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CIAT EAST AFRICAN BEAN RESEARCH NETWORK PROJECT

INTERIM EVALUATION

JULY 1989

REDSO/ESA and CIDA

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GLOSSARY

AFBYAN	African Bean Yield Adaption Nursery
A.I.D.	Agency for International Development
BCMV	Bean Common Mosaic Virus
BNF	Bean Nitrogen Fixation
CEABRN	CIAT East African Bean Research Network
CDA	Cooperation for Development in Africa
CIAT	Centro Internacional de Agricultura Tropical
CGIAR	Consultative Group on International Agricultural Research
CIMMYT	International Maize and Wheat Improvement Center
CRSP	Collaborative Research Support Program
EEC	European Economic Community
ESCO	Ethiopian Seed Company
FAO	Food and Agricultural Organization/United Nations
FY	Fiscal Year
ha	hectare
IAR	Institute of Agricultural Research (Ethiopia)
IARC	International Agricultural Research Centers
IBPGR	International Board for Plant Genetic Resources
ICRAF	International Center for Research in Agro-Forestry
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Center for Africa
kg.	Kilograms
LOP	Life of Project
MOA	Ministry of Agriculture
NARS	National Agricultural Research Systems
PACD	Project Activity Completion Date
REDSO/ESA	Regional Economic Development Services Office for East and Southern Africa
RFMC	Regional Financial Management Center (AID)
SAARFA	Strengthening African Agricultural Research and Faculties of Agriculture Project
SADCC	Southern Africa Development Coordination Council
SPAAR	Special Programs for African Agricultural Research (multi-donor funding program under the aegis of the World Bank
SOW	Scope of Work
USAID	United States Agency for International Development

REGIONAL ECONOMIC DEVELOPMENT SERVICES OFFICE
FOR EAST AND SOUTHERN AFRICA (REDSO/ESA)
and
CANADIAN INTERNATIONAL DEVELOPMENT AGENCY (CIDA)

JOINT INTERIM EVALUATION OF THE CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL (CIAT) EAST AFRICAN BEAN RESEARCH NETWORK PROJECT (CEABRN)

JULY 1989

EXECUTIVE SUMMARY

PURPOSE OF ACTIVITY

A collaborative Interim Evaluation of CEABRN, an unsolicited bean research proposal, was conducted by a five person team consisting of a CIAT agricultural economist, a CIDA breeder, an external consultant/pathologist, a REDSO/ESA agronomist, and a REDSO/ESA project officer. CEABRN is a parallel funded seven year US $ 5 million bean research project which supports development of member country national bean research programs in East Africa.

The GOAL of the project is to improve the nutritional and income status of African bean producers, with emphasis on the small holders in the East African bean production area. The PURPOSE of the project is to develop, in cooperation with national programs, new bean production technology components for traditional and improved cropping systems, and at the same time to strengthen national research and technology delivery capacity in order to increase bean production and productivity.

The project has three specific objectives:

(1) Develop and distribute improved germplasm to potential users;

(2) Develop improved cropping systems for bean production in the region;

(3) Development of research capacity in national programs.

The project is being funded by the United States Agency for International Development (US $ 2.5 million) and the Canadian International Development Agency (C$ 3.27 million). All project related activity in Ethiopia is funded by CIDA.

At present CEABRN serves Uganda, Ethiopia, and Somalia as full members of the network. Sudan, Madagascar, and Kenya have associate status. Kenya recently indicated its interest to join as a full member.

PURPOSE OF THE EVALUATION

The purpose of this interim evaluation is to determine the level of progress being made by CIAT in achieving project objectives. Because of delays encountered during project start-up, the agreement was amended and life of project extended. This evaluation was rescheduled to 1989 and the project is scheduled for completion in July 1991. The evaluation identified several lessons learned as a result of initial project implementation. Action recommendations for the remaining life of project (LOP) were made based on the conclusions of the evaluation.

The team visited two member countries (Uganda and Ethiopia) and one associate member (Kenya). Interviews were held with directors of national research programs, scientists and researchers associated with bean research, CIAT staff, USAID missions (Uganda and Kenya) and CIDA representatives (Ethiopia and Kenya). The team visited research facilities and on-farm sites in Uganda and Ethiopia. At the conclusion of the evaluation, the team met with the Steering Committee.

CEABRN has six professional staff, the agronomist, breeder, and economist are posted in Uganda and the coordinator (agronomist), training officer, and administrative officer are in Ethiopia. A pathologist, entomologist and an anthropologist from other African bean networks also provide direct assistance to CEABRN.

FINDINGS AND CONCLUSIONS

Overall, the evaluation team concluded that the technical aspects of CEABRN are commendable with good progress being made with regards to germplasm introduction, evaluation, and distribution. Work has commenced on developing improved cropping systems; however, since this activity builds on successful germplasm introduction more effort in this area is anticipated for the remaining LOP. Bean research capability in national programs has been significantly improved and expanded as a result of project training and project assistance to national programs. CEABRN is well managed with a good administrative/management system.

The evaluation made more than twenty recommendations. These recommendations are grouped under the sub-headings of program objectives, project activities/outputs, and management.

RECOMMENDATIONS

A. Recommendations on Project Objectives

1. It is recommended that breeding programs at the NARS define their objectives more clearly. This can be achieved through more direct contact with the new CIAT breeder, and advanced degree training as well as CIAT short-term training. This will result in a crossing program to incorporate traits from the new germplasm into locally and regionally adapted lines.

2. Priorities in the breeding program should be set as soon as possible and primary consideration be given to constraints that can be solved in a short time, i.e. plant habit, disease/pest resistance, maturity, cooking characteristics and seed types. Bean nitrogen fixation (BNF), protein quality and export marketability are examples of lower priority issues.

3. It is recommended that the project consider grouping evaluation trials into sub-groups based on plant habit and maturity. Regional trials should also have a standardized field design including row length, spacing and replication.

4. The NARS pathology programs have energetic capable staff but they need to be more focused in their research. The sub-projects provide a mechanism for setting priorities on a regional basis, but time and energies would be utilized to a maximum by conducting simple straightforward experiments directed at key constraints, i.e. seed transmission control of common bacterial blight and rust field reaction rather than studies on race structure. More sophisticated and complex studies can be attempted when time and facilities are available.

5. Screening trials should be conducted on an individual pathogen/pest basis as much as possible. Areas that offer a high incidence of disease/pest severity should be sought and maintained. The use of spreaders and artificial innoculation may be necessary.

6. Stringent quarantine restrictions interrupt the flow of germplasm inter and intra-regionally and it is recommended that increased efforts be made to work with host government agricultural ministry officials responsible for plant quarantine to modify quarantine regulations so as to facilitate movement of planting material in the region.

7. Bean germplasm of African origin, i.e. land races, have been sporadically collected and some are in storage. CEABRN should implement a regional and if possible Pan-African land race collection and storage strategy.

8. Efforts should be made by both CEABRN and national program researchers to develop a better understanding of farmer practices before making research recommendations.

9 It is recommended that the optimum plant density be determined for a new variety which has a markedly different growth habit from previous varieties soon after it has been recommended for release.

10. On-farm trials using manure/compost rather than commercial fertilizer should be conducted as commercial fertilizer is generally not available.

11. Increased efforts by the economist to training national program scientists is required so that basic economic and cost/benefit analyses can be incorporated into their research activities.

12. It is recommended that routine use of socio-economic analyses for research trials be employed and the linkages between research and extension as well as with agronomic and socio-economic research be strengthened.

13. It is recommended that the network expand its support for training in farmer-participation methods of on-farm research.

14. Candidates currently selected for long-term training need to be on-campus before the end of 1989 to ensure that they have adequate time to complete their degrees prior to the PACD.

15. It is recommended that advanced training continue to include experiences outside Africa and CIAT, which would enhance technical and scientific capabilities and allow for professional growth.

16. A more definitive effort needs be made to include national universities in sub-project research as this will help institutionalize national research systems.

17. The CEABRN coordinator has considerable experience in research planning and it is recommended that he should give more assistance to national bean research programs to help them to develop long-term strategy and prepare annual workplans.

B. Recommendations on Project Activities/Outputs

1. CEABRN should pursue future linkages with Cooperative Research Special Project (CRSP) for beans/cow peas on drought, BNF, bean quality, pathogen-host co-evolution and yield.

2. CEABRN should encourage stronger links in Ethiopia between the Institute for Agricultural Research and the Ministry of Agriculture extension service in order to facilitate the diffusion of the newly released varieties.

3. The Steering Committee should receive full written progress reports for regional sub-projects as a pre-condition for continued financial support.

4. Regional research sub-projects should, whenever possible, be linked to similar research carried out in other African bean networks and that CIAT staff continue to provide their services across projects on a Pan-African basis.

5. It is recommended that a Pan-African steering committee be formed, consisting of representatives of the regional bean research steering committees, and CIAT, and that donors of the three regional networks should also be invited to attend.

C. Recommendations on Project Management

1. Annual work plans that specify the time frame and types of technical assistance required from SADCC and Great Lakes networks as well as activities planned for the economist and training officer in those networks are required.

2. It is recommended that annual operating budgets be included as part of the workplan. This will contribute to increased awareness on the part of the Steering Committee as to the network operational costs and will serve as a financial monitoring tool for project management.

3. REDSO/ESA should continue to be responsible for overall AID management.

4. It is recommended that national bean research programs apply to bilateral USAID missions for local currency support.

5. CIAT should arrange for a second external audit be conducted in 1991.

6. CIAT/Cali should prepare for the coordinator on a monthly basis a financial report showing monthly and cumulative expenditure against the approved budget.

LESSONS LEARNED

A. Project Design Implications

1. A regional project can be implemented successfully with a decentralized staff if there are adequate channels of communication available, sufficient authority and responsibility vested in the coordinator, and staff responsibilities are clearly defined.

2. In a new regional research project, funding and staff placement should be phased as a significant amount of organizational activity and negotiations are required with national programs. Resolution of these issues is required prior to the time that research staff can be placed and effectively utilized in the field.

B. Broad Action Implications

1. Institutionalization of a network requires a strong commitment from the national agricultural research program. The network members need to develop a strategy for their assuming responsibility for network operations early on.

2. Germplasm exchange can be restricted by overly stringent quarantine regulations which are counter-productive to the efforts of the network to promote broad distribution of improved planting material. These restrictive practices should be assessed and addressed by network members.

3. Staff turnover (grantee) can have a negative effect on research progress as continuity is lost. The grantee should ensure that prospective candidates for field positions fully understand the terms and conditions of their appointments.

4. Lack of research activity in a national agricultural research program can be due to lack of motivation and incentives as well as inexperience and lack of research capability. Remuneration and recognition for national agricultural research personnel are not always given commensurate status or recognition of the other national agricultural services.

5. Developing sustainable research capability at the national agricultural research program level requires a long-term financial commitment by both the national governments and the donor community.

6. The hiring of an administrative officer with significant accounting experience has contributed to a much improved financial reporting and administrative process which has resulted in better utilization of project professional staff.

I. BACKGROUND TO PROJECT EVALUATION

A. Origin of CIAT East African Bean Research Network Project (CEABRN)

In 1980 a workshop in Malawi brought together East and Southern Africa national legume program leaders and the Centro Internacional de Agricultura Tropical (CIAT). The workshop concluded that further development of bean production in the region would be enhanced through linkages between a strong base of bean germplasm and bean research in Latin America and the national programs in Africa.

CIAT, working with national legume programs and Ministries of Agriculture in the region prepared a proposal for review by country representatives at a CIAT sponsored bean workshop in 1983.

In December 1983, CIAT submitted an unsolicited proposal to both the United States Agency for International Development (USAID) and to the Canadian International Development Agency (CIDA) for support of a bean research project in East Africa. The project was approved by both USAID and CIDA as part of a Cooperation for Development in Africa (CDA) activity in which Canada acts as the regional technical coordinator for East Africa. USAID has authorized US$ 2.5 million for CEABRN through the Strengthening African Agricultural Research and Faculties of Agriculture (SAARFA) Project. Canada has committed C$ 3.27 million to the project.

B. Project Activities

The GOAL of the project is to improve the nutritional and income status of African bean producers, with emphasis on the small holders in the East African bean production area. The PURPOSE of the project is to develop, in collaboration with national programs, new bean production technology components for traditional and improved cropping systems, and at the same time to strengthen national research and technology delivery capacity in order to increase bean production and productivity.

Three principal and interrelated activities have been identified and incorporated into the project which will help achieve the stated purpose:

- Germplasm improvement and distribution
- Improvement of cropping systems
- Development of research capacity in national programs.

C. Project Setting

Beans are an important crop for the region. Africa is the second most important common bean producing region of the tropics with most of its production consumed by the producer. Bean production in Africa has increased during the past two decades, but this increase can be attributed more to increased acreage rather than yield improvement. Yields tend to be in the lower ranges estimated around 500 kg/ha, with most of it being cultivated in association with maize. Furthermore, per capita consumption has not increased due to high population growth in the region. Beans are an important component in the diets of low income people in Africa as they are a cheaper source of protein than what can be obtained from animal products.

The project was originally conceived as a long-term (10 year) effort to address, through collaborative efforts, production constraints in participating countries. This would be accomplished through the introduction and development of genetic materials that: (1) have improved resistance to pests, diseases and drought; (2) are efficient in the utilization of available nutrients; (3) require less energy for cooking; and (4) have a high level of consumer acceptance. Project funded CIAT technical staff would not initiate their own research activities, but would work in collaboration with national program staff participating in a regional bean research network.

The primary role of CEABRN is to support the regional bean research network, and provide training and collaborative support to national bean programs. In 1986 the project underwent a major revision following failure to secure an agreement with the Government of Kenya to establish the network coordinator office in Kenya. Project implementation was subsequently decentralized with the agronomist, breeder, and economist posted in Uganda and the coordinator and training officer placed in Ethiopia. All project related expenditures in Ethiopia, including regional personnel, are funded by CIDA. On July 6, 1989 Kenya signed an agreement with CIAT. AID concurrence with that agreement will render the Kenya program eligible for AID project funding.

The project is managed from the coordinator's office located in Debre Zeit, Ethiopia. Additional administrative and technical backstopping is provided from CIAT headquarters in Cali, Colombia. USAID monitors the project from its regional office in Nairobi whereas CIDA monitoring is provided from their Canadian headquarters.

D. Summary Conclusions from Previous Evaluations

An internal management review was conducted by USAID, CIDA, and CIAT in April 1988 to assess the the decentralized structure of the project that resulted from the failure to secure requisite protocol agreements with the Government of Kenya as envisioned in the project proposal and grant agreement. The assessment also reviewed member country participation and collaboration in network activities and specifically bean research, training and management. The review found the "CIAT program to be a well-managed, scientific effort collaborating in the development and testing of new varieties and bean production technologies in East Africa". The review team concluded that the decentralized coordination structure was effective and that member national programs indicated they were receiving a satisfactory share of technical assistance from the project.

E. Purpose of this Evaluation and Evaluation Methodology

The purpose of the evaluation was to assess the progress being made by the Project in meeting the specific objectives as outlined in the Grant Agreements and to make recommendations to CIAT on project activity for the remaining period of the project. The mid-term evaluation was a joint effort by the two donor agencies - CIDA and USAID. CIDA and USAID are specifically interested in:

(1) Assessing the research structure and organization of the project in terms of collaborative research, networking, training, and access to improved genetic materials.

(2) Network sustainability and the institutionalization of project activities relative to future growth of regional bean research.

This mid-term evaluation was originally scheduled for late 1986, but because of the slow start of project activity, the mid-evaluation was rescheduled for 1988/89 in the Revised Implementation Plan (1986). The evaluation took place between June 19 and July 7, 1989. Site visits were made to two member national programs (Uganda and Ethiopia) and one associate member (Kenya). Due to infrequent flights and logistic constraints, the team was not able to visit the Somali program. The team had scheduled a meeting with the Somali national program leader in Nairobi, however his flight was cancelled and he was not able to reschedule prior to the team's departure from Nairobi. A Statement of Work for the evaluation

is attached as Annex 1. The team visited on-station and on-farm trials in Uganda and Ethiopia and the research station facility in Kenya. The team reviewed project files in the coordinator's office and in REDSO/ESA to familiarize themselves with the conceptualization, design, and evolution of this project. The evaluation itinerary is attached as Annex 3.

The team interviewed all members of the CEABRN technical team, leaders of national bean research programs, host government officials, and representatives of the donors in Kampala, Nairobi, and Addis Ababa to obtain their comments on current project activities and recommendations for changes and/or future activities. A list of persons interviewed is attached as Annex 4.

Following completion of field visits, the evaluation team met with the CEABRN Steering Committee in Nairobi to discuss issues related to project implementation and the evaluation team's preliminary findings.

Members of the CEABRN Evaluation Team were Mr. Gregg Wiitala (Team Leader/economist - USAID/REDSO/ESA), Dr. James Steadman (independent consultant and plant pathologist - University of Nebraska), Dr. Douglas Pachico (agricultural economist - Leader of CIAT Bean Program), Dr. Vas Aggarwal (plant breeder - CIDA/Canada), and Dr. K.B. Paul (agronomist - USAID/REDSO/ESA). Dr. Roger Kirkby (CEABRN Coordinator) participated in the evaluation as a resource person and assisted the evaluation team in completing their assignment according to schedule.

The draft evaluation report was completed on July 7, 1989 prior to the teams departure from Nairobi.

F. Conditions Precedent to Disbursement

The Grant Agreement with A.I.D. specified two conditions precedent to disbursement. The first was an agreement between the Grantee (CIAT) and each participating national government (Kenya, Uganda, and Somalia) satisfactory to A.I.D. covering the Grant Program. Failure to conclude an agreement renders that country ineligible for A.I.D. project funds. At the time of this evaluation Kenya had not yet concluded an agreement with CIAT and thus was not eligible to receive A.I.D. project funds. The second condition was evidence of CIDA participation in the project. This condition was met.

II. REVIEW OF PROJECT OBJECTIVES

The evaluation team assessed the level of progress being made by CEABRN in meeting the purpose level objectives of the project. Each objective is treated separately in this section. The following section (Section III) reviews specific activities and outputs of the project.

A. Objective 1 - To develop and distribute improved germplasm to potential users.

All East African countries have a critical need to collect and store local land races and bring in new germplasm to widen their genetic base and deal with production constraints. The CIAT project has made very good progress in introducing over 2000 regional and international materials with disease/pest resistance, drought tolerance and high yield potential. For example, in Uganda recent nursery introductions from CIAT included material resistant to common bacterial blight (100 entries), rust (100), ascochyta (26), anthracnose (107), bean common mosaic virus (106), beanfly (16), 89 VEF (939), and snap bean (48). An African Bean Yield Adaption Nursery (AFBYAN) with cultivars from nine African countries is distributed throughout the region. Some crosses between East African varieties and improved sources of disease resistance have been made at CIAT and introduced to national programs.

In Ethiopia, for the first time since the early 1970's new varieties have been released with two new cultivars (A176 and Ex Rico 23) selected from CIAT introductions. In Uganda breeder's seed is being produced on two lines for release sometime in the next year. Several potential new lines are being tested at various on-farm sites both in Uganda and Ethiopia. This is a necessary first step in the process to obtain farmer acceptance and promoting seed distribution through the artisanal system.

The project's priorities have been set to give more emphasis to National Agricultural Research Programs (NARS) in countries with greatest bean utilization, i.e. Uganda and Ethiopia. Kenya's expected full membership in CEABRN will be an excellent opportunity for expanding and strengthening the regional network.

A major problem for the introduction, release, and distribution of new beans varieties to farmers is in seed technology. The quarantine restrictions in Kenya and lack of seed production capability and seed storage facilities are also recognized constraints. The project has made significant progress by using off-season regional trial increases in Ethiopia and Uganda; seeds produced during off-season in Uganda are also sent out to SADCC countries. Seed storage has been greatly improved in Ethiopia and similar improvements are currently in progress in Uganda. The project needs to achieve off-season seed increase in Uganda as seed transmitted bean common mosaic virus and common bacterial blight are often serious during the main bean growing season.

CIAT was initially unsuccessful in retaining a person for the bean breeders position, however the situation has improved with a network breeder now located in Uganda. Some progress in breeding has been made in NARS in Uganda and Ethiopia. However further refinement in selection techniques and crossing programs are still needed. An enthusiastic and productive group of crop protection specialists has been trained throughout the region who have begun to regionalize their efforts fostered by sub-project support. Sub-projects are research activities that have the potential for regional application, and these are approved by the Steering Committee and funded by the project. With some focusing and prioritization of the experiments, refined screening techniques will be produced in the next year. Further pathogen strain/race identification, similar to that being conducted for bean common mosaic virus, will be needed to direct resistance selection. This work is underway in Uganda, Ethiopia and Somalia.

Overall, the evaluation team feels that the technical aspects of the CEABRN project are commendable. The progress has been very good with regards to germplasm introduction, evaluation and distribution. The key elements (technical assistance, training programs, NAR staff, research programs) of the project are in place. The team, however, makes the following recommendations to strengthen CEABRN:

> It is <u>RECOMMENDED</u> that breeding programs at the NARS define their objectives more clearly. This can be achieved through more direct contact with the new CIAT breeder, and advanced degree training as well as CIAT short-term training. This will result in a crossing program to incorporate traits from the new germplasm into locally and regionally adapted lines.

It is RECOMMENDED that priorities in the breeding program be set as soon as possible and primary consideration be given to constraints that can be solved in a short time, i.e. plant habit, disease/pest resistance, maturity, cooking characteristics and seed types. Bean nitrogen fixation (BNF), protein quality and export marketability are examples of lower priority issues.

It is RECOMMENDED that the project consider grouping evaluation trials into sub-groups based on plant habit and maturity. Regional trials should also have a standardized field design including row length, spacing and replication.

The NARS pathology programs have energetic capable staff but it is RECOMMENDED that they be more focused in their research. The sub-projects provide a mechanism for setting priorities on a regional basis, but time and energies would be utilized to a maximum by conducting simple straightforward experiments directed at key constraints, i.e. seed transmission control of common bacterial blight and rust field reaction rather than studies on race structure. More sophisticated and complex studies can be attempted when time and facilities are available.

It is RECOMMENDED that screening trials be conducted on an individual pathogen/pest basis as much as possible. Areas that offer a high incidence of disease/pest severity should be sought and maintained. The use of spreaders and artificial innoculation may be necessary.

Clean and disease-free seed production is a problem, especially for breeder's seed production for the region. Producing seed off-season is one solution that is being utilized in Ethiopia and Uganda, but needs to be followed in other countries. Quarantine restrictions, like those in Kenya, interrupt the flow of germplasm inter and intra-regionally and it is RECOMMENDED that increased efforts be made to work with host government agricultural ministry officials responsible for plant quarantine to modify quarantine regulations so as to facilitate movement of planting material in the region.

Bean germplasm of African origin, i.e. land races, have been sporadically collected and some are in storage. It is RECOMMENDED that CEABRN implement a regional and if possible Pan-African land race collection and storage strategy.

B. Objective 2: To develop improved cropping systems for bean production in the region.

1. Germplasm Adaptation and Cropping Systems

Introduction and/or development of improved germplasm are important activities in any crop improvement program. Germplasm improvement could come from successful incorporation of desired characteristics to a plant species, either for increased tolerance or for resistance against a disease, insect pests, drought, etc. These improved germplasms should then be tested for adaptability and performance under the existing and/or modified cropping systems.

The national bean programs of Uganda and Ethiopia, with active guidance and collaboration from the CIAT network scientists, are testing several promising lines of dwarf beans under various cropping systems. In both Uganda and Ethiopia, farmers grow beans in both pure stands and in association with maize, while in Uganda, beans are also planted in the banana groves. Promising bean varieties are routinely tested by NARS in pure stands under both on-station and on-farm conditions. On-farm studies on bean-maize intercropping have been carried out in Uganda; while similar studies are presently underway on the research station conditions in Ethiopia.. Ugandan researchers are planning to conduct studies on bean-banana association during the next planting season.

2. Improved Strategies for Agronomic Management Practices

Unlike in Rwanda and Burundi where farmers generally plant mixtures of bean varieties, farmers in most parts of Uganda and Ethiopia plant a single bean variety in a particular field. The evaluation team noted, however, that under certain conditions, such as varieties with similar seed size and color, farmers often mix their seeds and plant them together. Unless there is close interaction between the farmers and the researchers, these facts are likely to escape notice. In-depth knowledge of farmer practices is essential before appropriate recommendations for crop improvement can be made. For example, during a field visit in Ethiopia, the team noted that the farmers save and plant seeds from the previous harvest without any seed selection. By doing so, the farmers are risking poor emergence, weak and diseased seedlings, and ultimately a poor stand. Even the best varieties will perform only poorly if sub-standard seeds are planted. Therefore, it is imperative that the researchers pay due attention to these "apparently minor" but very important aspects before looking for more challenging areas of research. It is RECOMMENDED that researchers strive to have a better understanding of farmer practices before making research recommendations.

In both Uganda and Ethiopia, the researchers are generally following the nation-wide recommendations on plant spacing for on-station trials, but for on-farm trials, the seed rate is being determined from the farmers traditional planting practices. The optimum plant density of a variety depends on its growth pattern, the plant's architecture, and several other cultural factors. It is therefore RECOMMENDED that the optimum plant density be determined for a new variety which has a markedly different growth habit from previous varieties soon after it has been recommended for release.

The team found the studies in Ethiopia on the effect of bean plant type and density on weed control very interesting. Farmers were using a high plant density to control weeds but their yields were not increased and the costs associated with this practice gave a lower net return than if they planted at the optimum density rate.

Fertilizer and seed dressing trials are being conducted in Uganda, while Ethiopia has conducted preliminary studies on the effect of alley cropping on beans. Since farmers of these two countries do not use manure/compost on their bean fields, no trials have been conducted or even planned to determine its effects on bean production. The fact that manure/compost is likely to be far more accessible to farmers than commercial fertilizers, and that it is much less problematic to apply than the concept of agro-forestry, on-farm studies on the economic effects of manure/compost on bean production deserve consideration. It is RECOMMENDED that on-farm trials using manure/compost be conducted.

3. Economic Analysis of New and Existing Cropping Systems

Relatively little work has been done in this particular area as the network economist arrived in Uganda only eight months ago. He is presently occupied with helping member country national scientists with diagnostic surveys. He is also involved in countries outside the East Africa network and has taught a course in economic analysis for Ethiopian researches in conjunction with CIMMYT. It is RECOMMENDED that the economist give adequate attention to training national program scientists so that basic economic and cost/benefit analyses can be incorporated into their research activities.

4. Develop Methods to Improve Bean Yields

The network has been in operation for little more than two years. The two national programs with which CIAT is working

closely have gone through serious problems over the past several years - civil unrest in Uganda and drought in Ethiopia. Through the efforts of the network, these two programs have made a tremendous comeback. The network has been able to train many national scientists in bean research methodologies, and has provided them with much needed moral and material support. Already, several promising varieties and technologies are in the advanced stage of testing. It is hoped that by the project completion date, some of these technologies will be made available to the extension systems for diffusion. In Ethiopia, two bean varieties have already been approved for release nationally.

5. Extension Training

A week-long session on on-farm research methods was conducted at Mukono in Uganda exclusively for 24 extension agents. The cost of this workshop was borne by USAID/Kampala.

A second on-farm trial management workshop was conducted at Kabale, Uganda, in which 10 field extension workers participated. This workshop was jointly sponsored by CIAT and the Ugandan Ministry of Agriculture.

Agricultural research in Uganda is headed by a Secretary of Research under the Ministry of Agriculture, and there is no separate Agricultural Research Institute. The country's agricultural extension system is located under the same Ministry, and the researchers could, therefore, link up with the extension personnel with relative ease. The team observed active participation of extension workers in on-farm bean trials.

In Ethiopia, on the other hand, there is limited dialogue between the researchers belonging to the Institute of Agricultural Research (IAR) and the extension personnel who are under the Ministry of Agriculture (MOA). This could be one of the reasons why the network has not offered any training courses specifically designed to meet the needs of these extension agents. IAR has now engaged its own "extension agents" to carry out certain extension-type activities.

6. On-Farm Research Activities

Researchers involved in generating appropriate technologies for the farmers should have a good understanding of their "real world" situation, which could be gained by interacting with farmers on a regular basis. Being able to see things from the farmers' point of view will help them to generate technologies acceptable to these ultimate users. It is RECOMMENDED that the network expand its support for training in farmer-participation methods of on-farm research.

Following an on-farm diagnostic survey in early 1987, on-farm trials for beans began in Uganda with the 1988 "A" growing season (planting time: September/October, 1987), shortly after CIAT had posted an agronomist on the Kawanda Research Station. There has been a progressive increase in the number of trials planted: 10 in 1987, 50 in 1988, and 78 in 1989. The 1989 trials were planted in three different agro-ecological zones. The objectives of this season's (1989 "B") trials were as follows:

(a) Testing of several elite lines for adaptability and farmer acceptability;

(b) Effectiveness of seed dressing against bean flies and certain diseases.

Although the NARS agronomists have the primary responsibility for conducting these studies, researchers from other disciplines serve as active collaborators. Extension agents are also involved in all phases of on-farm trials in Uganda and Ethiopia.

The primary objective of on-farm trials which began in Ethiopia in 1986 has been varietal testing for adaptability and farmer acceptability. In addition, on-farm surveys have also been conducted. IAR's Department of Agricultural Economics has the primary responsibility for conducting on-farm research, while researchers from other departments serve as collaborators. These economists work on all the important crops of the area, as well as on a variety of other topics. The output of these trials could be improved by having a greater participation of agronomists and other biological scientists.

It was noted that even the initial efforts in this area have already improved the focus of on-station research by feedback of information on such topics as farmer use of high planting density to control weeds, farmer preference of food beans in major areas of Ethiopia, and preferences for grain types and cooking characteristics in Uganda.

In Somalia, two researchers conducted a farm survey on grain storage methods and problems. This study formed the basis of their development of a sub-project proposal on "Storage of grain legumes in Middle Jubba", which has since been approved by the CEABRN Steering Committee for funding. The USAID funded Farming Systems project in Rwanda has conducted studying on the same subject. The evaluation team would like to suggest that the Somali researchers obtain copies of it's reports for added guidance.

C. Objective 3: Development of research capacity in national programs.

Project support to further develop the capacity of national programs to do bean research is achieved through regular meetings of regional bean scientists, training activities, and sub-project research activities.

1. Meetings of Committees

Since 1985, the Project Steering Committee has met regularly on a yearly basis. Representatives from Uganda, Ethiopia, and the CEABRN Regional Coordinator participated in all of the five meetings held so far. Kenya and Somalia were present in three meetings, USAID officials in four, and CIDA personnel in only one meeting. The committee met twice in Ethiopia, twice in Uganda, and once in Somalia, each time for 2 to 3 days.

2. Training

a. At CIAT: Thirteen researchers have been trained at CIAT in special topics related to bean production, each lasting for 6 weeks to 4 months (six from Uganda, five from Ethiopia, and two from Somalia).

b. In-Country Training/Workshops: Since the inception of the project, CEARBN has conducted either singly, or in collaboration with others (IARCs, Universities, Agriculture Ministry, etc.), 18 workshops on a variety of topics, nine of which were held in Uganda, seven in Ethiopia, and two in Somalia. The 190 participants (165 male and 25 female) came primarily from Uganda and Ethiopia with some from Kenya, Somalia, Tanzania, Rwanda and Burundi. The evaluation team felt that there were too many participants (up to 49) in certain courses for these to be effective. Most of the resource personnel were drawn from CIAT's Africa based scientists, while a smaller number came from CIAT headquarters in Cali, Colombia and other collaborating institutions.

c. Academic Scholarships/Long-Term Training: The network is providing or has plans to provide partial or full support to seven candidates for Ph.D. (three from Ethiopia and four from Uganda), and nine for M.S. degrees (four from Ethiopia, three from Uganda, and two from Somalia). Countries under consideration for providing advanced trainings are: the United States, Canada, Ethiopia, Tanzania, and India.

One student has already completed her M.S. degree at the University of Florida and has since returned to Uganda. One M.S. and one Ph.D. student are now writing their dissertations. Several other students have received admission and will soon depart.

Considering that the PACD for the AID funded portion of this project is only two years away (July 26, 1991), the evaluation team has cautioned the network coordinator against sending anyone for a Ph.D. degree using project funds at this time. All long-term training must be completed by PACD. It is RECOMMENDED that candidates currently selected for long-term training should be on-campus before the end of 1989 to ensure that they have adequate time to complete their degrees prior to the PACD.

Institutionalization and sustainability of the national research program will be enhanced if training is done not solely for the purpose of improving bean research capability. Including training with a farming systems prospective will enable bean research scientists to have a better understanding of the role that beans play in the crop composition for farmers.

It is recognized that Ethiopia requires that M.Sc. level training to be conducted in Ethiopia, and that many female Ugandan scientists are unable to be away from their families for extended periods. However, it is RECOMMENDED that advanced training continue to include experiences outside Africa and CIAT, which would enhance technical and scientific capabilities and allow for professional growth that will reap rewards in the future. Only capable, well-trained scientists will be able to conduct meaningful research programs and compete for funding after the project is completed.

3. Sub-Project Research Activity

Research sub-projects approved for 1989-90 include rust disease and drought tolerance led by Ethiopia, ascochyta common bacterial blight, and bean common mosaic diseases led by Uganda and bruchid pest management by Somalia. New sub-projects considered include biological nitrogen fixation (Uganda and Ethiopia) and control of beanflies (Ethiopia).

These collaborative projects are monitored by the steering committee which seeks outside reviewers for technical evaluation. Substandard project proposals have been rejected. With monitoring tours to be organized by the leader of each sub-project, these projects will contribute substantially to regional research collaboration and help the NARS focus their research objectives. These sub-projects are a key element in strengthening NAR research capacity in relevant areas. The distribution of sub-projects coincides with the individual national program capacity and interest and assures coverage of relevant constraints. It is RECOMMENDED that more effort be made to include national universities in sub-project research as this will help institutionalize national research systems.

Research planning and prioritization of research activities are necessary for achieving optimum results from available resources. The CEABRN coordinator has considerable experience in research planning and it is RECOMMENDED that he should give more assistance to national bean research programs to help them to develop long-term strategy and prepare annual workplans.

III. REVIEW OF PROJECT ACTIVITIES

A. Project Inputs

CIDA and USAID each provide parallel funding for approximately half the project costs. Parallel funding is required in this situation as Ethiopia is currently not eligible for USAID project funds. All funds for project activity in Ethiopia come from CIDA sources.

1. USAID Inputs

USAID input into this project is mainly through a grant funds to CIAT. A.I.D. has approved US$ 2.5 million for CEABRN activities based mainly in Uganda which include long-term technical assistance, travel and local operating costs, training, regional sub-projects, CIAT project management, a limited amount of equipment, and rehabilitation of research facilities. A.I.D. also funds CEABRN activities in Somalia and

provided funds to support CIAT's coordinator during the period of his residency in Kenya. USAID/Uganda has also made substantial amounts of local currency available to support the Uganda national bean program activities associated with the regional project.

2. CIDA Inputs

CIDA has pledged C$ 3.27 million to the project. CIDA funds all project costs in Ethiopia including the coordinator's office, the training officer, and the economist based in Uganda. The evaluation team was not able to verify the exact amount drawn from the CIDA grant as this information is maintained in CIDA/Canada; however, a financial report from CIAT records indicates that an equivalent of US$ 1.256 million had been drawn as of March 31, 1989.

3. CIAT Inputs

From core resources CIAT has made available a large quantity of bean germplasm, principally lines bred with specific desired traits in particular grain types. Core funded CIAT center staff have provided 34 trainee/months of individualized supervision for African scientists at CIAT. All facilities and inputs including laboratories, field supplies, etc, used by trainees were provided out of core resources while they were at CIAT. In addition, core funded CIAT center staff have provided 114 person days of technical and administrative consulting to the project, which bore only the costs of travel and per diem.

An English language "Bean Newsletter" network publication for bean scientists is prepared out of core resources. In addition CIAT provides regular publication of English language abstracts of articles on beans as well as periodic bibliographies of bean research in Africa and training materials (see Annex 5).

CIAT core resources were used to support the attendance of national program scientists at the International Bean Trials Workshop and the Bean Research Strategies Planning Workshop, both held at CIAT center.

4. National Program Inputs

The inputs of national programs in terms of experimental sites, personnel, and regional collaboration etc. were satisfactory and in line with the project objective. In Ethiopia adequate personnel and local currency are available for the national bean research program, but foreign exchange is a constraint. Un Uganda, personnel and physical facilities are sufficient, but government funding is insufficient.

B. CEABRN Collaboration With Other Regional Programs

1. Bean/cowpea CRSP - Linkages have been established with the Washington State/Tanzanian project on BCMV, and contacts with Purdue/Cameroon on storage and with Nebraska/Puerto Rico/Honduras/Dominican Republic on rust have been initiated. It is RECOMMENDED that future linkages with CRSP projects on drought, BNF, bean quality, pathogen-host co-evolution and yield should be pursued.

2. SADCC and Great Lakes Bean Networks - Collaboration between CIAT's three African networks have been excellent. For example, the Great Lakes and SADCC networks collaborated in Rwanda on climbing beans and farmer evaluation of germplasm. In addition the SADCC staff has cooperated with the East African Bean Network on many activities, e.g. by providing backstopping by a breeder and an entomologist based in Arusha, Tanzania. A CIAT pathologist posted in Rwanda will work in CEABRN member countries. For the future CIAT envisions a Pan-African Network with a steering committee that will facilitate East Africa, Great Lakes and SADCC collaboration.

3. International Board for Plant Genetic Resources (IBPGR) - Long-term storage of beans and other legumes is needed throughout Africa. There is also a need to collect African bean land races. CIAT has been actively involved with IBPGR activities. In Somalia IBPGR along with IITA conducted a genetic resource collection to determine what was available in the country. More of these activities especially involving seed storage would be useful.

4. Others - CEABRN has also collaborated with other national institutions. Collaboration in Tanzania is with the University of Dar es Salaam and Sokione Agricultural University on training and rust research. In Burundi, CEABRN collaborates with ISABU on beanfly problems, whereas in Rwanda collaboration is with the FAO BNF project. CEABRN also collaborates in Uganda with the EEC on bean seed production. Joint training activities were conducted with ICRAF, CIMMYT/IITA and ILCA, and IITA was also involved in the Somalia food legume study. Overall collaboration with other programs has been excellent.

C. Assessment of Impact of Project Activities on National Research Policies

1. Resource Allocation For Bean Research

Uganda: The national government preferentially provides financial resources to research programs which are receiving external support, and this has led to greater national resources going to bean research. Additional staff in socio-economics have been added to the national bean program to work as counterparts to the CIAT economist, and this is the first instance of assignment of a socio-economist to a commodity research program in Uganda.

Ethiopia: Additional funds have been allocated to the national coordinator for bean research so that CIDA Project Funds need only be used for items involving foreign exchange.

Somalia: The signing of a memorandum of agreement between CIAT and the Government of Somalia in 1985 marked the beginning of bean research in this country. Field beans are perhaps the third most important grain legume in Somalia, after cowpeas and mung beans. The estimated area under grain legumes in Somalia is about 27,000 hectares; of this, no more than 10% is planted under field beans. National program staff for first time are undertaking research on beans, although no research staff work 100% of their on bean research.

Some concerns or needs, as listed below, were expressed by national programs:

- Uganda program expressed a need for additional transport equipment.

- Both Uganda and Ethiopia indicated that a study on bean exports would be beneficial.

- Low level of remuneration for research staff relative to other employment options.

2. Improvement in the Management and Organization of National Programs

Uganda: The NAR program is again active after a period during which research had nearly ceased. Germplasm evaluations have been organized on multi-site basis and linked for the first time to on-farm evaluations in an effort to elicit feedback from farmers on their needs for new germplasm. The national government considers a study on bean exports to be a priority

issue and is requesting assistance from CIAT regional economist in assessing the bean export markets. A nationwide study is planned to gather baseline data on bean production systems and problems. This information is expected to assist with research planning.

Ethiopia: After over a decade of exclusive concentration of research on export type beans in one region of country, the importance of food beans in other regions has been recognized as a research priority. The national bean program coordinator is now operating on a truly national basis, systematically coordinating research among decentralized regionally autonomous research stations of IAR and the University of Alemaya. The germplasm evaluation scheme was completely reorganized as a nationally coordinated multi-site activity. For the first time farmer managed bean research trials were conducted by IAR as were diagnostic surveys of bean growing regions. These surveys have generated information that has significantly altered germplasm evaluation criteria and reoriented research on weed control.

Somalia: The major constraints to field bean production in Somalia appear to be moisture stress, farmer unfamiliarity with the crop, traditional cultural practices, disease and insect problems, salinity, lack of proper storage methods, and stored grain pest problems. In 1987, CIAT made its first germplasm introductions of about 100 lines. The primary criteria used for choosing these lines were grain color and their adaptability to hot and dry regions. Some of these materials performed well during the first season, but in the second season, beanflies caused total loss of all the introduced materials. During the following season, when insects were kept under control with insecticides, disease then caused considerable damage to the beans. CIAT has since introduced nurseries for leafhopper, drought resistance, and beanfly resistance. Considering the importance of cowpeas in the country, CIAT has assisted Somalia in obtaining about 500 lines of this crop from IITA.

3. Transfer of Technologies to Extension Workers and Farmers

Uganda: Effective links have been established between research, extension and farmers. Some twenty-four extensionists have been trained in a course in on-farm research methods for extensionists and 10 extensionists in a course in on-farm trial management. These courses have enabled extensionists to conduct 10 on-farm trials in 1987, 50 trials in 1988, and 78 trials in 1989. Most of these trials are for

on-farm evaluation of elite germplasm. Farmers participating in these trials have been interviewed at harvest about which varieties they prefer, and two promising varieties have been identified for release. Farmers participating in these trials keep much of the seed from the trials which has resulted in many farmers already growing the improved varieties.

Ethiopia: With assistance from the project, new bean technologies have been tested in on-farm trials for the first time. Furthermore, for the first time in over a decade, new varieties have been released, both for food beans and for export beans. IAR has made basic seeds of the new varieties available to the Ethiopian Seed Company (ESCO) for multiplication and distribution to growers. New varieties have also reached farmers through on-farm trials. IAR has its own technology transfer division, but the Ministry of Agriculture is principally responsible for diffusion to growers. It is RECOMMENDED that the project encourage stronger links between IAR and the Ministry of Agriculture extension service in order to facilitate the diffusion of the newly released varieties.

4. Institutional Development of a Sustainable Regional Bean Research Network

Through the Project CIAT has convened a regional steering committee which for the first time has enabled the participants - Uganda, Ethiopia, Somalia and Kenya (associate capacity) - to coordinate mutually beneficial bean research at a regional level. Comprised of the national coordinators of bean research and the CIAT regional coordinator, with representatives of USAID and CIDA as observers, this steering committee has established a routine of regular annual meetings to plan activities of regional interest. This has included the definition of research topics of regional importance; the allocation of project resources to national institutions, including universities, for the undertaking of research sub-projects of regional significance; the monitoring of the performance of these regional research sub-projects; the development of a schedule of regional training courses and workshops; selection of candidates for advanced degree training and attendance at relevant Pan-African or international workshops; and review and approval of the workplan of CIAT project staff. It is RECOMMENDED that the steering committee receive full written progress reports for regional sub-projects as a pre-condition for continued support.

The steering committee has defined numerous procedures to order its activities, and has established itself as an autonomous decision making body that can continue to function indefinitely. Moreover, the steering committee is serving as a forum for the coordination of activities with the SADCC and Great Lakes regional bean research networks. This includes both planning Pan-African research working groups and workshops, as well as the participation of scientists in relevant workshops and training courses organized in other regional networks.

The Eastern Africa steering committee has proposed to CIAT the convening of a Pan-Africa steering committee to deal with matters of Pan-African interest. Thus, an institutional framework is taking shape in which autonomous regional networks interact on a coordinated Pan-Africa basis.

The Eastern Africa network has also established the first Pan-African regional position with the naming of a Pan-African Training Officer to support training activities across all three regional networks.

It is RECOMMENDED that regional research sub-projects should, whenever possible, be linked to similar research carried out in other African bean networks and that CIAT staff continue to provide their services across projects on a Pan-African basis.

It is further RECOMMENDED that a Pan-African steering committee be formed, consisting of representatives of the regional bean research steering committees, and CIAT, and that donors of the three regional networks should also be invited to attend.

As beans are an important food crop in many African countries, CEABRN will likely continue to receive priority consideration for future funding. The level of support is likely to be linked to how well CEABRN and the national programs are able to document their effective transfer of research results to the farmers. The IARCs are also considered key institutions in supporting A.I.D's strategy to strengthen African agricultural research capability.

IV. PROJECT MANAGEMENT

A. Project Staffing and Implementation Responsibilities

The grantee, CIAT, has overall responsibility for project implementation. Effective commencement of project activities was delayed for nearly two years because of the difficulties that CIAT experienced in negotiating an agreement with the Kenya government to locate the coordinator's office in Kenya. This resulted in the relocation of the coordinator to Ethiopia.

The original proposal specified that four internationally recruited scientists would be assigned to the project, a breeder, an agronomist, an economist, and a pathologist all to be located in Kenya. Changes in project requirements and the inability to place staff in Kenya resulted in some modification of staff requirements. CIAT has experienced difficulty in recruiting and retaining a full staff complement, particularly for Uganda, and has only recently filled all positions.

Staff turnover has been a problem with three persons in the breeder's position since the start of the project. The project is currently up to its full complement of staff.

Debra Zeit, Ethiopia -	Project Coordinator (agronomist) Training Officer (50% for other networks) Administrative Officer
Kawanda Station, Uganda -	Agronomist Breeder Economist (50% for other networks)

Travel reports indicate that the technical assistance staff is providing adequate coverage to other network members beyond their base location. With half of the training officer and economist time being programmed to assist other CIAT supported bean networks, CEABRN should ensure that specialized services from other bean network scientists are available for CEABEAN requirements. It is RECOMMENDED that annual work plans specify the time frame and types of technical assistance required from other SADCC and Great Lakes networks as well as activities planned for the economist and training officer in other networks.

The project has received technical input from the anthropologist and pathologist in the Great Lakes Network and the entomologist and pathologist in the SADCC Bean Network. This arrangement will promote a pan-African approach toward bean research if these resources are used in the East African region. The administrative officer has also provided management systems training to the SADCC network.

B. Coordination of Project Activities

The project coordinator reports to the CIAT Bean Research Program Leader who has implementation oversight responsibility for the grantee. The coordinator is responsible for planning and monitoring regional project activities. This is carried out in consultation with the Steering Committee. The CEABRN Steering Committee has been actively involved in reviewing project activities which contributes to coordination and effective implementation of project activities.

C. Project Planning and Budgets

CEABRN activities are planned on an annual basis and presented in a formal workplan which is reviewed and approved by the Steering Committee, CIAT, USAID, and if required by CIDA as well.

The coordinator is responsible for annual workplan preparation. Workplans reviewed include adequate detail and specify activities for each of the three project objectives. Activities are listed in chronological order which facilitates measurement of progress and monitoring through semi-annual reports. It is RECOMMENDED that annual operating budgets be included as part of the workplan. This will contribute to increased awareness on the part of the Steering Committee as to the network operational costs and will serve as a financial monitoring tool for project management.

D. CIAT Project Management

CIAT provides centralized financial management of the project and program oversight through their headquarters. CIAT has delegated sufficient management responsibility and authority to the project coordinator which enables him to effectively manage project implementation activities. This arrangement enables the coordinator to address implementation issues that arise from field operations on a timely basis. Whereas the coordinator maintains good communications with, and reports technically to the USAID regional office , financial reporting to the donors is the responsibility of CIAT headquarters. This division of responsibility enables the coordinator to have more time to address network implementation issues and support technical staff in the field. The internal management review conducted in 1988 identified several management issues which are being addressed by CIAT. The evaluation team reviewed with the coordinator and the CIAT representative the current status of these issues and concluded that satisfactory progress is being made in those areas.

E. REDSO/ESA Management

Responsibility for AID management of CEABRN project resides with REDSO/ESA and RFMC, both located in Nairobi. Project monitoring is the responsibility of the project manager from the Agricultural and Natural Resources Division. The Projects Office provides backstopping for project implementation issues relative to grantee compliance with grant agreement provisions and other internal AID requirements. The project manager routinely visits project field activities, attends project meetings, and reviews project documents and reports.

CEABRN is a regional project supporting three national programs and limited activities in three others. USAID missions in two countries are supportive of CEABRN activities. In Uganda the USAID mission provides local currency support to the national bean program. While USAID missions support is encouraged for national programs, it is RECOMMENDED that overall AID management responsibility should continue with REDSO/ESA. Delegation of responsibility to USAID missions would result in fragmentation and less effective coordination whereas Washington management would tend to be too far removed from field operations to provide effective monitoring and timely responses to field operation requirements.

It is also RECOMMENDED that bilateral USAID missions consider local currency funding for national bean research programs in their respective countries.

F. CIDA Management

CIDA management for the project is provided by a senior project officer in the Anglophone Africa Branch in CIDA headquarters in Canada. Additional field level contact is provided by the resident CIDA representatives in Addis Ababa and Nairobi. CIDA informed the evaluation team that this arrangement is satisfactory and no changes are contemplated. CIAT/Cali maintains a project specific accounting and reporting systems that enables CIDA to fund all Ethiopian related project costs.

IV. FINANCIAL SUPPORT AND FINANCIAL MANAGEMENT

A. Project Funding

Direct financial support is provided by USAID (US$ 2.5 million) and CIDA (C$ 3.27 million) for approximately US$ 5 million for this first phase (7 years) from July 27, 1984 to July 26, 1991. Although grantee contribution was not a requirement in the grant agreement, CIAT has provided the project with in-kind contributions of training materials, germplasm, and short-term technical assistance. The value of this contribution is significant but has not been quantified.

The original proposal and grant agreement specified total project funding to be US$ 7.962 million. Of this amount US$ 3.62 was to have come from other members of CDA. As CIAT was not able to secure this additional funding, the grant agreement required a revised budget to reflect the lower level of funding. CIAT submitted a revised budget in accordance with this provision.

CIAT financial statements indicate that as of March 31, 1989, a total of US$ 975,975 has been expended from AID funds and US$ 1,255,985 from CIDA funds. For the remaining life of project (LOP) approximately US $ 2.75 million is available. At the present level of expenditure, the remaining funds in the project are adequate to support proposed activities until project activities completion date (PACD).

B. Other Funding Sources

The project does not receive direct funding from any other sources. However, the Uganda national program has been able to secure local currency financing (Uganda Shillings 7 million in 1988) from the USAID/Uganda mission. The Uganda program is likely to receive subsequent funding from the USAID mission. Possibilities also exist for other national bean programs to obtain local currency support from bilateral USAID missions. It is RECOMMENDED that national bean research programs apply through appropriate channels for local currency support from USAID missions.

C. Accounting and Financial Records

CIAT maintains centralized accounting for this project at their headquarters. There is a field level accounting center maintained in the coordinator's office in Debra Zeit and a branch of that center at Kawanda Research Station in Uganda. All expenditures from Kawanda are reported to Debra Zeit where the administrative officer consolidates this information into monthly financial reports for CIAT. CIAT/Cali reports to the donors.

Financial records were reviewed at both Kawanda and Debra Zeit. Documents were found to be orderly and maintained up-to-date. Because of the limited staff size, it would be difficult to install a system of checks and balances in terms of staff preparing and approving expenditures. Under the circumstances, the system now in place is adequate. Furthermore, recently conducted internal and external audits provide further expenditure surveillance.

The hiring of an administrative officer with significant accounting experience has contributed to a much improved financial reporting and administrative process. This will result in better utilization of project professional staff as the coordinator will have more time to devote to network development, policy matters, and technical issues.

D. Budgets

The project budget has been revised and amended twice, initially in 1986 (Amendment 1) and again in December 1988 (Amendment 2). These revisions were realignment of approved funding levels rather than additional funding. This was necessitated by both a delay in project startup and the subsequent revision in program activities. Further revisions may also be required for annual operating budgets, however the project should attempt to follow the 1989 revised budget for remaining LOP. The contingency line item should be used to cover overruns of budget line items with the exception of capital equipment purchases. Expenditure in excess of budget for capital equipment should receive prior donor approval. The amended project budget is attached as Annex 2.

E. Audits

CIAT conducted an internal audit in March 1989 which resulted in some reallocation of expenditures by line item. The internal audit also addressed issues of financial reporting which were causing delays and inaccuracies with donor reporting. The donors indicated that expenditure verification and reimbursement are now being made with considerably less delay.

An external audit of the project was completed in April, 1989. The audit concluded "that the administrative and financial mechanisms in existence for the management of and accounting for the projects financial resources are adequate" and "the existing mechanisms are in accordance with headquarters practices". The audit further concluded that it would be feasible to decentralize the accounting process and thus enable field management to apply necessary budget controls. Inadequacies currently exist in this area as the coordinator does not receive the required information CIAT to analyze expenditures against approved budgets.

It is RECOMMENDED that a second external audit be conducted in 1991.

F. Financial Management Issues

The coordinator is not able to assess expenditures relative to the approved budget as this information is not being provided by CIAT on a monthly basis. This makes it difficult for the coordinator to plan resource utilization. It is RECOMMENDED that the coordinator be provided on a monthly basis a financial report showing monthly and cumulative expenditure against the approved budget. Variance analysis by line item would also be helpful. This document should be in English language as the current reports in Spanish are difficult for administrative officers to use.

The project approves sub-project grants to national program researchers to carry out specific research activities. Funds are disbursed to these researchers periodically. While disbursement is made upon approval of the Steering Committee, financial control would be improved if a file containing the following information were prepared for each sub-project grant recipient:

- Steering Committee approval
- Funding level
- Coordinator approval
- Initial disbursement level
- Acknowledgment of initial disbursement
- Subsequent replenishment
- Documentation supporting replenishment

This would enable better management of sub-project funding as each recipient would be operating with an approved float level. It is RECOMMENDED that this control be established.

G. Remaining LOP Funding Requirements

No additional funding over the levels currently approved by CIDA and USAID will be required to complete this phase of the project. With two years remaining in the project nearly 50 per cent of the funding is still available. Should the final year budget indicate a likelihood of surplus funds, CIAT should request a no-cost project extension to fully utilize these remaining funds.

The contingency line item in the A.I.D. budget contains $182,500. To access these funds, CIAT should submit, when appropriate, a revised budget to USAID indicating which line items are to be increased.

Candidates for long-term degree training are still being selected although only two years remain to PACD. USAID funds cannot be used for any project activity following PACD. If CIAT expects that USAID funds may be required past the current PACD of July 26, 1991, it is RECOMMENDED that CIAT request a no-cost PACD extension for the purpose of completing long-term training. It is further RECOMMENDED that all currently approved candidates for long-term training start their programs before the end of 1989. The maximum period for a no-cost PACD extension to CEABRN is the PACD of SAARFA 1 (September 1992).

V. FUTURE ACTIVITIES

A. Follow-on Project

Given satisfactory progress to date in the initiation of a regional research network, and the advisability of extending these efforts and further strengthening national program research capacity, consideration of a follow-on project is appropriate. Such a follow-on project should address the institutionalization of a regional network; strengthen research capacity in the region especially in germplasm improvement and cropping systems research with clear focus on socio-economic issues; contribute to the establishment of more effective inter-institutional linkages at the national level, integrating research, universities, extension, and seed production; and further develop Pan-African linkages with other bean improvement networks. Therefore, it is RECOMMENDED that planning be initiated to develop long-term goals and strategies in order to identify specific elements of a follow-on project.

B. CEABRN as an A.I.D. Priority Regional Program

A.I.D.'s Africa Bureau supports the improvement of African agricultural research capability through the SAARFA Project. A.I.D. is further focusing its agricultural research efforts on food crops through a number of regional networks. A.I.D. believes that this is a cost effective approach for support to agricultural research and strengthening national research programs. A.I.D. is considering a second phase for SAARFA. Food crops will continue to be the principal focus of this project.

C. Future Resource Requirements

The remaining resources as committed in the agreements between USAID, CIDA, and CIAT, appear to be quite adequate to support full scale operation of the regional network through the remaining life of the project. National program resources are more limiting. In Uganda future USAID local mission support

with local currency funds is absolutely vital to Uganda's effective participation in the network. Any additional national government resource commitment, particularly in providing adequate personnel incentives, would help in recruiting and retaining qualified staff. Apart from foreign exchange, resources for the national program in Ethiopia does not appear to be a limiting factor at this time.

D. Member Country Interest and Commitment to Continued Project Activity

Ethiopia and Uganda have demonstrated a strong interest and are already providing substantial support for the project activities. Kenya has recently signed a memorandum of understanding with CIAT to join CEABRN as a full member and this is taken as a welcome indication of their interest to actively participate in regional bean research. Future support of CEABN by Kenya will hopefully begin to match that of Ethiopia and Uganda. Although beans are not a major legume crop in Somalia, interest is being shown and Somalia does participate in network activities. Both Madagascar and Sudan have significant bean acreages and their participation in network activities would be welcomed. The CEABRN coordinator recently visited Madagascar for discussions with the national bean researchers. Little interest is being shown at this time by Sudan due in part to civil unrest in the main bean growing areas.

E. USAID Bilateral Mission Interest

USAID/Uganda is currently providing local currency to the Uganda national bean research program and has indicated that it will consider future requests. The only other USAID mission in full-member country is Somalia. The Somalia national bean program has not approached USAID/Somalia for assistance, however there are local currencies generated in Somalia from USAID programs that could be used for bean research if both the USAID mission and the Somalia government agree.

USAID would have to approve Kenya's membership in CEABRN before the Kenya bean program would be eligible for local currency support.

F. CIDA Interest

If adequate progress towards meeting project objectives continues, CIDA has indicated that it would consider future support for a follow-on project. CIDA is supportive of the CEABRN effort and would envision institutionalization of the network by the member NARS. CIDA would also like to be assured of the continued progress towards sustainability and future growth of national and regional bean research and improvement programs.

ANNEX 1 - SCOPE OF WORK

Annex 1

CIAT BEAN PROJECT EVALUATION
SCOPE OF WORK

SECTION ONE: Activity to be Evaluated

The Bean Research Network project of East Africa is a ten year multidonor collaborative Research Project, funded initially for five years by USAID and the Canadian International Development Agency (CIDA) through grants to the International Center for Tropical Agriculture (CIAT). The project is being implemented by CIAT in collaboration with national bean improvement programs of Uganda, Somalia and Ethiopia (CIDA). Kenya participates informally in networking activities while Sudan and Madagascar participate as associate collaborators in the project. The project headquarters and coordinator are located in Debre Zeit, in Ethiopia, while other project personnel are located in Uganda.

Authorization Number: 698-0435-01

Grant number: 623-0435-G-00-4035-00

Title: CIAT East African Bean Research Network Project. A Sub-project of the Support to African Agricultural Research and Faculties of Agriculture Project -(698-0435).

Cost: Regional (REDSO/ESA) US $2,500,000 CIDA US $2,500,000

Life of Project Dates: 07/19/1984 -- 07/26/1991

Original PACD: 7/26/1989

Revised PACD: 7/26/1991

SECTION TWO: Purpose of the Evaluation

The purpose of this interim evaluation of the CIAT Bean Research project is twofold. First, is to determine whether the present configuration, management and working relationships of CIAT and the National Agricultural Research systems are producing the expected

outputs in the areas of: networking, collaborative research, human resource development, institutional development and access to improved genetic materials. Secondly, is to determine the medium-term as well as long-term strategy proposed by CIAT for institutionalization of the network and the measures that must be provided to assure sustainability and future growth of its national and regional Bean research and improvement programs.

SECTION THREE: Background

(a) Introduction

In response to an unsolicited proposal presented to AID and CIDA by CIAT, grants were made to CIAT by both donors. The Grants support research efforts by CIAT, national bean programs in each of the member countries and local University based scientists.

The grants also support CIAT'S efforts in the establishment of a Bean research network in East Africa. As indicated earlier Uganda, Somalia and Ethiopia (CIDA) are participating in project activities as full members. Kenya, Sudan, and Madagascar periodically interact as associate collaborators. CIAT coordinates collaborative Bean research and manpower development in the project region.

(b) Project Purpose and Objective

The AID grant provides support to CIAT to continue and expand a Bean improvement and research network in East Africa. The purpose of the project is to develop, in collaboration with national programs in the region, new bean production technology components for traditional and improved cropping systems and to further strengthen national research capacity in order to increase bean yield and productivity in the region.

The major project objectives are to develop and distribute improved bean germplasm to potential users. Secondly it will develop improved cropping systems for bean production in the region. Lastly it will develop research capability in the National programs through an active training program.

SECTION FOUR: Statement of Work

(a) Study Areas

(1). Describe the present status of the bean research network in the region, identify and establish its configuration, working relationships and its principle on-going activities as outlined in the amended grant agreement.

(2). Assess and determine whether the existing institutional arrangement between CIAT and the National Agricultural Research Systems (NARS) have facilitated effective project coordination and are likely to contribute to continued efficient implementation of the project. Also analyze the coordination function of the Network and its contribution to supporting bean research within the region, in particular with associates' Kenya, Sudan and Madagascar.

(3). Assess and determine whether direct project inputs are being provided as needed (e.g quantity and quality) and establish whether these inputs, as well as the level of performance of all participating institutions, are consistent with the amended grant agreement. Also comment on the progress being made towards achieving the stated project objectives of farmer access to improved genetic planting materials, better yielding cultural practices and host country manpower development.

(4). Make a preliminary assessment of the impact of project activities on the policies, resource allocations, management and organization of Bean research programs of participating countries. Also assess the accomplishments of CIAT regarding the the establishment of an effective network, its sustainability plus institutional development of the NARS.

(5). Assess the effectiveness of CIAT and Project's technology information system and the extent to which it is being utilized to disseminate relevant CIAT and project outputs to the interested parties and target groups in the region.

(6). Determine the support being provided by CIAT headquarters towards project activities. Also establish the value of institutional linkages between the project and other bean research project/networks operating in the region such as the CIAT SADCC and great lakes programs, and CRISP Bean/Cowpea projects.

(7). Determine the level and adequacy of commitment of the member countries to the project. Also establish whether bilateral missions or other donors are interested in supporting current and future project activities in the region. Establish whether a phase two of the project would be feasible under the present situation.

(8). Recommend the need, nature and extent of any further involvement of member countries, USAID (REDSO/ESA and/or Bilateral Missions) CIDA or other donors in follow-on project activities after the completion of the current seven year regional AID and CIDA grants to CIAT. The team should also determine and suggest a strategy and organizational structure that will enhance sustainability during the project and after the PACD.

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(b) Additional Specific Project Activities that need to be Evaluated Include the Following:

(1). Assess the quantity as well as the quality of any collaborative research sub-projects that are being conducted by NARS and determine whether they are consistent with AID, CIDA and CIAT's objectives as stated in the Grant Agreement. Determine whether these sub-projects are relevant and linked to other research priorities of the National Programs. Also establish whether all project research activities are being done in accordance with A.I.D. environmental regulations.

(2). Evaluate the effectiveness of both formal and informal training being offered through the project, including a review of the effectiveness and utilization of the training materials developed under the project. Determine whether adequate attention and efforts are being paid to the training of women with project funding.

(3). Assess the quantity of direct input by CIAT short-term professionals and consultants since the initiation of the project and establish whether it was consistent with the grant agreement and the needs of the member countries.

(4). Determine whether any new bean varieties or new bean cultivation practices have been produced or developed. Also establish whether new varieties and practices have been adopted by farmers in the region.

(5). Review the baseline data summary assembled since the beginning of the project, suggest improvements, and comment on its analysis by CIAT.

(6). Review the effectiveness of REDSO/ESA, CIDA bilateral missions, AID/Washington and CIAT project management arrangements and financial controls and recommend improvements where appropriate. The project implementation and management roles of REDSO/ESA, bilateral missions, AID/W and CIAT should be reviewed with respect to their appropriateness and effectiveness in project management.

(7). Identify additional areas of support needed by the National Programs. Also identify possible sources of support that may be provided to the network. This may include a review of the status of CIAT's proposal to the Special Program for African Agricultural Research (SPAAR).

(8). Review, by line item, the project budget and cumulative level of expenditures. Recommend revisions if warranted.

(9). Review annual workplans and operating budgets and assess the effectiveness of these as management tools with respect to project implementation, regional coordination, and as a means of measuring project impact. Also assess compliance with grant agreement covenants.

(10). Review policies of national programs and CIAT's towards future Bean research work in the region and establish whether they are consistent with AID's African research initiatives.

SECTION FIVE: Methods and Procedures

The Evaluation will take place from June 15, to July 7, 1989, in Uganda, Somalia, Kenya and Ethiopia. The Evaluation will be done in accordance with the provisions of the grant agreement which calls for a midterm evaluation during this period of the LOP and as a regular part of AID project monitoring and oversight.

The CIAT regional office in Debre Zeit, will prepare a travel and study program for the Evaluation Team to follow. REDSO/ESA has to concur with this study and travel program which may also be modified by the study team based on its own assessment. The CIAT regional office, the project coordinator and CIAT scientists will provide office space, meeting space, accommodation and logistical support for the Evaluation Team.

The team will follow the format and guidelines established by USAID in the supplement to Chapter 12, AID Handbook 3, Project Assistance, entitled, "AID Program Design and Evaluation Methodology Report No.7". The team will use the following data collection and interview methods:

(1). Review of all the project documents and records of the deliberations of the Steering Committee, the coordinator's formal presentations and the consultant's reports since the beginning of the project.

(2). Interviews and discussions with appropriate scientists, technicians and trainees involved in the project and an examination of their activity records, data analysis and conclusions. Review the steering committee's role, actions and responsibilities in programing and managing Project resources.

(3). If necessary, to gather further data, visits to field research sites, training facilities and farms in the participating countries.

(4). Visits to collaborating institutions and agencies for discussions with National Research Directors, USAID Directors and staff, Program Leaders and Project Managers.

(5). Visit CIAT regional offices where financial and administrative records are maintained. Discuss procedures with staff responsible for maintaining the records.

SECTION SIX: Evaluation Team Composition

A five person evaluation team will be composed of representatives from the REDSO/ESA (2), CIAT Headquarters(1), CIDA (1) and an independent consultant(1) mutually selected by the donors and CIAT. Resource personnel for the evaluation team will be available from REDSO/ESA, the CIAT regional office, and participating national programs. A REDSO/ESA PDO will be designated team leader.

SECTION SEVEN: Reporting Requirements

The format of the evaluation report will follow AID guidelines established in "The supplement of Chapter 12 of AID Handbook 3", and will include an executive summary, a table of contents, the body of the report, and appropriate appendices (e.g., evaluation scope of work, contact list and bibliography). The body of the text, exclusive of executive summary and annexes, should not exceed 30 pages.

The evaluation team will specify conclusions based upon the findings of the study and prepare a set of recommendations for improving future project implementation process. The report will be written jointly by the evaluation team under the coordination of the team leader who will be responsible for debriefing the USAID's and the NARS as well as the submission of the final Evaluation document to the relevant institutions.

The draft of the evaluation report is due prior to the team's departure from Kenya. The team leader will be facilitate the preparation of the report. The final report is due within 30 days after the completion of the evaluation.

SECTION EIGHT: Funding

Financial support for the whole operation will originate from the Evaluations line item of the project budget. The REDSO team members will be financed by REDSO/ESA.

Estimated cost of the evaluation: US $20,000
This will cover the following costs:

Independent consultant
International travel
In-country travel
Per diem
Secretarial services

Drafter:REDSO/ESA:A/NR:HJMasambu:po:_____Date_____
Clearance:REDSO/ESA:A/NR:_____Date_____
REDSO/ESA:PRJ:EMorris_____Date_____
REDSO/ESA:DD:MKSinding:_____Date_____
REDSO/ESA:RCO:PShirk:_____Date_____

ANNEX 2 - BUDGET

Annex 2

REVISED DETAILED BUDGET OF AID FINANCING
CIAT BEAN RESEARCH PROJECT
(698-0435.01)

LINE ITEM	ACTUAL JUL 1984 MARCH 1988	REVISED BUDGET APR/88 MAR/89	APR/89 MAR/90	APR/90 JUL/91	TOTAL
1.0 PERSONNEL					
1.1 UGANDA					
Senior Staff (2)	126.5	173.2	165.9	155.7	621.3
Other Staff					
Technical Asst.(2)	0.0	10.0	10.5	8.3	28.8
Secretary/Adm. Asst.	1.7	12.0	12.6	9.9	36.2
Laborers (6) and Help	19.3	18.9	19.8	15.6	73.6
1.2 SOMALIA					
Other Staff					
Technical Asst. (1)	0.0	5.3	5.6	4.4	15.3
Laborers (2) and Temporary Help	0.0	6.3	6.6	5.2	18.1
1.3 KENYA					
Senior Staff	87.6	0.0	0.0	0.0	87.6
1.4 OTHER PERSONNEL					
Short-term Technical Consultants	0.0	30.0	0.0	0.0	30.0
Post Doctoral Fellow (1/3) at CIAT	27.6	12.0	12.6	9.9	62.1
Regional Research Fellow	0.0	15.0	31.5	12.4	58.9
TOTAL COMPONENT	262.7	282.7	265.1	221.4	1,031.9
2.0 TRAVEL					
2.1 CIAT Regional Staff	52.2	20.4	21.4	16.9	110.9
2.2 CIAT Headquarters Staff	0.0	10.7	11.2	8.8	30.7
TOTAL COMPONENT	52.2	31.1	32.6	25.7	141.6

ATTACHMENT III

REVISED DETAILED BUDGET OF AID FINANCING

CIAT BEAN RESEARCH PROJECT

(998-0438.01)

LINE ITEM	ACTUAL JULY 1984 MARCH 1988	REVISED BUDGET APR/88 MAR/89	APR/89 MAR/90	APR/90 JUL/91	TOTAL
3.0 OPERATIONS					
3.1 Supplies & Services	65.1	21.8	22.9	18.0	127.8
3.2 Research Stn. Supp.	0.0	16.3	17.1	13.5	46.9
TOTAL COMPONENT	65.1	38.1	40.0	31.5	174.7
4.0 TRAINING					
4.1 Training at CIAT	4.0	23.6	24.8	19.5	71.9
4.2 In-country Training	0.0	22.3	23.4	18.4	64.1
4.3 Training Materials	8.1	8.0	8.4	6.6	31.1
4.4 Degree Training	1.9	35.8	37.6	29.7	105.0
4.5 Monitoring Tours	0.0	8.3	8.7	6.9	23.9
4.6 Regional Workshops	0.4	18.1	19.0	15.0	52.5
TOTAL COMPONENT	14.4	116.1	121.9	96.1	348.5
5.0 REGIONAL SUBPROJECTS	13.8	35.1	36.9	29.1	114.9
SUB-TOTALS (1 - 5)	408.2	503.1	496.5	403.8	1,811.6
6.0 PROJECT MANAGEMENT (15%)	55.9	75.5	74.5	60.6	266.5
7.0 EQUIPMENT AND REHABILITATION					
7.1 Vehicles	25.8	19.0	0.0	0.0	44.8
7.2 Office	5.1	15.0	8.0	0.0	28.1
7.3 Field	0.0	0.0	7.0	0.0	7.0
7.4 Bldg Rehabilitation	4.5	120.0	0.0	0.0	124.5
TOTAL COMPONENT	35.4	154.0	15.0	0.0	204.4

Grant No. 623-0439-G-00-
December 22, 1988

ATTACHMENT III

REVISED DETAILED BUDGET OF AID FINANCING

CIAT BEAN RESEARCH PROJECT

(598-0439.01)

LINE ITEM	ACTUAL JULY 1984 MARCH 1988	REVISED BUDGET APR/88 MAR/89	APR/89 MAR/90	APR/90 JUL/91	TOTAL
8.0 CONTINGENCIES	0.0	63.4	66.6	52.5	182.5
9.0 PROJECT EVALUATION	0.0	15.0	0.0	20.0	35.0
T O T A L	499.5	811.0	652.6	536.9	2,500.0

ANNEX 3 - ITINERARY FOR EVALUATION TEAM

Annex 3

Midterm Evaluation of CIAT Eastern Africa Bean Project

Itinerary

June 18		Arrive Nairobi. Booking made at Jacaranda Hotel, Westlands.
19	0830	Team convenes at USAID/REDSO, Union Towers. Read background documents.
	1100	Canadian High Commission, Comcraft House.
	1330	Introduction to programme by Regional Coordinator.
	1500	Meet with REDSO Director
20	0830	Meeting at Kenya Agricultural Research Institute.
	0930	Drive to National Horticultural Research Station, Thika. Meeting with Director & Bean Programme Staff. Visit research fields.
21	0715	Leave hotel for airport.
	0900-1000	Nairobi to Entebbe, Uganda. Flight KQ 410. (Booking at Nile Hotel, Kampala)
	1145	Secretary of Research, Ministry of Agriculture, Entebbe. Lunch
	1400	Commissioner for Agriculture.
	1600	Briefing at USAID mission, Kampala
22	0800	Presentations by Regional staff.
	1130	Briefing by National Bean Team. Lunch
	1400	Director, Kawanda, Research Station.
	1430	Continue meetings with national researchers.
23	0830	Field visit, Kawanda and informal meetings with scientists.
	1030	Field visit, Bukalasa trials
24	0800	Field visit, on-farm sites (a) Mipigi (b) Luwero.
25		No formal program (Sunday)
26	0630	Depart hotel for airport
	0930-1115	Entebbe to Addis Ababa. Flight ET 810 (Booking at Ghion Hotel)
	1245	Meeting with Ms Peggy Florida of Canadian Embassy (over lunch at Ghion Hotel)
	1430	Meeting with General Manager, Institute for Agricultural Research

27	0730	Drive to IAR Melkassa Research Station, Nazreth Briefings by Station Manager and National Bean Team.
	pm	Inspect field trials. Continue informal meetings with researchers (Group A: stay at Adama Ras Hotel, Nazreth) (Group B: return to Addis)
28-29		Group A: Awassa Research Station and Cooperating Farmers (stay at Wabi Shebelle Hotel, Awassa) Group B: Scientific Phytopathology Lab., Ambo (stay at Ambo Ras Hotel) Optional Group C: Meeting with Regional Administrative and Financial Officer, Debre Zeit. (remain at Ghion Hotel Addis)
30	0800	Drive to CIAT Office, Debre Zeit. Discussions with Regional Coordinator and Training Officer.
ıly 1	0845	Depart hotel for airport
	1030-1215	Travel Addis to Nairobi, ET 961 (Booking at Hilton Hotel)
2-5		Preparation of report (office available at REDSO).
6		Meeting with Regional Steering Committee members from Ethiopia, Kenya, Somalia, Uganda and CIAT.
7		Complete draft report. Team members free to depart from Nairobi from 7th evening.

ANNEX 4 - PERSONS AND INSTITUTIONS INTERVIEWED

Annex 4

PERSONS INTERVIEWED

NAME	POSITION
KENYA (THIKA RESEARCH STATION)	
Ndiritu, C. G.	Director, KARI
Rutto, J. K.	Director of Research, KARI
Njuguna Semeon, K.	Director/NHRC, Thika
Gathungu, C. N.	Head, Fruit Research
Madumadu, G. G.	Project Coordinator
Kanyagia, S. T.	Team Leader - Bean Program
Muigai, S. G. S.	Bean Breeder
Muthamia, J. G. N.	Agronomist
Ndegwa, A.N.M.	Agronomist
Mbugua, G. W.	Agronomist
Omunyin, M. E.	Pathologist
UGANDA (KAWANDA RESEARCH STATION)	
Kavuma John, B. K.	Soil Scientist/Agronomist
Kisakye Jane	Agronomist
Adrogu Ugen, M.	Agronomist
Sengooba, Theresa	Pathologist/Bean Team Leader
Male-Kayiwa Beatrice	Breeder
Mugisa Mary	Economist Trainee
Opio Fina Asinabi	Pathologist
Musaana Massy, S.	Breeder and Genetist
Rubaihayo Elizabeth	Director, Kawana Research Sta.
Ojacor, F.	Commissioner of Agriculture
King Sara	Deputy Commissioner of Agr.
Kwebe, L.	Farmer (District Mpigi)
Kiwanuka, H. Y.	Farmer "
Namyondjo, Silvester	Farmer "
Mayanja, Lawrence	Agricultural Officer
Sebayiga James	Agricultural Assistant
Nsereko Lawrence	Agricultural Assistant
MAKERERE UNIVERSITY - KAMPALA	
Owero, Samson, D.	Virologist

USAID/KAMPALA

Ernesto, Lucas	Agricultural Economist
Agard, Albert	Agricultural Development Officer

USAID/KENYA

Dunn, James	Agricultural Development Officer

USAID/REDSO/ESA

McColaugh, Robert	Chief, Agricultural Division
Masambu, Hudson	Project Manager

INSTITUTE OF AGRICULTURAL RESEARCH - ETHIOPIA

Debela, Seme	General Manager

NAZRET RESEARCH CENTER - ETHIOPIA

Kebede, Yilma	Station Director
Abebe Amare	Breeder - Bean Prog. Team Leader
Etagegnehu G/Mariam	Weed Scientist
Kidane Georgis	Agronomist
Tilahun Mulatu	Economist
Senayit Yetnebert	Food Scientist
Teshome Regassa	Breeder
Adhanom Negasi	Entomologist/Center Manager Awasa Agr. Research Center
Kelsa Kenoi	Soil Scietist
Wagaw Mezengia	Agronomist
Yeshi Chiche	Agr. Economist
Haile Kefene	Bean agronomist

SCIENTIFIC PHYTOPATHOLOGY LAB - AMBO/ETHIOPIA

Yusuf Abdulrazak	Virologist
Beshir Tesfage	Pathologist

CIDA/NAIROBI

McMaster, Carolyn	First Secretary - Development

CIDA/Canada

Primeau, Wayne	Senior Project Officer

CIDA/ADDIS ABABA

Florida, Peggy	First Secretary - Development

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CIAT/ETHIOPIA

Kirkby, Roger	Regional/Pan-Africa Coordinator
Zawde, Girma	Financial/Administrative Officer
Mutimba, Geoffery	Training Officer

CIAT/UGANDA

Grisley, William	Economist
Gridley, Howard	Breeder
Wortman, Charles	Agronomist
Mukasa, Harriet	Administrative Assistant.

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ANNEX 5 - LIST OF TRAINING AND NETWORKING ACTIVITIES

Annex 5

List of Training and Network Activities

A. Training

(1) In-country and regional training courses

Course Title	Benefiting Country	Location	Date and Duration	No. of Candidates Attended
Practical training in OFR	Uganda	Rwanda	9/86, 6 weeks	1
Lowland Pulse Research Training for Technical Assistants	Ethiopia	Nazreth/ET	25/9-5/10/86	16
Agronomy Training	Ethiopia	Nazreth/ET	2 - 12/2/87	49
Grain Legume Research	Somalia	Nazreth/ET	1/6 - 12/6/87	2
Field Res. Techniques for Bean Technicians	Uganda and Somalia	Mukono/UG	1/6 - 12/6/87	20
M-Stat	Uganda	Morogoro/TZ	6 - 10/10/87	2
Diagnostic Survey Field Practice	Uganda	Kabale/UG	April 1987	5
Weed Management	Ethiopia	D.Zeit/ET	April 1987	20
On-farm methods for extension agents	Uganda	Mokono/UG	29/2 - 4/3/88	24
Statistical analysis and Computer Applications	Ethiopia	A.Ababab/ET	12-22/4/88	23

Bean Breeding for Senior Technicians	Ethiopia	Arusha/TZ	23/5-1/7/88	2
Undergraduate Special Projects	Uganda	Mpigi Rakai/UG	May-July, 1988	2
Pulse Research Technicians Course	Ethiopia	Holetta/ET	3 - 7/10/1988	25
Ethiopia Agric. Economics/FSR Training workshop	Ethiopia	Holetta/ET	24-25/01/1989	13
Second in-country course in on-farm trial management for extension staff	Uganda	Kabale/UG	15 - 16/2/1989	10
Agronomy and soils training workshop	Ethiopia	Holetta/ET	20-25/2/1989	49
Regional course on weed management	Uganda Ethiopia	Makerere/UG	20-30/3/1989	25
Experimental Design Analysis and M-Stat	Uganda	Makerere/UG	13-14/7/89	14

(2) In-CIAT Training

Course Title	Benefiting Country	Date and Duration	No. of Candidates
Bean Breeding	Uganda	16/2-19/6/1984	1
Bean Entomology	Uganda	16/2-19/6/1984	1
Bean Pathology	Uganda	7/3-7/7/86	1
Bean Breeding	Ugasnda	11/9-13/12/1986	1
Bean Diseases	Ethiopia	10/10-19/12/86	1
Bean Fly Research	Ethiopia	1/11-29/11/87	1
Bean Breeding and Nitrogen fixation	Ethiopia	12/10-20/11/87	1
Bean Breeding	Uganda	9/8-6/12/88	1
Bean Breeding	Ethiopia	25/9 - 24/12/88	1
Bean Pathology	Ethiopia	9/10-16/12/88	1
Bean Breeding	Somalia	4/10-16/12/88	1
Bean Storage Entomology	Somalia	4/10-16/12/88	1

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(3) University Degree Training

Benefitting Country	Type of Degree		Discipline	
	M.Sc.	Ph.D	M.Sc.	Ph.D.
Ethiopia	4	3	Entomology Agronomy Breeding Food Science	Entomology Pathology Breeding
Uganda	3	4	Entomology Agronomy (2)	Pathology (2) Breeding (2)
Somalia	2	0	Breeding Agronomy	

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B. Network Activities

(1) Regional Workshops

Name	Location	Year	No.Participants
Eastern Africa Bean Workshop	Mokono, UG	June 1987	30
Agronomy and on-farm Research Coordination Workshop	Holetta, ET.	Sept. 1987	25
Soil Fertility Research for Bean cropping systems	A. Ababa/ET	Sept.1988	22
IAR/CIMMYT/CIAT Agronomy, Physiology on FSR Projects Planning Workshop	Nzreth/ET	Sept. 1988	38
On-farm Research workshop	Kampala/UG	2 - 3/1988	39

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(2) Monitoring Tours

Year	Countries Visited	No. of Participants
1986	Rwanda	2
1987	Ethiopia	2 + 1 CIAT staff
1988	Rwanda, Tanzania	1 + 1 CIAT staff
1988	Ethiopia	10 + 2 CIAT staff
1988	Ethiopia, Tanzania	2 + 1 consultant
1989	Tanzania	1

(3) Steering Committee Meetings

Location	Date
ILCA, Addis Ababa	2 - 5/12/85
Makerere, Kampala	10/6/86
CIAT, Debre Zeit	11 - 12/3/87
MOA, Mogadishu	7-8/3/88
Kwanda	1-3/3/89

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ANNEX 6 - LIST OF TRAINING MATERIALS PREPARED

Annex 6

Training Materials

Training Materials in Part Developed with Project Resources

Audiotutorials:

Principal Bean Diseases in Africa
Bean Production Systems in Africa

Training Materials Developed with CIAT Core Resources and Distributed by Regional Project

Audiotutorials:

Seed Development and Morphology
Morphology of Common Bean Plant
Stages of Development of Bean Plant
Bean Diseases Caused by Fungi
Good Quality Bean Seed
Main Insect Pests of Stored Beans
Essential Elements of Seed Programs
Cultivated Species of Phaseolus
Biology and Control of Nutsedge
Principles of Intercropping with Beans
Crossing of Beans
Legume Rhizobium Symbiosis

Manuals

Bean Production Problems
Field Guide to Diseases and Pests
Standard System of Evaluation of Bean Germplasm

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