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MISSION REPORT  
THE REGIONAL PEARL MILLET IMPROVEMENT

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WORKSHOP  
Burkina Faso

17 - 21 SEPTEMBER, 1990, Niamey, Niger

The workshop was attended by 42 participants from 14 countries (Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Gambia, Ghana, Guinea Bissau, Mauritania, Mali, Niger, Nigeria, Senegal, Tchad and Togo) and by representatives of ICRISAT, SAFGRAD, the Swiss Development Cooperation and USAID.

Prior to the workshop, the Steering Committee Meeting took place on 17 and 18 September. In general, discussions during both SC meeting and workshop sessions were centered on the following issues:

I. NETWORK CONCEPTS, PHILOSOPHY AND STRATEGIES

Network approaches, models and experiences within Africa and Latin America were discussed. It was noted that the two imperative issues in network development are improvement of NARS research capabilities and sustainability. The four network categories (i) information exchange, (ii) collaborative, (iii) international trials and (iv) scientific consultation, seem to have similar entities of network model. These include :

- i) NARS which constitute national institutions and respective scientists play major role and are the beneficiaries from network activities.
- ii) Coordination Unit - of regional nature play catalytic role in the organization, management, linkages of network to different NARS, to other networks and to donors.
- iii) International Agricultural Research Centers - provide a number of services such technical support, training, facilitate information exchange etc. With regard to Millet network in the sub-region, ISC is expected to provide both technical and institutional support to the West and Central Africa Millet Networks.
- iv) Donors - influence the nature and development of networks through the provision of funds. If not coordinated, network effort could lead to duplication of resources.

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Regardless of different styles and approaches used to elaborate philosophy and objectives, the network rationale and purpose were summarized as follows :

- (1) To bring together the research manpower and institutional capabilities and resources of NARS, IARCs and regional agencies in order to alleviate common constraints of agricultural production.

The process of attaining this objective entails:

- a. The identification of common problems of agricultural production.
  - b. To prioritize research based on the NARS needs.
  - c. To inventory and categorize national capabilities to undertake research.
  - d. Based on comparative scientific capabilities, acceptance of research responsibility, by Lead NARS to resolve food production problems of regional dimension. This approach entails to collaborate in research activities and sharing of results.
- (2) To enable all members countries and institutions fully participate in Network activities. These include:
    - a. Evaluation of elite germplasm at regional level
    - b. Training workshops, monitoring tours, long-term training, seminar, symposia.
  - (3) To facilitate the interactions among NARS scientists and institutions.

## II. IDENTIFICATION OF MILLET PRODUCTION CONSTRAINTS

The following constraints were identified:

### Zone

1.0 Sahel

### Biotic Constraints

- a. Lack of suitable varieties. The main researchable issues are conservation, development of varieties and evaluation
- b. Diseases - these include mildew and smut.
- c. Insects: these include Cantharides, Raghuva and foilage insects.
- d. Striga

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3.

Abiotic Constraints

Researchable issues are:

- Drought, soil fertility, crop associations,
- Rotation, plant establishments etc.

Problems related to post harvest and utilization

- Quality
- Storage and conservation

Socio-Economic Constraints

- Inputs
- Marketing, credit
- Agr. policies

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2.0 Sudan Zone

Biotic constraints

- a. Lack of suitable varieties  
Researchable issues similar to above zone
- b. Diseases - similar to above but ergot is also important
- c. Insects - similar to Sahel zone
- d. Striga " " "

Abiotic constraints

- Drought, plant establishment,
- Soil fertility (N, P, organic matter and conservation of soil)
- Cropping systems (cereal/legume)

Post harvest and socio-economic constraints similar to Sahelian zone.

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3.0 North Guinea Savana Zone

Biotic constraints similar to to Sudan zone

Abiotic constraints - similar to Sudan zone

Post-harvest constraints include quality of grains, utilization and transformation, storage and conservation  
Socio-economic - similar to above zones.

### III. INVENTORY OF RESEARCH MANPOWER AND INFRASTRUCTURE IN MILLET AND NETWORK MEMBER COUNTRIES

#### 1.0 Research Inventory

Available research manpower, future needs and available infrastructure (research stations) are shown in tables 1 and 2, respectively.

#### 2.0 Proposal of NARS Lead Centers or Centers of Excellence

Based on the extensive questionnaire carried out in millet growing countries and on the exchange of views made during the SC meeting and at the plenary session of the workshop in particular, the following national stations were identified to provide regional leadership in different disciplines of millet improvement:

<u>Ecological zone</u>	<u>Major Research Centers</u>
2.1 Sahel	. Bambey stations in Senegal . Tarna station in Niger . Cinzana station - Mali . ISC (ICRISAT) in Niger
2.2 Sudanian	. Kamboinsé station in Burkina Faso . Maiduguru station in Nigeria . WASIP (ICRISAT) in Mali
2.3 Northern Guinea Savanna zone	. Ferkessedougou in Côte d'Ivoire . Farakoba in Burkina Faso

#### 3.0 Working Groups

To develop research projects, and review research progress the following technical working groups along the above mentioned ecological zones were established:

- Group A - Development of millet varieties (breeding, protection, etc)
- Group B - (Agronomy and development of millet based systems)
- Group C - Transfer of technology (evaluation and adoption).

## IV. TECHNICAL SESSIONS

Five technical and 13 countries papers were discussed. It was apparent that some progress is made on the development of cowpea varieties for mix cropping. Improved technological options for millet/cowpea systems were also reported. It was apparent that more research is needed to identify millet cultivars resistant to heat and drought stress. Status of millet research and production in different NARS were reported.

Table 1. Current (1990-1991) and Future Research Manpower Needs for Millet Research in West and Central Africa (Millet Network)

Scientific Discipline	Scientists Tech		Next 5 - 10 years	
	Sci.	Tech.	Sci.	Tech.
Breeding	13.5	23.7	18	22
Pathology	6.20	8.25	17	28
Entomology	6.53	9.75	19	26
Agronomy	10.73	15.20	20	33
Physiology	2.48	3.15	7	9
Food Technology	2.01	2.80	12	16
Socio-Econ	2.60	1.25	4	16
Agr. Climatology			5	10
Others	3.10	1.75	5	5
TOTAL.....	47.15	65.85	112	165

In 1990/91 about 48 scientists apparently are working in millet improvement in the above mentioned disciplines. About 66 technicians at B.Sc. level or with two years college education apparently are working in Millet Research. The critical manpower needs for each country is to be accurately known. For next ten years, it was estimated close to 107 scientists and 153 technicians will be required. The above statistics is for the 14 Millet Network member countries in West and Central Africa.

Table 2. Available infrastructure, facilities, and bioclimatic zones in each of the 14 network member countries.<sup>1</sup>

Facilities	Research stations			Other research sites			Irrigation stations			Laboratories			Total test locations			Other sites
	S	SS	NGS	S	SS	NGS	S	SS	NGS	S	SS	NGS	S	S	NGS	
Nigeria	1	2	1	1	0	1	1	0	1	1	0	1	2	2	2	1
Togo	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0
Benin	0	0	1	0	2	0	0	0	0	0	1	0	0	2	1	0
B. Faso	2	3	2	2	2	1	1	1	1	0	2	1	4	5	3	0
Cameroun	1	1	0	1	1	0	0	0	0	1	1	0	2	2	0	2
Gambia	0	2	0	0	3	0	0	0	0	0	2	0	0	5	0	3
Mali	1	2	1	3	2	2	1	0	0	2	1	1	4	4	3	2
Niger	2	0	0	3	2	0	0	0	0	2	0	0	10	2	0	0
Senegal	2	1	1	2	2	2	2	1	1	1	0	0	4	3	3	5
Chad	0	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0
Ghana	0	1	0	0	1	2	0	1	1	0	1	0	0	2	2	4
G. Bissau	0	1	2	0	0	0	0	0	0	1	1	0	0	1	2	0
C. d'Ivoire	0	0	2	0	0	0	0	0	1	0	0	2	0	0	2	5
Mauritanie	0	0	0	3	0	0	0	0	0	5	0	0	8	0	0	1

1. Bioclimatic zones

S = Sahel  
 SS = Soudan Savannah  
 NGS = Northern-Guinean Savannah

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