



Proposal for an Extension of the Regional Bean Research Network for the Great Lakes Region of Africa

A proposal for:

Swiss Development Cooperation (SDC)

Berne, Switzerland

UNIDAD DE INFORMACIÓN
DOCUMENTACIÓN

34704

12 MAR. 1998

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Cali, Colombia

July 1992

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Acronyms

CIAT	Centro Internacional de Agricultura Tropical
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo
INERA	Institut National d'Etudes et de Recherches Agronomiques
ISABU	Institut des Sciences Agronomiques du Burundi
ISAR	Institut des Sciences Agronomiques du Rwanda
NARIs	National Agricultural Research Institutes
PNL	Programme National Légumineuses
RESAPAC	Réseau pour l'Amélioration du haricot (Phaseolea) dans la région de l'Afrique Centrale
SADCC	Southern Africa Development Coordination Conference
SDC	Swiss Development Cooperation

1.0 Summary

Title: Proposal for an Extension of the Regional Bean Research Network for the Great Lakes Region of Africa

Objective: To strengthen national program research capacity and intra-regional cooperation while increasing the productivity of common beans in the Great Lakes Region of Africa.

Time Frame: Three years: 1 October 1992 to 30 September 1995.

Participating Countries: Burundi, Rwanda and Zaïre.

Participating Institutions:

Burundi: Institut des Sciences Agronomiques du Burundi (ISABU)

Rwanda: Institut des Sciences Agronomiques du Rwanda (ISAR)

Zaïre: Institut National d'Etudes et de Recherches Agronomique (INERA)

Programme National Légumineuses (PNL)

Executing Agency: The Centro Internacional de Agricultura Tropical (CIAT), an autonomous, non-profit international institution dedicated to the generation and transfer of improved technology for specific crops, including the common bean (*Phaseolus vulgaris* L.) will be the executor of this project. CIAT has the world's largest interdisciplinary program of scientists dedicated to the improvement of the common bean as well as a network of scientists supporting regional bean research in Africa, including a network for Eastern Africa, and one for Southern Africa in collaboration with SADCC.

Strategies: National agricultural research capacity is ultimately the decisive factor in developing and transferring locally adapted technology to farmers in order to increase bean productivity in the Great Lakes. This research capacity can be significantly strengthened through in-service and academic training, workshops, and joint research activities with other institutions.

However, national agricultural research institutes confront such a large number of significant production limiting constraints within a single country, that they lack the resources to effectively research all the problems they face. Since many of these constraints are common across countries in the Great Lakes region, there is much to be gained through combining efforts in an agreed division of research responsibility linked to mechanisms for horizontal transfer of new technology at a regional basis in the Great Lakes.

There is also a substantial amount of relevant research on bean being conducted both elsewhere in Africa and also on world-wide production constraints. By linking the national programs in the Great Lakes region with other research networks in Africa and with CIAT, progress in developing new technology for the Great Lakes can be accelerated.

PROJECT PROPOSAL

2.0 Background

2.1 Review of Past Project Activities

Project activities were started in October 1983 with the stationing of the first CIAT scientist in the region. Previously CIAT links with national programs of Zaire, Burundi and Rwanda were through occasional visits by CIAT scientists. By May 1985, the project was fully staffed by an interdisciplinary team comprising a breeder, an anthropologist, a pathologist, a cropping systems agronomist and a nutritionist.

Activities proceeded with an extensive diagnostic phase using farmer surveys and on-farm trials to identify and define the major bean production constraints in the region. This was followed by the identification, through trials, of key technologies to improve the production of bean crops in the region. Notable among these are the disease resistant cultivars and the introduction of climbing beans in non-climbing bean areas. Currently, climbing beans are adopted by over 30,000 farmers in Rwanda and South-Kivu (Zaire). The methodologies now in place will enable national programs to continue this work with reduced input from CIAT scientists in the future.

Very few, well trained scientists existed in national programs in 1984. Consequently, a training program was developed. Between 1985 and 1992 fifteen national scientists from the region received specialized training at CIAT. Six training courses for well over one hundred research technicians on installation and follow up of bean trials were organized in collaboration with national programs and course materials have now been made available allowing national researchers to take full responsibility for this task. A series of six joint CIAT/CIMMYT workshops on farm research were held in Rwanda and one such workshop in Burundi. In-service training followed by

*Key technologies
have increased
bean production*

*CIAT has trained
both national
scientists and
technicians since
1985*

Regional nurseries facilitate cooperative germplasm evaluation across many sites

Country specific expertise on disease and pests is shared with partner institutes

a regional workshop on farmer participatory research made use of CIAT's considerable expertise in this domain.

At the same time, the project started to establish firm links among the three national programs. In 1985, regional nurseries of advanced lines were established to test the performance of promising varieties across the region. Since then, national programs have assembled these nurseries annually with their latest advanced material. The nurseries are evaluated in many sites, known as hot spots for particular diseases. Thus, by working together across a large number of sites, each national program obtains a fuller evaluation of their best materials and promising parents, than what any of them could do working alone. National programs give a high priority to this cooperative germplasm evaluation, which allows them to reduce the risk of variety break-down after release. Costs for this cooperation are fully born by national programs.

In the course of regional nursery evaluations, each country developed specific expertise on certain diseases and pests. This was the basis for a division of research responsibilities between different programs. In 1986, the first research projects with regional significance (called sub-projects) were proposed. The division of labor was particularly successful in the area of phytopathology and breeding for resistance. The three national pathologists agreed to share the work on the various major diseases and to exchange their results with the partner institutes. These sub-projects have allowed more efficient and effective use of scarce resources in the national programs and have led to the identification of varieties resistant to anthracnose, halo blight, and angular leaf spot and to the development of standard screening methods for

Soil fertility maintenance is important in bean-based cropping systems

Shared network research agendas enable national programs to conduct site-specific agronomy research more efficiently

This project has successfully promoted the use of on-farm research methods by national programs

bacterial blight resistance. The information is now systematically used in back crossings with released or promising varieties.

In 1991, a total of 27 sub-projects were conducted, dealing in about equal numbers with biotic stresses, abiotic stresses and socio-economic constraints. Over the last four years, the network has increasingly recognized the importance of soil fertility maintenance in bean-based cropping systems. Socio-economic constraints to bean production have also continued to be considered of high priority in this poor and highly diverse region. Although not always as obvious as in the case of breeding, mutual benefits can result from a common research agenda on these topics as well.

Thus, research on intercropping, on biological nitrogen fixation and on soil fertility management have provided valuable insights in mechanisms, potential and limitations, which allow national programs to conduct the more site specific agronomy research more cost-efficiently. Research on seed distribution has identified and tested economically sustainable and wide reaching distribution strategies, which can be easily adapted by the individual countries.

Acceptability, adoption and impact studies have produced important feedback for technology development. In addition, the methodology developed during these studies to the specific conditions of the region make it easier for individual countries to deal with this crucial aspect of agricultural research.

The project plays a important role in promoting on-farm research methods in general, and Participatory Research Methods in particular. All national programs are now using on-farm research approaches for varietal evaluation and the test of cultural methods and have become increasingly sensitive to the need to include farmers in the research process. A sub-project is assessing the effect of a division of labor

Farmer participatory research ensures the studies are relevant

Regional coordination is achieved through a Steering Committee that evaluated proposals of technical merit

The Annual Workplans of the Steering Committee are approved by the Directors' Committee

between farmers and breeders in variety development, another aims at a better understanding of the principles of farmers own experimentation in agronomy research.

The strategy of the network is to conduct research on topics where farmers themselves can easily understand the mechanisms, such as planting density and time, arrangements in intercropping etc. Farmer participatory research has already produced some encouraging results. The climbing variety Umubano, which was crucial for the break-through of climbers in Southern Rwanda and South-Kivu, was identified during farmer evaluations.

2.2 Network Coordination

Regional coordination is effected by an Executive or Steering Committee which became operational in 1986. The committee includes the coordinators of the national bean programs and the regional coordinator of CIAT. In 1989, a Directors' Committee was established. This committee includes the Directors of the National Agricultural Research Institutes and was crucial for involving non-commodity researchers (soil scientists, socio-economists, farming systems specialists) into the bean network.

Both committees meet at least once a year. The Executive or Steering Committee elaborates an annual workplan with budget. Sub-project proposals of individual researchers are evaluated in terms of regional importance, scientific soundness and feasibility, budgetary considerations and their compatibility with the network master plan elaborated in Kigufi in 1989. Training and information exchange activities are planned and budgeted. The Directors' Committee modifies and approves this coherent workplan.

Regional seminars provide for planning and evaluation of network sub-projects

Transfer of knowledge is also facilitated through linkages with other CIAT projects

A project evaluation has indicated successful strengthening of national research capacities through regional collaboration

The annual Regional Seminar is the forum for evaluating progress of sub-projects, general information exchange, and discussing workplans. Evaluation and planning in an interdisciplinary forum and peer groups has proved most effective for the network.

Links with the two CIAT projects in Eastern and Southern Africa became important as the two other projects were established. CIAT and national scientists of the two other projects made numerous visits to the Great Lakes and Great Lakes scientists assisted in setting up research programs in the two other regions. Germplasm developed in this project has also been used outside the Great Lakes Region, particularly in revitalizing the national program of neighboring Uganda. A series of Africa wide workshops on pathology, agronomy, breeding, bean fly control and biological nitrogen fixation took place where national program scientists of the Great Lakes Region exchanged experience with colleagues of the other two regions.

2.3 Reviews and Planning

In May 1986, the project was reviewed for the first time on request of the donor agency (SDC). The conclusions emphasized the success of the project in strengthening national research capacities through regional collaboration and noted that especially the Rwandan program had been strengthened in its number of national researchers. In the meantime both the Burundian and especially the Zairian national program were able to attract greater interest and support from national research directors for their respective programs, partly as a result of the success of the regional program. Decision makers had become convinced of the benefits to be gained through assigning researchers to the bean programs.

A second review has shown the need for more agronomic and socio-economic research

This current proposal is fully consistent with the Network's Master Plan

In November 1991, a second external review was conducted. The review team appreciated the focused research program and the well functioning network structure. Planning and evaluation procedures are transparent, efficient and well appreciated by the scientists, while ensuring a coherent work program for the network. The team recommended orienting research in the future more towards impact, putting more emphasis on agronomic and especially socio-economic research.

In April 1992 a planning workshop was held with participation of national research and extension institutions, the donor agency (SDC), and CIAT. A new master plan for the fourth phase of the network was elaborated. This master plan is the basis for the present project proposal. It has been sent to the SDC under separate cover, and the present document should be seen as the implementation proposal for that plan.

3.0 Project Description

The ultimate beneficiaries are the small farmers who will be able to increase bean production

3.1 Project goal, purpose and outcomes

The project has the following goal, purpose and outputs:

Goal

The goal to which this and other projects contribute is to help the Great Lakes Region of Africa to achieve self-sufficiency in food production.

Purpose

The specific purpose of this project is to increase the productivity of beans in the Great Lakes Region of Africa through cooperation in research and training in a regional network.

Outputs

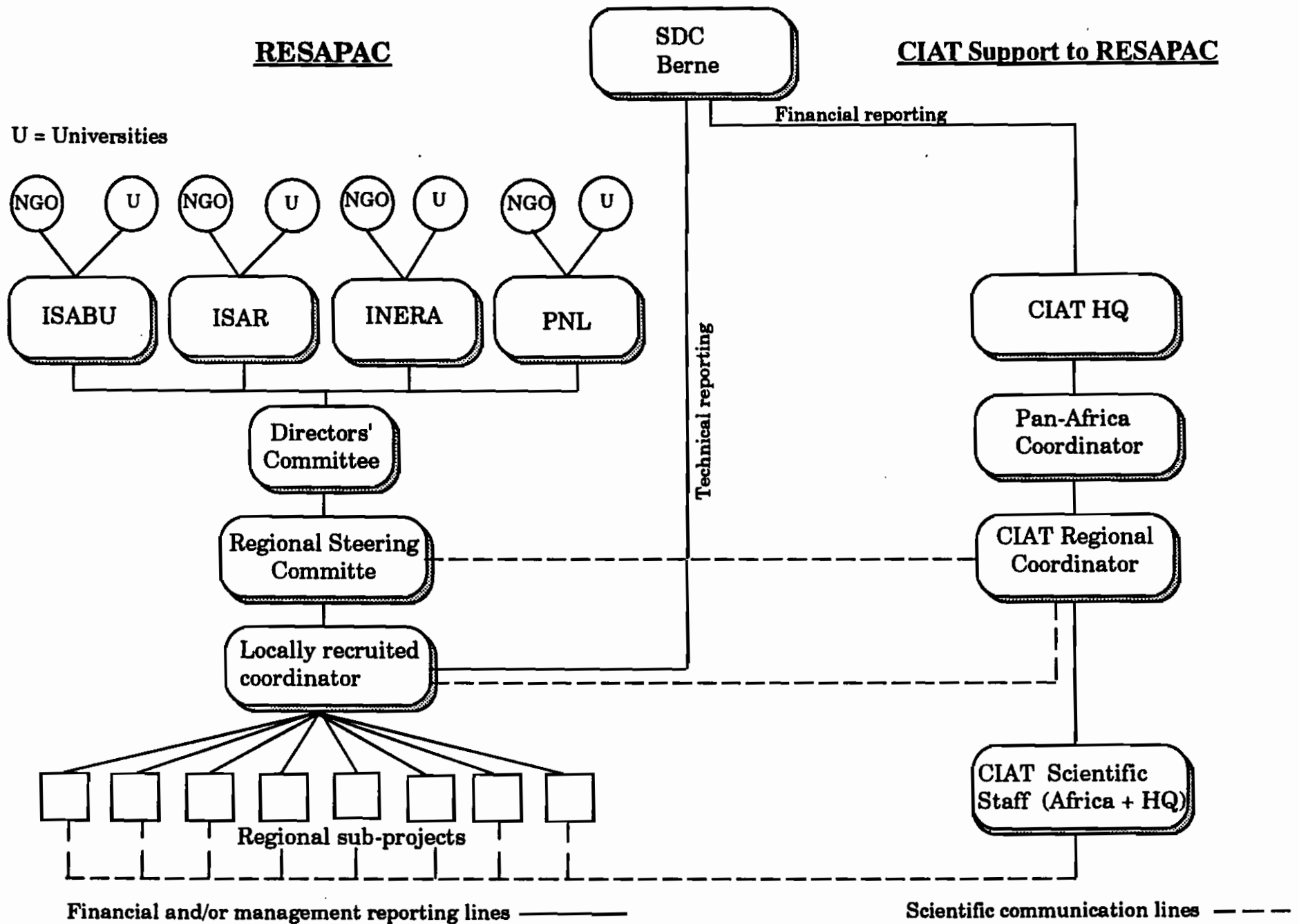
The outputs of the project include:

- establishing a fully operational regional network managed by a locally recruited coordinator
- completed research studies focusing on bean improvement
- strengthened regional and national research capacities through the training of scientists and technicians

3.2 Project Organization

The project organization for the technical reporting and financial management of this project is shown in Figure 1.

Figure 1. Project Organization Chart



3.3 Project activities

Two clearly identified components are proposed for the project: A contribution to the bean research network (RESAPAC, Réseau pour l'Amélioration du haricot (Phaseolea) dans la région de l'Afrique Centrale) and technical support by CIAT to the network.

The major activities and sub-activities of the project as they relate to the project's outputs are graphically illustrated in Figure 2.

RESAPAC will be responsible for planning, executing and evaluating the regional research and for organizing training and information exchange activities. RESAPAC will be coordinated by an Executive (Steering) Committee and a Directors' Committee, which is ultimately responsible for execution of the work program. RESAPAC is a long term network sustained by the national institutions involved in bean research, and by CIAT.

CIAT will provide support to the network including training services, network coordination for the first two years, technical assistance to national programs, and execution of complementary research.

3.3.1 RESAPAC

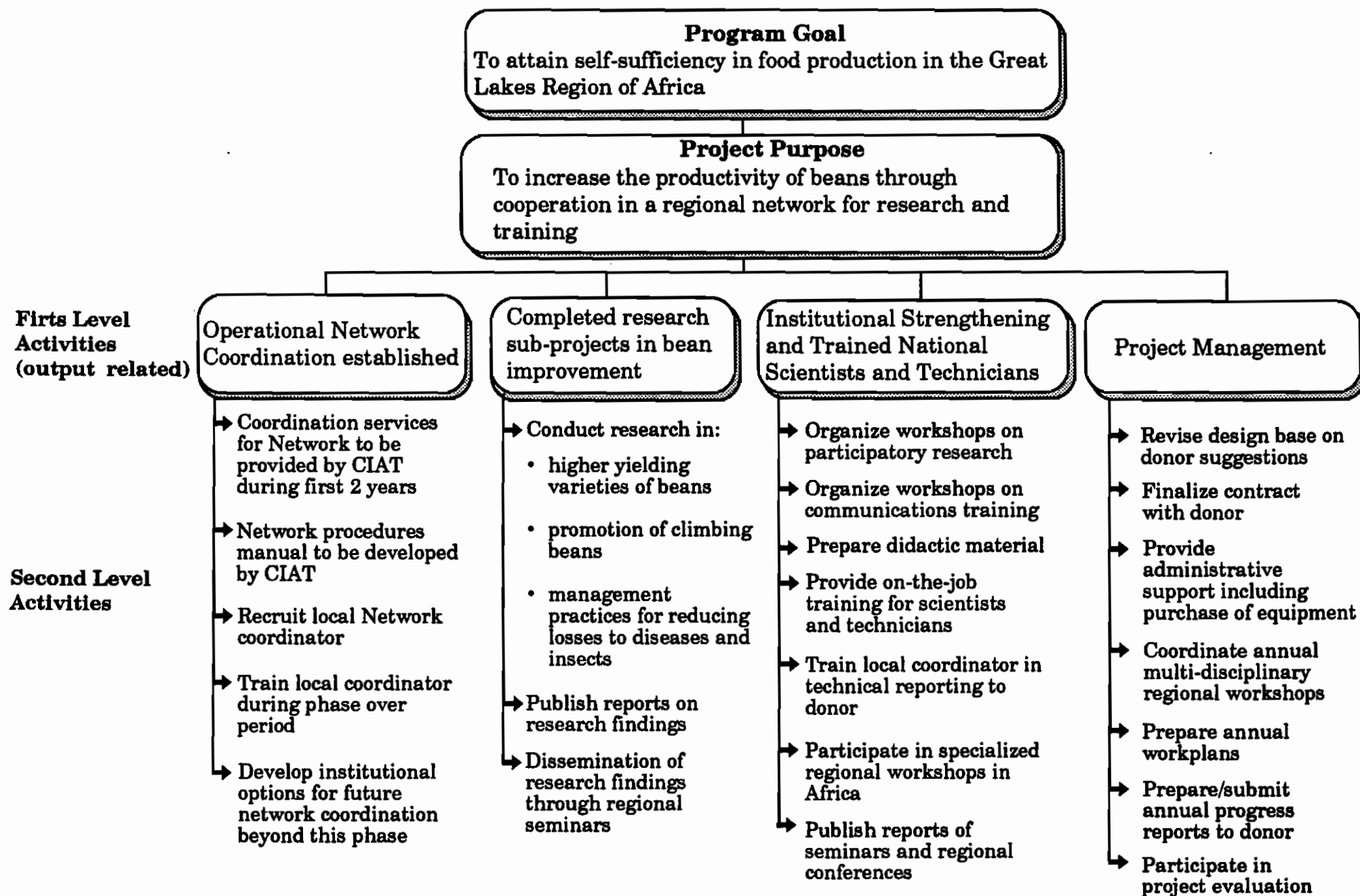
3.3.1.1 Network Coordination

The regional Executive (Steering) Committee will continue to be the central coordinating body for RESAPAC activities. The Directors' Committee will continue to provide the broad guidelines for regional activities, to approve and supervise execution and to treat aspects surpassing the authority of the members of the Executive Committee (the national bean program leaders) in their national institutions. The

RESAPAC has a Steering Committee and a Directors' Committee

The Steering Committee sets research priorities consistent with the Master Plan

Figure 2. Work Breakdown Structure of Project Activities



A locally recruited coordinator will gradually assume network administrative functions

Executive (Steering) Committee will set research priorities in accordance with the RESAPAC master plan elaborated in the 1992 planning workshop.

It will evaluate and modify sub-project proposals and integrate them into an annual workplan with corresponding budget. It will elaborate an annual plan for training and information exchange. Its members will be responsible for executing its decisions at national level. The CIAT coordinator in the Region will ensure the administrative implementation of the committees' recommendations and decisions during the first two years of Phase 4. As of October 1994, a locally recruited network coordinator will assume this role, until the end of the phase in cooperation with the CIAT coordinator. This network coordinator will be responsible to the Directors' Committee, and would become fully in charge of coordination of network activities beyond the current phase of this project.

3.3.1.2 Research

RESAPAC will invite regional sub-projects in the context of the Phase 4 master plan and its priorities: Research for non-genetic solutions, efforts for soil fertility maintenance and enhancement, studies of the constraints and potentials for adoption of agronomic practices, gathering of socio-economic baseline data, search for viable alternatives to seed production and distribution aiming at a rapid diffusion of newly released varieties.

Research sub-projects must have a regional perspective and be relevant to farm level needs

Farmers will be involved in research wherever sensible. Sub-project proposals with a clear impact orientation at the farm level will be favored and periodic interdisciplinary evaluation of research progress will guide RESAPAC allocation of funds. A maximum half of the total costs of sub-projects will be covered out of network funds and only research with a

Training will help strengthen national research capacity

CIAT technical expertise will backstop regional sub-projects

CIAT technical cooperation helps in the methodology, pilot research, adoption studies and data collection

clear regional perspective qualifies for a sub-project. Germplasm improvement remains an important area of RESAPAC although less emphasized than in the past and regional cooperative nursery evaluation will continue, fully funded by participating national programs.

3.3.1.3 Training and Information Exchange

Strengthening national research capacity through on-the-job training, workshops and monitoring tours will continue. A major portion of the training will be within the region, but scientists from the region will also continue to receive training at CIAT as well as elsewhere in Africa. There will be an active program of regional workshops and scientists from the region will also participate in Pan-African workshops and workshops held at CIAT.

3.3.2 CIAT Support to the Network

3.3.2.1 Technical Support

CIAT will provide internationally qualified technical support to regional and national research and training activities. This support will involve technical expertise in the planning and implementation of research carried out by national program scientists. CIAT personnel from within the Great Lakes region will be principally responsible for backstopping approved regional research sub-projects including those on plant diseases, cropping systems, and farmer participation in technology design and evaluation.

CIAT personnel from elsewhere in Africa will assist regional sub-projects on insect pests, economics, and plant breeding. CIAT personnel from headquarters will help assist regional sub-projects on biological nitrogen fixation, plant nutrition, and breeding. CIAT support will include advising national program scientists; providing useful genetic material; and

Technical cooperation is coordinated through the Steering and Directors' Committees

undertaking complementary research such as methods development, pilot research, adoption studies and regional compilation and interpretation of data. All of the above technical cooperation activities will be fully coordinated with the Steering and Directors' Committees, of which CIAT is and will continue to be a member. CIAT foresees a continued commitment of technical support to the network beyond the life of the proposed project.

3.3.2.2 Research

CIAT personnel based in the Region will conduct research on topics of regional interest, for which national programs do not have the capacity to deal with. Research topics falling within the context of the phase 4 master plan may be submitted as sub-projects to the Steering Committees for approval and funding of operation expenses.

3.3.2.3 Administrative Support

CIAT will continue to provide administrative and logistical support to the network. CIAT will receive, manage, and report to the SDC on the use of all project funds. All equipment in the project will be purchased and imported through CIAT. CIAT will initially administer the salary of the locally recruited coordinator, and the support staff of the coordinator. CIAT will provide the SDC with regular written technical progress on its activities during the entire life of the current project. CIAT will also provide the SDC with reports on RESAPAC network activities in 1993 and 1994. From 1995, this will be the sole responsibility of the locally recruited coordinator.

CIAT provides financial reporting to the donor

The locally recruited coordinator will gradually assume technical reporting responsibilities

4.0 Funding Requirements

The budget of \$ US 1.8 M covers 3 years and includes inflation

Yearly workplans and budgets are approved by the Directors' Committee

Information exchange and training are important budget items

In order to fill accomplish these objectives the project requires funding at a level of US\$ 1,800,000 over the three year period. A 5% annual inflation rate is assumed. Total costs of the components reflect normal expenditures during Phase 3, adjusted for staff number and changes in priority. The detailed budget is shown in Table 1. The budget is divided into the following components:

4.1 RESAPAC

Funds asked on behalf of the network are covering only estimated costs of activities attributed priority 1 and 2 in the Phase 4 master plan. Those funds will be allocated by the Steering Committee, which will elaborate yearly workplans to be approved by the Directors' Committee.

4.1.1 Information exchange and training

This component covers expenses for organizing regional and a pan-African workshops, seminars, and monitoring tours to ensure information exchange and common planning, as well as production of respective documents. It includes funds for training of national program scientists in Cali, at a pan-African level and in the Region, as well as contributions to training of technicians in country.

4.1.2 Regional research (operations)

This component covers up to half of the expenses for the execution of regional sub-projects according to the master plan.

4.1.3 Coordination

This component covers expenses for travel and operations for network coordination. It includes expenses for the Steering and Directors' Committees

FUNDING REQUIREMENTS

Table 1. Proposed Budget for October 1, 1992 - September 30, 1995 in current US dollars

Line Item	1 Oct/92 30 Sep/93	1 Oct/93 30 Sep/94	1 Oct/94 30 Sep/95	Total
1. RESAPAC Network				
1.1 Coordination				
1. Personnel	-	-	36,000	36,000
2. Travel	5,000	5,000	5,000	15,000
3. Operations	5,000	5,000	6,000	16,000
4. Steering and Directors' Committees	9,000	10,000	11,000	30,000
5. External evaluation	-	-	15,000	15,000
1.2 Regional sub-projects	80,000	84,000	88,000	252,000
1.3 Training and Information exchange	36,000	38,000	40,000	114,000
1.4 Equipment				
1. Vehicle	-	-	20,000	20,000
2. Small equipment	15,000	16,000	17,000	48,000
Total RESAPAC	150,000	158,000	238,000	546,000

FUNDING REQUIREMENTS

Table 1. Con'td

Line item	1 Oct/92 30 Sep/93	1 Oct/93 30 Sep/94	1 Oct/94 30 Sep/95	Total
2. CIAT budget				
2.1 Personnel				
1. Senior staff	180,000	189,000	198,000	567,000
2. Regional research fellow	40,000	-	-	40,000
3. Support staff	20,000	21,000	22,000	63,000
2.2 Operations				
1. Travel	24,000	20,000	21,000	65,000
2. Supplies and services	65,000	55,000	57,000	177,000
3. Research station support	35,000	25,000	25,000	85,000
2.3 Project management	75,000	68,000	79,000	222,000
2.4 Equipment				
1. Small equipment	5,000	5,000	5,000	15,000
2. Vehicle	-	-	20,000	20,000
Total CIAT	444,000	383,000	427,000	1,254,000
TOTAL RESAPAC + CIAT	584,000	541,000	665,000	1,800,000

The budget provides for an external evaluation of the project

and as of Year 3 for the locally hired network coordinator. The salary and benefits of the coordinator, one driver and one secretary are included. Provision is also made for an external evaluation of the network and CIAT's support to it.

4.1.4 Equipment

This component covers the cost of small equipment for national programs in relation with the execution of sub-projects. It includes the purchase of a vehicle and small office equipment for the locally hired network coordinator.

4.2 CIAT Support to RESAPAC

4.2.1 Personnel

The project provides for a locally recruited coordinator to take over network administrative functions from the internationally recruited scientist

The present level of three internationally recruited scientists will be reduced to two at the initiation of this phase. In Year 3, a local coordinator will be hired and will gradually relieve the international scientist acting as coordinator of part of the administrative tasks. Disciplinary composition of the team will be determined in consultation with RESAPAC in the context of complementary staffing principles at a pan-African level.

Support staff include technical staff and occasional field labor as well as a full time secretary, accountant and driver. Provision is made for one year for a locally recruited research fellow in pathology.

4.2.2 Operations

The budget helps national programs to second employees full-time to the project

This item covers the full costs of CIAT operations in the Region. Extra costs incurred by national programs due to the presence of CIAT staff, such as offices, infrastructure and employees seconded full time to the project, are covered by a contribution to national

programs in the research station support line item. The travel component includes all travel by Great Lakes based CIAT staff within Africa as well as at least one trip annually to Cali, and the cost of travel of other CIAT staff to the Great Lakes region.

4.2.3 Project Management

Calculated at 15%, is a standard charge by CIAT for expenses in managing project personnel, budgets, research and training programs.

4.2.4 Equipment

This item covers the cost of small equipment and vehicle replacement.