

BUREAU DE COORDINATION
DE L'OUA/CSTR
Arrivée le, 27-12-89
N° d'enregistrement 1972

MINUTES OF THE FIFTH EARSAM
COMMITTEE MEETING
IN WAD-MEDANI, SUDAN
OCT. 22 TO 25, 1989

SPONSORED BY:

SAFGRAD

Semi-Arid Food Grain Research and Development
of the Organization of African Unity

ICRISAT

International Crops Research Institute for the Semi-Arid Tropics

EARSAM NETWORK

Eastern Africa Regional Sorghum and Millets
OAU/SAFGRAD, P.O. Box 30786, Nairobi, Kenya

Prepared by:

EARSAM Steering Committee Members
and Regional Coordinator

WELCOME ADDRESS

(Dr. Osman Gameel)*

Dear Colleagues:

We are very happy this morning to welcome in ARC, delegates from Africa attending the East African Regional Sorghum and Millet (EARSAM) steering committee meeting in Wad Medani. Special welcome is extended to representatives of the Semi-Arid Food Grain Research and Development (SAFGRAD).

I am extremely delighted to note the active role ARC members are playing in both SAFGRAD and EARSAM.

The Sudan is viewing these activities with great interests and hopes that a closer cooperation is established in the future to help us bridge the food gap in the Sudan. We in Africa have a lot to learn from each other and more coordination in scientific exchange of both information and scientists is vital to solve the urgent food problems of our people.

The Sudan, with an area 8 million acres under rainfed sorghum and about 600,000 acres under irrigation, with about 2.6 million acres of millet wholly under rainfed becomes an ideal place for launching your activities. I hereby draw your attention to utilize this environment for the advancement of your work and this is why we are looking forward to more involvement with SAFRAD. I would also like to draw your attention to the lack of any activity of SAFGRAD concerning cowpea, maize and farming system networks in spite of our shortcomings in these areas.

At last, I wish you successful deliberations in your meetings and a happy stay in the Sudan. I assure you of how happy we are in ARC to host these meetings.

Thank you.

* Director General of ARC

BACKGROUND AND OBJECTIVES OF THE SC MEETING AND
MONITORING TOUR OF EARSAM

Vartan Guiragossian*

Distinguished invitees, delegates, ladies and gentlemen,

On behalf of OAU/SAFGRAD/ICRISAT, I would like to express to the Ministry of Agricultural Research Corporation of Wad Medani research station, our sincere thanks for hosting the 5th Steering Committee Meeting in Wad Medani and for making all the local arrangements. It is a great pleasure for me to extend a word of warm welcome to our invitees, delegates and to all of you who have honoured our invitation to be here this morning at the opening ceremony of the 5th SC meeting of EARSAM. The previous SC meetings were held in Ethiopia, Kenya, Somalia and Kenya.

For some of you who are not familiar with the interaction of OAU, SAFGRAD and ICRISAT, I thought it would be necessary to give you a brief historical background in order to appreciate this important event.

SAFGRAD, which stands for "Semi-Arid Food Grains Research and Development" is one of the technical arms of the Organization of African Unity's Scientific, Technical and Research Commission (OAU/STRC). The headquarters of the OAU is in Addis Ababa and the STRC in Lagos and SAFGRAD being one of the projects under STRC is based in Ouagadougou. SAFGRAD was established since 1977 in Ouagadougou to assist in the research and production of common food grains (sorghum, millet, maize and cowpeas) in the semi-arid regions of countries affected by drought in West, Central, Eastern and Southern Africa. There are 26 OAU/SAFGRAD member countries at this stage. This tremendous responsibility is being carried out in collaboration with International Agricultural Institutions such as ICRISAT for the improvement of sorghum and millet and IITA for maize and cowpea improvement

* EARSAM Coordinator

SAFGRAD at this stage is managing five active research networks from the coordination office in Burkina Faso, Ouagadougou: Four in West and Central Africa for sorghum, maize, cowpea and farming systems and one in Eastern Africa for sorghum and millet. Through such networks and their respective steering committees, SAFGRAD, through IARCs is gradually contributing to the development of research leadership and exposing NARS young scientists to opportunities when they can look at problems not just at local level but also at a regional level.

The presence of the IARCs, is evidence of their willingness to cooperate with SAFGRAD to achieve the common objective that of facilitating the attainment of food self-sufficiency in the region. We all realize and appreciate IARCs comparative advantages in activities such as basic research, training, etc. Through the EARSAM network, efforts will continue to strengthen the capabilities of NARS both in research and transfer of appropriate technologies to African farmers who are responsible for food production for the growing population.

During the 4th EARSAM steering committee meeting in Nairobi, Nov. 1988, it was agreed that SC members meet in Wad Medani, Sudan;

- 1) To discuss SAFGRAD short and medium terms future plans.
- 2) To discuss EARSAM collaborative research achievements and other decisions taken by the steering committee members in Somalia and Nairobi meetings, and their execution by the regional coordinator.
- 3) To visit Wad Medani ARC sorghum improvement program and visit on-farm demonstration trials.
- 4) To attend the ARC/INTSORMIL sorghum and millet workshop.

Ladies and gentlemen, SAFGRAD/ICRISAT regional network could not have made such progress without the financial contributions from the USAID, ICRISAT center and IDRC. To all of them, we present out deepest appreciation.

Last but not least, our appreciation goes through the SAFGRAD and steering committee members here with us, to ARC and GLOBAL 2000 for their warm hospitality and excellent local arrangements.

Once more, thank you very much for honouring our invitations. I wish our distinguished delegates success in their deliberations and visits that will make our stay in Wad Medani memorable.

Thank you.

MINUTES OF THE FIFTH EARSAM STEERING COMMITTEE MEETING

Date: Oct 22 to Nov 1, 1989

Venue: Wad Medani, Sudan

Participants:

A. EARSAM Steering Committee members

- Dr. Yilma Kebede	Chairman
- Mr. C. Kamau	Secretary
- Dr. G. Mitawa	Member
- Mr. M.A. Hashi	Member
- Mr. F. Hakizimana	Member
- Mr. T. Musabyimana	Member
- Mr. J. Oryokot	Member
- Dr. O. El Obeid Ibrahim	Member
- Dr. V. Guiragossian	Regional Coordinator (R.C.)

B. Observers

- Dr. T. Bezuneh	Director of research, SAFGRAD
-	
- Dr. G. Kingma	USAID/SAFGRAD advisor
- Dr. S. Mukuru	EARCAL* principal sorghum and millet breeder
- Dr. L. Singh	EARCAL principal legume agronomist
- Mr. M.A. Mao	Agronomist, Somalia
- Mr. C. Sehene	Sorghum breeder, Rwanda

* EARCAL: Eastern Africa Regional Cereals and Legumes
ICRISAT regional programs for sorghum, millets,
pigeonpea, chickpea and groundnut.

Agenda

1.0. Opening Ceremony

2.0. SAFGRAD Network Strategic Plan

2.1. Manpower and leadership issue

2.2. Developing sustainable NARS

2.3. Specific plans of action

2.4. Transferring network leadership and management to NARS

2.5. Plans for NARS driven network management

2.6. Transition phase 1991-1993

3.0. EARSAM progress report evaluation

3.1. S.C. composition and functions

3.2. Training

3.3. Workshop

3.4. Germplasm, technology generation and transfer

3.5. Collaborative research projects

3.6. Funding

1.0. Introduction

Dr. Osman Gamel (DG of ARC) made the opening remarks and extended a word of warm welcome to the EARSAM participants to ARC in Wad Medani, Sudan. Dr. T. Bezuneh (SAFGRAD Director of Research) thanked the Sudanese government and the Agricultural Research Corporation (ARC) on behalf of OAU/STRC for hosting the EARSAM network meeting in Sudan. Dr. T. Bezuneh also expressed his appreciation to Global 2000 for the logistic arrangements. Dr. V. Guiragossian (Regional Coordinator) welcomed the EARSAM delegates and for honouring the invitation to attend the EARSAM 5th steering committee meeting held for the first time in Sudan. Dr. V. Guiragossian also presented the background and the objectives of the steering committee meeting. The objectives of the meeting are:

1. To evaluate EARSAM network activities for 1989.
2. To discuss SAFGRAD short and medium terms future plans.
3. To visit ARC sorghum improvement programs and ARC/Global 2000 on farm demonstration plots.
4. To attend the ARC/INTSORMIL sorghum and millet workshop.

After the opening ceremony, the meeting started under the chairmanship of Dr. Yilma Kebede (Chairman of EARSAM S.C.). The S.C. members elected Mr. C. Kamau, Kenya, as secretary of the S.C. to replace Mr. N. Ochanda, Kenya, who went for further training.

2.0. SAFGRAD network strategic plan

Introduction

The director of research for SAFGRAD presented a working paper entitled "An overview of food grain collaborative research strategic plan". The highlights of the paper are summarized as follows:

- a) Previous meetings by NARS organized by SAFGRAD agreed on benefits of networking and the role of NARS in agricultural development.
- b) Constraints to food grain production have been identified and prioritized by NARS and strategies were developed by the SC to tackle the problems and lead research centers were appointed to carry out collaborative research projects for the region.
- c) Weaknesses in the present NARS, such as lack of manpower, funds and infrastructure have been identified.

2.1. Manpower and leadership issue

Regardless of institutional and research management problems, such as lack of motivation and incentives, more people need to be trained to sustain agricultural research in the region. In this regard, the current and future training requirements by NARS for 1990 to 1994 were updated as shown in tables 1 and 2.

Table 1. Current and required manpower in eastern Africa
(1991 to 1995)

<u>Country</u>	<u>Current levels</u>			<u>Additional required</u>	
	(PhD)	(MSc)	(BSc)	(PhD)	(MSc)
Burundi	0	0	1	1	1
Ethiopia	1	4	7	3	5
Kenya	0	4	6	2	5
Rwanda	0	2	1	1	1
Somalia	0	9	9	7	4
Sudan	11	0	3	5	5
Tanzania	2	2	4	2	5
Uganda	0	5	3	3	3
Total	14	26	34	24	29

Table 2. Current level of manpower in EARSAM (Revised Oct. 1989)

Country	PhD		MSc		BSc			Total	
	(Sor.)	(Mill.)	(Sor.)	(Mill.)	(Sor.)	(Mill.)			
Burundi	0	NI	0	NI	1 (B)	NI		1	
Ethiopia	1 (B)	0	1 (A) 2 (P) 1 (B)*	0	4 (B) 1 (A) 1 (E) 1 (U)*	0		12	
Kenya	0	0	1 (B)* 2 (P)*	1 (B)	3 (B)* 1 (A)	1 (B) 1 (G)		10	
Rwanda	0	NI	2 (P)	NI	1 (B)	NI		3	
Somalia	0	NI	3 (B) 3 (A) 1 (E)*	1 (FS) 1 (S)	NI	2 (B) 2 (A) 1 (S)	3 (E)** 1 (P)*	NI	18
Sudan	2 (B) 3 (P) 1 (E)	1 (A) 3 (U)	1 (B)	0	0	1 (B) 2 (P)	0		14
Tanzania	1 (A) 1 (P)	0	1 (B)* 1 (E)*	0	1 (B)* 1 (E)* 1 (P)*	1 (B)		9	
Uganda	0	0	1 (A)* 1 (B)* 1 (P)*	1 (U) 1 (G)	1 (B)	1 (B) 1 (E)	1 (B)		8
Total	13	1	25	2	30	4		75	

Note: * on training (G) Germplasm (B) Breeder (A) Agronomist ** one on training (E) Entomologist (U) Utilization (P) Pathologist (FS) Farming System (S) Soils NI - Not Important

Leadership qualities of NARS scientists could steadily evolve. First, the self-confidence and high sense of responsibility should be asserted in the management of networks; secondly, the utilization of senior NARS scientists and members of steering committees to assist in the implementing research plans of relatively weak NARS; thirdly, the policy and management guidance provided by NARS directors and members of Oversight Committee are good indicators.

2.2. Developing sustainable NARS

Sustainable agriculture research network must be science based and NARS driven, as the programs in NARS are collectively much stronger than individual NARS. In order to have a sustainable NARS, the following are required:

- a) Increased government commitment to favor agricultural research and development.
- b) More emphasis on the development of qualified research and scientific leaders and managers.

2.3. Specific plans of action

Currently, the existing institutions involved in strengthening EARSAM networking are: NARS in the region, ICRISAT and SAFGRAD. The S.C. members stressed the need of full partnership and harmonization of the existing institutions to effectively achieve the EARSAM objectives and activities.

2.4. Transferring network leadership and management to NARS

During SAFGRAD national directors' meeting in Feb 1989, a suggestion was made to transfer the leadership from IARCs to NARS. In order to realize this transfer into effect, the following points should be satisfied:

- a) To have a well developed manpower situation in member countries.
- b) There should be evidence of a functional and effective steering committee.
- c) The state of technological development of the crop should be taken into consideration.
- d) The selection process of the network coordination must be based on international criteria and conditions.
- e) The coordinator must have adequate research and management experience in the region.

2.5 Plans for NARS driven network management

SAFGRAD, in consultation with NARS, network coordinators and with respective steering committees of networks, is expected to develop plans for turning over network coordinators positions to NARS by 1991. Recognizing the shortage of qualified researchers, and stages of network development, a transitional phase for the network development is being considered.

2.6. Transition phase: 1991-1993

Transition phase envisioned is a preparatory stage to recognize or streamline the management units of networks, to undertake accelerated training of researchers, technicians, etc. and to solicit more resources in order to support NARS driven network management. The steering committee members agreed that the present office should foster the transition and in the meantime, ICRISAT will continue to support the network.

3.0. EARSAM progress report evaluation

3.1. Steering committee composition and functions

a) It was resolved that each member country of the network be represented in the EARSAM S.C and the committee members be as much interdisciplinary as possible.

b) The steering committee members are elected only by the regional workshop participants held every year.

c) It was agreed that 50% of the S.C. members should be replaced during the regional workshops in order to inject into the S.C. new ideas, experiences and allow leadership for other scientists in the region.

d) It was agreed that if one or more members of the S.C. cannot continue with his/her responsibilities, the rest of the S.C. members will continue and replacement will be made only during regional workshops.

e) It was resolved that the S.C. members meet twice a year, one for planning and the other for follow-up during a regional workshop year.

f) The SC members reviewed the naming of the network and it was agreed to keep EARSAM as the name of the network and not EARCAL (Eastern Africa Regional Cereals and Legumes), because they felt this was beyond the mandate of the S.C members.

g) It was agreed that the S.C. meetings should be separated from monitoring tours depending on availability of funds. It was also agreed to hold the future S.C. meetings in Nairobi except for the S.C. meeting associated with the regional workshops.

h) The S.C. members requested SAFGRAD office to provide copies of the guidelines developed by the NARS directors in 1987, to clarify issues related to network structure and functions.

3.2. Training

a) It was agreed that technicians need to be trained on specific topics requested by NARS with regional significance.

b) Further training of technicians to BSc degree is the responsibility of each country in the region.

c) Priority short course topics to be covered in the future were identified as follows:

- i) Utilization
- ii) Post harvest technology
- iii) Breeding techniques
- iv) Agronomic drought management techniques
- v) Data collection and analysis

d) The S.C. members reiterated its great concern on the pressing need for manpower training in the region for scientists at post graduate level (PhD and MSc). It was resolved that urgent steps be taken by SAFGRAD to solicit additional funds to meet this need.

e) The S.C. members requested the EARSAM R.C. to investigate with KIRDI in Kenya and Food research center in Sudan, the possibility and dates appropriate to conduct short course training in food processing and utilization for the NARS scientists and technicians in the region.

3.3. Workshops

- a) It was endorsed that the 7th EARSAM regional workshop be held in Kenya between June 25 to July 2, 1990.
- b) In order to further improve the quality of the workshop, it was suggested that papers presented should be more professional, thematic and diverse to cover all important disciplines.
- c) It was also agreed that finger millet papers to be prepared for the workshop by Uganda, Kenya, Tanzania and Ethiopia in detail since no information is available up till now.
- d) Workshop proceedings should be distributed to all participants, directors of research and libraries of NARS.
- e) It was agreed that the coordinator will announce the workshop and invite NARS and special speakers on agreed topics to submit papers to the regional office not later than last week of March, 1990.

3.4 Germplasm and technology generation and transfer

- a) The S.C. members requested the coordinator to provide names and addresses of scientists involved in EARSAM network research.
- b) The germplasm movement chart agreed upon by the S.C. members in Somalia was discussed and clarified. It was suggested to include diverse sorghum and millet genotypes with specific adaptation in each ecological zones in the region.
- c) Preliminary observation nursery
 - i) Since EARSAM region is diverse in its ecological zones and adaptation, sorghum germplasms movement was discussed by the S.C. members and requested that a sorghum preliminary observation nursery be organized.

The following NARS were interested in receiving sets:

Country	Sorghum for lowland	Sorghum for intermediate
Burundi	1 set	1 set
Ethiopia	1 set	1 set
Kenya	1 set	1 set
Somalia	1 set	Nil
Sudan	1 set	1 set
Tanzania	Nil	1 set
Uganda	1 set	1 set

Diverse sorghum genotypes will be included in these nurseries having different pericarp color, maturity group, plant height, plant types, etc. Sudan is interested only in white seeded genotypes.

Specific drought observation nurseries was requested by EARSAM countries for semi-arid areas of the region. Sudan, Kenya, Ethiopia and EARCAL will contribute entries to be included in these nurseries and were requested to send 100 grams seed for each entry to Nairobi office as soon as possible. Tanzania, Kenya, Ethiopia and Sudan requested one set each of this drought nursery.

d) The production and surface area of sorghum and millets was documented in 1986 and the S.C. members suggested to update the figures by NARS and give them to the coordinator.

e) Sorghum and millet varieties released and pre-released by the NARS was updated (Table 3 and 4). SAFGRAD requested each country to provide information to the coordinator, the extent to which the released varieties are grown by farmers.

f) The regional coordinator and the EARCAL principal sorghum and millet breeder will continue to visit each country in the region to monitor the preliminary and regional sorghum and millet trials.

g) It was suggested that a separate committee be formed to monitor, evaluate and write progress report on EARSAM research experiments conducted by NARS. This committee should meet once every other year. At this stage, it was felt additional funds need to be sought for this extra regional activity.

Table 3. High yielding sorghum varieties released and in pre-released stage by NARS in eastern Africa (1986-1988)

Countries	Sorghum varieties released	Sorghum varieties pre-released stage
Ethiopia	Dinkmash Seredo	IS 158x(ET3235)BC4 RS/R-20-8614-2 X IS 9379 IS 2284
Burundi		Tegemeo Gambella
Rwanda	Amasugi 5Dx160	1804 BM 33 Kigufi Nyirakabuye
Uganda	ET 225 HT Red 2 KX 17/B/1	3 KX 73/1
Kenya	IS 76	IS 8527 IS 8293 KAT 369
Tanzania	Tegemeo	
Sudan		P 967083 Cross 35-5

Table 4. Millets varieties released and proposed for release by NARS in eastern Africa (1986 - 1988)

Country	Pearl Millet	Finger Millet
Sudan	Bristled Pop (PR)*	-
Kenya	KAT PM 1 (PR) KAT PM 2 (PR)	KAT FM 1 (PR)
Tanzania	SADDC/Tanz-late Composite (PR)	-
Ethiopia	-	FM 3 (PR)
Uganda	-	P 224 (R)** P 277 (PR) U-10 (PR) Seredo x 10 (PR)

* (PR) Proposed for release

** (R) Released

3.5. Collaborative research projects

- a) It was decided that:
- i) All collaborative research project proposals be submitted to the S.C. for approval. Every project should follow the format developed by the S.C. (see FORMAT 1).
 - ii) Progress report for each project should be submitted to the S.C. using the format developed by the S.C. (see FORMAT 2).
- b) The steering committee members reviewed, evaluated and updated the existing collaborative research projects with NARS.

Updated collaborative research projects with NARS are:

<u>Projects</u>	<u>Lead centers</u>
Striga (sorghum)	Ethiopia and Sudan
Ergot (sorghum)	Ethiopia and Rwanda
Smuts (long and covered)(sorghum)	Kenya
Anthrachnose (sorghum)	Ethiopia
Chilo (sorghum)	Somalia and Ethiopia
Finger millet head blast	Uganda
Drought (sorghum)	Sudan and Kenya
Agro-ecological zones characterization	ICRISAT and NARS

Criteria for selecting lead research centers for specific common problems are:

- a) The lead centers should already have an ongoing program and funds committed by NARS to achieve that specific problem.
- b) The lead centers should have reasonably good facilities to achieve that problem.
- c) The lead centers should have trained manpower already working on that problem.

FORMAT-1

EARSAM COLLABORATIVE RESEARCH PROJECT

Period:

Title:

Lead Scientist:

Lead centers and
training component:

Objective(s):

Techniques:

Expected project impact:

EARSAM Coordinator

Chairman

Lead Scientist

Date: _____

- d) The lead centers should represent the region in its ecological zone and adaptation as well as hot spots to screen and evaluate for biotic and abiotic stresses.
- e) In some cases we select two lead centers for the same problem so that all ecological zones are covered.

Note:

- i) The concept of TPN (Technology Producing NARS) and TAN (Technology Adapting NARS) cover all NARS. A NARS could be a producer of technology in one aspect and recipient in other respects.
- ii) NARS should commit personnel with basic infrastructure to be entitled for lead center.
- iii) TPN are receiving funds to further strengthen their research base while the TAN are not receiving funds. This will always widen the gap between TPN and TAN. It was agreed that 20% of the national support funds be allocated to assist TAN in conducting regional trials.
- iv) All NARS willing to receive funds from EARSAM should submit a research proposal with its budget to the regional coordinator for follow up.
- v) All research proposals should be approved by the S.C. members.

Relative allocation of resources to sorghum and millets in the region

Most of the collaborative research projects are on sorghum. The S.C. members indicated the relative percent production of sorghum and millets in their respective countries (as shown below) to justify why more collaborative research projects are on sorghum rather than millets.

Country	Sorghum	Pearl millet	Finger millet
Burundi	100%	NIL	NIL
Ethiopia	95%	NIL	5%
Kenya	75%	20%	5%
Rwanda	100%	NIL	NIL
Somalia	95%	5%	NIL
Sudan	80%	20%	NIL
Tanzania	60%	30%	10%
Uganda	55%	5%	40%

- c) As a result of striga collaborative research project with Ethiopia, appropriate technologies and germplasm with good level of Striga resistance were developed. The regional office received the striga resistant seeds from Ethiopia and Sudan and have organized a Striga uniform trial (consisting of 16 entries) for EARSAM. The S.C. members requested this trial to evaluate them in striga hot spots in their countries.

EARSAM sorghum striga evaluation trial

Country	No. of sets	Location
Rwanda	1	Bugesera
Tanzania	1	Ukiriguru
Uganda	2	Arapai & Tororo
Ethiopia	2	Lower Birr & Beles
Sudan	2	Wad Medani
West Africa	2	Samanko & Saria (Burkina Faso)
Kenya	2	Mbita Point and Busia

3.6. Funding

Funds for network support line item was inadequate to support the collaborative research projects. With the approval of USAID and ICRISAT, the network support funds were increased to a reasonable level to adequately support the collaborative project with NARS. The coordinator also informed the S.C. that about 70,000 US dollars are available and committed for network support for the next two years.

The S.C. members agreed on the following points:

- a) 80% of the network support fund will be divided among those countries with on-going collaborative research projects. The remaining 20% will be divided among those countries with no collaborative projects but involved in EARSAM cooperative regional testing. In addition, the steering committee requested to be informed about the EARSAM network operational budget.
- b) It was agreed that funds could be obtained as direct funds or in the form of research supplies required for each project. In case liquid money is requested by NARS, the regional coordinator requires to receive a financial report signed by the directors of research.

LIST OF EARSAM STEERING COMMITTEE PARTICIPANTS

<u>NAME</u>	<u>ADDRESS</u>	<u>POSITION</u>
Osman Gameel	P.O. Box 126, ARC, Wad Medani, Sudan	Director General of ARC.
Mohamed Badr A. Saleem	P.O. Box 126, ARC, Wad Medani, Sudan	Deputy D.G., ARC
Ibrahim A. Babiker	Director, Gezira Research Station, ARC	GRS, P.O. Box 126, Medani Sudan
Mohamed Ahmed Mao	Research Directorate, Ministry of Agriculture, Mogadishu, Somalia	Sorghum Agronomist
Paul Ladu Bureng	Food Research Centre, Shambat, Khartoum North	Head, Grain & Technology Dept.
Samwiri Z. Mukuru	DAU/SAFGRAD/ICRISAT P.O. Box 30786, Nairobi, Kenya	Sorghum Breeding
Sehene Celestin	ISAR Karama BP 121, Kigali, Rwanda	Sorghum Breeding
Clement Kamau	NDFRC P.O. Box 340, Machakos, Kenya	Sorghum Breeding
Musabyimana Thaddce	ISAR Rubona BP 138, Butare, Rwanda	Plant Pathologist
Gaudens M. Mitawa	P.O. Box 306, Tabora, Tanzania	Sorghum Agronomy
Joseph O.E. Oryokot	Sorghum & Millets Unit, Serere, P.O. Soroti, Uganda	Cereal Agronomy
Frederic Hakizimana	ISABU BP 795, Bujumbura, Burundi	Sorghum Breeding
Osman El-Obeid <u>Ibrahim</u>	ARC P.O. Box 126, Wad Medani, Sudan	Sorghum Breeder
Mahamoud A. Hashi	Bonka Dryland Agricultural Research Station, P.O. Box 2971, Mogadishu, Somalia	National Co-ordination for Sorghum Research
Yilma Kebede	Inst. of Agri. Research, Nazret Research Center, P.O. Box 436, Nazret, Ethiopia	Program Leader, Sorghum Research
Vartan Guiragossian	DAU/SAFGRAD P.O. Box 30786, Nairobi, Kenya	EARSAM Co-ordinator
Gerbrand Kigma	DAU/SAFGRAD/USAID, P.O. Box 1783, Ouagadougou, Burkina-Faso	Sr. Project Advisor
Taye Bezuneh	DAU/STRIC/SAFGRAD, P.O. Box 1783, Ouagadougou, Burkina-Faso	Director of Research
Laxman Singh	DAU/SAFGRAD/ICRISAT, P.O. Box 30786, Nairobi, Kenya	Pigeonpea Breeder/Agronomist
Abdel Honeim <u>El-Ahmadi</u>	Breeding Section, GRS, ARC, Wad Medani, Sudan	UNDP Sorghum Network Coordinator (January 1990)
El Hilu <u>Omer</u>	Plant Pathologist, GRS, ARC	Head, Botany & Plant Pathology

AFRICAN UNION UNION AFRICAINE

African Union Common Repository

<http://archives.au.int>

Department of Rural Economy and Agriculture (DREA)

African Union Specialized Technical Office on Research and Development

1989-10

MINUTES OF THE FIFTH EARSAM COMMITTEE MEETING IN WAD MADANI, SUDAN

AU-SAFGRAD

AU-SAFGRAD

<https://archives.au.int/handle/123456789/8474>

Downloaded from African Union Common Repository