

ABSTRACT OF THE EVALUATION OF THE EASTERN AFRICA REGIONAL  
SORGHUM AND MILLET NETWORK (EARSAM)

The EARSAM has been in operation since 1986. The Oversight Committee of SAFGRAD in fulfilment of its mandate requested for an evaluation of the network to determine its progress and learn of any problems that may be hampering it from serving as an effective and efficient research mechanism for supporting food production.

The specific objectives of the evaluation were to :

1. Assess the performance of the network based on the expected outputs of SAFGRAD II.
2. Assess the extent to which the EARSAM network activities have facilitated the release of improved varieties and related technologies.
3. Obtain feed back on the improvement of research skills of NARS.
4. Assess the influence of the network on the development of NARS leadership and network management.
5. Assess current linkages among network entities and to propose areas of improvement.
6. Determine if network has influenced ICRISAT and NARS research agenda.
7. Obtain the views of NARS on the arrangement under which network management could be transferred to NARS.
8. Identify specific areas of network research that need to be strengthened in future.

EVALUATION TEAM

For the conduct of the evaluation a team was proposed to be composed of the following :

- Mr Hector Mercer-Quarshie of Ghana, Chairman
- Dr Ibrahim Babiker of Sudan, member
- Dr Seme Debela of Ethiopia, member and representative of ICRISAT.

However, as a result of other commitments during the period of the evaluation Dr Seme Debela asked to be excused and was replaced by Mr John Kavuma a senior research scientist of the Uganda Agricultural Research Institute. Dr Ibrahim Babiker was also unable to join the team in Kenya and Ethiopia because of difficulties in securing visas for the two countries at the right time. Regrettably, ICRISAT did not respond to the request to have a representative on the team. Thus only two members participated in the evaluation in all the countries concerned.

The two-man team visited the following countries on the dates shown :

- Kenya 9th July 1990, H. Mercer-Quarshie only
- Kenya 10-12 July, both team members
- Ethiopia 12-15 July, both team members
- Sudan 15-18 July, Dr I. Babiker joined the team.

#### MODE OF OPERATION

The modus operandi called for discussions with as many network participating scientists as possible. This way it was hoped a general view of the situation of the network would emerge the personal contacts were of course also supported by generous use of relevant literature obtained on the network.

The evaluation of EARSAM did not yield enough participants with whom discussions could be held regarding progress of the network. This was so especially in Kenya and Ethiopia. In Kenya, as we were told, three active participants of the network at Katumani station had left for further studies overseas. Again there were incidents on the 9th of July 1990 which prevented the chairman who arrived earlier from accomplishing planned visits. In fact, newspapers reported the killing of 15 people in Nairobi and its environs on the 9th of July 1990. The problem in Ethiopia arose from two sources. Firstly, there were delays in the issue of a visa at Addis Ababa airport to Mr John Kavuma who was invited to join in the evaluation after Dr Seme Debela had declined to participate and who therefore did not have sufficient time to process his travel documents. Secondly, most of the scientists, as we were informed, were engaged in a programme review at the time of our visit and therefore could not be interviewed. A list of persons interviewed is attached.

#### SUMMARY OF FINDINGS OF THE EVALUATION

##### 1. Expected Outputs of SAFGRAD II

The outputs of SAFGRAD as indicated by the network coordinator, ICRISAT scientist and NARS will be attached to the full report.

## 2. Release of Improved Varieties and Related Technologies

Exchange and evaluation of germplasm has been a major activity of the network and high commendation was given this activity not only because of the technical impact it is making but also because of the channels it has created for fostering bilateral exchanges even outside of the network.

It was observed that in Kenya the evaluation of germplasm has resulted in the release to farmers of a sorghum cultivar IS76 and another local selection said to be resistant to long smuts. Another three cultivars are in the pre-release stage in Kenya according to the EARSAM Steering Committee minutes of the meeting held in October 1989. The strong NARS in Ethiopia and Sudan have also identified very useful germplasm which are currently being incorporated in the breeding program. Sudan for example has identified four cultivars which have good resistance to drought. A very interesting development was that the various NARS have identified certain countries as being sources of excellent germplasm and are therefore placing greater emphasis on materials from those sources.

The network has come to reinforce existing research activities particularly in the strong NARS. It was therefore sometimes difficult to delineate its contribution from what existed before it. The situation is complicated further by the existence of a number of complementary collaborative activities in such countries as Sudan where INTSORMIL, ARAB LEAGUE/UNDP and EARSAM are all supporting sorghum research. In this connection it is relevant to mention that in Ethiopia two and three cultivars are listed in the minutes of the Steering Committee meeting of October 1989 as released and in pre-release stage respectively while in the Sudan two cultivars are said to be in the pre-release stage. And yet none of these countries credited the EARSAM with any contributions to this achievement.

As regards the development of technologies the case of the successful development of a long smut screening technique by Kenya through collaborative research with EARSAM is an outstanding achievement there is need to give more publicity to the screening technique for other scientists to learn how to screen for resistant varieties against this serious disease. In Ethiopia appropriate technologies and germplasm with good level of striga resistance have been developed. Interestingly West Africa scientists have requested for some of this germplasm for evaluation. In Sudan an integrated approach to the control of striga has been developed albeit under an IDRC funding. The approach involves the use of resistant cultivars, a trap crop and the application of cereal and herbicides. It is suggested that in spite of the fact that the technology was developed under IDRC sponsorship EARSAM should disseminate information on it to relevant NARS to help combat the striga menace. Regrettably the work on pearl millet seems to be

rather minimal. The crop, we were informed, is very important in Tanzania, Sudan, Kenya and Uganda. It would be worthwhile to increase activity on this crop. The activity could start with exchange of germplasm based on the experiences of ICRISAT in West Africa as well as India and other countries.

We were informed that some work on finger millet was being initiated. Although no statistics were available it appeared that Uganda was the major producer. It was difficult to judge the emphasis required on this crop in a regional program such as EARSAM when only one country seems to be the important consumer.

#### IMPROVEMENT OF RESEARCH SKILLS

Improvement of research skills under SAFGRAD comes from training collaborative research, workshops and seminars and monitoring tours. It has to be mentioned that the research capabilities of Sudan and Ethiopia were quite high even before the operations of EARSAM began. And yet the impression gained was that this has been an improvement in the research skills of NARS including Sudan and Ethiopia as a result of the operations of EARSAM even though there is also a lot of room for improvement.

In-service training generally of 2-week duration has been organized on specific topics of regional interest. Whereas it was found that course participants came home with enhanced capabilities and motivation the duration seemed inadequate for in-depth training. Of course it was pointed out that for medium duration courses candidates could be sent to ICRISAT, India. It is suggested that consideration should, however, be given to establishing a Regional Training Centre to which candidates requiring specialized training could be sent. The expenditure involved in extending the duration of the course within the region would in all probability be less than sending candidates all the way to India. In the meantime use could be made of the facilities and expertise existing in some NARS as we found in Sudan for striga and drought control.

Improvement of research skills always has its basis in training at the postgraduate level. This is where the greatest deficiency is and where urgent action can pay great dividends. Whereas the weak NARS should receive priority attention in this matter it seems even the strong NARS such as Sudan cannot be forgotten completely. They are being bled of their competent staff by countries which can afford to give higher remuneration. NARS are called upon to give greater emphasis to post-graduate training in their bilateral relations with donors. However, SAFGRAD could also help by equipping certain outstanding universities in the region to enable them embark on postgraduate training with less cost.

The biennial workshop have developed to an extent that now only the best papers get the chance of being presented. The view was expressed that papers from collaborative research should be given priority in the workshops. This may seem like creating an unfair advantage for scientists on the collaborative research projects over the others. It is suggested that the system of reviews to ensure that only the best papers get presented should be maintained. The presentation of invited papers from world renowned experts adds another learning and motivating dimension to the network and should be encouraged. It is suggested that many more participants -including those whose papers may have been rejected- should be invited to participate in the workshop.

Collaborative research on striga, ergot, smuts anthracnose, chilo and on drought and characterization of agro-ecological zones in the region are proceeding. They are beginning to be the proving ground for development of scientific skills and competence. In Kenya screening methods for long smut have been developed. In Ethiopia and Sudan striga control methods have been developed. In the Sudan drought resistance screening methods have been developed. All these show the high level of competence now available in the region.

Monitoring tours were given low priority by Ethiopia NARS and by the network coordinator. It was felt that expenditures made on this activity could be better utilized on some other programs. In the Sudan the view was that personal interaction and exchanges were the keys to the success of the network; Monitoring tours promote this personal interaction. Besides, given the rise in the standard of workshop presentations, monitoring tours may prove to be the only chance weak NARS have of showing what they are doing or what they have to offer. These tours must therefore be encouraged as a separate activity with greater participation.

#### DEVELOPMENT OF NARS LEADERSHIP AND NETWORK MANAGEMENT

The concept of the Steering Committee composed of active NARS scientists who develop regional programmes for execution is a very good one. Whereas in the beginning the Steering Committee was composed of non-senior scientists the same cannot be said of the present Committee members. The committee is now made up of seasoned scientists. Under the leadership the concept of technology developing NARS (TND) and technology adopting NARS

(TAN) has been excepted together with the allocation of 80 % of resources to the TDN and 20 % to the TAN. Members seem more committed to work for the region and take their responsibilities seriously. The competence exhibited in the collaborative researches already referred to, participation in the drawing up of the SAFGRAD strategic plan, the eagerness with which NARS experts participate in offering training courses are all manifestations of the leadership roles of NARS in network management. However, the time is ripe for EARSAM to use the highly qualified and experienced scientists from TDN to help the TAN through visits, advice and on the job training.

#### CURRENT LINKAGES AMONG NETWORKS ENTITIES

We were informed that ICRISAT program in East Africa is controlled by the Hyderabad headquarters. The relations between SCO and ICRISAT appear to be cordial. We were unable to determine the intensity of contacts between SCO and Hyderabad office. In view of the developments that are likely to occur in ICRISAT in East Africa for instance we were informed a regional centre was under consideration - it would be necessary to set up a framework which brings the two sides together at least once a year. During this meeting any concerns from either side can be addressed.

ICRISAT office in Nairobi has good relations with NARS as a result of the hard work of the network coordinator and the other ICRISAT scientists working with him. ICRISAT provides many services to NARS, sometimes under SAFGRAD auspices and at other times through ICRISAT's own resources. For the beneficiaries it was difficult to tell the source of the assistance, and perhaps this did not matter. The services provided include seed supply, training, both long and short-term, consultancies, supply of reference materials, supply of equipment and also financial support. Whereas the assistance given NARS such as Kenya was described as excellent, others such as Ethiopia complained of the inadequacy of such assistance. In fact, it was the contention of Ethiopia NARS that it received less support from ICRISAT than it did from organizations such as CIAT and CIP. ICRISAT in the past had special programs with Sudan and Ethiopia. It is possible that the ICRISAT assistance to these NARS has now been dispersed over many more countries in EARSAM hence the inadequacy mentioned by NARS such as Ethiopia.

The team observed that while some NARS commended the SCO for quietly helping the operations of the network, with the knowledge that SCOs role cannot be direct, others had very little information about the role of the SCO. Those who commended the SCO linked the success of the network to the quiet encouragement offered by it to the network coordinators in fostering various activities that improve the network coupled with its attempt to convince donors to sponsor the network. However, even this group thought more could be done by SCO in seeking financial resources from Japan, UNDP, ODA and also African Governments to meet the rising demands of the network.

In order to improve the image of the SCO particularly for those who have little information about SCO, it is suggested that the SAFGRAD Newsletter highlights the activities of the decision to place a liaison officer in Eastern Africa would also enhance the information flow to this region and hence give depth to the understanding of the role of SCO.

#### INFLUENCE OF NETWORK ON RESEARCH AGENDA OF NARS AND ICRISAT

The EARSAM network came into being in 1986 by which time most of the NARS had already identified their constraints and set the goals and established the procedures of research currently under way. This is not to say that modifications in focus have not been made as materials and finances and consultancies have been provided by SAFGRAD and as NARS themselves have come to consider regionally common problems.

The scientists interviewed were agreed that whatever influence they had on the research agenda of ICRISAT was rather indirect. Through discussions of research priorities in Steering Committee meetings, and also through informal discussions with ICRISAT scientists especially those who work on NARS research stations in the region and also through collaborative research work with ICRISAT some of their ideas are passed on to ICRISAT scientists. It is however a great puzzlement and concern that ICRISAT has up to now not devoted considerable resources to tackle the rather menacing issues of striga and drought. It is also surprising particularly to Sudan that ICRISAT has continued to neglect to work on grain quality desired in the region. It is suggested that these major issues of concern should be communicated to ICRISAT Director General for resolution.

TRANSFER OF NETWORK MANAGEMENT

It was the view of NARS in EARSAM that the issue of transferring network management to NARS be approached with caution. In their opinion it was the competence of the person in the coordinator's chair that mattered most and not the organization to which he belonged. As far as they were concerned the existence of a strong steering committee with the mandate to guide the activities of the network and the competent implementation of agreed programs by the coordinator were the keys to successful network. The NARS saw positive advantage in maintaining an ICRISAT appointed coordinator who facilitated ready backstopping by ICRISAT. It was also felt that ICRISAT's excellent image and therefore better bargaining power ensured ready access to donor funds without which the network could not operate. They, however, say the need for a change in the background of the personality in the coordinator's position and asked that an African should be appointed. They thought the appointment of an African would create confidence in the participating scientists and ensure that the coordinator was fully familiar with the problems and the environment in which he operated. The current network coordinator however thought that the coordinator of the network should be an employee of SAFGRAD and expressed the opinion that there were excellent African candidates who could fill the position.

It will be recalled that NARS in West Africa had called for transfer of network management to SCO. For an answer to the differences in opinion between EARSAM NARS and West African NARS we could only hazard a guess. The guess is that whereas West African NARS have SAFGRAD office very close to them and receive most of their services from SCO, East African NARS rely almost entirely on ICRISAT for their services. It is therefore reasonable for West Africa to feel confident in the capability of SCO and for East African NARS to wish not to rush into breaking off a relationship that has served them so well.

## RECOMMENDATIONS

During the evaluation a number of recommendations were made by network participants. The following recommendation which is urged to seek funds for this. In the meantime EARSAM should take advantage of the facilities and expertise that exist in some countries such as Sudan in the training of personnel.

Papers to be presented at workshops should be selected on competitive basis. A theme for every workshop should be identified in advance. More scientists should be invited from the participating countries to increase interaction and cross fertilization of ideas at the workshops.

Monitoring tours should be emphasized and be organized separately from Steering Committee meetings to provide interaction with weaker NARS.

Exchange of germplasm should be tailored to the needs and the capacity of the NARS to utilize them. For the strong NARS the base of germplasm exchange should be widened.

There is the need for more interaction with the other SAFGRAD networks. This can be effected through joint workshops every three years.

Legumes (pigeon peas) should be incorporated in the EARSAM network because of its importance. Sorghum utilization should also be incorporated in the EARSAM network as a subprogramme.

Crop and soil management should be included in the research programmes of the network.

Given the seriousness of devastations caused by drought and striga in the region ICRISAT should be urged to establish special projects on these issues. The projects may also include grain quality considerations.

Exchange of pearl millet germplasm between West and East Africa should be intensified as a basis for strengthening the program on pearl millet in EARSAM.

Western Sudan probably has similar environment as West Africa. A stronger link between West African networks and Western Sudan may be explored.

More financial and material support should be given to the lead centres for them to develop technologies for application by all NARS.

Since pearl millet has in the past been neglected more financial and logistic support should now be infused into the research on this crop.

The NARS recommend that SCO puts in greater effort in the search for additional donors. In this connection Japan, UNDP, ODA can be approached

To underscore the membership of NARS in the SAFGRAD the SCO is urged to sensitize policy makers in the different countries regarding the need for making financial contributions to SAFGRAD operations.

Senior NARS scientists should be supported by EARSAM to visit weak NARS to assist them in specified areas of research since the network coordinator cannot simply handle all this load.

Regional network coordinator is doing well but should be urged to travel more often to the different countries to help them solve problems.

An incentive scheme to retain scientists should be instituted in SAFGRAD/ICRISAT collaborative research programs. In this connection an honorarium should be paid to scientists in accordance with the time spent on the project and on submission of reports. Such a scheme is now being applied by UNDP and ICARDA and seems to be effective.

The network coordinator requested for the employment of an editor to edit publications of the network. However in view of the fact that these publications are now infrequent the employed editor would be underutilized. It is therefore recommended that consultant editors are hired as and when such proceedings are to be published.

The distribution of the SAFGRAD Newsletter seems to be devilled by problems. A member of NARS scientists seem not to get the Newsletter at all or get them when they are out of date. It is recommended that a mailing list of all scientists who work on SAFGRAD mandate crops should be compiled to be used in the distribution of the Newsletter. In addition a list of all agricultural libraries in the region to which copies should be sent should be compiled.

Many NARS expressed the desire to see SAFGRAD publish a scientific journal specialized in the agricultural problems of the semi-arid regions of Africa. One of the major shortcomings in scientific work in Africa is the inadequacy of the dissemination of information. One of the directors interviewed said he knew more about the research activities in India than what goes on in a neighbouring country. The publication of the scientific journal is highly recommended as one of the steps to improve exchange of scientific information.

SAFGRAD so far has operated with an orientation of an organization that seeks to bring individual scientists together. To facilitate communication with scientists outside the SAFGRAD network and to improve SAFGRAD image in the various countries SAFGRAD must now attempt to forge links with institutions in the region. This calls for greater involvement of institution leaders in the activities of SAFGRAD.

The perception in East Africa is that SAFGRAD is a West African organization. To correct this it is necessary for SAFGRAD to express its presence in East Africa in a concrete manner. It is suggested that the decision to have a liaison officer in East Africa should be implemented without delay.

All NARS in EARSAM expressed the desire to continue to have a network coordinator employed by ICRISAT in order to maintain the link with that international institute. They however emphasized the need for an African to handle the job of a coordinator. They thought an African coordinator would understand the problems and the environment better and would therefore be more effective.

LIST OF PERSONS INTERVIEWED  
DURING EVALUATION OF EARSAM

NAME	POSITION	ORGANIZATION
V. Guiragossian	EARSAM Coordinator	ICRISAT/SAFGRAD
S. Mukuru	Principal Sorghum & Millet breeder	ICRISAT East Africa
C.G.Ndiritu	Director	Kenya Agr. Research Institute Nairobi
J. Rutto	Deputy Director	"
J.G.M.Njuguna	Plant Pathologist	Kenya Agr. Research Institute, Muguga
Florence Marungu	Tissue culturist	"
Seme Debela	Director	Institute of Ag. Research, Addis-Ababa, Ethiopia
Yilma Kebede	Sorghum research Coordinator	Institute of Agr. Research Nazret, Ethiopia
Roland Kurkby	CIAT Regional Coordinator	CIAT Debre Zeit, Ethiopia
Badr.A.Saleem	Director General	Agric. Research Corporation, Sudan
Osman A.A.Aqueeb	Deputy Director General	"
El Hilu	Coordinator for Sorghum & Millet	"
Abdalla M.Hamdoun	Coordinator Botany & Plant Pathology	"
Abdel G.E. Babiker	Weed Scientist	Agr. Research Corp. Wad Medani, Sudan
Hassan H. Abdulla	Coordinator of Soil Research	Agr. Research Corp. Sudan
Osman E. Ibrahim	Sorghum Breeder	Agr. Research Corp. Wad Medani, Sudan

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#### CURRENT LINKAGES AMONG NETWORKS ENTITIES

We were informed that ICRISAT program in East Africa is controlled by the Hyderabad headquarters. The relations between SCO and ICRISAT appear to be cordial. We were unable to determine the intensity of contacts between SCO and Hyderabad office. In view of the developments that are likely to occur in ICRISAT in East Africa for instance we were informed a regional centre was under consideration - it would be necessary to set up a framework which brings the two sides together at least once a year. During this meeting any concerns from either side can be addressed.

ICRISAT office in Nairobi has good relations with NARS as a result of the hard work of the network coordinator and the other ICRISAT scientists working with him. ICRISAT provides many services to NARS, sometimes under SAFGRAD auspices and at other times through ICRISAT's own resources. For the beneficiaries it was difficult to tell the source of the assistance, and perhaps this did not matter. The services provided include seed supply, training, both long and short-term, consultancies, supply of reference materials, supply of equipment and also financial support. Whereas the assistance given NARS such as Kenya was described as excellent, others such as Ethiopia complained of the inadequacy of such assistance. In fact, it was the contention of Ethiopia NARS that it received less support from ICRISAT than it did from organizations such as CIAT and CIP. ICRISAT in the past had special programs with Sudan and Ethiopia. It is possible that the ICRISAT assistance to these NARS has now been dispersed over many more countries in EARSAM hence the inadequacy mentioned by NARS such as Ethiopia.

The team observed that while some NARS commended the SCO for quietly helping the operations of the network, with the knowledge that SCOs role cannot be direct, others had very little information about the role of the SCO. Those who commended the SCO linked the success of the network to the quiet encouragement offered by it to the network coordinators in fostering various activities that improve the network coupled with its attempt to convince donors to sponsor the network. However, even this group thought more could be done by SCO in seeking financial resources from Japan, UNDP, ODA and also African Governments to meet the rising demands of the network.

In order to improve the image of the SCO particularly for those who have little information about SCO, it is suggested that the SAFGRAD Newsletter highlights the activities of the decision to place a liaison officer in Eastern Africa would also enhance the information flow to this region and hence give depth to the understanding of the role of SCO.

#### INFLUENCE OF NETWORK ON RESEARCH AGENDA OF NARS AND ICRISAT

The EARSAM network came into being in 1986 by which time most of the NARS had already identified their constraints and set the goals and established the procedures of research currently under way. This is not to say that modifications in focus have not been made as materials and finances and consultancies have been provided by SAFGRAD and as NARS themselves have come to consider regionally common problems.

The scientists interviewed were agreed that whatever influence they had on the research agenda of ICRISAT was rather indirect. Through discussions of research priorities in Steering Committee meetings, and also through informal discussions with ICRISAT scientists especially those who work on NARS research stations in the region and also through collaborative research work with ICRISAT some of their ideas are passed on to ICRISAT scientists. It is however a great puzzlement and concern that ICRISAT has up to now not devoted considerable resources to tackle the rather menacing issues of striga and drought. It is also surprising particularly to Sudan that ICRISAT has continued to neglect to work on grain quality desired in the region. It is suggested that these major issues of concern should be communicated to ICRISAT Director General for resolution.

TRANSFER OF NETWORK MANAGEMENT

It was the view of NARS in EARSAM that the issue of transferring network management to NARS be approached with caution. In their opinion it was the competence of the person in the coordinator's chair that mattered most and not the organization to which he belonged. As far as they were concerned the existence of a strong steering committee with the mandate to guide the activities of the network and the competent implementation of agreed programs by the coordinator were the keys to successful network. The NARS saw positive advantage in maintaining an ICRISAT appointed coordinator who facilitated ready backstopping by ICRISAT. It was also felt that ICRISAT's excellent image and therefore better bargaining power ensured ready access to donor funds without which the network could not operate. They, however, say the need for a change in the background of the personality in the coordinator's position and asked that an African should be appointed. They thought the appointment of an African would create confidence in the participating scientists and ensure that the coordinator was fully familiar with the problems and the environment in which he operated. The current network coordinator however thought that the coordinator of the network should be an employee of SAFGRAD and expressed the opinion that there were excellent African candidates who could fill the position.

It will be recalled that NARS in West Africa had called for transfer of network management to SCO. For an answer to the differences in opinion between EARSAM NARS and West African NARS we could only hazard a guess. The guess is that whereas West African NARS have SAFGRAD office very close to them and receive most of their services from SCO, East African NARS rely almost entirely on ICRISAT for their services. It is therefore reasonable for West Africa to feel confident in the capability of SCO and for East African NARS to wish not to rush into breaking off a relationship that has served them so well.

### RECOMMENDATIONS

During the evaluation a number of recommendations were made by network participants. The following ~~are~~ recommendation which is urged to seek funds for this. In the meantime EARSAM should take advantage of the facilities and expertise that exist in some countries such as Sudan in the training of personnel.

Papers to be presented at workshops should be selected on competitive basis. A theme for every workshop should be identified in advance. More scientists should be invited from the participating countries to increase interaction and cross fertilization of ideas at the workshops.

Monitoring tours should be emphasized and be organized separately from Steering Committee meetings to provide interaction with weaker NARS.

Exchange of germplasm should be tailored to the needs and the capacity of the NARS to utilize them. For the strong NARS the base of germplasm exchange should be widened.

There is the need for more interaction with the other SAFGRAD networks. This can be effected through joint workshops every three years.

Legumes (pigeon peas) should be incorporated in the EARSAM network because of its importance. Sorghum utilization should also be incorporated in the EARSAM network as a subprogramme.

Crop and soil management should be included in the research programmes of the network.

Given the seriousness of devastations caused by drought and striga in the region ICRISAT should be urged to establish special projects on these issues. The projects may also include grain quality considerations.

Exchange of pearl millet germplasm between West and East Africa should be intensified as a basis for strengthening the program on pearl millet in EARSAM.

Western Sudan probably has similar environment as West Africa. A stronger link between West African networks and Western Sudan may be explored.

More financial and material support should be given to the lead centres for them to develop technologies for application by all NARS.

Since pearl millet has in the past been neglected more financial and logistic support should now be infused into the research on this crop.

The NARS recommend that SCO puts in greater effort in the search for additional donors. In this connection Japan, UNDP, ODA can be approached

To underscore the membership of NARS in the SAFGRAD the SCO is urged to sensitize policy makers in the different countries regarding the need for making financial contributions to SAFGRAD operations.

Senior NARS scientists should be supported by EARSAM to visit weak NARS to assist them in specified areas of research since the network coordinator cannot simply handle all this load.

Regional network coordinator is doing well but should be urged to travel more often to the different countries to help them solve problems.

An incentive scheme to retain scientists should be instituted in SAFGRAD/ICRISAT collaborative research programs. In this connection an honorarium should be paid to scientists in accordance with the time spent on the project and on submission of reports. Such a scheme is now being applied by UNDP and ICARDA and seems to be effective.

The network coordinator requested for the employment of an editor to edit publications of the network. However in view of the fact that these publications are now infrequent the employed editor would be underutilized. It is therefore recommended that consultant editors are hired as and when such proceedings are to be published.

The distribution of the SAFGRAD Newsletter seems to be devilled by problems. A member of NARS scientists seem not to get the Newsletter at all or get them when they are out of date. It is recommended that a mailing list of all scientists who work on SAFGRAD mandate crops should be compiled to be used in the distribution of the Newsletter. In addition a list of all agricultural libraries in the region to which copies should be sent should be compiled.

Many NARS expressed the desire to see SAFGRAD publish a scientific journal specialized in the agricultural problems of the semi-arid regions of Africa. One of the major shortcomings in scientific work in Africa is the inadequacy of the dissemination of information. One of the directors interviewed said he knew more about the research activities in India than what goes on in a neighbouring country. The publication of the scientific journal is highly recommended as one of the steps to improve exchange of scientific information.

SAFGRAD so far has operated with an orientation of an organization that seeks to bring individual scientists together. To facilitate communication with scientists outside the SAFGRAD network and to improve SAFGRAD image ~~and dent~~ in the various countries SAFGRAD must now attempt to forge links with institutions in the region. This calls for greater involvement of institution leaders in the activities of SAFGRAD.

The perception in East Africa is that SAFGRAD is a West African organization. To correct this it is necessary for SAFGRAD to express its presence in East Africa in a concrete manner. It is suggested that the decision to have a liaison officer in East Africa should be implemented without delay.

All NARS in EARSAM expressed the desire to continue to have a network coordinator employed by ICRISAT in order to maintain the link with that international institute. They however emphasized the need for an African to handle the job of a coordinator. They thought an African coordinator would understand the problems and the environment better and would therefore be more effective.

LIST OF PERSONS INTERVIEWED  
DURING EVALUATION OF EARSAM

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NAME	POSITION	ORGANIZATION
V. Guiragossian	EARSAM Coordinator	ICRISAT/SAFGRAD
S. Mukuru	Principal Sorghum & Millet breeder	ICRISAT East Africa
C.G.Ndiritu	Director	Kenya Agr. Research Institute Nairobi
J. Rutto	Deputy Director	"
J.G.M.Njuguna	Plant Pathologist	Kenya Agr. Research Institute, Muguga
Florence Marungu	Tissue culturist	"
<sup>m</sup> Sené Debelé <sup>a</sup>	Director	Institute of Ag. Research, Addis-Abeba, Ethiopia
Yilma Kebede	Sorghum research Coordinator	Institute of Agr. Research Nazret, Ethiopia

NAME -----	POSITION -----	ORGANIZATION -----
Roland Kurkby	CIAT Regional Coordinator	CIAT Debre Zeit, Ethiopia
Badr. A. Saleem	Director General	Agric. Research Corporation, Sudan
Osman A.A. Aqueeb	Deputy Director General	"
El Hilu	Coordinator for Sorghum & Millet	"
Abdalla M. Hamdoun	Coordinator Botany & Plant pathology	"
Abdel G.E. Babiker	Weed <sup>S</sup> scientist	Agr. Research Corp. Wad Medani, Sudan
Hassan H. Abdulla	Coordinator of Soil <sup>R</sup> Research	Agr. Research Corp. Sudan
Osman E. Ibrahim	Sorghum <sup>B</sup> Breeder	Agr. Research Corp. Wad Medani, Sudan

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# ABSTRACT OF THE EVALUATION OF THE EASTERN AFRICA REGIONAL SORGHUM AND MILLET NETWORK (EARSAM)

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