in cooperation with the Kenya Katumani station. He also maintains liaison with other national sorghum and millet programmes in the East Africa area, and has organized regional workshops. Contact is also maintained with the CIMMYT regional FSR and maize programmes. These activities by the coordinator should adequately fulfill the networking function for this region.

OAU/STRC should however play an important role in maintaining liaison, fostering the exchange of information and sponsoring joint workshops among the three regions.

ANNEX 7

OPENING ADDRESS BY THE REPRESENTATIVE OF THE GOVERNMENT OF UPPER VOLTA

. The Executive Secretary of the OAU Scientific, Technical and Research Commission,

. Delegates from donor agencies,

. Representatives of International Institutes,

. The International Coordinator of SAFGRAD,

. Ladies and Gentlemen, Comrades,

On behalf of Comrade Minister of Higher Education and Scientific Research, unavoidably absent due to his busy schedule, I am highly pleased to welcome on behalf of the National Revolutionary Council and the Revolutionary Government of Upper Volta, all those who have come here for the Third Consultative Committee meeting of SAFGRAD.

Honourable delegates, I must remind you of the following three points of the recommendations which you adopted in November 1983 regarding our country in particular :

- that Upper Volta, as SAFGRAD host country, be a permanent member of the general Consultative Committee as well as of the Technical Advisory Committee. While accepting to be actively involved in the work of the two committees, the Revolutionary Government of Upper Volta expresses its gratitude for such a clear-sighted decision.

- You recommended that the model developed by the FSU, which has been working with Voltaic farmers, be considered for extension into other parts of our region. We are happy that FSU research has yielded some positive results in our country; we wish they could be eventually beneficial to other farmers in the region.

- Finally, you recommended that measures be taken to strengthen local staff capabilities in SAFGRAD member states. Such measures will be fully supported by all Voltaic staff, particularly the technical cadre which is highly under-represented in agricultural research.

Honourable delegates, I cannot conclude my address although I would like it to be brief, without presenting to you three recommendations of my own :

- First, as regards the strategy for scientific cooperation between national structures and SAFGRAD, I must draw your attention to the fact that unless national research structures are strengthened, any cooperative effort is doomed to fail.

- You must admit that farming systems proliferate in all structures, i.e the distinction between systematic research and general scientific activities on one hand and research in real farm environments on the other in order to ensure the effective transfer of new technologies to farmers.

Indeed, the interaction of researchers and farmers is desirable but the socio-political aspects of rural development should always be permanently controlled.

- Finally, now that the various institutes of the SAFGRAD Project are well advanced in their physical installation at the Kamboinse Experiment Station, we would like you to consider having discussions with the services of the Ministry of Higher Education and Scientific research on how to rationally utilize and administer this national structure.

Honourable delegates, the National Revolutionary Council and the Revolutionary Government of Upper Volta wish a successful conclusion of the present phase of SAFGRAD. They also wish that a second phase of the project be launched Based on the experiences of the preceding phase, the second one must strive to develop programmes which take national efforts into consideration.

Honourable delegates, while wishing you full success in your deliberations, I declare open the third meeting of the SAFGRAD Consultative Committee. Thank you.

SPEECH BY PROF. A.O WILLIAMS, EXECUTIVE SECRETARY, OAU/STRC

The representative of the Government of Upper Volta,
Distinguished Guests,
Gentlemen,

Once again I take this opportunity to welcome you to Ouagadougou; this time, to the Third meeting of the Consultative Committee of JP-31 SAFGRAD. As you will recall, our last meeting took place in November last year at the CEAO headquarters here in Ouagadougou. Since that meeting, the following significant events in the life of SAFGRAD have taken place :

1. The Technical Advisory Committee (TAC) met in January this year to review research work plans and other matters. The Committee proposed several recommendations which shall be discussed for further action during this meeting.

2. In response to a request from OAU/STRC and IFAD, a three-man team undertook a study early this year regarding the use of IFAD financial contribution to strengthen SAFGRAD farming systems research. Their report and recommendations will be discussed in a meeting of the Project Management Committee of the FSR later this afternoon.

3. An evaluation team, organized by USAID, spent more than one month in Ouagadougou early this year to assess the overall SAFGRAD project. Members of the team visited the different units of the project, OAU/STRC and all the ACPOs. The team has prepared a comprehensive report whose recommendations shall be discussed at this meeting.

4. As you are already aware, the first phase of the USAID-funded component of SAFGRAD is expected to end at the end of March next year. I am happy to inform you that a preliminary design team of two specialists, together with a member of CC, have spent one week in Ouagadougou to organize some of the proposals expressed on SAFGRAD II by TAC, the

recent evaluation team and by us during this meeting.

It is my pleasure to welcome Dr. Frank Lebeau and Dr Carl Ferguson to this meeting. I hope that SAFGRAD II will be designed to take into consideration the FAC and IFAD contributions as well as our deep concern for more donors to contribute to the present SAFGRAD effort. Considering the full support for an increased ACPO programme by the USAID evaluation team, I am appealling to FAC to reconsider their financial contribution to SAFGRAD which, till now, has been limited only to one ACPO programme in Togo.

5. Since the last CC meeting, the OAU/STRC Coordination Office has recruited two new Accountants to work with the InternationalCoordinator and the Director of Research. It is a good omen to see that their joint efforts have been commended by the recent USAID evaluation team.

The events just mentioned, result clearly from the reactivation of the Consultative and Technical Advisory Committees of SAFGRAD. They constitute two essential management bodies without which SAFGRAD cannot function smoothly without their guidance.

I am happy to note the presence of Mr Mazhani who is representing the Government of Botswana, an active member state of SAFGRAD. We were expecting full member state presence at this meeting but the Minister of Agriculture of Guinea Conakry could not come-possibly because of the recent changes in their government.

I wish to welcome, as special observers to this meeting, Dr Sall and Dr Solomon Bekure of the International Livestock Centre for Africa. I am convinced that before the end of this meeting, we shall try to determine how ILCA expertise in livestock management can contribute to SAFGRAD farming systems research efforts.

Gentlemen, if we can fight the burning heat and successfully provide such a comfortable environment for our meeting in this beautiful conference hall,

I am confident that with similar scientific techniques and commitment from donors and member states alike, we can modify some of the harsh environmental factors that tend to limit productive agriculture in the semi-arid regions of Africa so that more food can be produced for the growing populations of these regions. Thank you.

SPEECH BY MR E. MELAVEN, USAID MISSION DIRECTOR, UPPER VOLTA

Thank you. I am happy to be here at the opening of the Third Consultative committee meeting of SAFGRAD.

As you all know, USAID has been a major supporter of the SAFGRAD approach to research coordination during the past several years.In that period, SAFGRAD encountered the usual problems of getting started and the success of SAFGRAD has been mixed. USAID now believes however that the major problems are behind us and we must work for the future of SAFGRAD.

In this context, I wish to point out that USAID currently has a team from Washington here in Ouagadougou working on the design of our next tranche of support for SAFGRAD which will begin in March of 1985. That team headed up by Robert Gray has been working closely with Dr Menyonga and Dr Bezuneh and a draft of the report document will be provided for review and comment here at the meetings. I believe it is on the agenda for tomorrow. I ask that you all review it carefully so that the best design possible can be presented in Washington this summer.

Let me conclude by wishing you luck. I have reviewed the agenda and it will be a full two days of important discussions. I look forward to hearing the results from John Becker who will be representing USAID at these meetings. Also I hope to have the chance to meet with some of you informally to learn more about SAFGRAD and your plans for the future. Thank you.

ANNEX 8

LIST OF PARTICIPANTS

LISTE DES PARTICIPANTS.

MEMBER COUNTRIES/PAYS MEMBRES.

BOTSWANA.

Mr. Louis MAZHANI
Plant Breeder
Dept. of Agricultural Research
Private Bag 0033
Gaborone, BOTSWANA.

NIGERIA.

Prof. Akinola AGBOOLA
University of Ibadan
Department of Agronomy
Ibadan, NIGERIA.

UPPER VOLTA/HAUTE-VOLTA.

Mr. Issaka KABORE
Directeur Général
Direction Générale de la Recherche
Scientifique et Technique
Ouagadougou, HAUTE-VOLTA.

ORGANIZATIONS/ORGANISATIONS.

FARMING SYSTEMS UNIT/SAFGRAD.

Dr. Herbert OHM
Agronomist
FSU/SAFGRAD
B.P. 1783.
Ouagadougou, UPPER VOLTA.

ICRISAT.

Dr. Curtis R. JACKSON
Director for International Cooperation
ICRISAT
Patancheru, 502 324, INDIA.

IFAD.

Dr. Abbas KESSEBA
Senior Technical Advisor
IFAD
Via delle SERAFICO 107
00142 - Rome
ITALY.

../2

IITA.

Dr. Joseph M. FAJEMISIN
Maize Pathologist/Breeder
IITA
PMB 5320
Ibadan, NIGERIA.

IITA/SAFGRAD.

Dr. Vishnoo ASNANI
Team Leader
IITA/SAFGRAD
B.P. 1459
Ouagadougou, UPPER VOLTA.

Dr. Nyanguila MULEBA
Cowpea Agronomist
IITA/SAFGRAD
B.P. 1459
Ouagadougou, UPPER VOLTA.

Dr. Mario Santos RODRIGUEZ
Maize Agronomist
IITA/SAFGRAD
B.P. 1783
Ouagadougou, UPPER VOLTA.

ILCA.

Dr. Mustapha M.B. SALL
Director of International Liaison and Training
International Livestock Centre for Africa
P.O. Box 5689
Addis Ababa, ETHIOPIA.

Dr. Solomon BEKURE
Team Leader
International Livestock Centre for Africa
P.O. Box 46847
Nairobi, KENYA.

IRAT.

Mr. Robert NICOU
Directeur IRAT/Haute-Volta
IRAT/FAC
B.P. 596
Ouagadougou, HAUTE-VOLTA.

../3

PURDUE UNIVERSITY.

Dr. Donald Woods THOMAS
Director, International Programs
Purdue University
Room 26 Ag. Adm. Bldg
Lafayette, Ind. 47907
USA.

USAID.

Dr. Robert E. GRAY
Agricultural Development Officer
USAID
AID/AFR/RA
Room 4531 N.S.
Washington D.C. 20023
USA.

Mr. Emerson MELAVEN
USAID Mission Director
American Embassy
B.P. 35
Ouagadougou, UPPER VOLTA.

Mr. John A. BECKER
Chief, Division of Agriculture
USAID/Upper Volta
American Embassy
B.P. 35
Ouagadougou, UPPER VOLTA.

Mr. Roger BLOOM
Project Manager, SAFGRAD
American Embassy
B.P. 35.
Ouagadougou, UPPER VOLTA.

Dr. Francis LEBEAU
Consultant to USAID
225 W. Georgetown St.
CRYSTAL SPRINGS, MS. 39059
USA.

Dr. Carl E. FERGUSON
AID Consultant
3047 N. PEARY St.
ARLINGTON, VA 22207
USA.

../4

SECRETARIAT.

Prof. A.O. WILLIAMS
Executive Secretary
OAU/STRC
PMB 2359
Lagos, NIGERIA.

Dr. Joseph M. MENYONGA
International Coordinator
OAU/STRC JP-31 SAFGRAD
B.P. 1783
Ouagadougou, UPPER VOLTA.

Dr. TAYE Bezuneh
Director of Research
OAU/STRC JP-31 SAFGRAD
B.P. 1783
Ouagadougou, UPPER VOLTA.

ANNEX 9

AGENDA OF THE THIRD CONSULTATIVE COMMITTEE MEETING OF JP 31 SAFGRAD, 9-10 APRIL, 1984 OUAGADOUGOU, UPPER VOLTA

MONDAY, 9 APRIL 1984

08.00	- 08.30	Registration
08.30	- 09.30	Opening Address OAU/STRC
09.30	- 10.00	Break
10.00	- 10.15	Adoption of Agenda
10.15	- 10.40	Minutes of the Second CC meeting CC/3/84/1
10.40	- 12.30	Matters arising from the CC report 1. ACPO report : Coordination Office CC/3/84/1A 2. Training follow-up report : IARC's 3. Other matters
12.30.	- 14.00	Lunch
14.00	- 15.30	Report on Technical Advisory Committee meeting CC/3/84/2
15.30	- 16.00	Break
16.00	- 18.00	Meeting of Project Management Committee of IFAD supported FSR CC/3/84/3
19.00		Cocktail

TUESDAY, 10 APRIL 1984

08.00	- 09.30	SAFGRAD Evaluation Team's report CC/3/84/4
09.30	- 10.30	SAFGRAD Phase II CC/3/84/5
10.30	- 11.00	Break
11.00	- 12.30	Discussion on SAFGRAD II and comments on future plans - ICRISAT - IITA - FSU
12.30	- 15.00	Lunch and meeting of drafting committee
15.00	- 15.30	CC Matters
15.30	- 16.00	Break
16.00	- 17.45	Discussion, adoption of report and recommendations
17.45	- 18.00	Closing of meeting

---------o-o-o-o----------

ANNEX 10

LIST OF ABBREVIATIONS

ACPO	Accelerated Crop Production Officer
CC	Consultative Committee
CDA	Cooperation for Development in Africa
CGIAR	Consultative Group on International Agricultural Research
CIC	Consultative Technical Committee
FAC	Fonds d'Aide et de Coopération
FSR	Farming Systems Research
FSU	Farming Systems Unit
IARC	International Agricultural Research Centre
IRA	Intitut de Recherche Agricole
ICRISAT	International Crop Research Institute for the Semi-Arid Tropics
IDRC	International Development Research Centre
IFAD	International Fund for Agricultural Development
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Centre for Africa
INSORMIL	International Sorghum and Millet
IVRAZ	Institut Voltaïque de Recherches Agronomiques et Zootechniques
OUA/STRC	Organization of African Unity/Scientific, Technical and Research Commission
PID	Project Implementation Document
SADCC	Southern African Development and Coordination Conference
SAFGRAD	Semi-Arid Food Grain Research and Development
TAC	Technical Advisory Committee
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development

1984-04

REPORT OF THE THIRD CONSULTATIVE COMMITTEE MEETING

AU-SAFGRAD

AU-SAFGRAD