

Network Monitoring and Evaluation Services Project  
AID/METRICA Contract LAG 411-C-00-2035-00  
Project No. 936-4111

TRIP REPORT

Report of a Network Monitoring and Evaluation  
Trip to Uganda, Rwanda and Kenya

By Calvin L. Martin, Agricultural Consultant  
19 November to 8 December 1993

Countries Visited

Uganda November 19 to 27, 1993  
Rwanda November 28 to December 3, 1993  
Kenya December 4 to 7, 1993

January 24, 1993

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### Purpose of Trip

The purpose of the trip was to discuss, with scientists and senior research administrators in each country, what progress is underway in the strengthening of regional networks commenced in East Africa (Uganda, Kenya and Rwanda) some seven to ten years ago. The four regional networks are: (1) East and Central Africa Potato and Sweet Potato Improvement Program (PRAPACE); (2) Agroforestry Research Networks for Africa (AFRENA); (3) East Africa Root Crop Research Network (EARRNET) and, (4) East Africa Bean Research Network (EABRN). Regional based scientists of the International Agricultural Research Centers (IARCs) and U.S.A.I.D. offices were also contacted to gather information on implementation progress of the agricultural networks.

### Introduction

The method used to gather information on the four networks was carried in a number of ways. I attended a four day workshop titled "Regional Workshop on Eastern Africa Framework For Action on Agricultural Research", made country visits to Uganda, Rwanda and Kenya, held discussions and field visits with country scientists and administrators working on common theme research activities of the region, conducted meetings with U.S.A.I.D. offices and discussions and field observations in the company of IARCs scientists assigned to the East African region.

The key objectives of the trip focused on: (1) progressive management responsibilities being taken by the National Agricultural Research Systems (NARSs) scientists and administrators in strengthening regional common theme research activities, regarding funding and monitoring of the four networks; (2) effectiveness in the development, adaptation and utilization of economically relevant agricultural technologies; (3) appropriateness of regional mechanisms for exchanging technical information, fostering decision making processes and monitoring research findings; (4) forcefulness of common theme research activities for improving commodity production leading to increased income and marketing opportunities; (5) adequateness of the linkages and spillover benefits from the regional network activities to national research programs; and (6) effectiveness of networks in general.

### General Network Comments

My overall view is that the four commodity based networks are developing into strong regional research programs. Moreover, each network has aptly demonstrated a significant spillover effect to the individual country national agricultural research systems. The regionally based networking approach to conduct research on common theme activities was supported by all interviewed during the trip. The scientists and research administrators working in the regional programs expressed complete certainty that regional collaborative research efforts were helping NARSs to import relevant technology. Scientists cited many positive examples where technologies such as, improved germplasm of cassava, beans and potatoes were imported from member network countries with additional materials coming from IARCs.

Other technologies borrowed from NARSs to NARSs network programs consisted of potato storage, crop rotation and interplanting technologies and germplasm screenings. Many reported that extensive spillover effects are resulting from the findings occurring through the regional research trials. It was noted throughout the country visitations that these strong specific commodity research activities were well fitted into the national crop research programs.

In addition to relevant technologies being exchanged among network members, is the beneficial effects occurring in the area of training, peer reviews of research conducted, seminars and country to country visits of scientists. The regional network programs have provided excellent opportunities for scientists to facilitate discussions on research methodologies and the publication of research findings. These mechanisms have effectively contributed to the success of the regional network programs.

Throughout all my discussions with the scientists and administrators, it was obvious more attention needs to be exerted in the continuing process of formulating and evaluating regional network programs. There is evidence network research activities are currently being looked at in a manner of country level research activities with regional goals and objectives receiving minor attention. The criteria and indicators now being employed are generally aimed at measuring the impact of NARSs research programs and therefore, is inadequate in determining the benefits now being contributed by the regional network activities. Regional network programs are to serve as a link between the IARCs, donor country international research programs and the NARSs. The regional network programs are a separate entity and should be viewed in this context. Just as the international agricultural research and the NARSs programs are separate entities they too need to be viewed in an individual context.

While time did not permit a thorough review of the A.I.D. oversight management, being expended in managing the four regional networks, in East Africa it is quite evident from discussions there exists duplication of effort and some confusion over who is ultimately responsible for decision making. The already agreed upon Memorandum of Understanding among A.I.D. offices probably needs to be re-evaluated to clarify network management roles.

An issue raised in all discussions in the three countries visited, as well as the regional workshop, concerned the lack of funds to meet the needed expenditures to conduct regional research trials, i.e., bags, stakes, data books and other research trial supplies. I suggest the issue of research trial funding be reviewed to determine the impact that inadequate funding is having on research findings.

In summary, my observations are that the four regional network programs have made tremendous progress since their inception of 7 to 10 years ago. This evidence includes: (1) screening of germplasm, (2) release of relevant varieties to NARSs, (3) adoption of new crop varieties by farmers that have increased production and marketing opportunities, (4) improved insect and disease tolerances being incorporated in relevant germplasm, (5) training offered to practicing scientists, (6) seminars conducted for scientists, (7) NARSs to NARSs observation and peer review exchanges and has all resulted in viable and effective regional research programs on basic food and cash crops.

The regional research programs on beans, potatoes and cassava have reached a stage of maturity where the R&D/Agr/IARC office in collaboration with the network coordinators (African and IARCs) should conduct a study on the development and spread of high yielding bean, potato and cassava varieties in the member countries of the three regional network programs. In my discussions with the regional scientists it was stated that new varieties are being adopted by farmers in each country. The range of adoption varies from 30 to 90 percent depending on the particular commodity. Rwanda reported the spread of potato varieties to be near 90 percent.

#### Review of Network Programs

This section of the report will treat the thoughts and observations pertaining to the four networks as gained from discussions with scientists and administrators engaged in the regional research programs. The regional network programs are all in various stages of maturity.

All networks are making relevant technology available to national agricultural research systems. Moreover, the network programs are fulfilling the role of linking together the international agricultural research centers, donor international agricultural research programs and the national agricultural research systems. This linking mechanism was the intended role for the network programs when they were established in the 1980's.

#### East African Bean Research Network

The bean research network program is serving a most important regional role by providing multi-locational tested germplasm (climbing and bush types) to the NARSS, conducting regional variety testing trials, organizing regional network workshops, providing relevant breeder seeds to NARSS, training of scientists, conducting on-farm trials and developing indicators to measure relevant regional bean research. There is an active effort in testing the acceptability and palatability of new bean varieties being released to the NARSS.

The NARSS of the network member countries are releasing relevant new varieties to farmers, i.e., Uganda 3 to 4 varieties every other year, Rwanda recently released 4 varieties. The network has consistently improved its efforts in supporting a strong NARSS to NARSS program with an added feature of providing a welcomed peer review mechanism. Discussions held with scientists and administrators involved in the regional bean network program report tremendous progress has been made in getting the country scientists to assume a meaningful role in the management of the network. This improvement in the network management is contrasted to earlier years when the IARCs played a major role. I must state there is and will be for sometime a need for further management and financial assistance to help the network reach a more advance stage of maturity.

It was noted that excellent progress is being made towards the development of the network into a self sustaining regional institution. The reporting of research findings and studies is progressing well but further financial assistance is required. There appears to be some concern over the role played by the Pan African Coordinator for CIAT. This issue of the coordinators role should probably be reviewed by the network Directors Committee for resolution.

While the A.I.D. Collaborative Research Support Program (CRSP) on beans is cooperating with the regional network program it appears there are areas for improvement. This area of cooperation between the CRSP and the network program should be a topic for discussion and resolution at an upcoming Steering Committee meeting.

It is suggested that consideration be given to an effort that would involve the leadership of the Cooperative State Research Service program of the United States Department of Agriculture (USDA). This USDA cooperative research program has a staff of scientists and administrators with a tremendous body of knowledge that can help advise on formulating mechanisms for strengthening the financial, program planning, university partnership and administrative structure of the regional network program. The network Directors Committee should schedule a work session at one of its future meetings to discuss regional research programs with a representative of the USDA Cooperative State Research Service program.

## 2. East and Central Africa and Sweet Potato Improvement Program (PRAPACE)

This regional network program is focusing its work on potatoes and sweet potatoes. Note should be taken that sweet potato research was integrated into the network some two years ago. The network has as its goal to make available to NARSSs disease resistant high yielding varieties and other improved technologies which can be spread to farmers and to gather germplasm and relevant technologies from IARCs and national research programs. To achieve this goal the regional network is continuously strengthening the NARSSs research capacity through coordinated research trials, seminars on country relevant problems and issues, peer reviews, exchanges of information and practical training.

NARSSs to NARSSs information exchange efforts are being successfully carried out. Each network member country is responsible for two to three research activities as its part of the regional program. On-farm trials are a major part of the regional program. Farmer production of potatoes is primarily a cash crop, hence network scientists and administrators are currently undertaking research objectives in the areas of marketing and processing. Seed production and starch making are being pursued. The Steering Committee is making excellent progress towards the development of the network into a sustaining regional institution.

The network member countries represented by their scientists and administrators are effectively contributing to the regional program. This effectiveness of the regional program can be easily substantiated by the relatively large amounts of germplasm and varieties being released to the NARSSs and subsequently to farmers as well as improvements in storage and the maintenance of high quality seed tuber production.

It was reported that over the last ten or so years there has been a nearly complete replacement of European and other country potato varieties with network germplasm in the four major network countries. A recent report states that as a research investment project of some 14 years the internal rate of return is estimated at 91 percent. Yield increases are currently assumed to be 2.8 tons per hectare from a baseline of 7.0 tons.

The potato and sweet potato regional improvement program could benefit greatly from some external technical and management assistance that can be provided by the Cooperative State Research Service program of the USDA.

### 3. East Africa Root Crops Research Network (EARRNET)

The EARRNET program became a separate regional network as the result of a division of the former East and Southern Africa Root Crops Research Network (ESARRN). A Southern African network is being organized as the Southern Africa Root Crops Research Network (SARRNET) with its headquarters at the Chitedze Research Station in Malawi. The EARRNET regional program is headquartered at the new IITA Regional Research Center at the Namulonge Research Station in Uganda. The initial ESARRN program conducted research on a regional basis covering cassava and sweet potatoes, however the two newly created regional networks will only cover cassava. The management of the newly formed EARRNET will be conducted by a Directors Committee composed of NARSs administrators' responsible for policies and a Steering Committee composed of NARSs scientists' responsible for technical program matters.

The major focus of the regional network program concerns activities in the area of the selection of breeding material, cultural practices in agronomy, biological control of insects notably green spider mite and mealy bug, on-farm trials and training. The germplasm material used in the breeding selection activity is received from the International Institute for Tropical Agriculture (IITA) and the International Center for Tropical Agriculture (CIAT) and national research programs.

The germplasm material that is being obtained from the 2 IARCs has shown a yielding capacity of up to 50 tons per hectare while yields from local germplasm are about 7.8 tons. The regional network research program has been divided up among the member countries with lead responsibilities assigned as follows: Rwanda--cassava breeding; Burundi--germplasm multiplication; Tanzania--drought tolerance testing of germplasm; and Kenya -- development of processing.

The Rwanda NARS has released 7 improved varieties of cassava to farmers since the inception of the regional networks program. The development and spread of germplasm among the country members has been one of the major benefits NARSs have received from the network.

Another benefit, highly regarded by member countries, is the training provided at IITA. Several regional network scientists reported that the IITA practical training programs and accessibility to their research facilities was an important factor in the high rating for training received.

The regional network seminars and opportunity for peer reviews of the research activities were other parts of the program receiving praise. The publishing of a ESAARN newsletter and research reports and studies has been an effective means of keeping member country scientists and administrators informed of the network programs as well as aiding in planning future activities.

An important step in the maturity of the cassava research program in Africa has been the formation of the new IITA Regional Research Center at Namulonge, Uganda. This regional cassava center will provide the network program with easy access for germplasm, technical information and training opportunities. The Center will also have a beneficial impact on the management practices of the regional network.

#### 4. Agroforestry Research Networks for Africa (AFRENA)

The AFRENA program is broad based involving a number of research activities that include: tree species trials, soil conservation, fertility and erosion and crops and livestock. This broad based research mandate as well as members countries being thinly staffed professionally makes it difficult for AFRENA to fully function as a regional network. The regional network program probably resembles a collection of individual NARSs programs rather than a true regional program such as found in commodity oriented regional programs dealing with beans, cassava and potatoes. The degree of maturity is accounted for by low numbers of scientists, early stages of network growth and the wide array of research activities.

I believe it will take a period of another 4 to 5 years to reach the same level of maturity found in other regional networks. AFRENA has, at this time, developed better cooperative arrangements with the University Faculties of Agriculture than the other 3 regional networks. This university cooperation has greatly benefitted the AFRENA research program.

AFRENA is in the early stages of developing a strong NARSs to NARSs relationship. This early stage of development tends to lessen the benefit of the spillover effects that can be accredited to networking. The individual country level research activities have tended to promote research duplication throughout the regional network program. AFRENA management needs to focus more attention on a regional network program so as to be able to provide more technology to NARSs and gain greater technology development from scientists working in the network.

On-farm technology testing is a strong part of the AFRENA program. AFRENA has developed cooperative relationships with several members of the non-governmental organization community which has helped strengthen its relationships with the farmers. Rwanda has strengthened its NARSs research program by developing research protocol agreements with scientists in either the university or the national research systems. To date, some 65 protocol agreements have been signed.

One of the needs within the AFRENA program is an expansion of the seedling nurseries. There is some progress being made in getting the private sectors to meet this urgent need but more nurseries are needed. The public sector can only provide a limited number of seedlings.

There appears to be good linkages between the AFRENA and the International Center for Research in Agroforestry. In order to develop a stronger regional research program it will be necessary to continue financial assistance to AFRENA so that a regional research can be made more effective and productive.

### Recommendations

The recommendations that follow are intended to be applicable to the four regional networks observed during the trip covered by this report. Each of the networks are in different stages of maturity, however they can greatly benefit from taking advantage of the suggested recommendations. It is recommended that:

1. the A.I.D. office of R&D/AGR/IARC undertake the responsibility to work in collaboration with the IARC's regional network coordinators (African and IARC's) to undertake a meaningful and concise study that details the development and spread of the high-yielding bean, potato and cassava varieties. The A.I.D./R&D/AGR/IARC office should review and organize these reports similar to the "Development and Spread of High-Yielding Varieties in Developing Countries" conducted by Dr. Dana G. Dalrymple. This type of a report would be most beneficial to the agriculture and research administrators of the regional network member countries.

2. the AFRENA Directors Committee and ICRAF undertake a study which would report on the adequacy and number of private and public nurseries producing seedlings for the farmers involved in agroforestry. The report should also cover the volume of seedling distribution. The report should attempt to cover seedling spread as to fodder, fuel and wood trees.
3. the three to four A.I.D. management offices should contact the Office of Assistant Administrator Regional Research, Cooperative State Research Service, USDA, to investigate how the regional cooperative research entity could be used effectively to help the four networks in regional research program planning, financial planning and management, administrative structure and developing university partnerships. The Cooperative State Research Service would be the most effective in collaborating with the Directors Committee at their annual meetings.
4. the A.I.D. and other donors working with the various regional networks administrative units develop an annual budget that is reasonably adequate to cover the yearly needed research expenditures. It is suggested A.I.D. may wish to budget regional network funds for research expenditures such as stakes, bags, report forms, etc.
5. the Directors Committee of the regional network programs make a greater effort to seek a true partnership with the countries University Faculties of Agriculture in researching problems and issues of high priority to the regional network programs.

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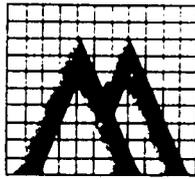
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Service

Dear Dr. Bertram:

In accordance with Section C.3.(b) of the referenced contract, I herewith transmit five (5) copies of the report of Trip No. 2 to Africa, carried out by Metrica Consultant, Dr. Cal Martin.

Sincerely,

  
Frank Campbell  
Project Director

cc: POL/CDIE/DI, 2 copies ✓  
JBergman, FA/OP/W/FA, 1 copy

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