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Coordination Office/Bureau de Coordination  
SAFGRAD  
01 B.P. 1783, Ouagadougou 01  
Burkina Faso  
Tel. 30-60-71/30-60-72  
Télex: 5381 BF

By T. Bezuneh, Director of Research  
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01 B.P. 1783 Ouagadougou 01  
Tél. 30 - 60 - 71/31 - 15 - 58  
Burkina Faso

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SAFGRAD II FINAL EVALUATION:  
ITS IMPLICATIONS ON NETWORKS RESEARCH

Semi-Arid Food Grain Research and Development  
Recherche et Développement des Cultures Vivrières dans les Zones Semi-Arides



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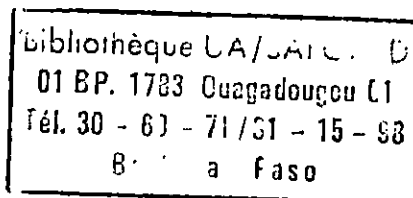
INTRODUCTION

The OAU Internal Meeting and Final Evaluation of SAFGRAD II were the two important events that took place during the last six months. As it was mentioned by the International Coordinator, the General Secretariat of OAU is in its final stage of institutionalizing SAFGRAD as one of its permanent activities mainly to promote agricultural research and development through partnership of donors, the IARCS, member states and the United Nations Agencies.

The focus of this paper is to highlight the outcome of the Final Evaluation of SAFGRAD II and its implication on networks research. The evaluation was completed in July 1991. In general, the outcome of the evaluation was positive. It established that SAFGRAD networks have effectively facilitated the generation and diffusion of improved technology, and also served an important means for promoting the growth and development of an African Scientific Community. The Evaluation Team (ET) among its several recommendations stressed "Networks research strategies and programmes should be defined independent of estimates of available project funding, but with a view toward seeking research support". This an important point to persue by the respective networks steering committee.

I. Network Issues

The technical issues that were addressed by ET relevant to deliberations of the Steering Committee of the respective networks are briefly discussed below:



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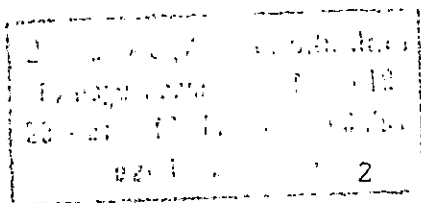
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i) Technology Diffusion Via Network

A network should provide its participants with access to available technology regardless of its source. Depending on breadth and intensity of international and national level research, the extent of germplasm made available to the respective networks varied considerably. As shown in Fig. 1, the major source of germplasm for the West and Central Africa Maize, Cowpea and Sorghum networks have been IITA and ICRISAT. There is strong evidence that number and proportions of technologies developed by NARS have increased in the regional trials activities of networks. This indicates that some NARS have developed technologies for regional testing. The network have provided a vehicle for technology sharing among NARS. In case of the Eastern Africa Sorghum and Millet Research Network that 85 % of germplasm have been from NARS sources. Four of the national programmes of EARSAM have relatively strong sorghum improvement research. The development of ICRISAT regional research programme during the last four years, has further strengthened its technical backstopping to EARSAM. Technologies or varieties diffused through networks have entered national programmes both on-station and on-farm trials. Furthermore, there is some evidence that NARS have released varieties and are being adopted by farmers. In general, the ET recommends that Network regional research and variety trials be analyzed across locations and years to interpret results and draw implications for future research.

2) Sources of Germplasm

In general, the diffusion and evaluation of germplasm via networks can be enriched and sustained if relevant observation nurseries are sustained. This could increase the chances by NARS of identifying and developing suitable cultivars. The contribution of germplasm from IARCS and NARS to respective networks need to be improved.



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### 3) Networks Data Analysis and Interpretation

One of the lessons learned of the SAFGRAD II final evaluation has been that much of the network research and trials require broad analysis and interpretation of data describing implication for further research and impact on crop production. Furthermore, the success of regional trials largely depend on the professional dedication of cooperating scientists and institutions for timely recovery of yield data. It is recommended that Steering Committee of the respective networks address this issue.

### 4) Collaborative Research Projects

The SAFGRAD model of collaborative research networks is widely accepted as mechanism to enhance research capabilities of national systems. There is evidence this activity has achieved increased research efficiency. During the last five years, emergence of NARS scientific leadership was evident. Close to 25 collaborative projects of regional interest are implemented by scientists at Lead NARS Centres. Although, lack of resources and qualified research manpower have constrained the full development and research output of these projects, at this juncture of network development, it is of utmost priority to:

- i) undertake critical review and analysis of the last few years results.
- ii) discuss constraints encountered in order to improve reporting mechanism (both technical and financial).
- iii) consolidate research programmes at lead centres on project basis linking the Lead centre research with at least 3 to 5 Associate NARS centres. This approach not only could enhance research team work among NARS but also

could facilitate planning and elaborations of project activities, pre-determine expected research output and also establish systems to follow research progress.

#### 5) Professional Growth and Development

Availability of qualified researchers remains one of the major constraints in most national systems. For example, the current and future research manpower requirements depicted in Fig. 2, show substantial long-term training needs for research of sorghum, maize and cowpea in West and Central Africa; and for sorghum and millet research in Eastern Africa.

During the last five years, professional growth and development was promoted through regular activities of networks. As summarized in Table 1, the eight monitoring tours that were organized facilitated group reviews and evaluations of the performance of research materials at field level in different countries. This had enabled not only the sharing of experiences among NARS senior and junior researchers but also between IARCS and NARS scientists. The somewhat 16 workshops served as technical fora addressing various research and development themes as well as for the exchange of technical information among 900 researchers of SAFGRAD member countries, the IARCS and other regional agencies. Fifteen specialized training sessions were held to upgrade research skills of 215 participants from different SAFGRAD member countries. The ET, however, perceived long-term training as essential priority if NARS are to maintain capacity for meaningful research.

#### 6) Inter-Networking

Concerted effort is necessary to broaden network programmes beyond crop improvement to overcoming constraints on agricultural production. Since the last three years, progress has been made in strengthening agronomic research of networks. Inter-networking

could serve as means to bridge interdisciplinary research gaps between commodity oriented networks. For example, intercropping systems, soil fertility and water conservation practices, on-farm verification trials, intergrated pest control, special seminars, etc.

It is recommended that, the respective Steering Committee discuss this issue to facilitate "inter-networking" activities.

#### 7) Scientific Working Groups (SWGs)

While there is merit to organize a scientific team of experts to undertake in depth research to alleviate agricultural production problems, there is also danger for its proliferations by networks. SWGs is an important approach to intensify research activities on collaborative projects of disciplinary and multidisciplinary nature. These activities need to elaborate plan of work or project activities, target research outputs within certain time framework and define resources required for its effective deliberations. SWGs activities should not be limited to special workshop and monitoring tour events. The scientific team effort should be based to continuous research activities within a project framework. It is therefore recommended, the Steering Committee of the respective networks provide guidelines with regard to SWGS.

#### 8. Planning of Network Activities

The ET recommends that networks should develop research programmes and work plans which explicitly state the long term quantifiable and qualifiable objectives and short-term targets in terms of economic as well as biologic impact.

This is to say that, each network project should elaborate its specific activities. For example: screening and selecting of resistant cultivars to certain stress factors, evaluation of

available cultivar on-station, seed increase of selected varieties, packaging of suitable agronomic practices, making available improved seeds to extension services to conduct on-farm verification trials, training of extension technicians, dialogue with farmers etc. It should also target expected research results within short and long-term to enable NARS deliver quantifiable technologies to farmers.

## II. IMPLICATIONS

As an outcome of the SAFGRAD II final evaluation, some of the implications on network research are:

### a) Impact Assessment Study

There has been little attempt by networks to monitor and evaluate the fate of research materials or technologies after they enter national programmes. There is evidence, however, some technologies have been released by NARS to benefit farmers. It is recommended that an Impact Assessment Study be undertaken in order to determine the effectiveness of networks in strengthening national research and to enhance the production and productivity of food grains.

### b) Global Objectives of Networks.

Additional thrust to existing objectives of SAFGRAD networks could be to enable NARS interface their activities with extension services and farmers (i.e. through seed production, training, on-farm trials etc.).



c) Setting Networks Research Priorities.

The ET commended the manner by which SAFGRAD networks prioritize research involving full participation and input by the national and IARCS systems. It was noted that the identification of priorities lacked socio-economics impact orientation. Socio-economic researchable issues were not included in network programmes. The ET, therefore, recommended: i) that priorities of networks be reviewed in the context of socio-economic impact, ii) the Network Steering Committee members be composed from various disciplines.

d) Disciplinary Balance of Network Programmes.

Diversifying of network programme could enable NARS to respond to broad area of national research needs through both regional trial and collaborative projects. It is recommended that network should expand research into areas other than varietal improvement as a means of removing priority constraints; this requires cooperative research between Lead NARS Centres and the IARCS.

### III. NETWORK PROJECTS DEVELOPMENT

The framework for collaborative research activities among member countries of SAFGRAD has been established in cooperation with IARCS and OAU/STRC. In general, network activities were underfunded. It will be recalled that, the Strategic Plan of SAFGRAD Networks was completed. From this global plan, each network is expected to elaborate project activities for the next three years. These projects of networks should be biased towards applied and adaptive research leading to better linkages of research and extension.

Improvement of national research capabilities in food grain research will continue to be central to activities of SAFGRAD Networks. Future research of SAFGRAD would focus on researchable issues which pose serious limitations to food grain production.

The Strategic Plan has delineated the following broad areas of research emphasis as a guide line from which each network is expected to develop projects that could be carried out by respective national programmes:

- a) Identification and development of suitable cultivars that are responsive to low and medium levels of inputs and which also fit into the existing cropping systems and scarce resources of the farmers.
- b) Adaptation to drought and soil fertility stresses towards manipulating available soil moisture and such farm resources as crop residue, compost and soil fertility in order to maximize yields of both traditional and improve varieties.
- c) Striga has increasingly become the major parasitic weed particularly in semi-arid soils where the fertility is low. The resistant lines of cowpea and sorghum which have been identified by NARS and IARCs in the context of SAFGRAD Network activities, would be further evaluated. Further screening and development of cultivars would be intensified by NARS Lead Centres in cooperation with the IARCs.
- d) Identification of crop lines resistant to insect pests and diseases, especially considering the fact that insects constitute major constraints to the production and storage of food grains. Relatively resistant cultivars already identified for the various crops are to

be evaluated under different agronomic practices.

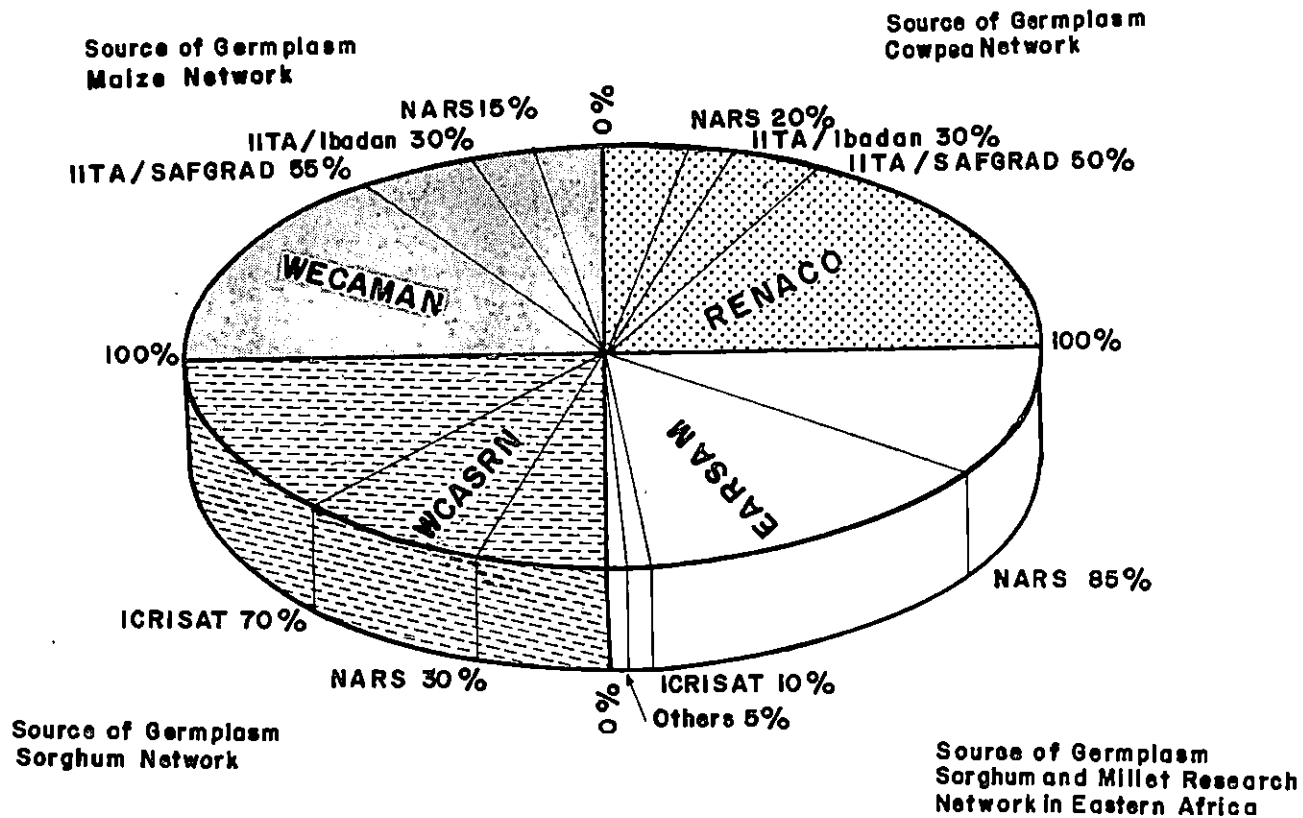
- e) Cropping systems research will be carried out to maximize the efficiency in land use, improve soil conservation and water use.
- f) In addition to developing and selecting crop varieties that are of high and desirable grain quality, emphasis is also to be given to diversifying their food and industrial uses. For example, apart from diversifying local dishes through research, some NARS and IARCs have clearly demonstrated the potentiality of using maize, sorghum and millet for confectionery purposes as well as in the brewing, baking and livestock industries.

Other areas of research identified for network activities were seed increase, and addressing soil fertility sustainance in cropping systems. Future training activities were also projected within the Networks Strategic Plan. These include: 25 training workshops or special seminars for researchers lasting up to two weeks; and 22 in-service training for technicians lasting up to six months. Furthermore, the high level research manpower requirements for the networks was projected and staff development plan identified.

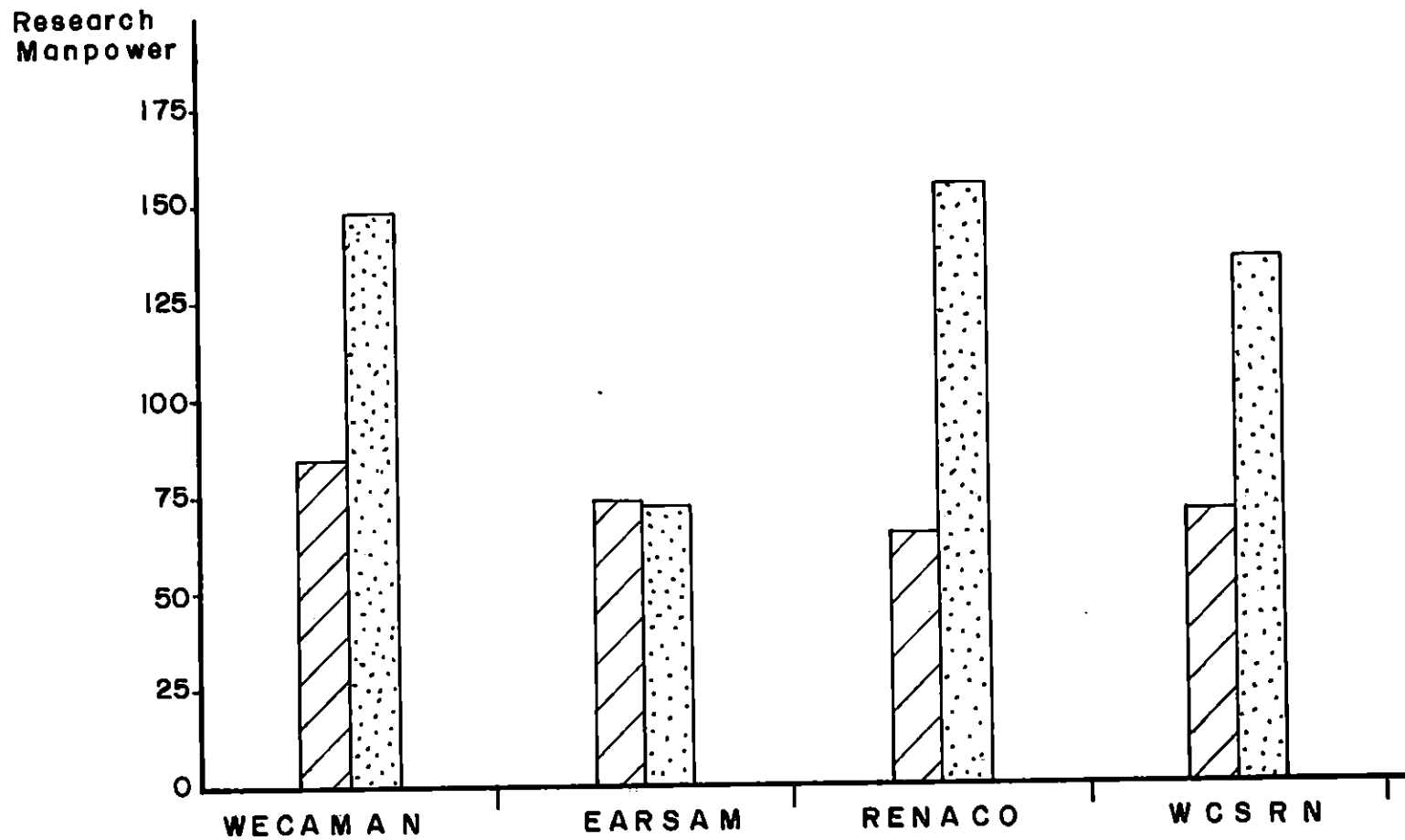
Completion of any Strategic Plan by itself could not be considered as an achievement, unless there is follow-up to develop project activities and solicit funds for its implementation in different national systems.

It is the responsibility of the Steering Committee of the respective networks to undertake the tasks for elaboration of project proposals based on the Networks Strategic Plan (to be submitted within the next six months). SAFGRAD is very much encouraged by OAU Secretariat to effectively use its channel to solicit funds in support of national systems.

**Fig. 1 Diffusion of Germplasm Via Networks**



Source — Final Evaluation Semi-Arid Food Grains Research and Development, July, 1991.



**Fig. 2-4 Current and Future Research Manpower Requirements of SAFGRAD Networks (1990 - 2000)**

Table 1 Events and Major Activities of SAFGRAD Networks (1987-1991)

Networks	Steering Committee Meetings		Workshops			Training Courses / Seminars			Monitoring Tours		
	Frequency	Number of Participants	Frequency	Number of Participants	Number of Countries	Frequency	Number of Participants	Number of Countries	Frequency	Number of Participants	Number of Countries
EARSAM	6 <sup>8</sup>	10	3	150	12	3	80	8	2	29	7
WECAMAN	10 <sup>9</sup>	12	2	73	17	4	22	10	2	18	14
WCASRN	8 <sup>9</sup>	9	1	48	17	3	27	11	2	35	11
RENACO	9 <sup>11</sup>	12	2	72	17	2	44	17	2	18	15
WAFSRN	5	10	2	205	16	2	42	9	-	-	-
ON-FARM-Research	-	-	3	127	-	-	-	-	-	-	-
Other Activities											
-Oversight Comm. Meet.	6	12									
-National Agr. Research Directors Conferences	-	-	2	52	-	-	-	-	-	-	-
-Internat. Network Conferences	-	-	1	152	22	-	-	-	-	-	-
Total	-	65	-	877	-	-	215	-	-	100	-

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