Doing Research Together:

CIAT's Medium-Term Plan 2000-2002

Submitted to the Consultative Group on International Agricultural Research (CGIAR)

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Contents

Preface

Doing Research Together: CIAT's Medium-Term Plan 2000-2002 is the latest update on the continued implementation of the plan described in *CIAT in the 1990s and Beyond: A Strategic Plan.*

The content of this plan contains only marginal adjustments from last year's update *Doing Research Together: An Update of CIAT's Medium-Term Plan 1999-2001.*

The structure of this document strictly follows CGIAR guidelines, except that CIAT has added a set of logical planning frames for its project portfolio.

Currently, CIAT is embarking on a strategic planning process that is expected to lead to the development of a Strategic Plan for CIAT for 2001-2010. This new Strategic Plan may possibly contain relatively more substantial adjustments in CIAT's research program and strategy.

Summary and Overview

The *CIAT's Medium-Term Plan* (MTP) *2000-2002* updates *Doing Research Together: CIAT's Medium-Term Plan 1998-2000*, which sets out the course that CIAT has pursued since 1997. For a full background to the strategy behind the *MTP 2000-2002*, the reader is referred to the *MTP 1998-2000*.

After an intensely turbulent 1995-1996, CIAT could implement and operate its keystone *MTP 1998-2000* in most of its aspects since the 1997 program and budget. Over the next couple of years, and in the absence of any unpredictable systemic shocks, CIAT expects to continue steadily implementing the MTP.

Modifications in implementing the MTP research program have been and will continue to be almost exclusively a result of exogenous changes in the availability of targeted funding. There has been no major strategic reassignment of unrestricted resources during the MTP period.

Nevertheless, over the last couple of years, individual donor decisions about targeted funding have had a gradual effect on the size and scope of some CIAT projects. Community management of watershed resources, land use dynamics, and the Systemwide Program on Participatory Research and Gender Analysis (PRGA) have garnered increased targeted funding above the 1997 base. In contrast, the ending of some large research contracts since 1997 has led to a decline in targeted resources for integrated pest management and smallholder system projects.

Variability in flows of targeted funding may represent mainly transitory phenomena. Thus, there have been no major reallocations of unrestricted resources that would either amplify or counteract exogenous donor decisions about targeted funding.

1998 Financial Highlights

- Real CIAT research investment stabilized in 1998-1999 for the first time in a decade.
- Balanced budget achieved in 1998 and foreseen for MTP period.
- Non-research costs declining over 1997-1999.
- Reserve levels stabilized and 50% above 1996 level.
- Capital investment accelerated.
- Personnel costs constituted a falling share of total.

Financial Risks

- Unrestricted income continued to decline.
- Unrestricted income fell to less than half of total.

- Continued exposure to unpredictable adverse movements in inflation and currency values.

- Decline in real research investment projected for 2000-2002.

1998 Research Highlights

- Interspecific crosses between wild rices and commercial varieties resulted in transgenic segregation for yield, with the best lines yielding about 25% over the best parent.

- Transgenic rice lines with resistance to rice "hoja blanca" virus were crossed with commercial varieties with traditional resistance to the virus. Thus, lines with multiple sources of resistance became available.

- In the Colombian Eastern Plains ("Llanos Orientales"), 58% of degraded pastures are now replaced by improved grass species, thus providing profitable farm enterprises in forest margins.

- Wide adoption of new bean germplasm is taking place in much of Africa: a newly released bean line in Tanzania requires 10% less firewood for cooking.

- Development of strategic continental databases for geographic analysis of administrative regions, climates, populations, land use, and watershed data.

- "Poverty mapping" developed at multiple scales for Honduras and Peru, to help target areas and beneficiary populations.

- Identification of major biophysical soil constraints for priority ecoregions (hillsides, savannas, and forest margins).

- Development of a portfolio of decision support tools, tested with users in watershed-based workshops in the Central American hillsides.

1998 Major Financial Outcomes

CIAT concluded 1998 with a balance between income and expenditures. CIAT's research investment grew, as total expenditures in 1998 were $34.8 million, compared with $33.3 million in 1997. Even so, the deficit of almost $1.9 million projected in the 1999-2000 MTP did not come about because:

- A strict program of expenditure controls was implemented early in 1998.

- Some unrestricted contributions were received from the European Commission, Japan, Norway, and the UK.

- Local costs in Colombia declined slightly with a real devaluation of the peso for the first time after several years of increasing local costs.

CIAT's research program was implemented largely according to plan, with an overall achievement of project milestones. Major developments in 1998 included the scaling up to full implementation of the Systemwide Program on PRGA. Planned filling of vacant positions

led to increased (over 1997) operations to reach the 1998 targets for Rural Agroenterprises and Participatory Research Projects. Likewise, implementation rose sharply in the Community Watershed Resources Project, compensating for underimplementation in 1997. All these developments were foreseen in last year's MTP, as was also a fall in expenditures for the Integrated Pest Management Project as a major research contract ended.

However, a projected increase in targeted funding for Tropical Forages and Grasses was not attained in 1998. Investment in Strengthening Public and Private Linkages declined in 1998, bringing CIAT closer in line to TAC targets for investment in strengthening NARS. Unplanned staff vacancies in Cassava Genetic Enhancement led to reduced investment in 1998. On the upside, investment in the Bean Improvement in Africa Project was greater than had been foreseen.

1999 Developments

Increased research investments are now projected for 1999, compared with those foreseen in the previous MTP. This is principally because of greater-than-anticipated support for the Systemwide Programs and, secondly, because of increased donor commitment to targeted research.

The Systemwide Programs on soils, participatory research, and the tropical American ecoregion have all attracted higher investment than targeted for 1999. Likewise, significantly greater targeted funding has been directed to the Land Use Dynamics and the Community Watershed Projects.

In contrast, uncertainties persist about the continuity of important targeted funding for the Sustainable Systems Project in 1999, and secure funding for the Cassava Biotechnology Network in the Agrobiodiversity Project has been difficult to obtain.

Highlights of the 2000 Project Portfolio

In the absence of unforeseen external shocks, no significant changes in CIAT's research program are anticipated for 2000. Minor variations in targeted income could occur, so CIAT has taken a conservative approach to estimating future availabilities of targeted income.

Highlights of the 2002 Project Portfolio

Major changes in CIAT's research program cannot be currently specified for 2002. However, by that date, CIAT is expected to have gone through an External Program and Management Review and to have prepared, in close consultation with its partners, a new Strategic Plan. Similarly, the implications of the recent Review of the CGIAR System will have unfolded by then, and the results of TAC analysis of the future will also have become available. Likewise, continued change will have occurred in science, agriculture, the environment, and the global research context. These factors suggest that CIAT's research portfolio will have been revised by 2002.

Project Milestones

During 1998, all CIAT projects developed logical frameworks for the planning and monitoring of their research. At the same time, increased emphasis was placed on the design of useful indicators of impact. Through these processes, milestones are being identified with greater

precision. However, major and substantive revisions of project strategies and outputs have not been generalized. By and large, the essence of the milestones presented in the previous two MTPs remains valid, even though several have been more sharply specified and measured.

Collaboration Highlights

CIAT's collaboration strategy continues to largely follow the lines described in the two previous MTPs. Nonetheless, some shifts within these broad outlines are emerging:

- Systemwide Programs have become a major avenue of collaboration for CIAT. In 1999, over 10% of CIAT's research will be implemented through this new collaborative mode that essentially began only four years ago.

- The private sector is playing an ever-increasing role in research related to genetic improvement. CIAT is thus exploring a growing number of approaches to collaboration with the private sector.

- Many new and diverse NGO and civil society partnerships are growing in importance. This is particularly the case for the Tropical America Ecoregional Program, the Agroenterprises Project, and the Systemwide PRGA Program.

Project Cost Components

Indirect costs were reduced even further than anticipated. The 1998 indirect cost expenditures were $11.1 million or 31.8% of total costs, compared with the year's target of 32.6%, and 1997 expenditures of $13.2 million or 39.7%. Further reductions in non-research expenses are planned, so that indirect costs for 1999 are projected at $9.8 million or 26.8%. These declines are due largely to the winding down of staff separation costs, which are not accounted as a direct operational cost of research projects.

Staffing Highlights

In 1998, total staff numbers declined, as projected in the previous MTP. While the number of internationally recruited staff has held constant, and is expected to do so over the life of this MTP, the number of support staff fell, as planned, by 30 in 1998. A further reduction of about 3% in support staff is projected by 2000.

Personnel expenditures are expected to be held at about $18 million over the planned period, constituting about 51% of total expenditure. This is down substantially from former levels of over $22 million annually, and as high as 64% of total expenditure.

Financial Indicators

Income

In 1998, total available funding to CIAT was $34.8 million, slightly higher than the expected $34.2 million. Japan, Norway, and the United Kingdom increased unrestricted contributions in 1998. In 1999, total available income is expected to be about $36.6 million. This is a rise of about 5%, and should permit CIAT to maintain essentially the same real

level of research investment as in 1998. This would be the first time since 1989 that real investment has conserved its value for two consecutive years.

Nevertheless, unrestricted contributions are expected to fall by $1.0 million in 1999, when, for the first time, unrestricted funding will constitute less that half of CIAT's income. CIAT continues to become ever more reliant on restricted funding, which is projected to rise about $1.8 million in 1999, with notable increases from a variety of members, including IDRC, New Zealand, and USAID. Unrestricted income will drop principally because of the cessation of unrestricted funding by the Inter-American Development Bank and the Ford Foundation, which are, however, expected to make some future targeted investment.

Over the period 2000-2002, the absolute levels of total income are expected to be slightly lower than that of 1999, with a consequent resumed deterioration in the real value of CIAT's research investment in the planned period. These projections, moreover, do not incorporate the risk of a continued decline in unrestricted funding. Although CIAT is actively seeking to diversify its funding base, including non-CGIAR sources, the viability of its current research portfolio depends critically on the sustained commitment of CGIAR members to the agreed agenda.

Expenditures

CIAT proposes an expenditure plan for 1999-2002 that will balance with projected income, without resort to "unidentified" donors. Nonetheless, due to inflation, this implies that the real value of expenditures, and hence the size of CIAT's research program, will decline over the period.

Reserves

After a serious decline in 1995-1996, reserves have now been restored somewhat and, at $4.2 million, are about 50% above the 1996 trough. When one year ago, further erosion in reserves was projected, CIAT now expects to maintain the current level of reserves through stringent expenditure controls and improved resource mobilization. Current reserves are sufficient to cover 45 days of operation.

Capital

Capital investment is being intensified to keep CIAT's scientific and informatics infrastructure fully modern. Capital acquisition will be at about $3.0 million each in 1997 and 1998, representing an investment $1.0 million greater than had been previously projected. Likewise, acquisition will be higher from year 2000 onward than previously planned. As a result, the value of CIAT's fixed assets is now projected at $19.4 million for 2000, in contrast to last year's estimate of $18.0 million.

Project Descriptions
2000-2002

Project SB-1: Genetic Resources - Integrated Conservation of Neotropical Plant Genetic Resources

Objective: FAO Designated Collections complying with international standards and made available to users.

Outputs:
1. Mandated crops conserved and multiplied as per international standards.
2. Germplasm available, restored, and duplicated for safety.
3. Designated Collections made socially relevant.
4. Strengthened capacity of NARS to conserve and use of neotropical plant genetic resources.
5. Conservation of Designated Collections linked with on-farm conservation efforts and protected areas.

Gains: Small farmers of Latin America, sub-Saharan Africa, and Southeast Asia will use dozens of germplasm accessions conserved by the gene bank, whether as such or after improvement. Sources of disease and pest resistance will be identified for current and future efforts in germplasm enhancement and plant breeding.

Milestones:
2000 Procedures developed for conservation of wild species and landraces, based on studies of seed biology and physiology. Safe duplication and restoration continued.
2001 Protocols for cryoconservation of seeds and tissue germplasm established. Germplasm collections regenerated. Safe duplication and restoration continued.
2002 Links with conservation efforts in protected areas and on farms established. Germplasm collections regenerated. Safe duplication and restoration continued.

Users: Plant breeding and agronomy programs throughout the tropics and subtropics. Extension services. Farmer associations. Universities and biodiversity institutes in research and training.

Collaborators: *Research:* CATIE, CIMMYT, CIP, CORPOICA, EMBRAPA, INIAA, INIFAP, IPGRI, USDA, and Colombian NGOs, universities, and institutes. *Distribution, safe duplication, and restoration:* CORPOICA, EMBRAPA, INIAA, INIAP, and INIFAP.

CGIAR system linkages: Saving Biodiversity (80%); Enhancement and Breeding (15%); Training (5%). Participates in Systemwide Genetic Resources Program and SINGER.

CIAT project linkages: Works in methods with SB-2 and PE-4. Provides conserved germplasm to breeding in IP-1, IP-2, IP-3, IP-4, and IP-5.

Project SB-2: Agrobiodiversity - Assessing and Using Agrobiodiversity through Biotechnology

Objectives: To apply modern biotechnology to identify and use genetic diversity for broadening the genetic base and increasing the productivity of mandated and non-mandated crops.

Outputs:
1. Genomes of wild and cultivated species and associated organisms characterized.
2. Genes and gene combinations made available for broadening crop genetic bases.
3. Collaboration with public and private sector partners enhanced.

Gains: Plant breeders and genetic conservation specialists will perform better through the use of information and tools from biotechnology for the characterization and use of genetic resources at the molecular level. By year 2002, CIAT germplasm generated through biotechnology will be available for broadening the genetic base of CIAT mandated crops and other crops of interest. Throughout 1998-2002, diversity conservation and germplasm improvement efforts with CIAT partners will be strengthened through cooperation in capacity building for the application of modern biotechnology. Participation of private sector partners will be enhanced.

Milestones:

2000	DNA-based methods and techniques available for the analysis of agrobiodiversity. Key genes and gene combinations identified in wild germplasm for improving yield and quality. Collaborative activities with CIAT partners implemented.
2001	Gene-transfer methodologies developed for broadening crop genetic base and germplasm enhancement. Collaborative activities with CIAT partners implemented.
2002	CIAT germplasm and selected non-mandated crops, characterized and/or modified through biotechnological methods being tested in farmers' fields in the LAC region. Collaboration with CIAT partners enhanced.

Users: Primarily CIAT and NARS scientists involved in agrobiodiversity use and conservation in Latin America, but also other scientists involved in germplasm enhancement and conservation around the world.

Collaborators: IARCs (IPGRI: systemwide program on genetic resources; CIP and IITA: root-tuber crops initiative; IRRI: rice blast). NARS (CORPOICA, EMBRAPA). Specialized research institutions (universities in USA, Europe, Cuba, Brazil, Argentina). Universities in developing countries (UNIVALLE; Nacional-Bogotá, Colombia; Nacional, Costa Rica; Agraria, Peru). Biodiversity institutions (A. von Humboldt, INBIO, Smithsonian). Corporations and private organizations.

CGIAR system linkages: Saving Biodiversity (40%); Enhancement and Breeding (55%); Training (5%).

CIAT project linkages: *Inputs to SB-2:* Germplasm accessions from gene bank project. Phenotype segregant populations from crop productivity projects. Characterized insect and pathogen strains and populations from crop protection projects. GIS services from land use project. *Outputs from SB-2:* Genetic and molecular information on gene pools, and populations, for gene bank, productivity, and crop productivity projects. Information and material on identified genes and gene combinations for productivity and crop protection projects. Methods and techniques of cloning and conservation for gene bank and productivity projects. Interspecific hybrids and transgenic stocks for crop productivity projects.

Project IP-1: Beans - Bean Improvement for Sustainable Productivity, Input Use Efficiency, and Poverty Alleviation

Objective: To increase bean productivity through improved cultivars and management practices in partnership with NARS and regional networks.

Outputs:
1. High-yielding beans with less dependency on inputs (pesticides, fertilizers, and water).
2. Essential information on pathogen variability to develop and deploy stable resistance.
3. Essential information on nutritional value of beans.

Gains: Improved varieties grown on 20% of the area in Latin America by year 2000. Productivity stabilized and bean availability secured for poor rural and urban consumers in targeted areas. Pesticide use cut by 20% in targeted areas, thus reducing hazards to environment and health. Public and private researchers have access to beans with multiple resistance. Research capacity strengthened through regional networks.

Milestones:

2000 Lines combining resistance to BGMV, common bacterial blight, and bean common mosaic virus (BCMV) are distributed in Central America. IPM components and systems for whiteflies, pod borers, and leafminers developed and tested. Phosphorus-efficient and aluminum-tolerant genotypes developed.

2001 Parental materials with improved drought tolerance distributed. Strategy developed for stable angular leaf spot resistance.

2002 Commercial lines combining resistance to BCMV, bean common mosaic necrosis (BCMNV), bean severe mosaic, and bean sterility virus will be available. Nutritional quality traits incorporated into cultivars.

Users: Small farmers in tropical America and Africa will obtain higher and more stable yields. Poor consumers, especially women and children, will benefit from low-cost protein and micronutrients. The environment and the community at large will benefit from reduced pesticide and fertilizer use. Food legume researchers will have access to an enhanced knowledge base and germplasm.

Collaborators: *Regional networks and institutions*: PROFRIJOL and PROFRIZA (Central and Andean America); PABRA (Africa). *International institutions* like CATIE and EAP-Zamorano (Central America). Universities and other institutions in Australia, Belgium, Canada, France, Spain, Switzerland, and USA. *Resistance breeding and gene tagging*: Bean/Cowpea CRSP.

CGIAR system linkages: Enhancement and Breeding (75%); Crop Production Systems (10%); Protecting the Environment (5%); Networks (5%); Training (5%).

CIAT project linkages: Germplasm conservation (SB-1), germplasm characterization (SB-2). IP-1 contributes to improved beans for Africa (IP-2), IPM (PE-1), fertilizer efficiency (PE-2), sustainable hillside systems (PE-5), and participatory research (SN-3). Its impact is assessed in BP-1.

Project IP-2: Beans in Africa - Meeting Demand for Beans in Sub-Saharan Africa in Sustainable Ways

Objectives: To improve bean productivity in sub-Saharan Africa by deploying gene pools that help solve major production constraints and by supporting networks of NARS for applied research.

Outputs:
1. Enhanced productivity of farms on which beans are an important component.
2. Intermediate goods include improved classification of bean environments.
3. Gene pools with multiple stress resistance.
4. Ecologically sound crop, soil, and pest management practices.
5. Closer farmer participation.
6. Nonformal methods of seed production and distribution.

Gains: Varieties resistant to multiple stresses will occupy about 200,000 hectares (5% of the bean production area) in network countries. Farmers growing the new varieties will see a 10% increase in their income from marketing of beans. Five percent of farmers in the region will have adopted improved crop management practices. Regional networks will be fully devolved to local management, with CIAT participating as a research partner.

Milestones:

2000 Farmers starting to adopt new agronomic practices, including erosion control measures and use of green manures.

2001 Poor people, including women, in at least four major bean-producing countries accessing new varieties rapidly through sustainable low-cost seed systems.

2002 At least three national research systems in important producer countries generate and distribute elite lines, derived from their own crossing programs for improved yield and multiple constraints resistance, to sustain cultivar development in PABRA networks.

Users: Small-scale farmers (mainly women) in both marginal and favorable production areas of central, eastern, and southern Africa. Small-scale seed producers in countries that lack an effective formal seed sector for beans. Consumers in African urban areas dependent on beans as an inexpensive source of protein. Multi-institutional national programs in these regions as users of germplasm and improved research methods.

Collaborators: *Reviewing priorities:* Steering committees of regional networks and of the Pan-Africa Bean Research Alliance (PABRA). *Development of improved germplasm:* NARS, and farmers for FPR. *Improvement in soil, pest, and disease management:* ICRAF, CIMMYT, IITA, CIP, TSBF, and national partners in the African Highlands Initiative (AHI). *Training in breeding and IPM:* Bean/Cowpea and IPM CRSPs, and ICIPE. *Diffusion of new technology:* NGOs, churches, relief and government agencies, entrepreneurs, universities in the Netherlands, Switzerland, UK, and USA, and ODI (UK).

CGIAR system linkages: Enhancement and Breeding (52%), Crop Production Systems (26%), Protecting the Environment (6%), Training (8%), Networks (8%). Participates in the African Highlands Initiative.

CIAT project linkages: Provision of germplasm and training for resistances to multiple constraints (IP-1). Genetic markers and characterization of African germplasm (SB-2), and gene bank materials and databases (SB-1). Collaboration in methods development and case studies (PE-1, PE-5, SN-3, BP-1). Exchange of information on regional networks (SN-2).

Project IP-3: Cassava - Genetic Enhancement of Cassava

Objective: To generate basic understanding, tools, and improved cassava germplasm for sustainable genetic improvement of cassava production and the diversification of end uses.

Outputs:
1. Genetic base of cassava and other *Manihot* species evaluated and available for genetic improvement.
2. Genetic stocks and improved gene pools developed and transferred to national programs.
3. National programs in tropical and subtropical Latin America and Asia supported in adaptive selection and deployment of improved cassava varieties.

Gains: Cassava genotypes with resistance to major constraints and improved productivity selected out of CIAT parental populations with an average superiority of 20% in root yield and 5% in higher starch. These genotypes would represent more than US$100 million in additional income for small farmers in the tropics.

Milestones:

2000 Prototype molecular-marker-assisted selection applied; mechanisms and sources of genetic resistance to postharvest deterioration of roots identified and incorporated into populations; genetic information on plant types and starch quality available; enhanced parental populations and genetic stocks available; NARS scientists trained; 3 new varieties selected out of CIAT populations and deployed by partners in Asia and Latin America; sources of genetic resistance to root-rot pathogens identified.

2001 New genetic variants for cassava starch made available to NARS. Novel plant types incorporated into intensive, mechanizable production systems. Farmer participatory selection incorporated in early stages of cassava breeding programs in Latin America. Genes responsible for resistance to whitefly and African cassava mosaic virus (ACMV) tagged and mapped. Populations with resistance genes for different root-rot pathogens made available to NARS.

2002 Markers for ACMV used to combine resistance with key agronomic traits from LA sources; testing in Africa. Evaluation of new genetic variants for value-added starch traits. Advanced testing of mechanizable cultivars for industry. Preliminary testing of plants transformed for herbicide and insect resistance. Molecular markers identified for resistance to Phytophthora root rot, and heterologous gene probes applied to selection. Biochemical bases of resistance to whitefly understood and selection criteria incorporated in breeding; resistant cultivars released. Identification of cultivars resistant to stemborer.

Users: The project will enable cassava breeders to meet the requirements of crop improvement more efficiently. This work will benefit cassava producers, processors, and consumers through the development of improved cassava gene pools with higher frequency of desirable genes.

Collaborators: IITA; ORSTOM; CIRAD; DANIDA; CORPOICA; EMBRAPA; FCRI (Thailand); NARS in Latin America and Asia. Specialized research institutions through the Cassava Biotechnology Network (CBN).

CGIAR system linkages: Saving Biodiversity (25%); Enhancement and Breeding (50%); Crop Production Systems (10%); Protecting the Environment (5%); Strengthening NARS (10%).

CIAT project linkages: Collaborates in methods and germplasm conservation with SB-1 and SB-2. Works with postharvest processing (SN-1), participatory research (SN-3), and IPM (PE-1).

Project IP-4: Rice - Improved Rice Germplasm for Latin America and the Caribbean

Objectives: To increase rice genetic diversity and enhance gene pools for higher, more stable yields with lower unit production costs that propitiate lower prices to consumers and reduce environmental hazards.

Outputs:
1. Enhanced gene pools.
2. Physiological basis for rice traits understood.
3. Host-pest interaction in rice characterized.
4. Project priorities and research capacities enhanced.

Gains: Broader genetic base available and germplasm better characterized. New sources of resistance to diseases, viruses, and insects incorporated and available. Higher yielding advanced rice lines. Variability and stability of progenitors and of advanced materials available to increase breeding efforts. Rational pesticide use with fewer environmental hazards. Lower unit costs conducive to higher profits and lower rice prices to consumers.

Milestones:

2000 Enhanced gene pools developed from wild crosses, recurrent selection, and new plant types and made available for testing and use. Transgressive QTLs used as basis for selecting new lines.

2001 Near-isogenic lines with QTLs associated with yield developed for use in LAC breeding programs. Molecular markers associated with blast resistance genes identified and used in markers-assisted selection. Sources of blast resistance distributed to national breeding programs. Improved rice populations with broader genetic base developed by recurrent selection and distributed to national programs in LAC. Upland rice cultivars released for highlands and other ecosystems (Pucallpa). Molecular markers linked to genes conferring tolerance of flooding identified and used for breeding rice populations. Epidemiological studies for the control of RHBV and its vector, *Tagosodes orizicolus* completed. Potential use of transgenic plants with resistance to RHBV evaluated in the field. Rice germplasm with improved grain quality and milling developed together with FLAR. National scientists from LAC trained in new technologies used at CIAT.

2002 Improvement of yield potential in LAC rice cultivars using wild rice genes and recurrent selection populations. Introgression of new plan type (IRRI) into LAC's gene pools. Evaluation and selection of improved rice populations with broader genetic base by national programs in LAC. Characterization of rice blast pathogen populations in LAC. Identification of relevant blast resistance genes for LAC blast populations. Identification of partial resistance to blast for use in breeding programs for durable resistance. Promotion of IPM strategies for controlling RHBV and its vector *Tagosodes orizicolus*. RHBV-viral genes from transgenic plants introgressed into commercial rice cultivars. Rice germplasm with improved grain quality and milling developed together with FLAR. Selection of rice lines with tolerance of flooding for an improved weed control strategy.

Users: Breeders throughout Latin America and available elsewhere. Ultimate beneficiaries are poor urban consumers and rice farmers.

Collaborators: FLAR (Fund for Latin American and Caribbean Irrigated Rice), IRRI, WARDA. NARS (e.g., EMBRAPA, CORPOICA, FONAIAP, IDIAP, INIAP, INIA, IIA), U.S. universities (Cornell, Purdue, LSU, Arkansas, Texas A&M, California, Florida State), CIRAD-CA, JIRCAS. Seed companies from private sector.

CGIAR system linkages: Enhancement and Breeding (60%); Crop Production Systems (5%); Protecting the Environment (5%); Saving Biodiversity (20%); Strengthening NARS (5%); Improving Policies (5%). Linked to IRRI global rice research.

CIAT project linkages: New methods from SB-1 and SB-2. Provide improved germplasm to PE-1, PE-2, and PE-3.

Project IP-5: Tropical Grasses and Legumes - Optimizing Genetic Diversity for Multipurpose Use

Objective: To identify superior gene pools of tropical grasses and legumes based on characterization of genetic diversity in plan attributes that contribute to livestock and agricultural production and to protection of the environment in subhumid and humid areas.

Outputs:

1. Grass and legume genotypes with known quality attributes are developed.
2. Grass and legume genotypes with known reaction to pest and disease and to interactions with symbiont organisms are developed.
3. Grass and legume genotypes with superior adaptation to edaphic and climatic constraints are developed.
4. Superior and diverse grasses and legumes delivered to NARS partners are evaluated and released to farmers.

Gains: Defined genetic diversity in selected grass and legume species for key quality attributes, disease and pest resistance, and environmental adaptation. Known utility in production systems of elite grass and legume germplasm. New grasses and legumes will contribute to increased milk for children and cash flow for small dairy farmers, while conserving and enhancing the natural resource base.

Milestones:

2000 Gene pools of *Brachiaria* identified with resistance to drought and poorly drained soils. Multipurpose legumes (*Cratylia, Leucaena,* and *Calliandra*) with adaptation to drought and cool temperatures are available to NARS for release.

2001 Molecular map of *Brachiaria* developed for marker-assisted selection. Defined interaction of endophytes in *Brachiaria* with pest and disease resistance.

2002 *Brachiaria* genetic recombinants with resistance to spittlebug are available to NARS for release.

Users: Government, nongovernment, and producer organizations throughout the subhumid and humid tropics that need additional grass and legume genetic resources with enhanced potential to intensify and sustain productivity of agricultural and livestock systems.

Collaborators: Nation, government, and nongovernment agricultural research and/or development organizations. Specialized research organizations (Höhenheim Univ., Cornell Univ., IGER, OFI, and CSIRO).

CGIAR system linkages: Enhancement and Breeding (30%); Livestock Production Systems (15%); Protecting the Environment (5%); Saving Biodiversity (40%); Strengthening NARS (10%). Participates in the Systemwide Livestock Initiative (based at ILRI).

CIAT project linkages: Genetic resources conserved by SB-1 will be used to develop superior gene pools, using when necessary molecular techniques (SB-2). Selected grasses and legumes evaluated in production systems (PE-2, PE-5) in collaboration with national partners (SN-2) will be targeted to specific niches using GIS tools (PE-4).

Project PE-1: IPM - Integrated Pest and Disease Management in Major Tropical Agroecosystems

Objectives: To develop and transfer knowledge systems and pest and disease management components for sustainable productivity and a healthier environment.

Outputs:
1. Pest and disease complexes described and analyzed.
2. Pest and disease management components and IPM strategies and tactics developed.
3. NARS capacity to design and execute IPM research and implementation strengthened.
4. Global IPM networks and knowledge systems developed.

Gains: Increased crop yields and reduced environmental damage. Natural enemies of major pests and diseases evaluated. IPM developed, and tested and verified on-farm. Increased knowledge of biology and ecology behavior of pests and diseases and the damage they cause. Molecular characterization of major pathogens and diagnostic kits available. Whitefly biodiversity characterized. FPR methods for IPM developed and implemented. Biological control agents established in new regions.

Milestones:

2000 Biological control implemented for selected arthropod pests and root rot pathogens. Cassava geminivirus and additional whitefly parasites characterized. IPM strategies and tactics initiated for selected crops. Diagnostic surveys for whitefly, cassava root rots completed and initiated in NR agroecosystems. Diffusion of diagnostic techniques through training. Marker-aided selection for Phytophthora used to screen germplasm. Molecular markers tagging resistance to CBB identified.

2001 Whitefly parasites evaluated and selected species released in cassava fields. IPM strategies and tactics developed for specified crops. Diagnostic surveys in NR ecosystems continued and recommendations made. Biological and thermotherapy control implemented for cassava virus and root-rot diseases. Marker-aided selection expanded to CBB and other problems. IPM control of fruit and other crops initiated. Use of heterologous genes applied to the identification of resistant germplasm to Phytophthora root rot.

2002 A global network and website for information on tropical agroecosystems developed. Evaluation and dissemination of biological control agents of major pests of targeted crops. IPM projects developed for NR agroecosystems. Components of integrated pest management package for global whitefly project ready for diffusion. First crop viruses identified and diagnostic tools developed. Whitefly resistance mechanisms in cassava identified. IPM for cassava viruses and root-rot diseases implemented. Resistant cassava germplasm to CBB identified by the use of molecular markers.

Users: Biodiversity of agroecosystems determined and available to researchers. NARS scientists, extension workers, and farmers trained in IPM methodologies. Crop yields for small producers increased and stable production systems identified.

Collaborators: IARCs (IITA, ICIPE, CIP). Advanced research institutes (e.g., CATIE, NRI, universities of Florida, Wisconsin, and São Paulo, John Innes Center, ETH/ORSTOM/CIRAD, Boyce Thompson Institute), NARS (e.g., EMBRAPA, CORPOICA, INIAP, INIVIT, NARO), NGOs, private industries (CENIPALMA, Compañía Agrícola de Espárragos).

CGIAR system linkages: Increasing Productivity (30%); Saving Biodiversity (20%); Protecting the Environment (40%); Strengthening NARS (10%). Manages Whitefly and Participatory Methods Projects in Systemwide IPM Program.

CIAT project linkages: Collaborates with breeding projects (IP-1, IP-2, IP-3, IP-4, and IP-5) in host-plant resistance. Provides biocontrol agents to project PE-5. Uses inputs from PE-4, SB-2, and SN-3.

Project PE-2: Soils - Overcoming Soil Degradation through Productivity Enhancement and Resource Conservation

Objectives: To develop and disseminate strategic principles for protecting and improving soil quality through the efficient and sustainable use of soil, water, and nutrient resources in crop/livestock systems.

Outputs:
1. Soil, water, and nutrient management constraints assessed and plant components characterized for improved production and resource conservation.
2. Strategies developed to protect and improve soil quality.
3. Improved decision making for combating soil degradation and increased agricultural production.
4. Institutional capacity enhanced for strategic research on soil, water, and nutrient management through the dissemination of concepts, methods, tools, and training.

Gains: Guidelines for selecting productive and resource-use-efficient crop and forage components. Guidelines for managing nutrients, crop residues, and green manures, and for controlling erosion and improving soil structure. Soil-quality indicators to assist farmers and extension workers in assessing soil health. A decision-support system for resource conservation and productivity enhancement. Strengthened capacity of NARS for strategic research on soil, water, and nutrient management.

Milestones:

2000 Indicators of soil fertility, biological health, and physical quality identified for hillside and savanna agroecosystems; demonstrated benefits of crop rotations and pasture systems on soil quality and productivity; guidelines for maintaining soil structure produced.

2001 List of soil quality indicators available to NARS to monitor land degradation. Decision-making tools available for managing soil erosion, nutrient degradation, and maintenance of an arable layer. Erosion and nutrient degradation risk assessment maps available. Correlations established between local soil quality indicators and scientific measurements.

2002 A soil quality monitoring system developed and tested by partners. Farmers adopting improved system components including crops and soil management technologies.

Users: Principally crop and livestock producers and extension workers (advisors) in acid-soil agroecosystems of LAC. Relevant also to farmers on similar soils in tropical Africa and Asia.

Collaborators: CORPOICA; EMBRAPA; IFDC; ICRAF; ORSTOM, CIRAD; ETH (Switzerland); CIPASLA (Colombia); and universities: Uberlândia (Brazil), Nacional (Colombia), Paris (France), Bayreuth (Germany), Complutense de Madrid (Spain), Cornell (USA), and Ohio State (USA).

CGIAR system linkages: Enhancement and Breeding (15%); Crop Production Systems (20%); Protecting the Environment (40%); Saving Biodiversity (5%); Strengthening NARS (20%). Co-convener with IBSRAM of Systemwide Program on Soil, Water, and Nutrient Management (SWNM), and contributes to the Ecoregional Program for Tropical Latin America.

CIAT project linkages: Diversity in systems of rhizobia and mycorrhizae populations (SB-1), acid-soil adapted components received and adaptive attributes identified for compatibility in systems (IP-1 to IP-5), strategies to mitigate soil degradation (PE-5), strengthening NARS via participation (SN-2).

Project PE-3: Hillsides - Community Management of Watershed Resources in Hillside Agroecosystems of Latin America

Objectives: To improve the standard of living and food security of hillside farmers in tropical America, and make their interaction with the environment more sustainable.

Outputs:
1. Improved production systems.
2. More sustainable landscapes.
3. Strengthened organizations.
4. Decision makers supported.
5. Efficient, participatory project management.

Gains: Farmers and locally organized producers use technologies, tools, and methodologies developed by CIAT and its partners at the level of reference sites. The results are sustainable and profitable production systems, improved land use, and natural resource preservation at the landscape level.

Partner organizations use technologies, tools, and methodologies developed by/with the project for their planning and activities at the local, national, and regional levels. Decision makers at different levels have more information, tools, and methodologies provided by the project to support their planning, monitoring, and decisions.

Milestones:

2000 Sustainable and profitable production systems, improved land use, and natural resource preservation at the farm level within reference sites.

2001 As for year 2000, but reaching the landscape level within reference sites. Partner organizations use the outputs of the project for their activities at the local, national, and regional levels.

2002 As for year 2001, but beyond the reference sites. Decision makers at local, national, and regional levels use the results of the project for their activities.

Users: Farming families and rural communities of the Andean and Central American hillsides. Project sites profit from increased community action aimed at sustaining the productivity of the resource base. As a result, off-site stakeholders benefit. National and international development organizations involved in priority setting and investments in development.

Collaborators: SDC, IDRC, DGIS, CIMMYT, CIP, IFPRI, IWMI, IICA, PASOLAC, CARE; universities of Florida, Wageningen, Edinburgh, Guelph, Nacional Agraria (Nicaragua); CURLA (Honduras); DICTA, INTA, CONDESAN, CIPASLA, Campos Verdes, CLOs, CIALs, individual farmers.

CGIAR system linkages: Enhancement and Breeding (10%); Protecting the Environment (60%); Saving Biodiversity (10%); Improving Policies (20%).

CIAT project linkages: Collaboration with the ecoregional program, soils (PE-2), land use (PE-4), smallholder systems (PE-5), agroindustries (SN-1), participatory methods (SN-3), forages (IP-5), and impact assessment (BP-1) projects.

Project PE-4: Land Use - Environmental Sustainability and Land Use Dynamics in Latin America

Objective: To improve policy and decision making for sustainable land and environmental management in Latin America through the scientific analysis of land and environmental patterns, anticipated dynamics, and improved policy indicators.

Outputs:
1. Baseline and time series information on CIAT priority for the analysis of land use and environmental patterns and dynamics compiled and distributed.
2. Limitations and potential of land use in the hillsides, savannas, and forest margins agroecosystems analyzed.
3. Frameworks for analyzing land-use dynamics and for using indicators of sustainability in the CIAT priority agroecosystems developed.
4. Developed and defined policy relevant environmental and sustainable indicators.
5. Scenarios, and options for sustainable land use in Latin America in general and in the CIAT priority agroecosystems analyzed and developed.
6. Stakeholder networks at multiple scales within the CIAT priority agroecosystems for dialog on land-use options and scenarios established.
7. Training of profeasionals in the use of decision support tools and scenario-building methods.

Gains: Detailed georeferenced databases on land use, ecological, and socioeconomic factors. Environmental and sustainability indicators of land use, networking on the environment, land use, sustainable agriculture, and indicators. Verified scenario-assessment tools. A blend of theoretical, methodological, and field-based inquiry for decisions on sustainable agriculture and agroecosystem health.

Milestones:

2000 A published assessment of alternatives for the restoration of degraded lands in at least one study area. A publication on the use of land-use models in assessing land-use scenarios and policy options.

2001 Decision-support tools developed for natural resource management in the Colombian savannas, Central American hillsides, Andean highlands, and Amazonian forest margins.

2002

- Strategic databases on agricultural, environmental, social, and economic issues maintained and updated.
- Environmental and sustainability indicators routinely distributed to decision makers in the region at different levels.
- Remote-sensing information on land-use changes in tropical America routinely collected and available for different purposes.
- Studies and recommendations for land management generated, based on data analysis obtained through remote sensing, surveys, censuses, and other sources.
- Integrated GIS/mathematical models to support land-management decisions by national organizations.
- National and local institutions in tropical America strengthened to use information, analyses, and tools.
- Data, analyses, and tools for natural resource management disseminated throughout tropical America and other tropical areas of the world.

Collaborators: ICRAF, CIP, ILRI, ECLAC, University of Guelph (Canada), IICA (Costa Rica), IILA (Italy), IIASA (Austria), WRI (USA), RIVM (the Netherlands), TCA (Amazonian Cooperation Treaty), the Earth Council (Costa Rica), the World Bank, NARS, GOs, and NGOs in Latin America; DNP, IGAC, MinAmbiente, IDEAM, CARDER (Colombia); Ministry of the Environment, EMBRAPA (Brazil); IVITA, INIA (Peru); INIAP (Ecuador).

CGIAR system linkages: Protecting the Environment (60%); Improving Policies (20%); Enhancement and Breeding (10%); Saving Biodiversity (10%). Contributes to the Ecoregional Program for Tropical Latin America.

CIAT project linkages: GIS studies assist SB-1, SB-2, IP-1, and PE-2; model development with PE-3, PE-5, and BP-1.

Project PE-5: Sustainable Systems for Smallholders - Integrating Improved Germplasm and Resources Management for Enhanced Crop and Livestock Production

Objective: To collaborate with national organizations in developing integrated crop, livestock, and arboreal technologies that are adoptable, productive, and sustainable.

Outputs:
1. Alternative land use options for agricultural systems assessed.
2. Component technologies for sustainable production developed.
3. Models and/or frameworks developed to integrate results, target research, and assess impact.
4. Partnerships facilitated for participants' development of alternative land-use options.
5. Enhanced capacity of NARS to promote adoption of productive and sustainable land-use practices.

Gains: Integration of commodity and natural resource research. New approaches to the development of environmentally sound technologies. Indicators for measuring economic and environmental impact of improved technology at the farm and watershed levels. Methodology to extend results beyond benchmark sites.

Milestones:

2000 New crop and livestock technologies for smallholder systems in Latin America and Southeast Asia, new rice and banana varieties identified for forest margins, forage alternatives for dry season feeding, increased cassava production in mixed cropping systems with demonstrated impact of technologies on increased welfare of poor rural families. Methodology for assessment of socioeconomic and environmental impact at farm level.

2001 Improved fallow systems for the forest margins. Model for multi-institutional and participatory research.

2002 Model for community-based natural resource management in Southeast Asia. New approaches to scaling-up technologies developed through participatory research.

Users: The research will benefit low-income farmers in Latin America, Asia, and Africa by increasing available food and cash flow to rural households while providing a basis for more sustainable production systems. Adoption of environmentally sound farming practices will benefit society as a whole.

Collaborators: ICRAF, ILRI, IRRI; linkages with national R&D organizations and specialized research organizations.

CGIAR system linkages: Protecting the Environment (50%); Crop Production Systems (20%); Livestock Production Systems (15%); Training (10%); Networks (5%).

CIAT project linkages: Conservation of genetic resources; germplasm enhancement in beans, cassava, and tropical forages; natural resource management in areas of land-use dynamics, soil processes, and watershed management; strengthening NARS through developing partnerships, participatory research, and impact assessment.

Project SN-1: Rural Agroenterprises

Objective: To develop in collaboration with our partners, methods, tools, and institutional models for the design and execution of successful rural agroenterprise projects that integrate market opportunities and postharvest technologies with environmentally sound production and processing practices.

Outputs:
1. Tools, methods, and information for the identification and development of market opportunities (as an input for the design of economically viable and sustainable rural agroenterprises).
2. Tools, methods, and information for the development of appropriate postharvest technologies for small-scale rural agroenterprises.
3. Information, options, and recommendations for the design of efficient and effective organizational schemes for small-scale rural agroenterprise and their support services.
4. Institutional models and policy options for the establishment and strengthening of rural agroenterprises and their support systems at the micro-regional level.
5. Enhanced capacity to design and develop successful agroenterprise projects within CIAT and partner institutions.

Gains: Beneficiaries in the Central American and the Andean hillsides and forest margins gain enhanced capacity to establish small-scale agroprocessing enterprises. Linkages improved between conservation, production, added-value processing, markets, and consumers. Sustainable production practices catalyzed and adopted more widely. Through strategic alliances, experiences extended to eastern and southern Africa and Southeast Asia.

Milestones:
2000 Case studies on rural enterprise development completed. Guidelines available for designing support services for rural agroindustry.
2001 Conceptual framework developed and methodological options defined for organizing and integrating production, processing, and marketing functions for the establishment and/or strengthening of rural agroenterprises.
2002 Institutional models and policy options for the organization of rural enterprise support systems at the micro-regional level defined.

Users: The immediate beneficiaries are the technical personnel of organizations in rural agroindustrial R&D and rural policymakers. Ultimate beneficiaries are the inhabitants of rural areas, especially female small farmers, and entrepreneurs, who benefit from training and information on postharvest processing technologies, market analysis, and support services.

Collaborators: *Development of methods and technology components:* CIRAD-SAR, NRI, PRODAR-IICA, IDRC, CIP, IITA. *Execution of pilot projects:* CORPOICA, CIPASLA, Fundación Carvajal and UNIVALLE (Colombia), CLODEST (Honduras), CODESU (Peru), EMBRAPA and CERAT (Brazil). *Training and networking:* PRODAR-IICA, the Earth Council (Costa Rica), members of the Global Collaborative Post-Production Research Network.

CGIAR system linkages: Protecting the Environment (20%); Crop Production Systems (20%); Training (10%); Information (10%); Networks (10%); Organization and Management (30%). Participation in the Global Collaborative Post-Production Research Network and the Working Group on Root and Tuber Post-Harvest Technology and Marketing.

CIAT project linkages: Provides information on market opportunities in targeted ecosystems of PE-3 and PE-5. Information on agronomic adaptation and economic viability of specific crops provided by PE-3 and PE-5. It receives support from SN-2, SN-3, and BP-1 in participatory methods, network development, and impact assessment.

Project SN-2: Linkages with NARS - Enhancing Private and Public Linkages for Agricultural Research and Development

Objective: To help increase the effectiveness of national, regional, and global agricultural research and development systems by building partnerships, sharing information, developing human resources, and promoting collaboration between countries and institutions.

Outputs:
1. Local and regional consortia and networks that integrate the R&D plans of private and public sectors for selected commodities and agroecosystems.
2. Trained national program personnel.
3. Global agricultural R&D networks for sharing information, prioritizing research issues, and promoting horizontal collaboration.
4. Regional agricultural research projects identified and formulated in cooperation with NARS.

Gains: Information exchange, sharing of results, and research prioritization will lead to more effective and efficient use of the human and financial resources dedicated to agricultural R&D. Farmers, processors, and consumers will have better and quicker access to new knowledge, research tools and methodologies, and technology components.

Milestones:
2000-2002
- A training strategy that contributes to the integration of agricultural research agendas and rural development projects within the NARS has been developed and it is being implemented.
- The institutional information and documentation services are being supplied through the new and modern electronic systems, which has been developed in cooperation with the NARS and the other CGIAR research centers.
- The international community—research partners, donors, and NARS—will be informed about the institutional mission, research capacity and capabilities, and the available research outputs, through the implementation of a communication and public awareness strategy.
- An institutional consultation mechanism will allow CIAT to be an active and proactive partner in the formulation and implementation of the most important research and development projects developed in the different ecoregions of Latin America Africa and Asia.

Users: Direct beneficiaries include developing country institutions (both public and private) engaged in research and development related to CIAT's mandated responsibilities. International and regional organizations. Developed country agencies that dedicate resources to basic and applied research and to technical cooperation in developing countries. Donors that finance bilateral and multilateral R&D activities.

Collaborators: Public and private sector institutions involved in agricultural R&D, principally in Latin America but also Asia and Africa, for consortium and network development and training and communication. Specialized research institutes in both developed and developing countries. CIAT's donors. IARCs collaborating with CIAT projects.

CGIAR system linkages: Strengthening NARS (i.e.,Training, Information, Organization and Management, and Networks) (100%).

CIAT project linkages: Coordinate training and conferences carried out by all other research projects, and coordinate joint resource mobilization efforts of CIAT projects and NARS oriented toward strengthening NARS.

Project SN-3: Farmer Participatory Research - Methods for Combating Poverty and Natural Resource Degradation

Objective: To improve agroecosystem management and conservation through development and use of participatory methods, analytical tools, indigenous knowledge, and organizational principles that contribute to increased well-being of rural communities.

Outputs:
1. Widely applicable methods to involve users in development of technology for agricultural production and natural resource management.
2. Organizational models for conducting client-oriented research at the farm, community, and landscape levels.
3. Trained professionals and paraprofessionals able to conduct participatory research.
4. FPR methods and materials disseminated.

Gains: Users involved at early stages in decisions about technology design. Methods available for incorporating users' preferences. Participatory methods applied on a routine basis in CIAT research. At least three universities and 40 trainers in Latin America with capacity to teach participatory research methods. At least 1,000 trainees able to apply these methods in the region. The contribution of participatory research to rates of technology adoption measured in targeted areas. Lessons learned, methodologies and materials disseminated globally in conjunction with the Systemwide Program on Participatory Research and Gender Analysis (SP-PRGA) convened by CIAT and through the Farmer Participatory Research for IPM project of the Systemwide IPM Program (SP-IPM).

Milestones:

2000 CIAL methodology scaled up over a large geographic region in at least one NARS. CIAL methodology pilot tested in Africa and Asia. Systemwide projects have published results on impact assessment of FPR and GA in PPB, NRM, and IPM. Pilot testing of participatory methodologies for rural agroenterprise development in at least one site.

2001 Watershed organizational models are being replicated in at least two countries (beyond the three pilot sites). Participatory plant breeding approach(es) institutionalized in at least three NARS (in Africa, Asia, LAC) on a national scale. At least 15 CGIAR and NARS IPM project leaders trained in participatory methodologies.

2002 Participatory IPM projects established in at least five CGIAR and NARS centers. Pilot organizational model for rural telecenters established in one site. Methods for participatory research on NRM at the landscape scale applied in at least one site.

Users: This work will benefit poor farmers, processors, traders, and consumers in rural areas, especially in fragile environments. Researchers will receive more accurate and timely feedback from users about acceptability of production technologies and conservation practices. Researchers and planners will profit from methods for conducting adaptive research and implementing policies on natural resource conservation at the micro-level.

Collaborators: NARS, NGOs, universities, CGIAR SP-PRGA members, SP-IPM members. CONDESAN, PROCIANDINO, Cornell University (USA), NORAGRIC, University of Guelph (Canada).

CGIAR system linkages: Enhancement and Breeding (25%); Protecting the Environment (25%); Crop and Livestock Production Systems (25%); Organization and Management (15%); Training (10%); Convenor of SP-PRGA, Coordinator of FPR-IPM project of SP-IPM.

CIAT project linkages: Inputs to PE-1, PE-3, PE-4, PE-5, IP-1, IP-2, IP-3, IP-5, SN-1, and BP-1. Outputs from PE-3, PE-4, IP-3, BP-1, and SN-1.

Project BP-1: Impact Assessment

Objective: To generate and disseminate information and tools for improving the capacity of CIAT and partner organizations to allocate research resources efficiently, and documenting the impact of research investments.

Outputs:
1. Expected impact of future research estimated.
2. Impact of selected past CIAT research documented.
3. Tools developed to assess the impact of research, *ex ante* and *ex post*.
4. Institutional capacity improved for estimating, monitoring, and evaluating impact of research.

Gains: Improved allocation of resources can increase the rate of return on investment in agricultural research. Project target is 2%.

Milestones:

2000 Impact monitoring system developed and implemented in one agroecological site.
Adoption and acceptability of bean technology in Bolivia measured.
Performance of participatory methods in Cauca, Colombia, appraised.
Aggregate productivity impact of CIAT germplasm estimated.
Expected benefits of eight potential CIAT projects estimated.

2001 Impact monitoring system developed and implemented for all agroecological sites and CIAT projects.
Expected benefits of eight CIAT projects estimated.
Two field studies on technology adoption and acceptability initiated.
Method for measuring impact of social capital developed and field tested.

2002 Two studies on technology adoption completed.
Impact of investments in social capital on natural resource management estimated.
Two field studies on technology adoption initiated.
Impact of CIAT research on poverty reduction estimated.

Users: The information and models developed in this project will help research planners in NARS and the CGIAR with decisions on resource allocation. Stakeholders will be able to measure expected returns to investment in agricultural and resource management research.

Collaborators: *Field studies on technology adoption and acceptability:* NARS in Latin America, Asia, and Africa. *Methodology development and strengthening of NARS:* IFPRI, IAEG, Universidad Autónoma "Gabriel Rene Moreno", Yale University. *Use of outputs:* IDB, NARS in Latin America, Asia, and Africa.

CGIAR system linkages: Improving Policies (100%). Participates in the CGIAR Impact Assessment and Evaluation Group and contributes to the Ecoregional Program for Tropical Latin America.

CIAT project linkages: Works with all CIAT projects to appraise benefits and monitor impact.

Project SW-1: Ecoregional Program for Tropical Latin America

Objective: To enhance the effectiveness of research in tropical America by (1) improving the capacity to define and understand productivity and natural resource problems in agriculture and their relationships with rural poverty, (2) developing, adapting, and implementing suitable solutions to these problems through joint work with different partners at different levels, and (3) extrapolating results within and among agroecosystems.

Outputs:
1. Enhanced ability to undertake cross country and agroecosystem analysis and to extrapolate results from reference sites.
2. Methodology for prioritizing and undertaking resource management research at the local (i.e., watershed) level.
3. Local consortia using research results to address effectively development problems at the local level.
4. National and regional consortia exchanging information and extracting lessons from their experience.
5. Improved capacities to self-assess impact and performance.

Gains: Effective impact on rural development achieved by local consortia. Enhanced capacity of regional consortia–CONDESAN network for the high Andes, Alternatives to Slash and Burn in the forest margins, Central American Hillsides, and the Savannas Consortium–to address agroecosystem problems. Strategic alliances among advanced, international, and national organizations (governmental, NGOs, grassroots, etc.) to solve specific problems will make more efficient use of complementary capacities and abilities. New models for partnerships will ensure that priority problems are addressed and experience is systematized and exchanged.

Milestones:

2000	Ecoregional consortia at all levels (local, national, regional) working actively. Extrapolation of activities validated at the ecoregional reference sites in progress.
2001	Decision tools developed for analyzing impacts of technology and policy across different scales. National capacity for agroecosystem research and action increased and active in the field in several regions.
2002	Joint ecoregional research and action mainstreamed. Impact assessment refined and mainstreamed.

Users: Researchers in the four consortia will have more complete information in agroecosystem research. Policymakers will have more useful tools for prioritizing research. National programs will have new models of partnership between stakeholders. Conservation and development organizations and projects will have access to experiences, lessons, tools, and methods resulting from research.

Collaborators: National organizations from tropical Latin America; international organizations (CATIE, CIAT, CIFOR, CIMMYT, CIP, CIRAD, ICRAF, ICRISAT, IFDC, IFPRI, ILRI, ORSTOM, PROCITROPICOS), with specialist organizations from Germany, the Netherlands, and USA.

CGIAR system linkages: Protecting the Environment (40%), Saving Biodiversity (10%), Crop and Livestock Production Systems (25%), Training (5%), Organization and Management (10%), Improving Policies (10%). Linkages with Systemwide Programs (Alternatives to Slash and Burn; Soils, Water, and Nutrient Management; Livestock; and Participatory Research and Gender Analysis).

CIAT project linkages: Will receive input from all CIAT Projects at the benchmark sites: forest margins (Pucallpa, Peru), hillsides (Honduras, Nicaragua, and Colombia), savannas (Puerto López, Colombia).

Project SW-2: Soil, Water, and Nutrient Management (SWNM)

Objective: To contribute to long-term increases in agricultural productivity, poverty reduction, and the conservation and enhancement of land and water resources.

Outputs:
1. Economically viable SWNM technologies that are socially acceptable and ecologically sound.
2. Improved methods and diagnostic tools for participatory research.
3. Indicators to monitor the environmental and economic impact of land use systems.
4. Decision support systems, such as models and geographic information systems, for generating and extrapolating options.
5. Stronger institutional capacity to implement SWNM programs and policies.
6. A framework for partnerships between stakeholder groups.
7. Information on appropriate policies to promote sustainable practices.

Gains: Linkages of research on SWNM at key sites within the CGIAR ecoregional programs. Improved research efficiency through collaboration among NARS, IARCs, and AROs through capacity building. Avoidance of duplication of efforts in SWNM and increased rate of technology development. A core group of resource management scientists. Accelerated scientific progress through sharing of experience, common methods, databases, and models across regions. Strengthened research projects already in place through an integrated approach. Complementation of ongoing research where knowledge gaps exist and provision of new knowledge required to improve natural resource management worldwide.

Milestones:

2000 Guidelines available for optimizing soil water use. Water and nutrient fluxes determined in watersheds under different land use management practices. Recommendations available for management of natural resources in areas of high risk from land degradation. Validation of soil quality indicators.

2001-2002 Cadre of local scientists, farmer groups, and extension workers trained in development of local solutions to SWNM constraints in the four consortia. Independent community-based investigations established by four consortia in benchmark areas.

Users: Farmers and other land users, NARS, extension workers, NGOs, and community-based groups.

Collaborators: IARCS, TSBF, IBSRAM, IFDC, ICRISAT, ICARDA, IITA, ICRAF, ORSTOM, NARS, universities, and advanced research organizations of the four SWNM consortia.

CGIAR system linkages: Increasing Productivity (35%), Protecting the Environment (50%), Strengthening NARS (10%), Improving Policies (10%).

CIAT project linkages: Confronting soil degradation (PE-2); watershed resource management (PE-3); land use studies (PE-4); smallholder systems (PE-5); participatory methods (SN-3).

Project SW-3: Systemwide Program on Participatory Research and Gender Analysis

Objectives: To assess and develop methodologies and organizational innovations for gender-sensitive participatory research, and to operationalize their use in plant breeding, and crop and natural resource management.

Outputs:
1. Methods for participatory plant breeding (PPB) developed.
2. Methods for participatory research on natural resource management (NRM) developed.
3. Gender-sensitive methodologies suitable for pre-adaptive participatory research developed.
4. Organizational innovations for institutionalizing participatory approaches operationalized and evaluated.
5. Innovative approaches to capacity building operationalized.
6. New partnerships among the IARCs, NARS, NGOs, and farmer groups developed.

Gains: Accelerated learning from existing experience and generation of new, widely applicable methodologies for pre-adaptive participatory research and gender analysis. The CGIAR and NARS will access a worldwide exchange of expertise on PR and GA among a wide range of institutions. Considerable savings and increased impact from NARS generated by better designed technologies. Indigenous systems of crop development and NRM will be strengthened and integrated in a mutually reinforcing way with formal research. Poor rural women will be important participants in and beneficiaries of the research. The development and adoption of diverse germplasm will be greatly accelerated in major food crops.

Milestones:

2000 Evidence available that PB products are more user-differentiated. Synthesis of case studies on how to strengthen local seed systems. Guidelines prepared on methods for scaling up of NRM options and participatory NRM methods. Ten experiments on how resource user and research experimentation fit together conducted and evaluated. A comparison of cost and benefits in participatory NRM compiled and published as a working paper. Synthesis and case studies on the effectiveness GA and methods for including different users across technology development in PB and NRM published.

2001 Published guidelines on the cost-benefits of different approaches to involving and targeting differentiated users. Guidelines for PRGA methods and strategies in NRM published. Three case studies of organizational change for improving the effective participation of different stakeholders completed and synthesized. The costs and benefits of including PB and NRM in GA assessed.

2002 At least three CGIAR centers with partners incorporate PPB into core (mainstream) plant breeding programs; at least two CGIAR centers incorporate participatory methodologies resulting from the program's work into their NRM research.

Users: Poor rural women farmers, poor farmers in general, CGIAR centers, NARIs, NGOs, and rural grassroots organizations.

Collaborators: IARCs, NARS, NGOs, grassroot organizations, universities.

CGIAR system linkages: Enhancement and Breeding (25%); Crop and Livestock Production Systems (25%); Protecting the Environment (30%); Strengthening NARS (i.e., Training [40%], Organization and Management [20%]) (100%).

CIAT project linkages: SB-1, IP-2, IP-3, PE-2, SN-3, BP-1.

Area Log Frames

Area: **Strategic Planning**
Manager: **Douglas Pachico**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal To ensure that knowledge and expertise for enhancing performance of decision making in the agricultural and development sectors is made accessible to appropriate users.	• Performance of CIAT improved.	• External reviews. • Stakeholder support. • Impact studies.	
Purpose Strategies developed to meet stakeholders' objectives and mobilize support.	• Strategic plan implemented. • MTP implemented.	• Strategic plan document. • Annual budget and work plan • CIAT annual reports.	• Consensus among stakeholders about objectives. • CIAT can produce desired outputs. • NARS use CIAT outputs. • No major deterioration in investment in development of tropical agriculture and natural resource management.
Outputs 1. Information and tools generated to improve the capacity of CIAT and partner organizations to allocate research resources efficiently.	• Research resources allocated more efficiently (expected rate of return to CIAT research portfolios increased). • Results of impact analysis used in decision making and priority setting.	• Technical publications from BP-1 and other projects. • Published planning documents of CIAT and partner organizations. • Published minutes of planning meetings in CIAT (BOT, MT, Project Managers) and partner organizations. • External reviews of CIAT. • Data on use of CIAT-developed tools.	• Decision makers' willingness to use economic analysis in research priority setting.
2. Impact of research investment documented.	Economic and environmental impact of selected past research identified and quantified.	• Technical publications. • External reviews.	• CIAT research delivers outputs. • NARS use CIAT outputs.
3. Strategic and medium-term plans developed that are approved by BOT, supported by key stakeholders, and transparently generated.	• BOT-approved document. • CGIAR-endorsed document.	• BOT minutes. • TAC minutes. • CGIAR minutes.	No major restructuring of CGIAR.
4. Strategies and processes that enhance resource mobilization capacity developed.	Resource mobilization strategy in place.	• RMWG minutes. • RMWG projections. • Special RMWG documents.	

Area: **Genetic Resources Research**
Manager: **Aart van Schoonhoven**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal Sustainable productivity and production of crops of importance to NARS increased through conservation, enhancement, and use of genetic resources.	• Germplasm improvement practices used by NARS. • Germplasm conservation methods used by NARS.	NARS' technical reports. CIAT's annual reports.	
Purpose Germplasm of beans, cassava, tropical forages, rice, and their wild relatives collected, conserved, enhanced, and made accessible to NARS and other partners.	• A sufficient number of accessions (of beans, cassava, tropical forages, and rice) representing genetic diversity are conserved and managed ex situ. • Strategies and guidelines for in situ management of biodiversity of beans, cassava, tropical forages, and rice have been developed and tested with users. • Accessible germplasm of beans, cassava, tropical forages, and rice meet NARS' standards in terms of productivity, stability, agronomic traits, and user needs. • Techniques and relevant information for more efficient and reliable germplasm improvement are accessible to users.	CIAT's germplasm bank inventories. Partners' technical reports. Annual reports.	NARS and partners willing to commit themselves and cooperate.
Outputs 1. Germplasm of beans, cassava, and forages conserved, and made available to partners.	• ICER '95 and ICER '97 recommendations met. • Quantities of germplasm distributed.	FAO Commission of verification. GRU's records.	• Appropriate regulatory framework. • Availability of appropriate technological tools for conservation and enhancement. • Successful partnerships with private and public sectors.
2. Modern biotechnology is applied to identify and use genetic diversity for broadening the genetic base and contributing to increase crop productivity.	• Characterized gene pools. • Improved genotypes and useful genes availability.	CIAT's publications.	
3. Enhanced germplasm of beans, cassava, rice, and forages available to increase productivity and the sustainable management of natural resources.	• Improved cultivars and/or management practices are used by partners.	NARS' reports. Networks' reports.	
4. Improved production systems with IPM practices and rational use of pesticides adopted.	• Number of IPM practices and/or methods adopted.	CIAT's annual reports.	
5. Institutions strengthened through training and networks setting to include partners, NARS, AROs, NGOs, and private sector.	• Number of active networks. • Number of staff from NARS trained.	CIAT's training statistics.	

Area: **Natural Resource Management Research**
Manager: **Jacqueline Ashby**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal To contribute to the alleviation of hunger and poverty in tropical developing countries through improvements in the management of natural resources that support lasting increases in agricultural output and rural livelihoods.	• Interested parties in NRM research (donors, NARS, farmers) recognize the contributions of CIAT and partners in generating useful NRM research outputs.	• Projects, plans, and reports of national public sector agencies, donors, NGOs, and community-based organizations in the 3 reference sites and mandated agrecosystems and which refer to use of CIAT NRM research outputs. • Questionnaires sent to interested parties for mid-term and strategic planning. • Impact assessment studies.	• Sustained funding to NRM research in the CGIAR and CIAT; demand from stakeholders for NRM research outputs (donors, NARS, farmers). • Policy pejorative to NRM research impact does not persist.
Purpose To help stakeholders generate and use environmentally sound and economically viable options for land use that will help alleviate poverty by providing knowledge, tools, technologies, skills, and organizational principles that contribute to the improved management of natural resources.	• Use of CIAT NRM research outputs in at least 2 of 3 reference sites in 5 years is related to changes in land management associated with increases in per capita income and food availability; improved soil-water-nutrient use efficiency; increased biodiversity in production systems; and stakeholder participation in land use planning. • Use of the CIAT NRM research outputs beyond the 3 reference sites in the 3 targeted agroecosystems (savannas, hillsides, forest margins) by stakeholders within 5 years. • CIAT NRM research outputs applied by at least 3 other institutions outside the LAC region by the end of the 5th year.	• Impact assessment reports. • Decision makers and other members of stakeholder organizations familiar with CIAT NRM research outputs.	CIAT's partners are able to use these research outputs to improve NRM.
Output 1. Improved land use management.	• Documented trends in key indicators show that land-use management is starting to improve in 3 reference sites, within 5 years. • Improvements in land-use management are associated with decision making by stakeholders using CIAT and partners' NRM research outputs in 3 reference sites within 5 years. • Improved land-use management options have been generated outside the reference sites with stakeholders in the 3 mandated agroecosystems (FM, HS, S), i.e., policymakers, private sector (including farmers), research management, development practitioners, community-based organizations.	• Annual report produced by CIAT and partners on trends in key indicators in each of the 3 reference sites. • GIS images, participatory maps, and photographic documentation of changes in land use management over time in the 3 reference sites where CIAT and partners have intervened. • Reports of annual planning meetings in which CIAT and partners' research outputs are used in decision making on options for land use management.	• The genetic resources, farming systems components, (IPM, soils, agroforestry); databases, models, and capacity are available in CIAT or through partnerships. • The required collaborative research partnerships can be achieved in the three benchmark sites within 5 years.

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Output 2. Decision support (DS) tools for natural resource management: bioeconomic models, GIS, participatory research methods, economic and market research tools, expert systems.	• DS tools, produced by CIAT and partners have been tested with stakeholders and applied to decision making on land use management in 3 reference sites in the first 2 years of the planning period; DS tools adopted and their use extrapolated outside reference sites by stakeholders in the 3 mandated agroecosystems in LAC within 5 years, including at least 3 major NRM research or development programs or projects. • Methodology developed for improved extrapolation and targeting of information technology, germplasm, and cultural practices within the 3 targeted agroecosystems.	• Reports on training courses, workshops, and professional meetings at which DS tools of CIAT and partners are tested. • Reports of multi-institutional planning meetings for reference site stakeholders (forest margins: CODESU; hillsides: CIPASLA, CLODEST, Río Calico; savannas: CORPOICA) making decisions on land use management options to test or recommend at reference sites; reports of regional agroecosystem meetings and other publications that refer to use of these DS tools; practitioners using the tools. • Distribution lists of decision-support tools; records of downloading from CIAT home page.	• CIAT's resources are allocated so as to maintain a comparative advantage in applying knowledge and methods to produce decision support tools, which constitute an important international public good.
Output 3. NRM technology and information.	• Partners are using CIAT technology components[1] and information about these in their research and on farms to generate environmentally sound changes in land use in 3 reference sites within 5 years. • Information derived from testing these components is available in databases with user friendly interface. • The potential for extrapolating results of testing combinations of components from reference sites to other sites in the 3 LAC agroecosystems has been assessed.	• Annual reports of CIAT and partners on trial results measuring environmental and productivity effects; evaluations of postharvest and market potential; FPR analysis of acceptability to users; *ex ante* economic analysis of potential technologies for specified areas and beneficiary groups, in particular, the poor; reports of *ex post* adoption studies. • Databases incorporating results from the research described in point above. • Annual reports and published results on analysis of similarity of reference sites to other areas. • Published results and annual reports on analysis of probability of adaptation to similar biophysical environments in mandated agroecosystems. • Reports and published results of analysis of the probability of acceptance by specified beneficiary groups, in particular, the poor, in the 3 mandated agroecosystems.	The micro-policy environment in reference sites encourages environmentally sound changes in land use.
Output 4. Tools using indicators for sustainability for monitoring progress, for early warning; for providing feedback on effects of changes in land use management.	• DS tool for sustainability indicators applied to monitoring key interventions by CIAT and partners in 3 reference sites. • Sustainability indicators in use by at least 30 stakeholders outside reference sites by year 3.	• Distribution list for CD-ROM for sustainability indicators. • 1998 annual reports listing indicators used by CIAT and partners in ecoregional benchmark sites. • Reports documenting applications of CD-ROM for sustainability indicators.	Partnerships and security conditions in the benchmark sites are conducive to long-term research for monitoring changes in natural resource indicators.

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Output 5. Organizational models for decision making on improving land use management, and lessons learned.	• Multi-institutional organizations are working in 3 reference sites, using principles of participation by stakeholders identified through CIAT and partners' research with 3 years. • CIAT's research results on principles of organization for improving decision making for land use management are internationally recognized and being applied at a larger scale (in programs or projects) beyond the reference sites by year 5.	• Organograms and minutes of regular meetings of multi-institutional organizations in reference sites (e.g., CODESU-DEPAM; CIPASLA; CLODEST). • Commercial books, refereed journal articles, and annual reports on principles of organization, invited talks that indicate international recognition of research by CIAT and partners. • Published case studies of applications inside or outside the reference sites.	Partnerships, political, and security conditions are conducive to stakeholder participation in NRM.
Output 6. Improved capacity for resource management research.	• In the 3 reference sites within 5 years, there will be at least 10 research "leaders", or a multidisciplinary team capable of (a) leading stakeholder participation in NRM research and development; (b) using decision tools; (c) developing and using NRM technologies; (d) applying indicators to monitor progress and impact. • Within 5 years, there will be institutional capacity to train research leaders in (a) through (d) in CIAT or a partner institution. • Stakeholders in the 3 mandated agroecosystems in LAC and beyond will use CIAT and partners training materials on (a) through (d) in regular teaching and curriculum design.	• Consultant report on follow-up evaluation of trainees using CIAT and partners' NRM research outputs. • Documentation of regular CIAT, university, or other NARS course or curriculum content, using the NRM research outputs of CIAT and partners. • Reports of CIAT and partner training events involving participants outside reference sites.	NARS and other stakeholders in NRM research have trainers and continuity of staffing to retain trained personnel.

1. Soil protection and improvement practices; new temporal rotations and/or spatial arrangements of plants in landscapes; agrosilvopastoral systems; postharvest principles and practices; IPM principles and practices (includes integrated crop management); and germplasm.

Area: **Regional Cooperation**
Manager: **Rafael Posada**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal To ensure that knowledge and expertise for enhancing performance of decision making in the agricultural and development sectors is made accessible to appropriate users.	Performance of NARS and regional programs improved.	• Impact studies by CIAT and partners. • NARS technical reports.	
Purposes Transfer and adopt research deliverable outputs facilitated by consultation with all partners strengthening NARS, developing public awareness strategies and setting up training, documentation, and information activities.	• Adoption of CIAT deliverable outputs. • Recognition of the contribution and impact of CIAT's research.	• NARS technical reports. • Donor publications and public recognition.	NARS willing to adopt CIAT's outputs.
Outputs 1. Institutional cooperation strategy in place. 2. Relationships with key regional programs, CGIAR members, NGOs, research institutes, and universities strengthened. 3. Information routinely available to NARS. 4. Document collections and databases set. 5. Electronic delivery/publishing methods in place. 6. Technical and promotional materials developed. 7. Formal and non-formal training carried out.	• Fulfillment of the commitments set in the annual work plans and responsibility performance agreements. • Publications of technical and scientific materials. • Number of consultations and reference distribution. • Number of training and conference events. • Number of agreements with current activities. • NARS' use of CIAT's research agenda and deliverable outputs. • CIAT's research projects' awareness of the agricultural sector's needs.	• Staff annual evaluations. • Directorship annual reports. • CIAT's active participation in major regional planning, priority setting, and negotiation events. • CIAT's participation in major regional agricultural research initiatives.	CIAT's deliverable outputs are available.

Project Log Frames

Area: **Genetic Resources Research**
Project: **SB-1: Genetic Resources - Integrated Conservation of Neotropical Plant Genetic Resources**
Manager: **Daniel Debouck**

Narrative Summary	**Measurable Indicators**	**Means of Verification**	**Important Assumptions**
Goal Germplasm of beans, cassava, tropical forages, rice and their wild relatives collected, conserved, enhanced, and made available to NARs and other partners.	• A sufficient number of accessions (of beans, cassava, and tropical forages) representing genetic diversity are conserved and managed ex situ. • Strategies and guidelines for in situ management of biodiversity of beans, cassava, and tropical forages have been developed and tested with users. • Accessible germplasm of beans, cassava, tropical forages, and rice meet NARS' standards in terms of productivity, stability, agronomic traits, and user needs. • Techniques and relevant information for more efficient and reliable germplasm improvement are accessible to users.	• CIAT's germplasm bank inventories. • Partners' technical reports. • Annual reports.	
Purpose FAO Designated Collections complying with international standards and made available to users.	ICER '95 and ICER '97 recommendations met.	FAO Commission experts visits.	
Outputs 1. Mandated crops conserved and multiplied according to international standards.	• Germination rates for long stored materials. • Costs per accession per year, compared with other gene banks.	Visits to GRU multiplication substations and conservation facilities.	• Sustained and appropriate funding. • Staff security guaranteed. • Services delivered on time. • Support in documentation delivered.
2. Germplasm available, restored, and duplicated for safety.	Number of germplasm requests received and satisfied annually.	Checks of correspondence on MTAs.	• Sustained and appropriate funding. • Agreement with FAO goes on. • Services delivered on time. • Support in documentation delivered.
3. Designated Collections made socially relevant.	Landrace diversity restored to farmers (e.g., "Seeds of Hope" project).	• Comparisons of landrace diversity over time. • Genes included in novel varieties.	• Sustained and appropriate funding. • Staff security guaranteed. • International collecting possible. • Support in documentation delivered.
4. Strengthen NARS for conservation and use of neotropical plant genetic resources.	• NARS germplasm collections conserved. • NARS scientists trained. • Networks strengthened.	• Visits to national GRUs. • Country questionnaires. • FAO/IPGRI surveys.	• Sustained and appropriate funding. • NARS and networks willing and able to cooperate.
5. Conservation of Designated Collections linked with on-farm conservation efforts and protected areas.	Case studies and pilot in situ conservation projects.	Contacts with farmers' associations and ministries of environment.	• Sustained and appropriate funding • International surveying possible. • Support in documentation delivered.

Area: **Genetic Resources Research**
Project: **SB-2: Agrobiodiversity - Assessing and Using Agrobiodiversity through Biotechnology**
Manager: **William Roca**

Narrative Summary	**Measurable Indicators**	**Means of Verification**	**Important Assumptions**
Goal Germplasm of beans, cassava, tropical forages, rice, and their wild relatives collected, conserved, enhanced, and made available to NARs and other partners.	• Sufficient number of accessions (of beans, cassava, tropical forages, and rice) representing genetic diversity are conserved and managed ex situ. • Strategies and guidelines for in situ management of biodiversity of beans, cassava, tropical forages, and rice have been developed and tested with users. • Accessible germplasm of beans, cassava, tropical forages, and rice meet NARS' standards in terms of productivity, stability, agronomic traits, and user needs. • Techniques and relevant information on more efficient and reliable germplasm improvement are accessible to users.	• CIAT's germplasm bank inventories. • Partners' technical reports. • Annual reports.	
Purpose To apply modern biotechnology to identify and use genetic diversity for broadening the genetic base and increasing the productivity of mandated and non-mandated crops.	• Information on molecular/genetic data. • Mapped economic genes. • Modified lines and genetic stocks. • Collaborative linkages.	• Publications. • Reports. • Workshops. • Project proposals.	• Continued donor support. • New partnerships. • Continued collaboration with and outside CIAT.
Outputs 1. Genomes of wild and cultivated species and associated organisms characterized.	• Information on molecular genetic diversity. • Molecular maps and mapped genes. • Molecular markers used in breeding. • New molecular/bioinformatic techniques.	• Reports, publications. • Databases. • Project proposals.	• Up-to-date equipment. • Partnerships within and outside CIAT. • Funding availability.
2. Genes and gene combinations made available for broadening crop genetic bases.	• Improved lines. • Cloned genes. • Engineered gene constructs. • Trangenic stocks.	• Reports. • Publications. • Germplasm.	• Continued financial support. • Continued collaboration.
3. Collaboration with public and private sector partners enhanced.	• Partners using CIAT information and genetic material. • Collections of genetic material. • New partnerships (e.g., private sector) developed.	• Workshops. • Training courses. • Publications.	• Continued support. • Collaboration of partners.

Area: **Genetic Resources Research**
Project: **IP-1: Beans - Bean Improvement for Sustainable Productivity, Input Use Efficiency, and Poverty Alleviation**
Manager: **César Cardona**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal Germplasm of beans, cassava, tropical forages, rice, and their wild relatives collected, conserved, enhanced, and made accessible to NARS and other partners.	• Sufficient number of accessions of beans representing genetic diversity are conserved and managed ex situ. • Strategies and guidelines for in situ management of biodiversity of beans have been developed and tested with users. • Accessible germplasm of beans meet NARS standards in terms of productivity, stability, agronomic traits, and user needs. • Techniques and relevant information for more efficient and reliable germplasm improvement are accessible to users.	• CIAT's germplasm bank inventories. • Partners' technical reports. • Annual reports.	
Purpose To increase bean productivity through improved cultivars and management practices in partnership with NARS and regional networks.	• Improved cultivars and/or management practices are used by NARS and regional networks on 15% of the area in Latin America by year 2000.	• Reports by NARS and regional networks. • Publications. • CIAT reports.	• Core of bean researchers and operation budgets are maintained. • Continued donor support to regional networks.
Outputs 1. Improved small-seeded Middle American bean germplasm with less dependence on inputs.	• Improved parents/populations/lines available to NARS and regional networks. • **1998:** - 6 lines with high resistance to CBB available. - 30 small-seeded populations segregating multiple traits delivered to breeders in Costa Rica, Cuba, Guatemala, Honduras, and Mexico.	• Reports of NARS and regional networks. • Annual reports and publications.	• Continued donor support to PROFRIZA, PROFRIJOL, and CIAT. • Continued input of full SS breeder.
2 Improved large-seeded Andean bean germplasm with less dependence on inputs.	• Improved parents/populations/lines available to NARS and regional networks. • **1998:** 30 large-seeded populations with segregating multiple traits are delivered to breeders in the Andean zone, the Caribbean, and Africa.	• Report of NARS and regional networks. • Annual reports and publications.	• Continued input of Pathologist, Entomologist, and Virologist. • Continued donor support to whitefly IPM project.
3. Strategies developed for management of diseases and pests in bean-based cropping systems.	• IPM strategies developed. • Gene combinations to control insects and pathogens determined. • **1998:** 32 lines with multiple insect resistance developed.	• Report of NARS and regional networks. • Annual reports and publications.	• Continued input of Pathologist, Entomologist, and Virologist. • Continued donor support to whitefly IPM project.
4. Improved cultivars and management practices developed and tested in partnership with NARS and regional networks.	• Bean productivity increased. • Farmers' dependence on inputs reduced. • Production costs reduced. • **1998:** PROFRIJOL adoption studies quantify widespread adoption in Central America.	• Trials on experiment stations and farms. • National statistics. • Publications.	• Continued donor support. • Active collaboration with all partners involved, including farmers.

Area: **Genetic Resources Research**
Project: **IP-2: Beans in Africa - Meeting Demand for Beans in Sub-Saharan Africa in Sustainable Ways**
Manager: **Roger Kirkby**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal Germplasm of beans, cassava, tropical forages, rice, and their wild relatives collected, conserved, enhanced, and made accessible to NARS and other partners.	• Sufficient number of accessions of beans representing genetic diversity are conserved and managed ex situ. • Strategies and guidelines for in situ management of biodiversity of beans have been developed and tested with users. • Accessible germplasm of beans meet NARS' standards in terms of productivity, stability, agronomic traits, and user needs. • Techniques and relevant information for more efficient and reliable germplasm improvement are accessible to users.	• CIAT's germplasm bank inventories. • Partners' technical reports. • Annual reports.	
Purpose To increase the productivity and commercialization of common bean through adoption of sustainable production technologies developed in close collaboration with national research institutions and farmers.	Regional networks fully devolved to local management, with CIAT participating as a research partner. Varieties resistant to multiple stresses occupying about 200,000 hectares (7% area). Farmers growing new varieties see a 10% increase in income from marketing of beans. Farmers in the region starting to adopt ecologically sustainable practices.	End-of-project and evaluation reports.	Regional bodies and national governments continue to give priority to bean.
Outputs 1. Stronger networks in Africa linking NARS, IARCs, NGOs, and the private sector.	Pan-Africa network integrates bean research of subregional NARS associations by 1998.	Annual reports of PABRA, ECABREN, and SABRN.	• Regional bodies and national governments continue to give priority to bean. • Networks bring in non-traditional partners. • Sources of resistance exist and adequate germplasm support received from Project IP-1. • Adequate "methods interaction" with NRM projects.
2. Germplasm with relevant traits developed and used widely in Africa.	Lines with multiple disease resistance and resistance to stem maggot available by 1999.	Network and national program reports.	
3. Sustainable bean production systems.	Participatory research practiced at sites in key countries by 1999, and options for crop/pest/soil management available by 1999.	National and national program reports.	
4. Technology adopted.	Climbing beans widely adopted in Kenya and at least one other country by 1998. Poor people, including women, in at least four major bean-producing countries having rapid access to new varieties through sustainable low-cost seed systems, and improved crop management practices adopted by 5% of farmers by 2001.	Adoption survey reports.	

Area: **Genetic Resources Research**
Project: **IP-3: Cassava - Genetic Enhancement of Cassava**
Manager: **Hernán Ceballos**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal Germplasm of beans, cassava, tropical forages, rice, and their wild relatives collected, conserved, enhanced, and made accessible to NARS and other partners.	• A sufficient number of accessions of cassava representing genetic diversity are conserved and managed ex situ. • Strategies and guidelines for in situ management of biodiversity of cassava have been developed and tested with users. • Accessible germplasm of cassava meet NARS' standards in terms of productivity, stability, agronomic traits, and user needs. • Techniques and relevant information for more efficient and reliable germplasm improvement are accessible to users.	• CIAT's germplasm bank inventories. • Partners' technical reports. • Annual reports.	
Purpose To generate basic understanding, tools, and improved cassava germplasm for sustainable genetic improvement of cassava production and the diversification of end uses.	• Relative improvement in the most relevant traits. • Preference by final users (farmers and processors). • Broad-base network involving public and private sectors.	• End-of-project report. • Publications in refereed journals. • Proceedings from network meetings. • Adoption and impact studies.	• Proper financial support. • Active collaboration with NARs. • Active collaboration with advanced research organizations. • Support from public and private sectors. • Availability of representantive sites.
Outputs 1. Genetic base of cassava and *Manihot* species evaluated and available for genetic improvement.	• Genotypes in different categories (tolerance/resistance; quality, etc.). • Description of mechanisms. • Genetic distances.	• Project report. • Publications in refereed journals.	• High heritability of traits. • Sufficient genetic diversity toward desirable side. • Adequate selection sites.
2. Genetic stocks and improved gene pools developed and transferred to national programs.	• Number of recombinant seeds produced and transferred. • Number of elite genotypes selected. • Populations maintained. • Field trials established.	• CIAT's main database; files on seed production and shipment, and elite genotypes. • Field visits. • Reports and publications.	• Adequate interaction with other disciplinary scientists. • Crossability with wild species. • Heritability of traits. • Adequate laboratory-field integration.
3. National programs in tropical and subtropical Latin America and Asia supported in adaptive selection and deployment of improved cassava varieties.	• Number of recombinant seeds transferred. • Number of farmers participating. • Number of varieties released. • Area under released varieties.	• Project report. • Field-day brochures. • Publications. • Country production reports.	• Usefulness and relevance of new cultivars. • Adequate strength of NARs. • Proper dissemination channels.

Area: **Genetic Resources Research**
Project: **IP-4: Rice - Improved Rice Germplasm for Latin America and the Caribbean**
Manager: **Fernando Correa**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal Germplasm of beans, cassava, tropical forages, rice, and their wild relatives collected, conserved, enhanced, and made accessible to NARS and other partners.	• A sufficient number of accessions (of beans, cassava, and tropical forages) representing genetic diversity are conserved and managed ex situ. • Strategies and guidelines for in situ management of biodiversity of beans, cassava, and tropical forages have been developed and tested with users. • Accessible germplasm of beans, cassava, tropical forages, and rice meet NARS' standards in terms of productivity, stability, agronomic traits, and user needs. • Techniques and relevant information for more efficient and reliable germplasm improvement are accessible to users.	• CIAT's germplasm bank inventories. • Partners' technical reports. • Annual reports.	
Purpose To increase rice genetic diversity and enhance gene pools for higher, more stable, yields with lower unit production costs that propitiate lower prices to consumers and reduce environmental hazards.	• Evaluations of yield potential (interspecific, wide, elite crosses, and recurrent selection). • Continued use of improved germplasm by NARS. • Monitoring rice production practices and markets. • IPM practices in place for stable production and cleaner environment. • Rice lines selected with desired gene traits. • Potential sources for high levels of biotic and abiotic stress resistance.	• Databases. • Project, CIAT, and NARS' annual reports. • Publications. • Promotional activities (conferences, training, workshops, field days).	• Stability (internal and external). • National policies favor adoption of new technology.
Outputs 1. Enhanced gene pools.	Rice populations developed, improved, and distributed to NARS for line selection.	Project progress report for 1998.	Continued support from CIAT, CIRAD, and FLAR.
2. Physiological basis for rice traits understood.	Main agronomic and physiological traits measured and used in breeding populations.	• Project progress report for 1998. • Publications.	Weed scientist in place.
3. Host-pest interaction in rice characterized.	• Pathogen/pest variation and source of resistance identified. • IPM strategies.	• Progress reports. • Publications.	Continued adequate funding.
4. Project priorities and research capacities enhanced.	• Workshops. • Training courses. • Farmers' surveys.	• Project progress and workshop reports. • Publications.	Recommendations adopted by NARS and implemented by farmers.

Area: **Genetic Resources Research**
Project: **IP-5: Tropical Grasses and Legumes - Optimizing Genetic Diversity for Multipurpose Use**
Manager: **Carlos Lascano**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal To contribute to the improved welfare of small farmers and urban poor by increasing milk and beef production while conserving and enhancing the natural resource base.	New cultivars of grasses and legumes used by farmers raise productivity of livestock/crops while protecting biodiversity and land in savannas, forest margins, and hillsides.	Statistics on income and natural resource conservation in smallholder livestock farms in LAC and SE Asia.	Governments put in place policies to favor sustainable livestock/forage development in marginal areas occupied by small farmers.
Purpose NARS use superior grasses and legumes to develop improved and sustainable livestock/crop production systems in humid and subhumid areas.	Demonstrated economic and ecological benefits of multipurpose grasses and legumes to livestock/crop farmers in savannas, forest margins, and hillsides agroecosystems.	• Range of variation in desirable traits. • Performance of forage components in systems.	• Support from traditional and non-traditional donors. • Effective collaboration from CIAT's projects, AROs, NARS, and NGOs.
Outputs 1. Grass and legume gene pools with high-quality attributes are developed.	New *Brachiaria* and *Calliandra* cultivars of superior forage quality are accessible to NARS for improved animal performance by 2000.	• On-farm demonstrations. • Scientific publications. • Annual reports. • Theses.	Effective collaboration with CIAT Project (PE-2), AROs, NARS, and farmer groups.
2. Grass and legume genotypes with known reaction to pests and diseases and to interaction with symbiont organisms are developed.	• Molecular map of *Brachiaria* developed for marker-assisted selection by 2001. • *Brachiaria* genetic recombinants with resistance to spittlebug are available to NARS by 2002. • Known diversity of *Colletotrichum gloeosporioides* are used by NARS to develop and/or select resistant genotypes of *Stylosanthes* by 2001. • Benefit of endophytes for biotic (pest diseases) and abiotic (drought) constraints are demonstrated by 2001.	• On-farm demonstrations. • Scientific publications. • Annual reports. • Theses.	Effective collaboration with CIAT projects (SB-1, SB-2), AROs, NARS, and farmer groups.
3. Grass and legume genotypes with superior adaptation to edaphic and climatic constraints are developed.	• New *Brachiaria*, *Paspalum*, *Leucaena*, *Calliandra*, and *Arachis* cultivars with adaptation to infertile soils, drought, poor drainage, and cool temperatures are accessible to NARS by 2000.	• On-farm demonstrations. • Scientific publications. • Annual reports. • Theses.	Effective collaboration with CIAT projects (SB-1, PE-2, PE-4, PE-5), AROs, NARS, NGOs, and farmer groups.
4. Superior and diverse grasses and legumes delivered to NARS partners are evaluated and released to farmers.	• New grass and legume cultivars released by NARS are accessible to farmers by 2001. • Improved multipurpose grasses and legumes result in increased on-farm milk, beef, and crop production in benchmark sites (hillsides and forest margins) by 2001.	Surveys on adoption of new grasses and legumes in terms of: • Seed sold, • Area planted, • Production parameters, and • Environmental/socioeconomic indicators.	Effective collaboration with CIAT projects (PE-2, PE-5, SN-2, SN-3, BP-1, and Ecoregional Program), NARS, NGOs, and farmer groups.

Area: **Genetic Resources Research**
Project: **PE-1: IPM - Integrated Pest and Disease Management in Major Tropical Agroecosystems**
Manager: **Anthony Bellotti**

Narrative Summary	**Measurable Indicators**	**Means of Verification**	**Important Assumptions**
Goal To increase crop yields and reduce environmental contamination through the effective management of major pests and diseases.	• Increased cassava yields. • Reduction in environmental degradation due to adoption of improved technology. • Reduced losses to several major diseases.	• Production statistics. • Adoption and impact studies. • Project reports.	• National policies favorable to adoption of IPM strategies (i.e., increased support to extension, reduction of subsidies to pesticides). • National programs are active and strong in key countries.
Purpose To develop and transfer knowledge systems and pest and disease management components for sustainable productivity and a healthier environment.	• Adoption of germplasm with resistance to biological constraints. • Establishment of release natural enemies. • Use of environmentally friendly control strategies. • Improved understanding major biotic constraints.	• End of project reports. • Refereed publications, book chapters. • Adoption and impact studies.	• Financial resources are mobilized. • Active collaboration with NARs. • Active collaborations with other IARCs and developed countries research organizations. • Active collaboration with advanced research institutions.
Outputs 1. Pest and disease complexes described and analyzed.	• Pests, diseases, natural enemies, and vectors characterized. • Host/pest/natural enemy/vector interactions analyzed. • Better diagnostic tools available. • Biological control agents established. • Better understanding of the influence of drought in host/pest interactions. • Identification of cassava with tolerance of diseases. • Pest and disease distribution (maps) determined.	• Reports with maps, economic damage, biological information. • Analysis of experiments. • Transfer of tools to seed health facilities. • Analysis of experiments. • Guidelines for IPM. • Reports on field effectiveness and probability of adoption of components. • Field-oriented brochures.	• NARs have the needed resources. • Adequate interaction with other disciplinary scientists. • Successful experiments. • Continued development of new varieties that are commercially acceptable. • Farmers have adequate access to extension agents, credit, and other factors that have impact on adoption. • Collaborative with NARS possible. • Evaluation, screening, exploration sites accessible.
2. Pest and disease management components and IPM strategies and tactics developed.	• Testing of components for effectiveness. • Control strategies recommendations clearly identified and crop management practices determined. • Farmer testing of components. • Guides on IPM strategies published. • Disease detection methods available. • Web site published.	• Reports on training courses. • Concept notes and projects prepared with partners. • Electronically published web pages and databases.	
3. NARS' capacity to design and execute IPM research and implementation strengthened.	• Training especially in FPR. • Development of projects with NARs. • Training materials developed.	All outputs: Project reports, refereed journal articles, book chapters, etc.	
4. Global IPM networks and knowledge systems developed.	• Network of researchers established. • Preparation of web pages and databases with relevant IPM information.		

Area: **Natural Resource Management Research**
Project: **PE-2: Soils - Overcoming Soil Degradation through Productivity Enhancement and Resource Conservation**
Manager: **Richard Thomas**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal Knowledge, tools, technologies, skills, and organizational principles that contribute to improved land management developed and applied.	• Use of CIAT NRM research outputs in at least 3 reference sites in 5 years in related to changes in land management associated with increases in per capita income and food availability; improved soil-water-nutrient use efficiency; increased biodiversity in production systems; and stakeholder participation in land use planning. • Use of the CIAT NRM research outputs beyond the 3 reference sites in the 3 targeted agroecosystems (savannas, hillsides, forest margins) by stakeholders within 5 years. • CIAT NRM research outputs applied by at least 3 other institutions outside the LAC region by the end of the 5th year.	Projects, plans, and reports of national public sector agencies, donors, NGOs, and community-based organization in the 3 reference sites and mandated agroecosystems and which refer to use of CIAT NRM research outputs.	• Land survey data available. • Farmers adopt new technologies. • Socioeconomic conditions are favorable for achieving impact.
Purpose To develop and disseminate strategic principles for protecting and improving soil quality through the efficient and sustainable use of soil, water, and nutrient resources in crop/livestock systems.	• Technologies for soil improvement and management developed. • Limiting soil-plant-water processes identified. • Compatible plant components identified for low fertile soils in crop/livestock systems. • Guidelines, manuals, and training materials for soil management produced.	• Scientific publications. • Soil and crop management guidelines published. • Decision support systems developed.	• Economic analysis of options available. • Effective linkages within CIAT and to partners in the region.
Outputs 1. Soil, water, and nutrient management constraints assessed and plant components characterized for improved production and resource conservation.	• Soil and water management constraints identified with farmer and NARS participation. • Literature reviewed and summary document prepared. • Questionnaire produced and farmers interviewed in at least two agroecosystems. • Tables of constraints in the three agroecosystems. First AES will be savannas, then hillsides. • Plant components identified and matched to edaphic and climatic constraints.	Annual report. Reviews published. Document of synthesized results. Detailed tables published in annual report.	• Literature available. • Farmers continue to participate. • Projects SN-2, PE-3, and PE-5 actively participate. Collaboration of Project PE-4 and NARS. At least one assistant is assigned to the activity in Honduras/Nicaragua SN-3 (IPRA) to work with EB (IDB poverty project).

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
2. Strategies developed to protect and improve soil quality.	• Recommendations of practices and plant components for efficient N and P management in systems. • Data of N cycles and budgets determined at least four differing production systems. • Soil properties, management practices, and plant components that affect N capture and fluxes identified.	Project reports and publications.	• Sufficient operational funds available for chemical analyses. • Continuity of long-term experiments. • Modeling expertise available from partners, e.g., IFDC, Michigan State Univ. • Soil biology expertise from ORSTOM/Univ. of Paris available.
3. Diagnostic and predictive tools developed to combat soil degradation.	• List of soil quality indicators prepared and available to monitor degradation in reference sites of 3 AES. • Tools designed for estimating soil erosion and training manual written. • Decision-making kit for soil and water management produced. • Map of risk assessment of soil degradation (erosion, soil nutrients) for hillsides and forest margins produced. • Decision-making tools for use of organic materials produced. • Decision tree to create and/or maintain an arable layer produced. • Correlations established between local soil quality indicators and objective measurements.	• Annual reports and publications. • Training manual for use with tools. • Kit available to farmers and NARS. • Maps published. • Pamphlet published, detailing decision tree.	• Collaboration from partners. • Information from questionnaires synthesized comparisons made with available PE-3 results. • Collaboration with PE-3 on soil erosion in CA. • Collaboration with SN-2, PE-4, PE-3, TSBF, and SWNM Program. • Laboratory facilities with staff available in Pucallpa (with ICRAF). • Collaboration with MW (UNEP) on land quality indicators at reference sites. • Collaboration with GH in FM and GL in HS/CA and NB for S.
4. Institutional capacity enhanced for strategic research on soil, water, and nutrient management.	• Nine undergraduate, three Master's, and one PhD theses submitted. • Workshop held on soil physics. • Workshop on C sequestration held. • At least three projects with partners submitted to donors. • ELABS initiated.	• Theses available in library. • Reprints available. • ELAFIS Workshop report. • Workshop report on C sequestration. • Project documents.	• Continuing interest/participation of NARS and ARO partners. • Continued support for collaborative activities, e.g. systemwide SWNM program.

Area: **Natural Resoource Management Research**
Project: **PE-3: Hillsides - Community Management of Watershed Resources in Hillside Agroecosystems of Latin America**
Manager: **José I. Sanz**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal To improve the standard of living and food security of hillside farmers in tropical America and make their interaction with the environment more sustainable.	• Reduced infant mortality. • Reduced maternal mortality. • Reduced soil erosion. • Improved water quality in rivers and streams. • Increased income (monetary and/or in kind).	• National and local statistics. • Local research.	That the environmental, social, economic, and political conditions, on a macro-level, are maintained.
Purpose To strengthen local processes of sustainable rural development in the hillsides of tropical America, based on the experiences of natural resource management at benchmark sites.	• Groups residing at five work sites in Honduras and Nicaragua are successfully implementing land management initiatives consistent with those ones validated by the Project and its partners. • At least 15 key entities of the region have access to at least three tools and methods developed by the Project.	• Field verification. • Institutional reports.	• That local partners continue Project-related activities. • That donors remain interested in the proposed Project objectives and continue to give support.
Output 1. Improved production systems. Farmers use technologies developed by CIAT and its partners to establish sustainable and profitable production systems.	• Screening alternatives in demonstration parcels in San Dionisio, Yorito, and Cabuyal ("supermarket of options for hillsides"). • Validating alternatives in at least 25 Committees for Local Agricultural Research (CIALs, the Spanish acronym) in San Dionisio and Yorito. • Alternatives adopted by at least 100 farmers at Project work sites. • Successful alternatives being transferred to at least 12 sites other than the initial work sites.	Field verification. Project reports. CIAL reports.	That climatic variability is normal.
Output 2. More sustainable landscapes. Land use has improved across the landscape because locally organized farmers are using the tools and methods developed by the Project and its partners.	• Three local consortia of natural resource management operating at work sites in Honduras, Nicaragua, and Colombia. • Five local consortia of natural resource management in formation at other sites of Central and South America. • Stable water quality (sediments and contaminants) as integrating indicator of the status of natural resources in at least three micro-watersheds at the work sites. • Environmental monitoring initiated in at least two work sites in Honduras and Nicaragua.	• Consortia reports. • Monitoring reports.	

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Output 3. Strengthened organizations. Local and national organizations involved in sustainable rural development at various levels (site, national, regional) use the technical and methodological resources developed by the Project in their decision-making and other activities. Inter-institutional coordination is enhanced.	• At least 25 CIALs operating at Project work sites. • At least 30 CIALs in formation at other work sites in the region. • At least 20 national technicians trained and promoting CIALs.	• CIAL reports. • Training reports. • Institutional reports.	
Output 4. Decision makers supported. Decision makers at various levels use and have access to more information, tools, and methods to use in decision making, planning, and monitoring.	• At least two technicians of each collaborating institution trained and using tools developed by the Project and its partners. • Digital information (CD-ROM and Web site) available and accessible in Honduras and Nicaragua, and in process in other countries. • Local decision makers at the level of three municipalities with access to site-specific information on natural resources and trained to use this information.		
Output 5. Efficient, participatory project management. Different internal and external partners directly participate in project management to ensure adequate and efficient use of the Project's resources.	• Plans and reports opportunely prepared and approved by previously established authorities. • Partners are well informed and actively participate in fieldwork at the Project sites (local consortia) or elsewhere. • National hillside consortia operating in Honduras and Nicaragua. • Regional hillside consortium operating. • Experiences and lessons learned by the Project and its partners disseminated in Latin America through different channels (networks, publications, meetings, etc.). • New projects adopt methods, techniques, and experiences generated by the Project and its partners.	Planning documents and reports. Proceedings of the meetings of the Consultative Group and the Executive Committee. Reports of members and consortia. Dissemination materials and Project reports. Direct verification in networks and consortia.	

Area: **Natural Resource Management Research**
Project: **PE-4: Land Use - Environmental Sustainability and Land Use Dynamics in Latin America**
Manager: **Alejandro Imbach**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal Knowledge, tools, technologies, skills and organizational principles that contribute to improved land management developed and applied.	• Use of CIAT NRM research outputs in at least 3 reference sites in 5 years in related to changes in land management associated with increases in per capita income and food availability; improved soil-water-nutrient use efficiency; increased biodiversity in production systems; and stakeholder participation in land use planning. • Use of the CIAT NRM research outputs beyond the 3 reference sites in the 3 targeted agroecosystems (savannas, hillsides, forest margins) by stakeholders within 5 years). • CIAT NRM research outputs applied by at least 3 other institutions outside the LAC region by the end of the 5th year.	Projects, plans, and reports of national public-sector agencies, donors, NGOs, and community-based organization in the 3 reference sites and mandated agroecosystems and which refer to use of CIAT NRM research outputs.	
Purpose To improve policy and decision making for sustainable land and environmental management in Latin America through the scientific analysis of land and environmental patterns, anticipated dynamics, and improved policy indicators.	Number and importance of instances of use of generated understanding by decision makers at various levels.	Consultation and documented responses.	
Outputs 1. Baseline and time series information on CIAT priority for the analysis of land use and environmental patterns and dynamics compiled and distributed.	New versions of climate, population, crop, and livestock distribution, and other strategic databases 1998; documented databases on Inter-American Geospatial Data Network node in CIAT 1998; rainfall model beta tested (1998) and distributed to crop modelers in the tropics (1999).	• Information on CIAT WWW site. • Annual report. • Information available on CD-ROM.	Continued collaboration with universities, UNEP, IGDN, and our partners in the benchmark sites.

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
2. Limitations and potential of land use in the hillsides, savannas, and forest margins agroecosystems analyzed.	• Information gathered and analyses completed. • Key variables indicating potential land use analyzed and mapped for three CIAT priority agroecosystems.	• Annual report. • CIAT report to Colombia Government. • Working documents • Field verification. • Student intern reports. • Land use plans.	• Sustained funding from Colombian Government. • Continued collaboration with CIAT soils group, Univ, of Guelph, and others in complex systems group.
3. Frameworks for analyzing land-use dynamics and for using indicators of sustainability in the CIAT priority agroecosystems developed.	• Indicator sets and frameworks developed in consultation with our partners and stakeholders. • Data interfaces developed for analyzing indicators of sustainability.	• Compact Disk (Beta version) for CIAT priority agroecosystems. • New models incorporated in Indicators CD. • Workshop reports and proceedings. • Peer-reviewed papers.	• Continuation of the planned collaboration with CIAT researchers working in benchmark sites, data availability. • Collaboration with NARS as planned.
4. Developed and defined policy relevant environmental and sustainable indicators.	• Continental Indicators CD release (1998) with 300 users, new and improved version (1999). • Beta version biodiversity toolbox 1999, new release 2000. • Data dictionary (1998) for Pucallpa indicators. • GIS laboratory developed in Pucallpa. • Honduras workshop to define indicators.	• Latin American CD and manual. • Data dictionary report. • CIAT report to the Colombian Government. • Reports on CIAT WWW page. • Workshop proceedings. • Peer-reviewed papers.	• Continued collaboration with universities, UNEP, ICRAF, IPGRI, CIFOR, and our partners in the benchmark sites. • External funding for Pucallpa Land Use Laboratory. • Relationships discovered to permit broad-scale extrapolation.
5. Scenarios, and options for sustainable land use in Latin America in general and in the CIAT priority agroecosystems analyzed and developed.	• Indicators product developed (2000). • Full analyses reporting of rural poverty and the agricultural land use developed for CIAT Web page (1999). • Scenarios identified and developed.	• CIAT poverty Intranet page. • Interpretive maps. • CIAT report to Colombian Government. • Annual report.	• Data availability. • Continued collaboration with poverty experts, indicators stakeholders, and national programs.
6. Stakeholder networks at multiple scales within the CIAT priority agroecosystems for dialog on land-use options and scenarios established.	Agricultural and NRM professionals attending workshops in Central America.	• Beta Compact Disk developed. • Workshop proceedings. • Activities with institutions. • Web page traffic.	Participation and cooperation of partners.
7. Training of professionals in the use of decision support tools and scenario-building methods.	• Professionals in Central America trained in indicators technology and NRM. • GIS-NRM-AG-based information product development training (19 persons in Central America). • Germplasm mapping tools tested, refined, and distributed to national programs in Africa and Latin America. • Training workshops in Colombia.	• Training workshop proceedings. • DS toolbox. • Training materials. • Web pages.	• Funding obtained. • NARS collaborate. • Software licensing for germplasm tool worked out. • Training manuals and tutorials made available.

Area: **Natural Resource Management Research**
Project: **PE-5: Sustainable Systems for Smallholders - Integrating Improved Germplasm and Resources Management for Enhanced Crop and Livestock Production**
Manager: **Peter Kerridge**

Narrative Summary	**Measurable Indicators**	**Means of Verification**	**Important Assumptions**
Goal Knowledge, tools, technologies, skills, and organizational principles that contribute to improved land management developed and applied.	• Use of CIAT NRM research outputs in 3 reference sites in 5 years, related to changes in land management and associated with increases in per capita income and food availability, improved soil-water-nutrient use efficiency, increased biodiversity in production systems, and stakeholders participating in land use planning. • Use of the CIAT NRM research outputs beyond the 3 reference sites in the 3 targeted agroecosystems (savannas, hillsides, forest margins) by stakeholders in 5 years. • CIAT NRM research outputs applied by at least 3 other institutions outside LAC by the end of the 5th year.	Projects, plans, and reports of national sector agencies, donors, NGOs, and community-based organization in the 3 reference sites in LAC mandated agroecosystems and which refer to use of CIAT's NRM research outputs.	CIAT's partners are willing to use these research outputs to improve NRM.
Purpose To collaborate with national organizations in developing integrated crop, livestock, and arboreal technologies that are adoptable, productive, and sustainable.	• Increase (%) in income of smallholders. • Number of new component technologies. • Decrease (%) in soil loss, and increase in soil fertility and water retention. • Degree of biodiversity. • Decreases in deforestation and burning. • Widespread adoption of sustainable practices.	Impact evaluation studies.	Donor and client support for sustainable land use research.
Outputs 1. Alternative land use options for agricultural systems assessed	• Policy options, for use in local and national planning for the forest margins, developed from a synthesis of socioeconomic and biophysical effects of alternative land use in the Aguaytia watershed, Peru. • Operational plan for community involvement in management of resources of watershed site, Vietnam, accepted by government officials. • An analysis of socioeconomic and biophysical impact of alternative land use options of a district site, Philippines, presented to government officials.	• Workshop. • Technical report to Government of Peru. Technical report. • Workshop. • Technical report.	
2. Component technologies for sustainable production developed	• 30% increase in milk production in dry season, Central America (CA). • Increased use of forage legumes by small farmers in CA. • 40 farmers at each of 18 sites in SE Asia using improved forages in SE Asia.	Impact analysis. • Impact analysis. • Completion report. • Project evaluation.	

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
	• Increased net benefits to farmers at 4 sites with less erosion in cassava-based systems in Asia.		
	• Three community demonstrations of soil conserving land use practices in Cauca, Colombia.	Annual report.	
3. Models and/or frameworks developed to integrate results, target research, and assess impact.	• DSSAT model adapted and applied to evaluate different land use alternatives in hillsides in CA.	Working document.	
	• Linear program model being used to evaluate forage alternatives for dual-purpose cattle in LAC.	Research paper.	
	• Economic model available for *ex ante* evaluation of research proposals in Pucallpa, Peru.	Working document and software.	
	• Indicator framework used by all partners in the forest margins, Pucallpa.	Working document.	
	• Participatory evaluation and monitoring framework to assess FPR technologies in SE Asia.	Working document and research paper.	
	• GIS-based DSS of forage adaptation in CA used by extension staff.	CD-ROM.	
	• Framework for linking options at farm level to catchment and higher levels.	Working document.	
4. Partnerships facilitated for participatants development of alternative land-use options.	• Changes in local institutional research strategies in response to performance of DEPAM project.	Survey.	
	• Functional partnerships – Tropileche, DEPAM, SEAFRAD, Cassava R&D network, Univ. of Hue.	Annual report.	
	• Review of success and failures of different approaches to institutional change.	Research paper.	
	• Review of outcomes of enabling policy changes in selected study catchment areas.	Technical paper.	
5. Enhanced capacity of NARS to promote adoption of productive and sustainable land-use practices.	• Adoption of FPR by NARS for technology development and NRM in provinces where project is active.	• Survey. • Technical paper. • Manual.	Collaboration and input from other CIAT projects and Communication Unit.
	• Review of achievements in scaling up technologies developed using FPR in SE Asia.		
	• A manual on training approaches to PR for SE Asia.	PRA.	
	• Technicians at pilot and satellite sites trained in participatory technology development.	Annual report, papers.	

Area: **Natural Resource Management Research**
Project: **SN-1: Rural Agroenterprises**
Manager: **Rupert Best**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal To develop and apply knowledge, tools, technologies, skills, and organizational principles that contribute to improved land management.	• Use of CIAT NRM research outputs in at least 3 reference sites in 5 years in related to changes in land management associated with increases in per capita income and food availability; improved soil-water-nutrient use efficiency; increased biodiversity in production systems; and stakeholder participation in land use planning. • Use of the CIAT NRM research outputs beyond the 3 reference sites in the 3 targeted agroecosystems (savannas, hillsides, forest margins) by stakeholders within 5 years). • CIAT NRM research outputs applied by at least 3 other institutions outside the LAC region by the end of the 5th year.	Projects, plans, and reports of national public sector agencies, donors, NGOs, and community-based organization in the 3 reference sites and mandated agroecosystems which refer to use of CIAT NRM research outputs.	
Purpose To develop, in collaboration with our partners, methods, tools, and institutional models for the design and execution of successful rural agroenterprise projects that integrate market opportunities and postharvest technologies with environmentally sound production and processing practices.	By the end of the year 2000, a set of methods, tools, and institutional models are being used by partner institutions in the reference sites in Latin America, and are being adapted by partners in Asia and Africa.	Reports and project documents of our partner institutions.	• Political and institutional support for sustainable rural and agricultural development at the reference sites and targeted countries is maintained. • Natural disasters or civil strife do not impede progress toward the goal.
Outputs 1. Tools, methods, and information for the identification and development of market opportunities (as an input for the design of economically viable and sustainable rural agroenterprises).	• By the end of the year 2000, training materials for market opportunity identification available and being used by partners in LA and Asia. • Market opportunities identified and in the process of being developed in the reference sites. • Information system on alternative trade available and in use on the project's WWW home page. • Training materials for the design of market strategies and plans for small agroenterprises available.	Manual published. Annual reports and project proposal documents. Project home page. Training materials in draft.	• Collaborating institutions have adequate resources to use the materials and tools developed. • Natural disasters or civil strife do not impede progress toward the project's purpose.

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
2. Tools, methods, and information for the development of appropriate postharvest technologies for small-scale rural agroenterprises.	• Information system on products and postharvest processes for cassava, selected fruits, and milk products available on the project's WWW home page. • Series of manuals on techniques for the participatory development postharvest technology for improving the efficiency of existing rural agroindustry. • Manuals in preparation on techniques for the participatory development of new rural agroindusrtrial products and processes.	Project home page. Manuals published. Annual reports and working documents.	
3. Information, options, and recommendations for the design of efficient and effective organizational schemes for small-scale rural agroenterprise and their support services.	• Case studies of small rural agroenterprises, documenting best practices, key success factors, and lessons learned, complete for Latin America and Asia. • Different options for the organization of enterprises, their links in the agri-food chain, and the organization of support services are being tested in the reference sites.	Case studies published. • Project proposal documents. • Annual reports.	
4. Institutional models and policy options for the establishment and strengthening of rural agroenterprises and their support systems at the micro-regional level.	• Two or more agroenterprise projects in execution in each of the reference sites in Latin America. • Manual on the identification and development of integrated R&D rural agroenterprise projects complete. • Guidelines for the design of local support systems for promoting agroenterprises at the micro-regional level.	Project proposal documents and reports. Manual in final draft. Working document.	
5. Enhanced capacity to design and develop successful agroenterprise projects, within CIAT and partner institutions.	• 50 trained NARS personnel in aspects related to agroenterprise development in Latin America. • Case studies on the adoption and impact of agroenterprise R&D completed. • Project WWW home page operational and updated periodically with project outputs. • Strategic alliances with research and development partners.	Training documents, course evaluation and annual reports. Case studies published. Project home page. Letters of Understanding, project contracts, and inter-institutional agreements.	

Area: **Regional Cooperation**
Project: **SN-2: Linkages with NARS - Enhancing Private and Public Linkages for Agricultural Research and Development**
Manager: **Rafael Posada**

Narrative Summary	**Measurable Indicators**	**Means of Verification**	**Important Assumptions**
Goals Knowledge and expertise for enhancing performance of decision making in the agricultural and development sectors is made accessible to appropriate users.	Performance of NARS and regional programs improved.	• Impact studies by CIAT and partners. • NARS technical reports.	
Purposes Transfer and adoption of research deliverable outputs facilitated by consultation with all partners strengthening NARS, developing public awareness strategies, and setting up training, documentation, and information activities.	• Adoption of CIAT deliverable outputs. • Recognition of the contribution and impact of CIAT's research.	• NARS technical reports. • Donor publications and public recognition.	NARS willing to adopt CIAT's outputs.
Outputs 1. Institutional cooperation strategy in place. 2. Relationships with key regional programs, CGIAR members, NGOs, research institutes, and universities strengthened. 3. Information routinely available to NARS. 4. Document collections and databases set. 5. Electronic delivery and/or publishing methods in place. 6. Technical and promotional materials developed. 7. Formal and non-formal training carried out.	• Fulfillment of the commitments set in annual work plans and responsibility performance agreements. • Publications of technical and scientific materials. • Number of consultations and reference distribution. • Number of training and conference events. • Number of agreements with current activities. • NARS use of CIAT's research agenda and deliverable outputs. • CIAT's research projects aware of agricultural sector's needs.	• Staff annual evaluations. • Directorship annual reports. • CIAT's active participation in major regional planing, priority setting, and negotiation events. • CIAT's participation in major regional agricultural research initiatives.	CIAT's deliverable outputs are available.

Area: **Natural Resource Management Research**
Project: **SN-3: Farmer Participatory Research - Methods for Combating Poverty and Natural Resource Degradation**
Manager: **Ann Braun**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal Knowledge, tools, technologies, skills, and organizational principles that contribute to improved land management developed and applied.	• Use of CIAT NRM research outputs in at least 3 reference sites in 5 years in related to changes in land management associated with increases in per capita income and food availability; improved soil-water-nutrient use efficiency; increased biodiversity in production systems; and stakeholder participation in land use planning. • Use of the CIAT NRM research outputs beyond the 3 reference sites in the 3 targeted agroecosystems (savannas, hillsides, forest margins) by stakeholders within 5 years). • CIAT NRM research outputs applied by at least 3 other institutions outside the LAC region by the end of the 5th year.	Projects, plans, and reports of national public-sector agencies, donors, NGOs, and community-based organization in the 3 reference sites and mandated agroecosystems and which refer to use of CIAT NRM research outputs.	
Purpose To develop, apply, disseminate, and institutionalize participatory methods, analytical tools, and principles of organizational design that result in demand-driven responses among R&D stakeholders and contribute to improved agroecosystem productivity and health.	• R&D organizations applying participatory methods, analytical tools, and organizational models. • Universities teaching participatory methods. • Increased feedback among R&D stakeholders. • Greater diversity of agricultural products, higher value crops, and/or more value-added locally to agricultural production in benchmark sites. • Increasing number and diversity of agricultural and NRM technologies tested and/or adapted by farmers and other clients.	• Impact evaluation studies. • Reports and publications.	• Partners' commitment. • Producers' willingness to participate.
Outputs 1. Methods for farmer participation in ICM, germplasm improvement, and NRM. 2. Models and procedures for organizing participatory research. 3. Trained professionals and paraprofessionals able to conduct participatory research; FPR methods disseminated.	Number of farmer participation methods developed. Number of organizational models to participatory research validated. Number of professionals trained on participatory research.	• Annual reports. • Project's work plan.	• Teamwork, good coordination, and integration among collaborators. • Minimal conflicts in scheduling of activities. • True client participation occurring. • Field-based staff playing a truly facilitative role. • Reliable benchmark data against which progress can be measured.

Area: **Strategic Planning**
Project: **BP-1: Impact Assessment**
Manager: **Douglas Pachico**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal Knowledge and expertise for enhancing performance of decision making in the agricultural and development sectors is made accessible to appropriate users.	Performance of investment in tropical agricultural research improved.	Research project portfolios in tropical agricultural research.	
Purpose To generate and disseminate information and tools for improving the capacity of CIAT and partner organizations to allocate research resources efficiently, and documenting the impact of research investments.	• Research resources allocated more efficiently (expected rate of return to CIAT research portfolios increased). • Results of impact analysis used in decision making and priority setting. • Economic and environmental impact of selected past research identified and quantified.	• Scientific publications from BP-1 and other projects. • Published planning documents of CIAT and partner organizations. • Published minutes of planning meetings in CIAT (BOT, MT, Project Managers) and partner organizations. • External reviews of CIAT. • Data on use of CIAT-developed tools.	• Adequate funding to agricultural research and extension. • Decision makers' willingness to use economic analysis in research priority setting.
Outputs 1. Expected impact of future research estimated.	• Expected rate of return for potential research projects estimated. • Expected economic, distributional, and environmental impacts identified and quantified.	• CIAT technical publications. • CIAT published planning documents.	• Decision makers willing to use the information. • No external shocks that invalidate the results.
2. Impact of selected past CIAT research documented.	• Economic, social, and environmental impact of CIAT research outputs identified and quantified.	• CIAT technical publications.	
3. Tools developed to assess the impact of research, *ex ante* and *ex post*.	• Methodologies generated. • Databases compiled and maintained.	• Scientific publications and other technical publications such as manuals and guidelines. • Databases available on BP-1 sites on the Internet, on CIAT's internal network, and in BP-1's data library. • Site flow data from websites. • Data on registered users of BP-1 software. • Citations of project publications and tools in technical publications.	• Analysts' willingness to use the tools in their impact analysis. • Data available to use the tools.
4. Institutional capacity for estimating, monitoring, and evaluating impact of research improved.	• Appropriate and well-designed impact assessment components included in the work plans and budgets of CIAT projects and projects of partner organizations.	• CIAT project log frames and budgets. • Work plans of CIAT researchers. • Research proposals submitted by projects. • Similar documentation from partner organizations.	• Institutional and financial support for impact assessment.

Area: **Systemwide Program**
Project: **SW-1: Ecoregional Program for Tropical Latin America**
Manager: **Alejandro Imbach**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Purpose CGIAR Centers participate actively in rural development processes in different ecoregions of tropical Latin America (TLA).	• CGIAR Centers involved actively in at least six local rural sustainable development initiatives (LoRSDIs), different than the reference sites. • At least 10 specific CGIAR research outputs being used to solve specific problems of LoRSDIs.	• Reports from the organizations active in LoRSDIs. • Field verification. • CG Projects research reports.	• Availability of funds. • Acceptance of the ecoregional approach by Centers.
Output 1. Partnerships. Local and national organizations operating in rural areas of different ecoregions are supported by CGIAR Centers in implementing R&D with an ecoregional approach.	• Local and national individual or consortium partnerships including at least 25 organizations supporting LoRSDIs established in at least six places in TLA. • At least 15 partner organizations supported on planning, assessment, and fund searching for the reference sites. • Ecoregional Network operational and active. • Collaboration with at least 3 ecoregional consortia. • Partnerships developed in at least 3 strategic ecoregional issues*.	• Reports from partner organizations. • Field verification.	• Availability of funds. • Agroecosystem consortia (CONDESAN, Hillsides, PROCIs) perform the stakeholder consultation function effectively.
Output 2. Exchange. CGIAR Centers, rural development organizations, and national and regional networks actively exchange methods, products, and experiences.	• Training materials on ecoregional issues* developed, tested, and available for use , • At least 50 members of partner organizations trained on ecoregional issues*. • Regional experiences on at least four ecoregional issues* systematized through practitioner workshops and emerging lessons available through the Ecoregional Network and publications.	• Reports from partner organizations. • Training materials. • Workshop proceedings. • Publications. • Ecoregional Network web site contents.	
Output 3. Research. CGIAR Centers, and international, national, and local organizations implement joint research activities on ecoregional issues*.	Joint research in at least five ecoregional issues*.	• Research reports. • Papers. • Presentations in meetings.	Funding availability.

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Output 4. International projection. Rural development organizations working in regions other than TLA benefit from the experiences and expertise developed in TLA.	• At least one meeting and three exchanges with non-TLA ecoregional programs. • Participation in at least 2 non-TLA initiatives on ecoregional issues.	• Proceedings of meetings. • Non-TLA partners reports. • Trip reports. • Publications.	
Output 5. CIAT activities. CIAT management requirements are fulfilled by the Ecoregional Program.	• Preparation of annual report . • Preparation of annual work plan. • Fulfillment of staff performance evaluation. • Program management. • Participation in other planning, review, and evaluation activities.	• Annual report. • Annual work plan. • Performance evaluation forms. • Other documents.	

* Ecoregional issues = relevant issues for every ecoregion. These issues are identified annually by the Program and added to this list. To avoid dispersion, the list of ecoregional issues will not exceed 5 issues. For 1999, the list of ecoregional issues includes:

- Analysis and synthesis of landscape and ecoregional units.
- Project and impact assessment.
- Sustainable use of biological diversity.
- Stakeholder-based approaches to resource management at the watershed (local) scale.
- Upscaling processes.

Area: **Systemwide Program**
Project: **SW-2: Soil, Water, and Nutrient Management (SWNM)**
Manager: **Richard Thomas**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal To contribute to long-term increases in agricultural productivity, poverty reduction, and the conservation and enhancement of land and water resources.	• Agricultural production increased in benchmark sites. • Farmers' income increased. • Land degradation halted or decreased.	• Agricultural census data. • Human welfare statistics.	
Purpose Effective, ecologically sound, technologies and systems for sustainable land management and conservation developed, disseminated, and implemented by land users.	• Farmers adopt new SWNM technologies through individual and community-based actions. • Information on SWNM technologies published.	• Surveys of land use practices. • Lists of publications. • Web pages. • Bulletins and brochures.	Policy environment is favorable for the adoption of improved SWNM technologies.
Outputs 1. Technologies and tools for improved soil, water, and nutrient management developed.	New or improved SWNM technologies developed by each of the 4 research consortia.	• Publications in international journals. • Manuals and decision support tools. • Annual reports.	• External funding levels are maintained. • Benchmark sites established and maintained with partners. • Community-based groups continue with their own resources. • Institutions within each consortium maintain their matching support for the SWNM program.
2. Community-based institutional mechanisms that encourage use of sustainable land management practices developed, tested, and promoted.	Number of community-based organizations established.	Annual reports, newsletters and bulletins.	
3. Capacity of stakeholders to plan and implement programs on sustainable land management enhanced.	• Number of farmers, NARS personnel, policymakers trained. • Training manuals and guidelines for SWNM produced.	• Numbers of training courses and field visits held. • Numbers of personnel trained. • Institutional reports.	
4. Policies that address equity issues, access to resources, and land tenure developed.	Guidelines and decision support systems developed.	Policy guideline documents.	

Area: **Systemwide Program**
Project: **SW-3: Systemwide Program on Participatory Research and Gender Analysis**
Manager: **Jacqueline Ashby**

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
Goal Improve the ability of the CGIAR System and collaborating institutions to develop technology that alleviates poverty, improves food security, and protects the environment with equity.	• Capacity to use participatory research and gender analysis (PRGA) in at least 50% of the CGIAR Centers has increased at the end of 5 years. • Impact of PRGA on technology development processes and research organization has been documented in at least 10 case studies as a result of appropriate use of PRGA from which improved benefits for rural poor and women can be projected.	• Published results of the Program's impact studies. • Program monitoring and assessment of capacity building in the Centers. • External review reports.	CGIAR Centers and partner institutions are willing to commit staff and budget to using PRGA, to contribute to capacity building, and to collaborate in impact assessment.
Purpose To assess and develop methodologies and organizational innovations for gender-sensitive participatory research, and to operationalize their use in plant breeding, and crop and natural resource management.	• The use of PRGA is integrated into the CGIAR System and partner institutions' core research. • Effective methods for PRGA in technology development and institutional innovation are developed and disseminated; methods are recognized and understood by relevant senior management and staff; and are being applied appropriately by at least 50% of CGIAR Centers supported by Program research and capacity building by the end of 5 years. • Center projects collaborating with the Program have gender-sensitive stakeholder/farmer participation in the organization and management of the research process. • The Program's planning and evaluation organs are stakeholder-based and include active farmer representation.	• Program publications; Center annual reviews, reports, and publications. • Program monitoring and assessment of the use of these approaches in the Centers and their partners and the results of the small-grant programs. • External review reports.	• Donor commitment to the Program remains steady over the 5 years. • Center staff collaborating with the Program is able to include results in their Center's reports and annual reviews. • Stakeholders are willing to contribute actively to planning and evaluating the Program.
Methods and organization for participatory plant breeding developed			
Outputs 1. Effective participatory methods in plant breeding assessed and developed with focus on farmer's breeding; plant selection (segregating lines); variety selection (fixed lines).	• Methodology guidelines published for all three approaches. • Methods in use in at least four cases, involving national programs and NGOs (at least one case) for each type of breeding. • Publications disseminated on the results of the methods. • Workshops to exchange results conducted.	• Program publications, journal and book publications, Program home page. • Impact assessment studies. • Annual reports, workshop proceedings, Program home page.	• Method development and assessment can be advanced quickly in some "model" crops to permit. • Analysis of effectiveness in farmer breeding, plant selection, and variety selection.
2. Beneficiary groups more accurately involved and targeted in participatory breeding through methods development for involving direct and indirect stakeholders.	• Published guidelines on cost-benefits of different approaches to involving and targeting differentiated users. • Synthesized findings on how to involve hidden and indirect stakeholders and how to resolve conflicts among diverse groups. • Evidence available that PB products are more user-differentiated. • Evidence available that indirect stakeholders, such as extension, have been involved.	• Program publications; PhD dissertations. • Impact assessment studies.	CGIAR, NARs, and farmer researchers are willing to collaborate in studies, using stakeholder/beneficiary differentiation.

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
3. Effective organizational forms identified and developed during research for operationalizing participatory breeding.	• Ways in which existing breeding programs organize and fund links with farmers are reviewed and documented. • Reports available on organizational options for participatory breeding, along with cost-benefit analyses. • Guidelines for decision makers on promising organization forms. • Capacity-building through training, and consultancies provided.	• Program publications. • Annual reports and reports on training courses and workshops; consultancy reports. • Interviews with farmers, researchers, and research managers participating in Program workshops, training, and collaborative research projects. • Annual reports.	CGIAR , NARS, including NGOs, and farmer researchers are willing to collaborate in studies of organization.
4. User access to products of participatory breeding assured through identification of effective organizational forms and links to supporting seed services.	• Synthesis of case studies on how to strengthen local seed systems. • Published analysis on the role of the formal seed system in PB approaches. • At least 2 channels identified that move PB products rapidly to different users.	• Program publications, journal articles, and books. • Interviews with farmers participating in Program-sponsored research on PPB.	PPB experience is sufficiently advanced in the 5-year planning period for seed multiplication and distribution issues to be studied.
Methods and organization for participatory research in NRM developed			
Outputs 1. Synthesis of state-of-the-art in applying PRGA approaches in NRM research completed.	• Methods and approaches for participatory NRM available and continuously updated as a WWW tool box or CD-ROM. • Up to four regional workshops held to compare currently used PRGA methods LAC, in 2000. • One global workshop held to identify the constraints and gaps in PRGA approaches and to define the focus and determine priorities for next phase of research, in 1999.	• Journal and PRGA home page publication of typology of NRM participatory approaches. • Annual report on regional workshops. • Proceedings of Global Workshop. • Web bibliography, tool box site, and CD-ROM.	National institutions are willing to collaborate in the organization.
2. Improved crop and NRM strategies incorporating better use of existing and new PRGA methods at developed and disseminated.	• Workshops conducted with at least six collaborative research projects to incorporate gender analysis and gender-sensitive participatory methods into ongoing activities. • Materials accessible on approaches for scaling up of participatory NRM, in 2000. • Up to 10 experiments on how farmer and researcher experimentation fit together conducted and evaluated. • Up to three community-based and 3 researcher-based resource monitoring tools tested, compared, and results ready for dissemination in 2000. • Up to four regional training groups actively supply training in PRGA in 1999.	• Program annual reports, workshop reports. • Published guidelines for PRGA methods and organizational strategies. • Working paper on web site. • Results disseminated via NRM working group and network. • Proceedings and reports are available on web site.	• At least six projects, with 5-6 years' experience exist that are willing to conduct action research. • Projects are doing studies of impact or are willing to do so. • Projects, which have accomplished some measurable impact, are selected.
3. Organizational capacity to use PRGA methods in NRM research improved with a focus on farmers, local institutions, scientists, extensionists, and research and extension institutions.	• New options for organizational innovation for participatory approaches to NRM research identified from at least 3 case studies at different management scales. • Up to 3 case studies of collective resource monitoring. • Farmer representation in NRM research decision making increased. • Training of trainers and research partners in gender and/or user analysis conducted for existing and new NRM research partnerships.	• Comparative analysis and case studies of organizational options published on PRGA home page. • NRM small-grant annual reports; PhD dissertations. • Farmer representatives on collaborating projects' stakeholder committees and on PRGA planning committee. • Directory of trainers for training in gender and/or user and impact analysis in NRM on PRGA home page.	• Cooperating projects are willing to test a range of methods and indicators. • Cooperating projects comply with small-grant conditions to set up stakeholder committees. • Training in PRGA and impact analysis is of interest to cooperating institutions.

Narrative Summary	Measurable Indicators	Means of Verification	Important Assumptions
4. Effective methods developed for involving gender-differentiated and other direct and indirect stakeholders in NRM.	• A comparison of costs and benefits to technology design and adoption of different levels of participation and the inclusion of different types of users across types of NRM and scales of management is compiled and published as a working paper. • Guides for involving different stakeholder groups in participatory NRM are accessible.	• Working paper, PhD dissertations, and PRGA home page on costs and benefits. • Published resources on methods for stakeholder participation on PRGA home page.	• Reliable data can be obtained at a meaningful scale for estimating costs and projecting benefits. • This compilation of resource materials is seen as needed by PRGA networks.
Use of gender analysis "mainstreamed"			
Outputs 1. Effective methods and capacity for using gender and/or stakeholder analysis developed.	• A guideline is available from the GWG on special methods for effective stakeholder/user participation in PB and NRM technology development oriented at the inclusion of the illiterate, poor, women, and other types of disadvantaged people. • Approaches to using gender and/or stakeholder analysis, information on their likely outcomes and their costs are integrated into published PBG and NRMG participatory research guidelines. • Program workshops and training support integrate gender and/or stakeholder analysis. • Gender and/or stakeholder analysis is being applied appropriately to targeted technology designed for specific kinds of users, in particular poor rural women, by at least 50% of the Centers and/or their partners collaborating in the PRGA small-grant programs. • Program organization uses appropriate procedures for representing gender-differentiated stakeholders at project steering committee and Program Planning Group levels.	• GWG guidelines; PRGA home page. • PBG and NRMG published guidelines, annual reports, PRGA home page. • Annual reports on training events. • Small-grant annual reports; site visits to collaborating Centers; interviews with small-grant recipients. • Reports of small-grant steering committee and Program Planning Group participation.	• Projects are interested in implementing innovations as regards gender and/or user analysis and involvement in research steering committees. • Projects are willing to monitor costs and share historical data on costs.
2. Effects of using gender and/or stakeholder analysis in technology development assessed.	• Results of research on effects of differentiating users by gender and other characteristics, on adoption of PPB and NRM technologies by different groups are disseminated and being used by Centers and/or partners. • Results of research on effects of differentiating users by gender and other characteristics on design of PB or NRM technologies is disseminated and being used by Centers and/or partners.	• Working papers. • PhD dissertations. • PRGA home page. • Small-grant annual reports. • Site visits.	PB and NRM guidelines are published.

Financial Tables

Table 1. CIAT Research Agenda--Requirements by Undertaking, 2000 (expenditure in US$ millions).

Center Projects	Increasing Productivity	Protecting the Environment	Saving Biodiversity	Improving Policies	Strengthening NARS	PROJECT TOTALS
01. SB - 1 : Genetic Resources	0.18	0.00	0.95	0.00	0.06	**1.19**
02. SB - 2 : Agrobiodiversity	1.68	0.00	1.22	0.00	0.15	**3.05**
03. IP - 1 : Beans	2.20	0.13	0.00	0.00	0.26	**2.59**
04. IP - 2 : Beans in Africa	2.45	0.35	0.00	0.00	0.70	**3.49**
05. IP - 3 : Cassava	0.86	0.07	0.36	0.00	0.14	**1.44**
06. IP - 4 : Rice	1.84	0.14	0.57	0.14	0.14	**2.83**
07. IP - 5 : Tropical Grasses and Legumes	0.88	0.10	0.78	0.00	0.20	**1.96**
08. PE - 1 : IPM	0.50	0.67	0.33	0.00	0.17	**1.67**
09. PE - 2 : Soils	0.74	0.84	0.11	0.00	0.42	**2.11**
10. PE - 3 : Hillsides	0.16	1.88	0.16	0.63	0.31	**3.14**
11. PE - 4 : Land Use	0.24	1.42	0.24	0.47	0.00	**2.36**
12. PE - 5 : Sustainable Systems for Smallholders	1.27	0.89	0.00	0.00	0.38	**2.53**
13. SN - 1 : Rural Agroenterprises	0.31	0.31	0.00	0.00	0.94	**1.56**
14. SN - 2 : Linkages with NARS	0.00	0.00	0.00	0.00	1.81	**1.81**
15. SN - 3 : Farmer Participatory Research	0.43	0.22	0.00	0.00	0.22	**0.86**
16. BP - 1 : Impact Assessment	0.00	0.00	0.00	0.51	0.00	**0.51**
17. SW -1 : Ecoregional Program for Tropical Latin America	0.06	0.10	0.03	0.03	0.04	**0.25**
18. SW -2 : Soil, Water, and Nutrient Management (SWNM)	0.27	0.45	0.00	0.09	0.09	**0.90**
19. SW -3 : Systemwide Program on Participatory Research and Gender Analysis	0.88	0.53	0.00	0.00	0.35	**1.75**
UNDERTAKING TOTALS	**14.9**	**8.1**	**4.7**	**1.9**	**6.4**	**36.00**

Table 2. CIAT Research Agenda--By CGIAR Activity, 1998-2002 (expenditure in US$ millions).

	1998 (actual)	1999 (est.)	2000 (proposal)	2001 (plan)	2002 (plan)
Increasing Productivity	15.0	14.8	14.9	14.9	14.9
of which:					
Germplasm Enhancement and Breeding	9.7	9.6	9.8	9.8	9.8
Production Systems Development and Mgt.	5.3	5.2	5.2	5.2	5.2
Protecting the Environment	7.4	8.4	8.1	8.1	8.1
Saving Biodiversity	4.6	4.8	4.7	4.7	4.7
Improving Policies	1.7	2.0	1.9	1.9	1.9
Strengthening NARS	6.1	6.6	6.4	6.4	6.4
of which:					
Training and Professional Development	1.7	1.8	1.7	1.7	1.7
Documentation, Publications, Info. Dissemination	1.7	1.9	1.8	1.8	1.8
Organization and Management Counselling	0.4	0.5	0.7	0.7	0.7
Networks	2.3	2.4	2.1	2.1	2.1
TOTAL	34.8	36.6	36.0	36.0	36.0

Illustrative Allocation of Resources by Output Logical Framework Format

Output:	1998 (actual)	1999 (est.)	2000 (proposal)	2001 (plan)	2002 (plan)
Germplasm Improvement	9.7	9.6	9.8	9.8	9.8
Germplasm Collection	4.6	4.8	4.7	4.7	4.7
Sustainable Production	14.9	16.0	15.4	15.4	15.4
Policy	1.7	2.0	1.9	1.9	1.9
Enhancing NARS	3.8	4.2	4.3	4.3	4.3
TOTAL	34.8	36.6	36.0	36.0	36.0

Table 3. CIAT Research Agenda--Project and Undertaking Cost Summary, 1998-2002 (in US$ millions).

	1998 (actual)	1999 (est.)	2000 (proposal)	2001 (plan)	2002 (plan)
01. SB - 1 : Genetic Resources	1.2	1.3	1.2	1.2	1.2
02. SB - 2 : Agrobiodiversity	3.3	3.0	3.1	3.1	3.1
03. IP - 1 : Beans	2.8	2.5	2.6	2.6	2.6
04. IP - 2 : Beans in Africa	3.8	3.5	3.5	3.5	3.5
05. IP - 3 : Cassava	1.2	1.3	1.4	1.4	1.4
06. IP - 4 : Rice	2.7	2.7	2.8	2.8	2.8
07. IP - 5 : Tropical Grasses and Legumes	1.6	2.0	2.0	2.0	2.0
08. PE - 1 : IPM	1.8	1.6	1.7	1.7	1.7
09. PE - 2 : Soils	1.9	2.1	2.1	2.1	2.1
10. PE - 3 : Hillsides	2.6	3.3	3.1	3.1	3.1
11. PE - 4 : Land Use	1.9	2.6	2.4	2.4	2.4
12. PE - 5 : Sustainable Systems for Smallholders	3.0	2.3	2.5	2.5	2.5
13. SN - 1 : Rural Agroenterprises	1.4	1.5	1.6	1.6	1.6
14. SN - 2 : Linkages with NARS	1.7	2.0	1.8	1.8	1.8
15. SN - 3 : Farmer Participatory Research	1.0	0.9	0.9	0.9	0.9
16. BP - 1 : Impact Assessment	0.5	0.5	0.5	0.5	0.5
17. SW -1 : Ecoregional Program for Tropical Latin America	0.2	0.5	0.3	0.3	0.3
18. SW -2 : Soil, Water, and Nutrient Management (SWNM)	0.8	1.1	0.9	0.9	0.9
19. SW -3 : Systemwide Program on Participatory Research and Gender Analysis	1.3	2.0	1.8	1.8	1.8
Total	34.8	36.6	36.0	36.0	36.0

Summary by Undertaking:	1998 (actual)	1999 (est.)	2000 (proposal)	2001 (plan)	2002 (plan)
Increasing Productivity	15.0	14.8	14.9	14.9	14.9
Protecting the Environment	7.4	8.4	8.1	8.1	8.1
Saving Biodiversity	4.6	4.8	4.7	4.7	4.7
Improving Policies	1.7	2.0	1.9	1.9	1.9
Strengthening NARS	6.1	6.6	6.4	6.4	6.4
Total:	34.8	36.6	36.0	36.0	36.0

Institutional Cost Components:	1998 (actual)	1999 (est.)	2000 (proposal)	2001 (plan)	2002 (plan)
Direct Project Costs	23.70	26.78	26.44	26.44	26.44
Indirect Project Costs (Overhead)	11.09	9.82	9.56	9.56	9.56
Total Project Costs	34.79	36.60	36.00	36.00	36.00

Table 4. CIAT Allocation of Project Costs to CGIAR Activities, 1999-2002 (in US$ millions).

Project	Activity	1998 actual	1999 estimated	2000 proposal	2001 plan	2002 plan
01. SB - 1 : Genetic Resources	Enhancement and Breeding (Beans)	0.06	0.06	0.06	0.06	0.06
	Enhancement and Breeding (Cassava)	0.06	0.06	0.06	0.06	0.06
	Enhancement and Breeding (Livestock)	0.06	0.06	0.06	0.06	0.06
	Saving Biodiversity	0.98	1.01	0.95	0.95	0.95
	Strengthening NARS--Training	0.05	0.05	0.05	0.05	0.05
	Strengthening NARS--Information	0.01	0.01	0.01	0.01	0.01
		1.22	1.27	1.19	1.19	1.19
02. SB - 2 : Agrobiodiversity	Enhancement and Breeding (Bean)	0.45	0.41	0.42	0.42	0.42
	Enhancement and Breeding (Cassava)	0.45	0.41	0.42	0.42	0.42
	Enhancement and Breeding (Rice)	0.45	0.41	0.42	0.42	0.42
	Enhancement and Breeding (Livestock)	0.45	0.41	0.42	0.42	0.42
	Saving Biodiversity	1.31	1.18	1.22	1.22	1.22
	Strengthening NARS--Training	0.13	0.12	0.12	0.12	0.12
	Strengthening NARS--Information	0.03	0.03	0.03	0.03	0.03
		3.29	2.95	3.05	3.05	3.05
03. IP - 1 : Beans	Enhancement and Breeding (Bean)	2.08	1.85	1.94	1.94	1.94
	Production Systems (Bean)	0.28	0.25	0.26	0.26	0.26
	Protecting the Environment	0.14	0.12	0.13	0.13	0.13
	Strengthening NARS--Training	0.11	0.10	0.10	0.10	0.10
	Strengthening NARS--Information	0.03	0.02	0.03	0.03	0.03
	Strengthening NARS--Networks	0.14	0.12	0.13	0.13	0.13
		2.77	2.46	2.59	2.59	2.59
04. IP - 2 : Beans in Africa	Enhancement and Breeding (Bean)	1.89	1.73	1.75	1.75	1.75
	Production Systems (Bean)	0.76	0.69	0.70	0.70	0.70
	Protecting the Environment	0.38	0.35	0.35	0.35	0.35
	Strengthening NARS--Training	0.27	0.24	0.24	0.24	0.24
	Strengthening NARS--Information	0.11	0.10	0.10	0.10	0.10
	Strengthening NARS--Networks	0.38	0.35	0.35	0.35	0.35
		3.79	3.45	3.49	3.49	3.49
05. IP - 3 : Cassava	Enhancement and Breeding (Cassava)	0.80	0.65	0.72	0.72	0.72
	Production Systems (Cassava)	0.12	0.13	0.14	0.14	0.14
	Protecting the Environment	0.00	0.00	0.07	0.07	0.07
	Saving Biodiversity	0.36	0.39	0.36	0.36	0.36
	Strengthening NARS--Training	0.04	0.04	0.05	0.05	0.05
	Strengthening NARS--Networks	0.08	0.09	0.09	0.09	0.09
		1.20	1.31	1.44	1.44	1.44
06. IP - 4 : Rice	Enhancement and Breeding (Rice)	1.83	1.82	1.70	1.70	1.70
	Production Systems (Rice)	0.14	0.13	0.14	0.14	0.14
	Protecting the Environment	0.14	0.13	0.14	0.14	0.14
	Saving Biodiversity	0.54	0.54	0.57	0.57	0.57
	Improving Policies	0.14	0.13	0.14	0.14	0.14
	Strengthening NARS--Training	0.05	0.05	0.06	0.06	0.06
	Strengthening NARS--Information	0.03	0.03	0.03	0.03	0.03
	Strengthening NARS--Networks	0.05	0.05	0.06	0.06	0.06
		2.71	2.59	2.83	2.83	2.83
07. IP - 5 : Tropical Grasses and Legumes	Enhancement and Breeding (Livestock)	0.49	0.81	0.59	0.59	0.59
	Production Systems (Livestock)	0.25	0.30	0.29	0.29	0.29
	Protecting the Environment	0.08	0.10	0.10	0.10	0.10
	Saving Biodiversity	0.65	0.81	0.78	0.78	0.78
	Strengthening NARS--Training	0.08	0.10	0.10	0.10	0.10
	Strengthening NARS--Information	0.02	0.02	0.02	0.02	0.02
	Strengthening NARS--Networks	0.07	0.08	0.08	0.08	0.08
		1.63	2.02	1.96	1.96	1.96
08. PE - 1 : IPM	Production Systems (Cassava)	0.54	0.47	0.50	0.50	0.50
	Protecting the Environment	0.72	0.63	0.67	0.67	0.67
	Saving Biodiversity	0.36	0.31	0.33	0.33	0.33
	Strengthening NARS--Networks	0.18	0.16	0.17	0.17	0.17
		1.80	1.56	1.67	1.67	1.67
09. PE - 2 : Soils	Enhancement and Breeding (Rice)	0.09	0.10	0.10	0.10	0.10
	Enhancement and Breeding (Livestock)	0.20	0.22	0.22	0.22	0.22
	Production Systems (Rice)	0.12	0.13	0.13	0.13	0.13
	Production Systems (Livestock)	0.27	0.30	0.30	0.30	0.30
	Protecting the Environment	0.77	0.85	0.84	0.84	0.84
	Saving Biodiversity	0.10	0.11	0.11	0.11	0.11
	Strengthening NARS--Networks	0.39	0.42	0.42	0.42	0.42
		1.93	2.12	2.11	2.11	2.11
10. PE - 3 : Hillsides	Production Systems (Bean)	0.03	0.04	0.04	0.04	0.04
	Production Systems (Cassava)	0.03	0.04	0.04	0.04	0.04
	Production Systems (Livestock)	0.06	0.08	0.08	0.08	0.08
	Protecting the Environment	1.55	2.00	1.68	1.68	1.68
	Saving Biodiversity	0.13	0.17	0.16	0.16	0.16
	Improving Policies	0.52	0.67	0.63	0.63	0.63
	Strengthening NARS--Networks	0.28	0.33	0.31	0.31	0.31
		2.58	3.34	3.14	3.14	3.14

11. PE - 4 : Land Use	Enhancement and Breeding (Beans)	0.05	0.06	0.06	0.06	0.06
	Enhancement and Breeding (Cassava)	0.05	0.06	0.06	0.06	0.06
	Enhancement and Breeding (Rice)	0.05	0.06	0.06	0.06	0.06
	Enhancement and Breeding (Livestock)	0.05	0.06	0.06	0.06	0.06
	Protecting the Environment	1.11	1.53	1.42	1.42	1.42
	Saving Biodiversity	0.19	0.26	0.24	0.24	0.24
	Improving Policies	0.37	0.51	0.47	0.47	0.47
		1.85	**2.55**	**2.36**	**2.36**	**2.36**
12. PE - 5 : Sustainable Systems for Smallholders	Production Systems (Bean)	0.50	0.39	0.42	0.42	0.42
	Production Systems (Cassava)	0.50	0.39	0.42	0.42	0.42
	Production Systems (Livestock)	0.52	0.40	0.42	0.42	0.42
	Protecting the Environment	1.06	0.82	0.89	0.89	0.89
	Strengthening NARS--Training	0.15	0.12	0.13	0.13	0.13
	Strengthening NARS--Information	0.15	0.12	0.13	0.13	0.13
	Strengthening NARS--Networks	0.15	0.12	0.13	0.13	0.13
		3.04	**2.35**	**2.53**	**2.53**	**2.53**
13. SN - 1 : Rural Agroenterprises	Production Systems (Cassava)	0.27	0.30	0.31	0.31	0.31
	Protecting the Environment	0.27	0.30	0.31	0.31	0.31
	Strengthening NARS--Training	0.14	0.15	0.16	0.16	0.16
	Strengthening NARS--Information	0.14	0.15	0.16	0.16	0.16
	Strengthening NARS--Org & Mgt	0.14	0.15	0.47	0.47	0.47
	Strengthening NARS--Networks	0.41	0.46	0.16	0.16	0.16
		1.37	**1.52**	**1.56**	**1.56**	**1.56**
14. SN - 2 : Linkages with NARS	Strengthening NARS--Training	0.51	0.61	0.54	0.54	0.54
	Strengthening NARS--Information	1.03	1.22	1.08	1.08	1.08
	Strengthening NARS--Org & Mgt	0.09	0.10	0.09	0.09	0.09
	Strengthening NARS--Networks	0.09	0.10	0.09	0.09	0.09
		1.71	**2.03**	**1.81**	**1.81**	**1.81**
15. SN - 3 : Farmer Participatory Research	Enhancement and Breeding (Beans)	0.06	0.06	0.07	0.07	0.07
	Enhancement and Breeding (Cassava)	0.06	0.06	0.07	0.07	0.07
	Enhancement and Breeding (Livestock)	0.06	0.06	0.07	0.07	0.07
	Production Systems (Bean)	0.06	0.06	0.07	0.07	0.07
	Production Systems (Cassava)	0.06	0.06	0.07	0.07	0.07
	Production Systems (Livestock)	0.06	0.06	0.07	0.07	0.07
	Protecting the Environment	0.25	0.24	0.22	0.22	0.22
	Strengthening NARS--Training	0.05	0.05	0.04	0.04	0.04
	Strengthening NARS--Information	0.05	0.05	0.04	0.04	0.04
	Strengthening NARS--Org & Mgt	0.15	0.14	0.13	0.13	0.13
		1.01	**0.96**	**0.86**	**0.86**	**0.86**
16. BP - 1 : Impact Assessment	Improving Policies	0.54	0.51	0.51	0.51	0.51
		0.54	**0.51**	**0.51**	**0.51**	**0.51**
17. SW -1 : Ecoregional Program for Tropical Latin America	Production Systems (Bean)	0.01	0.03	0.01	0.01	0.01
	Production Systems (Cassava)	0.01	0.03	0.01	0.01	0.01
	Production Systems (Rice)	0.01	0.03	0.02	0.02	0.02
	Production Systems (Livestock)	0.01	0.03	0.02	0.02	0.02
	Protecting the Environment	0.08	0.16	0.10	0.10	0.10
	Saving Biodiversity	0.02	0.05	0.03	0.03	0.03
	Improving Policies	0.02	0.05	0.03	0.03	0.03
	Strengthening NARS--Training	0.01	0.02	0.01	0.01	0.01
	Strengthening NARS--Networks	0.02	0.05	0.03	0.03	0.03
		0.20	**0.45**	**0.25**	**0.25**	**0.25**
18. SW -2 : Soil, Water, and Nutrient Management (SWNM)	Production Systems (Bean)	0.02	0.03	0.03	0.03	0.03
	Production Systems (Cassava)	0.02	0.03	0.03	0.03	0.03
	Production Systems (Rice)	0.03	0.03	0.03	0.03	0.03
	Production Systems (Livestock)	0.18	0.22	0.19	0.19	0.19
	Protecting the Environment	0.42	0.53	0.45	0.45	0.45
	Improving Policies	0.08	0.11	0.09	0.09	0.09
	Strengthening NARS--Networks	0.08	0.11	0.09	0.09	0.09
		0.84	**1.05**	**0.90**	**0.90**	**0.90**
19. SW -3 : Systemwide Program on Participatory Research and Gender Analysis	Enhancement and Breeding (Beans)	0.08	0.13	0.11	0.11	0.11
	Enhancement and Breeding (Cassava)	0.08	0.13	0.11	0.11	0.11
	Enhancement and Breeding (Rice)	0.08	0.13	0.11	0.11	0.11
	Enhancement and Breeding (Livestock)	0.08	0.13	0.11	0.11	0.11
	Production Systems (Bean)	0.08	0.13	0.11	0.11	0.11
	Production Systems (Cassava)	0.08	0.13	0.11	0.11	0.11
	Production Systems (Rice)	0.08	0.13	0.11	0.11	0.11
	Production Systems (Livestock)	0.08	0.13	0.11	0.11	0.11
	Protecting the Environment	0.39	0.60	0.53	0.53	0.53
	Strengthening NARS--Training	0.11	0.16	0.14	0.14	0.14
	Strengthening NARS--Information	0.11	0.16	0.14	0.14	0.14
	Strengthening NARS--Org & Mgt	0.03	0.04	0.04	0.04	0.04
	Strengthening NARS--Networks	0.03	0.04	0.04	0.04	0.04
		1.32	**2.00**	**1.75**	**1.75**	**1.75**

Summary by Undertaking:

	1998 actual	1999 estimated	2000 proposal	2001 plan	2002 plan
Increasing Productivity	15.0	14.8	14.9	14.9	14.9
Protecting the Environment	7.4	8.4	8.1	8.1	8.1
Saving Biodiversity	4.6	4.8	4.7	4.7	4.7
Improving Policies	1.7	2.0	1.9	1.9	1.9
Stengthening NARS	6.1	6.6	6.4	6.4	6.4
Total:	**34.8**	**36.6**	**36.0**	**36.0**	**36.0**

Table 5. CIAT Research Agenda--Investments by Sector, Commodity, and Region, 1998-2002 (in US$ millions).

PRODUCTION SECTORS & COMMODITIES	1998 (actual)	1999 (estimated)	2000 (proposal	2001 (plan)	2002 (plan)
1/ ***Germplasm Enhancement and Breeding***					
Crops	**8.3**	**8.0**	**8.2**	**8.2**	**8.2**
Beans	4 69	4 31	4 41	4 41	4 41
Cassava	1 32	1 39	1 44	1 44	1 44
Rice	2 29	2 31	2 38	2 38	2 38
Livestock	1.42	1.57	1 53	1 53	1 53
Trees					
Fish					
TOTAL	**9.7**	**9.6**	**9.8**	**9.8**	**9.8**
1/ ***Production Systems Dev. & Management***					
Crops	**3.8**	**3.7**	**3.7**	**3.7**	**3.7**
Beans	1.78	1 63	1 64	1 64	1 64
Cassava	1.68	1 60	1 64	1 64	1 64
Rice	0 37	0 45	0 42	0 42	0 42
Livestock	1.44	1 53	1 48	1 48	1 48
Trees					
Fish					
TOTAL	**5.3**	**5.2**	**5.2**	**5.2**	**5.2**
2/ ***Total Research Agenda***					
Crops	**28.2**	**28.9**	**28.8**	**28.8**	**28.8**
Beans	15 01	14 72	14 59	14 59	14 59
Cassava	6 96	7 40	7 42	7 42	7 42
Rice	6 18	6 82	6 75	6 75	6 75
Livestock	6 63	7 66	7 25	7 25	7 25
Trees					
Fish					
TOTAL	**34.8**	**36.6**	**36.0**	**36.0**	**36.0**
REGION	**1998 (actual)**	**1999 (estimated)**	**2000 (proposal)**	**2001 (plan)**	**2002 (plan)**
Sub-Saharan Africa (SSA)	7 76	8 29	8 59	8 66	8 66
Asia	2 90	3 67	3 74	3 86	3 86
Latin American and the Caribbean (LAC)	23 49	23 95	23 08	22 88	22 88
West Asia and North Africa (WANA)	0 64	0 69	0 60	0 60	0 60
TOTAL	**34.8**	**36.6**	**36.0**	**36.0**	**36.0**

1/ Includes overheads, and must add up to the sum of the individual sectors/commodities from the project portfolio

2/ Equals the sum of sectors/commmodities in Increasing Productivity, scaled up to total investments for the Research Agenda

Loading Calculation

Total Research Agenda	**1998**	**1999**	**2000**	**2001**	**2002**
Beans	15 01	14 72	14 59	14 59	14 59
Cassava	6 96	7 40	7 42	7 42	7 42
Rice	6 18	6 82	6 75	6 75	6 75
Livestock	6 63	7 66	7 25	7 25	7 25
	34.8	**36.6**	**36.0**	**36.0**	**36.0**

Table 6. CIAT Research Agenda--Expenditure by Functional Category and Capital Investment, 1998-2002 (in US$ millions).

OBJECT OF EXPENDITURE	1998 (actual)	1999 (estimated)	2000 (proposal	2001 (plan)	2002 (plan)
Personnel	18.5	18.2	18.1	18.2	18.3
Supplies and Services	12.5	14.6	14.2	14.1	14.0
Operational Travel	2.4	2.4	2.3	2.3	2.3
Depreciation	1.4	1.4	1.4	1.4	1.4
TOTAL	**34.8**	**36.6**	**36.0**	**36.0**	**36.0**
CAPITAL INVESTMENTS	**1998 (actual)**	**1999 (estimated)**	**2000 (proposal**	**2001 (plan)**	**2002 (plan)**
Physical Facilities					
Research	0.19	0.28	0.20	0.18	0.18
Training	0.04	0.10	0.05	0.05	0.05
Administration	0.02	0.10	0.05	0.05	0.05
Housing					
Auxiliary Units					
Subtotal	**0.25**	**0.48**	**0.30**	**0.28**	**0.28**
Infrastructure and Leasehold	**0.30**	**0.30**	**0.10**	**0.10**	**0.10**
Furnishing and Equipment					
Farming	0.09	0.10	0.10	0.10	0.10
Laboratory and Scientific	0.31	0.32	0.40	0.16	0.16
Office	0.02	0.20	0.10	0.10	0.10
Housing					
Auxiliary Units	0.01	0.10	0.05	0.05	0.05
Computers	0.81	0.78	0.56	0.56	0.56
Vehicles	1.20	0.76	0.65	0.65	0.65
Aircraft					
Subtotal	**2.44**	**2.26**	**1.86**	**1.62**	**1.62**
TOTAL	**2.99**	**3.04**	**2.26**	**2.00**	**2.00**
CAPITAL FUND CASH RECONCILIATION	**1998 (actual)**	**1999 (estimated)**	**2000 (proposal**	**2001 (plan)**	**2002 (plan)**
Balance, January 1	2.35	1.28	0.36	0.10	0.10
plus: annual depreciation charge	1.40	1.40	1.40	1.40	1.40
plus / minus: disposal gains/(losses)	0.88	0.52	0.45	0.45	0.45
plus / minus: other	-0.36	0.20	0.15	0.15	0.15
minus: asset acquisition costs	-2.99	-3.04	-2.26	-2.00	-2.00
equals: Balance, December 31	**1.28**	**0.36**	**0.10**	**0.10**	**0.10**

Table 7. CIAT Research Agenda--Financing Summary, 1998-1999 (in US$ millions).

Member	1998 ($ actual)	1998 (nat. currency)	1999 ($ estimated)	1999 (nat. currency)
Unrestricted Contributions				
AUSTRALIA	0.18	0.25	0.16	0.25
BELGIUM	0.08	2.80	0.08	3.00
BRAZIL	0.21	0.21	0.13	0.13
CANADA	0.77	1.13	0.72	1.13
COLOMBIA	1.68	2686.00	1.76	3096.96
DENMARK	0.56	3.71	0.68	3.71
EU	1.98	1.68	1.99	1.69
FORD FDN	0.40	0.40	0.00	0.00
GERMANY	0.63	0.90	0.64	0.90
IDB	0.21	0.21	0.00	0.00
JAPAN	3.42	395.00	2.88	395.00
MEXICO	0.03	0.03	0.02	0.02
NETHERLANDS	0.11	0.20	0.10	0.20
NORWAY	0.61	3.80	0.50	3.80
SOUTH AFRICA	0.02	0.02	0.02	0.02
SPAIN	0.04	0.04	0.04	0.04
SWEDEN	0.27	2.10	0.30	2.31
SWITZERLAND	1.19	1.70	1.14	1.50
USA	2.37	2.37	2.37	2.37
WORLD BANK	3.10	3.10	3.30	3.30
UNITED KINGDOM	0.64	0.38	0.60	0.37
Subtotal	18.3		17.3	

	1998 ($ actual)	1998 (nat. currency)	1999 ($ estimated)	1999 (nat. currency)
Targeted Contributions				
ADB	0.00		0.20	
AUSTRALIA	0.47		0.12	
BELGIUM	0.06		0.30	
CANADA	0.80		0.95	
CGIAR	0.00		0.04	
CIP	0.02		0.00	
COLOMBIA	0.62		0.79	
DENMARK	0.76		0.41	
EU	0.00		0.09	
FAO	0.03		0.05	
FLAR	0.47		0.50	
FORD FDN	0.00		0.40	
FRANCE	1.10		0.97	
GERMANY	0.91		1.01	
ICRISAT	0.04		0.00	
ICRAF	0.08		0.12	
IDB	0.43		0.71	
IDRC	0.44		0.92	
IFAD	0.15		0.31	
IFDC	0.00		0.02	
IFPRI	0.06		0.11	
IICA	0.10		0.02	
ILRI	0.08		0.17	
IRAN	0.01		0.06	
ISNAR	0.09		0.38	
ITALY	0.17		0.14	
JAPAN	0.25		0.36	
KELLOGG FDN	0.28		0.10	
NESTLE	0.16		0.02	
NETHERLANDS	0.37		0.23	
NEW ZEALAND	0.09		0.68	
NIPPON FDN	0.35		0.24	
NORWAY	0.36		0.44	
NOVARTIS	0.00		0.16	
OFI	0.02		0.01	
OTHERS	0.04		0.03	
PERU	0.00		0.04	
POLAR	0.00		0.02	
ROCKEFELLER FDN	0.64		0.35	
SWITZERLAND	2.91		3.10	
UNDP	0.00		0.08	
UNEP	0.03		0.00	
UNITED KINGDOM	0.79		0.78	
USA	0.58		0.98	
WORLD BANK	0.05		0.23	
Subtotal	13.8		16.5	

TOTAL CONTRIBUTIONS	32.0		33.8	

Total Agenda Financing	1998 ($ actual)	1999 ($ estimated)
Member Contributions	32.0	33.8
+ Center Income	2.8	2.8
= Total Financing	34.8	36.6

Table 8a. CIAT Allocation of 1998 Member Funds for Projects by Undertaking (in US$ millions).

Project	Member	Total	Undertakings					
			Increase Productivity		Protect Environ	Saving Biodivers	Improve Policies	Strengthen NARS
			Breeding	Systems				Training / Other
01 SB - 1 Genetic Resources	**March 1998 Submission**	1.25	0.19			1.06		0.05 / 0.01
	Others-SINGER	0.00	0.00			0.00		0.00 / 0.00
	Unrestricted + center inc	1.22	0.18			0.98		0.05 / 0.01
	Total Project Cost	1.22	0.18			0.98		0.05 / 0.01
02 SB - 2 Agrobiodiversity	**March 1998 Submission**	3.73	2.05			1.49		0.15 / 0.04
	Colombia	0.03	0.02			0.01		0.00 / 0.00
	France	0.22	0.12			0.09		0.01 / 0.00
	Germany	0.07	0.04			0.03		0.00 / 0.00
	ILRI	0.01	0.00			0.00		0.00 / 0.00
	Netherlands	0.16	0.09			0.06		0.01 / 0.00
	Rockefeller F	0.34	0.19			0.14		0.01 / 0.00
	Switzerland	0.06	0.03			0.02		0.00 / 0.00
	United Kingdom	0.02	0.01			0.01		0.00 / 0.00
	USA	0.08	0.04			0.03		0.00 / 0.00
	Unrestricted + center inc	2.80	1.27			0.92		0.09 / 0.02
	Total Project Cost	3.79	1.81			1.31		0.13 / 0.03
03 IP - 1 Beans	**March 1998 Submission**	2.76	2.16	0.29	0.14			0.11 / 0.17
	Australia	0.05	0.04	0.01	0.00			0.00 / 0.00
	Belgium	0.06	0.04	0.01	0.00			0.00 / 0.00
	Canada	0.00	0.00	0.00	0.00			0.00 / 0.00
	IFPRI	0.04	0.03	0.00	0.00			0.00 / 0.00
	Iran	0.01	0.01	0.00	0.00			0.00 / 0.00
	Switzerland	0.13	0.73	0.10	0.05			0.04 / 0.06
	USA	0.01	0.00	0.00	0.00			0.00 / 0.00
	Unrestricted + center inc	1.82	1.22	0.16	0.08			0.06 / 0.10
	Total Project Cost	2.77	2.08	0.28	0.14			0.11 / 0.17
04 IP - 2 Beans in Africa	**March 1998 Submission**	3.44	1.86	0.86	0.17			0.22 / 0.33
	Canada	0.93	0.42	0.17	0.08			0.06 / 0.11
	ICRAF	0.04	0.02	0.01	0.00			0.00 / 0.01
	Others-SIDA	0.01	0.01	0.00	0.00			0.00 / 0.00
	Rockefeller F	0.14	0.07	0.03	0.01			0.01 / 0.02
	Switzerland	0.72	0.39	0.16	0.08			0.05 / 0.10
	United Kingdom	0.41	0.20	0.08	0.04			0.03 / 0.05
	USA	0.24	0.24	0.09	0.05			0.02 / 0.06
	Unrestricted + center inc	1.91	0.55	0.22	0.11			0.08 / 0.14
	Total Project Cost	3.79	1.89	0.75	0.38			0.27 / 0.49
05 IP - 3 Cassava	**March 1998 Submission**	1.70	0.65	0.17		0.51		0.06 / 0.11
	Colombia	0.11	0.06	0.01	0.01	0.03		0.00 / 0.01
	ICRISAT	0.04	0.02	0.00	0.00	0.01		0.00 / 0.00
	IDB	0.06	0.03	0.01	0.00	0.02		0.00 / 0.00
	IFAD	0.11	0.06	0.01	0.01	0.03		0.00 / 0.01
	IFPRI	0.02	0.01	0.00	0.00	0.01		0.00 / 0.00
	IICA	0.11	0.05	0.01	0.01	0.03		0.00 / 0.01
	Unrestricted + center inc	0.74	0.37	0.07	0.04	0.18		0.03 / 0.05
	Total Project Cost	1.20	0.60	0.12	0.06	0.30		0.04 / 0.08
06 IP - 4 Rice	**March 1998 Submission**	2.26	1.97	0.14		0.58	0.14	0.06 / 0.09
	Colombia	0.07	0.04	0.00	0.00	0.01	0.00	0.00 / 0.00
	FLAR	0.47	0.28	0.02	0.02	0.09	0.02	0.01 / 0.01
	France	0.36	0.21	0.02	0.02	0.07	0.02	0.01 / 0.01
	United Kingdom	0.02	0.01	0.00	0.00	0.00	0.00	0.00 / 0.00
	Unrestricted + center inc	1.76	1.06	0.09	0.09	0.36	0.09	0.04 / 0.05
	Total Project Cost	2.71	1.63	0.14	0.14	0.54	0.14	0.05 / 0.08
07 IP - 5 Tropical Grasses and Legumes	**March 1998 Submission**	2.27	0.68	0.34	0.11	0.91		0.11 / 0.11
	Australia	0.01	0.00	0.00	0.00	0.00		0.00 / 0.00
	Colombia	0.08	0.02	0.01	0.00	0.03		0.00 / 0.00
	Germany	0.02	0.01	0.00	0.00	0.01		0.00 / 0.00
	Japan	0.27	0.07	0.03	0.01	0.09		0.01 / 0.01
	United Kingdom	0.03	0.01	0.00	0.00	0.01		0.00 / 0.00
	Unrestricted + center inc	1.28	0.38	0.19	0.06	0.51		0.06 / 0.06
	Total Project Cost	1.63	0.49	0.25	0.08	0.65		0.08 / 0.08
08 PE - 1 IPM	**March 1998 Submission**	1.79		0.54	0.72	0.36		0.18
	Denmark	0.60		0.18	0.24	0.12		0.06
	France	0.16		0.05	0.06	0.03		0.02
	New Zealand	0.07		0.02	0.03	0.01		0.01
	Others	0.01		0.00	0.00	0.00		0.00
	Switzerland	0.01		0.00	0.00	0.00		0.00
	Unrestricted + center inc	0.96		0.29	0.38	0.19		0.10
	Total Project Cost	1.80		0.54	0.72	0.36		0.18
09 PE - 2 Soils	**March 1998 Submission**	2.09	0.31	0.42	0.84	0.10		0.42
	Colombia	0.07	0.01	0.01	0.03	0.00		0.01
	Germany	0.06	0.01	0.01	0.02	0.00		0.01
	Switzerland	0.00	0.00	0.00	0.00	0.00		0.00
	United Kingdom	0.16	0.02	0.03	0.06	0.01		0.03
	Unrestricted + center inc	1.64	0.25	0.33	0.66	0.08		0.33
	Total Project Cost	1.93	0.29	0.39	0.77	0.10		0.39
10 PE - 3 Hillsides	**March 1998 Submission**	2.33		0.12	1.40	0.12	0.47	0.23
	Denmark	0.03		0.00	0.02	0.00	0.01	0.00
	Canada	0.02		0.00	0.01	0.00	0.00	0.00
	IDRC	0.03		0.00	0.05	0.00	0.02	0.01
	ISNAR	0.09		0.00	0.05	0.00	0.02	0.01
	Switzerland	0.04		0.03	0.38	0.03	0.13	0.06
	Unrestricted + center inc	1.72		0.09	1.03	0.09	0.34	0.17
	Total Project Cost	1.58		0.13	1.55	0.13	0.52	0.26

11 PE - 4 Land Use	**March 1998 Submission**	**1.39**	**0.14**		**0.83**	**0.14**	**0.28**		
	Canada	**0.04**	0.00		0.02	0.00	0.01		
	CIP	**0.02**	0.00		0.01	0.00	0.00		
	IDB	**0.02**	0.00		0.01	0.00	0.00		
	Rockefeller Fdn	**0.01**	0.00		0.00	0.00	0.00		
	UNEP	**0.03**	0.00		0.02	0.00	0.01		
	World Bank	**0.05**	0.00		0.03	0.00	0.01		
	Unrestricted + center inc	**1.69**	0.17		1.02	0.17	0.34		
	Total Project Cost	**1.85**	**0.19**		**1.11**	**0.19**	**0.37**		
12 PE - 5 Sustainable Systems for Smallholders	**March 1998 Submission**	**3.27**		**2.78**				**0.33**	**0.16**
	Australia	**0.39**		0.19	0.14			0.02	0.04
	Germany	**0.13**		0.06	0.04			0.01	0.01
	ICRAF	**0.05**		0.02	0.02			0.00	0.00
	IDB	**0.23**		0.12	0.08			0.01	0.02
	IDRC	**0.02**		0.01	0.01			0.00	0.00
	ILRI	**0.07**		0.03	0.02			0.00	0.01
	Nestle	**0.16**		0.08	0.06			0.01	0.02
	Nippon Fdn	**0.35**		0.17	0.12			0.02	0.03
	OFI	**0.02**		0.01	0.01			0.00	0.00
	Otros	**0.01**		0.00	0.00			0.00	0.00
	Switzerland	**0.01**		0.00	0.00			0.00	0.00
	Unrestricted + center inc	**1.60**		0.80	0.56			0.08	0.16
	Total Project Cost	**3.04**		**1.52**	**1.06**			**0.15**	**0.30**
13 SN - 1 Rural Agroenterprises	**March 1998 Submission**	**1.43**		**0.29**	**0.29**			**0.14**	**0.72**
	Colombia	**0.05**		0.01	0.01			0.00	0.02
	France	**0.37**		0.07	0.07			0.04	0.18
	IDRC	**0.13**		0.03	0.03			0.01	0.07
	IFAD	**0.02**		0.00	0.00			0.00	0.01
	Unrestricted + center inc	**0.79**		0.16	0.16			0.08	0.40
	Total Project Cost	**1.37**		**0.27**	**0.27**			**0.14**	**0.68**
14 SN - 2 Linkages with NARS	**March 1998 Submission**	**1.86**						**0.56**	**1.30**
	Colombia	**0.21**						0.06	0.14
	FAO	**0.03**						0.01	0.02
	Kellogg Fdn	**0.05**						0.02	0.04
	Unrestricted + center inc	**1.43**						0.43	1.00
	Total Project Cost	**1.71**						**0.51**	**1.20**
15 SN - 3 Farmer Participatory Research	**March 1998 Submission**	**1.03**						**0.41**	**0.62**
	Denmark	**0.07**	0.02	0.02	0.02			0.00	0.01
	Kellogg Fdn	**0.23**	0.06	0.06	0.06			0.01	0.05
	IDRC	**0.07**	0.02	0.02	0.02			0.00	0.01
	Unrestricted + center inc	**0.65**	0.16	0.16	0.16			0.03	0.13
	Total Project Cost	**1.01**	**0.25**	**0.25**	**0.25**			**0.05**	**0.20**
16 BP - 1 Impact Assessment	**March 1998 Submission**	**0.54**					**0.54**		
	Rockefeller Fdn	**0.05**					0.05		
	Unrestricted + center inc	**0.49**					0.49		
	Total Project Cost	**0.54**					**0.54**		
17 SW - 1 Ecoregional Program for Tropical Latin America	**March 1998 Submission**	**0.32**		**0.06**	**0.11**			**0.02**	**0.01**
	IDB	**0.12**		0.03	0.05	0.01	0.01	0.01	0.01
	Switzerland	**0.09**		0.02	0.03	0.01	0.01	0.00	0.01
	Total Project Cost	**0.20**		**0.05**	**0.08**	**0.02**	**0.02**	**0.01**	**0.02**
18 SW - 2 Soil, Water, and Nutrient Management (SWNM)	**March 1998 Submission**	**0.76**		**0.23**	**0.46**				**0.08**
	Germany	**0.11**		0.03	0.06		0.01		0.01
	Netherlands	**0.10**		0.03	0.05		0.01		0.01
	Norway	**0.17**		0.05	0.09		0.02		0.02
	Switzerland	**0.29**		0.09	0.15		0.03		0.03
	United Kingdom	**0.16**		0.05	0.08		0.02		0.02
	Total Project Cost	**0.84**		**0.25**	**0.42**		**0.08**		**0.09**
19 SW - 3 Systemwide Program on Participatory Research and Gender Analysis	**March 1998 Submission**	**1.32**						**0.53**	**0.79**
	Australia	**0.02**	0.00	0.00	0.01			0.00	0.00
	Denmark	**0.07**	0.02	0.02	0.02			0.01	0.01
	Germany	**0.52**	0.13	0.13	0.16			0.04	0.06
	IDRC	**0.13**	0.03	0.03	0.04			0.01	0.02
	Italy	**0.17**	0.04	0.04	0.05			0.01	0.02
	Japan	**0.03**	0.01	0.01	0.01			0.00	0.00
	Netherlands	**0.11**	0.03	0.03	0.03			0.01	0.01
	New Zealand	**0.02**	0.01	0.01	0.01			0.00	0.00
	Norway	**0.19**	0.05	0.05	0.06			0.02	0.02
	Switzerland	**0.06**	0.01	0.01	0.02			0.00	0.01
	Total Project Cost	**1.32**	**0.33**	**0.33**	**0.39**			**0.11**	**0.16**

1/ Individual members providing targeted funding to pay specific project costs

Center Totals		**Undertakings**							
		Increase Productivity		**Protect**	**Saving**	**Improve**	**Strengthen NARS**	
	Total	Breeding	Systems	**Environ**	**Biodivers**	**Policies**	Training	Other
Total Targeted Funding	**13.76**	**4.11**	**2.71**	**3.08**	**1.10**	**0.40**	**0.67**	**1.69**
Total Unrestricted Funding	**18.26**	**4.88**	**2.22**	**3.78**	**3.02**	**1.10**	**0.89**	**2.37**
Total Center Income	**2.76**	**0.74**	**0.34**	**0.57**	**0.46**	**0.17**	**0.14**	**0.36**
Total Allocations	**34.79**	**9.73**	**5.27**	**7.43**	**4.58**	**1.66**	**1.70**	**4.42**

Table 8b. CIAT Allocation of 1999 Member Funds for Projects by Undertaking (in US$ millions).

			Undertakings						
			Increase Productivity		Protect	Saving	Improve	Strengthen NARS	
Project	Member	Total	Breeding	Systems	Environ	Biodivers	Policies	Training	Other
01 SB - 1 Genetic Resources	**March 1998 Submission**	**1.22**	**0.18**			**0.98**		**0.05**	**0.01**
	Others-SINGER	**0.03**	0 01			0 03		0 00	0 00
	Unrestricted + center inc	**1.23**	0 18			0 99		0 05	0 01
	Total Project Cost	**1.27**	**0.19**			**1.01**		**0.05**	**0.01**
02 SB - 2 Agrobiodiversity	**March 1998 Submission**	**3.59**	**1.98**			**1.44**		**0.14**	**0.04**
	Belgium	**0.20**	0 11			0 08		0 01	0 00
	Colombia	**0.02**	0 01			0 01		0 00	0 00
	France	**0.18**	0 10			0 07		0 01	0 00
	ILRI	**0.01**	0 00			0 00		0 00	0 00
	Inst. Techn. Polar	**0.02**	0 01			0 01		0 00	0 00
	Rockefeller Fdn	**0.32**	0 17			0 13		0 01	0 00
	Switzerland	**0.11**	0 06			0 04		0 00	0 00
	United Kingdom	**0.11**	0 06			0 04		0 00	0 00
	USA	**0.05**	0 03			0 02		0 00	0 00
	Unrestricted + center inc	**1.95**	1 07			0 78		0 08	0 02
	Total Project Cost	**2.95**	**1.62**			**1.18**		**0.12**	**0.03**
03 IP - 1 Beans	**March 1998 Submission**	**2.72**	**2.04**	**0.27**	**0.14**			**0.11**	**0.16**
	Belgium	**0.10**	0 07	0 01	0 00			0 00	0 01
	Canada	**0.03**	0 02	0 00	0 00			0 00	0 00
	IFPRI	**0.04**	0 03	0 00	0 00			0 00	0 00
	Iran	**0.06**	0 04	0 01	0 00			0 00	0 00
	Switzerland	**0.71**	0 53	0 07	0 04			0 03	0 04
	USA	**0.06**	0 04	0 01	0 00			0 00	0 00
	Unrestricted + center inc	**1.47**	1 10	0 15	0 07			0 06	0 09
	Total Project Cost	**2.46**	**1.85**	**0.25**	**0.12**			**0.10**	**0.15**
04 IP - 2 Beans in Africa	**March 1998 Submission**	**3.23**	**1.68**	**0.84**	**0.19**			**0.18**	**0.34**
	Canada	**0.80**	0 40	0 16	0 08			0 06	0 10
	ICRAF	**0.07**	0 03	0 01	0 01			0 00	0 01
	Rockefeller Fdn	**0.01**	0 00	0 00	0 00			0 00	0 00
	Switzerland	**0.90**	0 45	0 18	0 09			0 06	0 12
	United Kingdom	**0.19**	0 10	0 04	0 02			0 01	0 02
	USA	**0.62**	0 31	0 12	0 06			0 04	0 06
	Unrestricted + center inc	**0.87**	0 43	0 17	0 09			0 06	0 11
	Total Project Cost	**3.45**	**1.73**	**0.69**	**0.35**			**0.24**	**0.45**
05 IP - 3 Cassava	**March 1998 Submission**	**1.52**	**0.76**	**0.15**	**0.09**	**0.38**		**0.15**	
	Colombia	**0.12**	0 06	0 01	0 01	0 03		0 00	0 01
	IDB	**0.14**	0 07	0 01	0 01	0 03		0 00	0 01
	IFAD	**0.23**	0 11	0 02	0 01	0 06		0 01	0 01
	IFPRI	**0.08**	0 04	0 01	0 00	0 02		0 00	0 01
	IICA	**0.02**	0 01	0 00	0 00	0 00		0 00	0 00
	Unrestricted + center inc	**0.72**	0 36	0 07	0 04	0 18		0 02	0 05
	Total Project Cost	**1.31**	**0.65**	**0.13**	**0.07**	**0.33**		**0.04**	**0.09**
06 IP - 4 Rice	**March 1998 Submission**	**2.76**	**1.80**	**0.14**		**0.65**	**0.14**	**0.06**	**0.08**
	Colombia	**0.02**	0 01	0 00	0 00	0 00	0 00	0 00	0 00
	FLAR	**0.50**	0 30	0 02	0 02	0 10	0 02	0 01	0 01
	France	**0.30**	0 18	0 01	0 01	0 06	0 01	0 01	0 01
	Peru	**0.04**	0 02	0 00	0 00	0 01	0 00	0 00	0 00
	United Kingdom	**0.05**	0 03	0 00	0 00	0 01	0 00	0 00	0 00
	Unrestricted + center inc	**1.78**	1 07	0 09	0 09	0 36	0 09	0 04	0 05
	Total Project Cost	**2.59**	**1.62**	**0.13**	**0.13**	**0.54**	**0.13**	**0.05**	**0.08**
07 IP - 5 Tropical Grasses and Legumes	**March 1998 Submission**	**2.26**	**0.68**	**0.34**	**0.11**	**0.91**		**0.11**	**0.11**
	Australia	**0.07**	0 02	0 01	0 00	0 03		0 00	0 00
	Colombia	**0.19**	0 06	0 03	0 01	0 07		0 01	0 01
	Germany	**0.01**	0 00	0 00	0 00	0 00		0 00	0 00
	New Zealand	**0.20**	0 06	0 03	0 01	0 08		0 01	0 01
	OFI	**0.01**	0 00	0 00	0 00	0 00		0 00	0 00
	Japan	**0.34**	0 10	0 05	0 02	0 14		0 02	0 02
	United Kingdom	**0.01**	0 00	0 00	0 00	0 01		0 00	0 00
	Unrestricted + center inc	**1.19**	0 36	0 18	0 06	0 48		0 06	0 06
	Total Project Cost	**2.02**	**0.61**	**0.30**	**0.10**	**0.81**		**0.10**	**0.10**
08 PE - 1 IPM	**March 1998 Submission**	**1.71**		**0.51**	**0.68**	**0.34**			**0.17**
	Australia	**0.02**		0 00	0 01	0 00			0 00
	Colombia	**0.04**		0 01	0 02	0 01			0 00
	Denmark	**0.25**		0 07	0 10	0 05			0 02
	France	**0.14**		0 04	0 06	0 03			0 01
	IFAD	**0.08**		0 03	0 03	0 02			0 01
	New Zealand	**0.13**		0 04	0 05	0 03			0 01
	Switzerland	**0.01**		0 00	0 00	0 00			0 00
	UNDP	**0.08**		0 02	0 03	0 02			0 01
	Unrestricted + center inc	**0.81**		0 24	0 33	0 16			0 08
	Total Project Cost	**1.56**		**0.47**	**0.63**	**0.31**			**0.16**
09 PE - 2 Soils	**March 1998 Submission**	**2.12**	**0.32**	**0.42**	**0.85**	**0.11**			**0.42**
	Colombia	**0.08**	0 01	0 02	0 03	0 00			0 02
	Germany	**0.14**	0 02	0 03	0 05	0 01			0 03
	Switzerland	**0.04**	0 01	0 01	0 01	0 00			0 01
	United Kingdom	**0.21**	0 03	0 04	0 08	0 01			0 04
	Unrestricted + center inc	**1.66**	0 25	0 33	0 66	0 08			0 33
	Total Project Cost	**2.12**	**0.32**	**0.42**	**0.85**	**0.11**			**0.42**

10 PE - 3 Hillsides	**March 1998 Submission**	**2.23**		**0.11**	**1.34**	**0.11**	**0.45**		**0.22**
	Canada	**0.12**		0.01	0.07	0.01	0.02		0.01
	IDRC	**0.18**		0.01	0.11	0.01	0.04		0.02
	ISNAR	**0.39**		0.02	0.23	0.02	0.08		0.04
	Switzerland	**0.75**		0.04	0.45	0.04	0.15		0.08
	USA	**0.16**		0.01	0.09	0.01	0.03		0.02
	Unrestricted + center inc	**1.75**		0.09	1.05	0.09	0.35		0.18
	Total Project Cost	**3.34**		**0.17**	**2.00**	**0.17**	**0.67**		**0.33**
11 PE - 4 Land Use	**March 1998 Submission**	**1.33**	**0.15**		**0.80**	**0.13**	**0.27**		
	Colombia	**0.01**	0.00		0.01	0.00	0.00		
	IDB	**0.03**	0.00		0.02	0.00	0.01		
	EC	**0.09**	0.01		0.05	0.01	0.02		
	New Zealand	**0.08**	0.01		0.05	0.01	0.02		
	Novartis	**0.15**	0.02		0.09	0.02	0.03		
	World Bank	**0.23**	0.02		0.14	0.02	0.05		
	Unrestricted + center inc	**1.96**	0.20		1.18	0.20	0.39		
	Total Project Cost	**2.55**	**0.26**		**1.53**	**0.26**	**0.51**		
12 PE - 5 Sustainable Systems for Smallholders	**March 1998 Submission**	**3.05**		**1.37**	**1.07**			**0.15**	**0.46**
	ADB	**0.20**		0.10	0.07			0.01	0.02
	Australia	**0.02**		0.01	0.01			0.00	0.00
	ICRAF	**0.06**		0.03	0.02			0.00	0.01
	IDB	**0.24**		0.12	0.08			0.01	0.02
	IDRC	**0.15**		0.08	0.05			0.01	0.02
	ILRI	**0.16**		0.08	0.06			0.01	0.02
	Nestle	**0.02**		0.01	0.01			0.00	0.00
	Nippon Fdn	**0.24**		0.12	0.08			0.01	0.02
	Switzerland	**0.01**		0.00	0.00			0.00	0.00
	USA	**0.08**		0.04	0.03			0.00	0.01
	Unrestricted + center inc	**1.17**		0.58	0.41			0.06	0.12
	Total Project Cost	**2.35**		**1.17**	**0.82**			**0.12**	**0.23**
13 SN - 1 Rural Agroenterprises	**March 1998 Submission**	**1.37**		**0.28**	**0.28**			**0.21**	**0.62**
	Colombia	**0.14**		0.03	0.03			0.01	0.07
	France	**0.35**		0.07	0.07			0.03	0.17
	IDRC	**0.29**		0.06	0.06			0.03	0.15
	IFDC	**0.02**		0.00	0.00			0.00	0.01
	Unrestricted + center inc	**0.73**		0.15	0.15			0.07	0.36
	Total Project Cost	**1.52**		**0.30**	**0.30**			**0.15**	**0.76**
14 SN - 2 Linkages with NARS	**March 1998 Submission**	**1.69**						**0.51**	**1.19**
	Colombia	**0.16**						0.05	0.11
	FAO	**0.05**						0.01	0.03
	Germany	**0.09**						0.03	0.07
	Unrestricted + center inc	**1.73**						0.52	1.21
	Total Project Cost	**2.03**						**0.61**	**1.42**
15 SN - 3 Farmer Participatory Research	**March 1998 Submission**	**0.95**	**0.20**		**0.20**			**0.26**	**0.39**
	Denmark	**0.10**	0.03	0.03	0.03			0.01	0.02
	Germany	**0.12**	0.03	0.03	0.03			0.01	0.02
	IDRC	**0.10**	0.03	0.03	0.03			0.01	0.02
	Unrestricted + center inc	**0.63**	0.16	0.16	0.16			0.03	0.13
	Total Project Cost	**0.95**	**0.24**	**0.24**	**0.24**			**0.05**	**0.19**
16 BP - 1 Impact Assessment	**March 1998 Submission**	**0.51**					**0.51**		
	CGIAR	**0.04**					0.04		
	Rockefeller Fdn	**0.03**					0.03		
	Unrestricted + center inc	**0.44**					0.44		
	Total Project Cost	**0.51**					**0.51**		
17 SW -1 Ecoregional Program for Tropical Latin America	**March 1998 Submission**	**0.15**		**0.05**	**0.08**			**0.02**	**0.01**
	IDB	**0.29**		0.07	0.12	0.03	0.03	0.01	0.03
	Switzerland	**0.16**		0.04	0.06	0.02	0.02	0.01	0.02
	Total Project Cost	**0.45**		**0.11**	**0.18**	**0.05**	**0.05**	**0.02**	**0.05**
18 SW -2 Soil, Water, and Nutrient Management (SWNM)	**March 1998 Submission**	**0.78**		**0.23**	**0.47**				**0.08**
	Germany	**0.17**		0.05	0.09		0.02		0.02
	Netherlands	**0.13**		0.04	0.06		0.01		0.01
	Norway	**0.24**		0.07	0.12		0.02		0.02
	Switzerland	**0.33**		0.10	0.16		0.03		0.03
	United Kingdom	**0.18**		0.06	0.09		0.02		0.02
	Total Project Cost	**1.05**		**0.32**	**0.53**		**0.11**		**0.11**
19 SW -3 Systemwide Program on Participatory Research and Gender Analysis	**March 1998 Submission**	**1.24**						**0.51**	**0.76**
	Australia	**0.02**	0.00	0.00	0.00			0.00	0.00
	Denmark	**0.06**	0.02	0.02	0.02			0.01	0.01
	FORD FDN	**0.40**	0.10	0.10	0.12			0.03	0.05
	Germany	**0.48**	0.12	0.12	0.14			0.04	0.06
	IDRC	**0.30**	0.08	0.08	0.09			0.02	0.04
	Italy	**0.14**	0.04	0.04	0.04			0.01	0.02
	Japan	**0.02**	0.01	0.01	0.01			0.00	0.00
	Netherlands	**0.10**	0.03	0.03	0.03			0.01	0.01
	New Zealand	**0.18**	0.04	0.04	0.05			0.01	0.02
	Norway	**0.20**	0.05	0.05	0.06			0.02	0.02
	Switzerland	**0.10**	0.03	0.03	0.03			0.01	0.01
	Total Project Cost	**2.00**	**0.50**	**0.50**	**0.60**			**0.16**	**0.24**

1/ Individual members providing targeted funding to pay specific project costs

Center Totals		**Undertakings**						
		Increase Productivity		**Protect**	**Saving**	**Improve**	**Strengthen NARS**	
	Total	Breeding	Systems	**Environ**	**Biodivers**	**Policies**	Training	Other
Total Targeted Funding	**16.50**	**4.39**	**3.00**	**4.16**	**1.45**	**0.70**	**0.77**	**2.02**
Total Unrestricted Funding	**17.32**	**4.47**	**1.91**	**3.68**	**2.85**	**1.16**	**0.90**	**2.41**
Total Center Income	**2.78**	**0.72**	**0.31**	**0.59**	**0.46**	**0.18**	**0.14**	**0.39**
Total Allocations	**36.60**	**9.58**	**5.21**	**8.45**	**4.76**	**1.97**	**1.82**	**4.82**

Table 9. CIAT Research Agenda--Staff Composition, 1998-2002.

	1998 (actual)		1999 (estimated)		2000 (proposal)		2001 (plan)		2002 (plan)	
	Hired by:		Hired by:		Hired by:		Hired by:		Hired by:	
	center	other	center	other	center	other	center	other	center	other
Internationally Recruited Staff (IRS)										
Research and Research Support	73	7	73	7	73	7	73	7	73	7
of which:										
Postdoctoral Fellows	4		6		6		6		6	
Associate Professionals	15	7	13	7	13	7	13	7	13	7
Training / Communications	3		3		3		3		3	
of which:										
Postdoctoral Fellows										
Associate Professionals										
Research Management	7		7		7		7		7	
of which:										
Postdoctoral Fellows										
Associate Professionals	1		1		1		1		1	
Total IRS	**83**	**7**	**83**	**7**	**83**	**7**	**83**	**7**	**83**	**7**
Support Staff	**620**		**610**		**600**		**600**		**600**	
TOTAL STAFF	**703**	**7**	**693**	**7**	**683**	**7**	**683**	**7**	**683**	**7**

DEFINITIONS

Internationally Recruited Staff (IRS)

This category includes staff who carry out highly technical/senior functions, as defined by the center, and they may include personnel hired in the local or regional labor market. Included in this group, but shown separately, are postdoctoral fellows and associate professionals (who may have other titles in different centers), and who often are staff provided by donors as part of a project or other institutional arrangement. Costs for consultants engaged for specific tasks are not personnel expenses and the individuals are not staff; their costs should be calculated in the "supplies and services" category.

Support Staff

This category includes the numerical majority, in many cases, of personnel at a center. These are usually, but not necessarily always, individuals hired in the local labor market. They carry out functions which require less demanding skills than for the IRS category. The support staff category does not include seasonal field labor or other individuals engaged on a purely contract basis, for example when a center contracts with an employment agency to provide security, janitorial, and other services. Such costs should be calculated in the "supplies and services" category.

Table 10. CIAT Cash Requirements, Revenue Flow, and Currency Shares, 1998-1999 (in US$ thousands).

MONTHLY CASH USES AND SOURCES

1998 Note: 1/	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Cash Requirements	3.701	2.724	2.468	2.486	2.901	2.617	2.594	2.494	2.178	2.278	2.197	2.491
Member and Center Income	2.038	2.295	0.721	1.158	1.669	2.828	2.999	1.783	1.653	4.258	4.481	3.286
Net Monthly Position	**-1.663**	**-0.429**	**-1.747**	**-1.328**	**-1.232**	**0.211**	**0.405**	**-0.711**	**-0.525**	**1.980**	**2.284**	**0.795**
Accumulated Position	**-1.663**	**-2.092**	**-3.839**	**-5.167**	**-6.399**	**-6.188**	**-5.783**	**-6.494**	**-7.019**	**-5.039**	**-2.755**	**-1.960**

1999 Note: 2/	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Cash Requirements	3.150	2.500	2.500	2.650	2.500	2.750	2.500	2.500	2.500	2.650	2.500	3.000
Member and Center Income	3.173	1.286	1.962	1.440	2.423	2.200	2.869	1.354	1.596	4.750	2.579	6.247
Net Monthly Position	**0.023**	**-1.214**	**-0.538**	**-1.210**	**-0.077**	**-0.550**	**0.369**	**-1.146**	**-0.904**	**2.100**	**0.079**	**3.247**
Accumulated Position	**0.023**	**-1.191**	**-1.729**	**-2.919**	**-2.996**	**-3.546**	**-3.177**	**-4.323**	**-5.227**	**-3.127**	**-3.048**	**0.199**

CURRENCY STRUCTURE OF EXPENDITURES

				1998 (actual) note 1/			1999 (estimated) note 2/		
Currency				Amount	$ value	% share	Amount	$ value	% share
US Dollar					17.7	51%		18.3	50%
Colombian Peso				23,300	16.4	47%	30,041	17.6	48%
Others note 3/	[redacted]			[redacted]	0.7	2%	[redacted]	0.7	2%
TOTAL	[redacted]			[redacted]	34.8	100%	[redacted]	36.6	100%

Notes:

1/ This part to be completed in both the Agenda and Financing Plan submissions.
2/ This part to be completed only in the Financing Plan submission (September).
3/ All other currencies the sum of which accounts for less than 5% of total expenditure.

Table 11. CIAT Statement of Financial Position, 1998-2002 (in US$ thousands).

Assets	1998 (actual)	1999 (estimated)	2000 (proposal	2001 (plan)	2002 (plan)
Current Assets					
Cash and Cash Equivalents	5,841	6,040	6,500	6,500	6,500
Accounts Receivable					
Donors	8,217	6,960	6,400	6,400	6,400
Employees	292	200	200	200	200
Other	1,050	1,000	1,000	1,000	1,000
Inventories	550	520	500	500	500
Prepaid Expenses	98	100	100	100	100
Other Current Assets	237	236	200	200	200
Total Current Assets	**16,285**	**15,056**	**14,900**	**14,900**	**14,900**
Fixed Assets					
Property, Plant, and Equipment	37,060	39,210	40,970	42,470	43,970
Less: Accumulated Depreciation	-18,966	-20,266	-21,570	-22,870	-24,170
Total Fixed Assets - Net	**18,094**	**18,944**	**19,400**	**19,600**	**19,800**
Total Assets	**34,379**	**34,000**	**34,300**	**34,500**	**34,700**
Liabilities and Net Assets					
Current Liabilities					
Bank Indebtedness	480	300	300	300	300
Accounts Payable					
Donors	6,788	6,500	6,500	6,500	6,500
Employees	577	700	700	700	700
Others	1,262	1,429	1,430	1,330	1,230
In-Trust Accounts	610	300	300	300	300
Accruals and Provisions	1,082	1,257	1,360	1,460	1,560
Total Current Liabilities	**10,799**	**10,486**	**10,590**	**10,590**	**10,590**
Long-Term Liabilities					
Total Liabilities	**10,799**	**10,486**	**10,590**	**10,590**	**10,590**
Net Assets					
Capital Invested in Fixed Assets	18,094	18,944	19,400	19,600	19,800
Center Owned					
In Custody					
Capital Fund	1,277	360	100	100	100
Operating Fund	4,209	4,210	4,210	4,210	4,210
Other Funds					
Total Net Assets	**23,580**	**23,514**	**23,710**	**23,910**	**24,110**
Total Liabilities and Net Assets	**34,379**	**34,000**	**34,300**	**34,500**	**34,700**

List of Acronyms and Abbreviations Used in the Text

Acronyms

AHI	African Highlands Initiative (CGIAR)
Bean/Cowpea CRSP	Bean/Cowpea Collaborative Research Support Project (University of Georgia, USA)
BOT	Board of Trustees (CIAT)
CA	Département des cultures annuelles (CIRAD)
CARDER	Corporación Autónoma Regional de Risaralda, Colombia
CARE	Cooperative for American Relief Everywhere
CATIE	Centro Agrónomico Tropical de Investigación y Enseñanza, Costa Rica
CBN	Cassava Biotechnology Network, *based at* CIAT
CENIPALMA	Centro de Investigación en Palma de Aceite, Colombia
CIALs	Comités de Investigación Agrícola Local, Colombia
CIFOR	Center for Internacional Forestry Research, Indonesia
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo, Mexico
CIP	Centro Internacional de la Papa, Peru
CIPASLA	Consorcio Interinstitucional para la Agricultura Sostenible en Laderas, Colombia
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement, France
CLODEST	Comité Local para el Desarrollo Sostenible de la Cuenca del Río Tascalapa, Honduras
CODESU	Corporación para el Desarrollo Sostenible de Ucayali, Peru
CONDESAN	Consortium for the Sustainable Development of the Andean Ecoregion, Peru
CORPOICA	Corporación Colombiana de Investigación Agropecuaria
CSIRO	Commonwealth Scientific and Industrial Research Organisation, Australia
CURLA	Centro Universitario Regional del Litoral Atlántico, Honduras
DANIDA	Danish International Development Agency, Denmark
DEPAM	Desarrollo Participativo Amazónico (CODESU)
DGIS	Directoraat Generaal voor Internationale Samenwerking, the Netherlands
DICTA	Dirección de Ciencias y Tecnología Agrícola, Honduras
DNP	Departamento Nacional de Planeación, Colombia
EAP-Zamorano	Escuela Agrícola Panamericana *at* Zamorano, Honduras
ECLAC	Economic Commission for Latin America and the Caribbean
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuária, Brazil
ETH	Eidgen.ssische Technische Hochshule, Switzerland
FCRI	Field Crop Research Institute, Thailand
FLAR	Fund for Latin American and Caribbean Irrigated Rice, *based at* CIAT
FONAIAP	Fondo Nacional de Investigaciones Agropecuarias, Venezuela
GRU	Genetic Resources Unit (CIAT)
IAEG	Impact Assessment Evaluation Group (CGIAR)
IBSRAM	International Board of Soil Resources and Management, Thailand
ICARDA	International Center for Agricultural Research in the Dry Areas, Syria
ICER	Internally Commissioned External Review
ICIPE	International Centre of Insect Physiology and Ecology, Kenya
ICRAF	International Centre for Research in Agroforestry, Kenya
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics, India
IDB	Inter-American Development Bank, USA
IDEAM	Instituto de Hidrología, Meteorología y Estudios Ambientales, Colombia
IDIAP	Instituto de Investigación Agropecuaria de Panamá
IDRC	International Development Research Centre, Canada
IFDC	International Fertilizer Development Center, USA
IFPRI	International Food Policy Research Institute, USA
IGAC	Instituto Geográfico "Agustín Codazzi", Colombia

IGDN	Inter-American Geospatial Data Network
IGER	Institute of Grasslands Environment Research, UK
IIA	Instituto de Investigaciones Agropecuarias, Venezuela
IIASA	International Institute for Applied Systems Analysis, Austria
IICA	Instituto Interamericano de Cooperación para la Agricultura, Costa Rica
IILA	Instituto Italo-Latino Americano, Italy
IITA	International Institute of Tropical Agriculture, Nigeria
ILRI	International Livestock Research Institute,
INBIO	Instituto Nacional de Biodiversidad, Costa Rica
INIA	Instituto Nacional de Investigación Agraria, Peru (*now* INIAA)
INIAA	Instituto Nacional de Investigación Agraria y Agroindustrial, Peru (*formerly* INIA)
INIAP	Instituto Nacional de Investigaciones Agropecuarias, Ecuador
INIFAP	Instituto Nacional de Investigaciones Forestales y Agropecuarias, Mexico
INIVIT	Instituto de Investigaciones de Viandas Tropicales, Cuba
INTA	Instituto Nacional de Tecnología Agropecuaria, Argentina
IPGRI	International Plant Genetic Resources Institute, Italy
IPRA	Investigación Participativa en Agricultura/ *Participatory Research in Agriculture* (CIAT)
IRRI	International Rice Research Institute, the Philippines
IVITA	Instituto Veterinario de Investigaciones Tropicales y de Altura, Peru
IWMI	International Water Management Institute, Sri Lanka
JIRCAS	Japan International Center for Agricultural Sciences
LSU	Louisiana State University, USA
MT	Management Team (CIAT)
NARO	National Agricultural Research Organization, Uganda
NARS	National agricultural research systems
NORAGRIC	Centre for International Environment and Development Studies (of the Agricultural University of Norway)
NRI	Natural Resources Institute, UK
ODI	Overseas Development Institute, UK
OFI	Oxford Forestry Institute, UK
ORSTOM	Institut français de recherche scientifique pour le développement en coopération, France
PABRA	Pan-Africa Bean Research Alliance
PASOLAC	Programa de Agricultura Sostenible de Laderas en Centro America
PROCIANDINO	Proyecto Cooperativo de Investigación y Transferencia de Tecnología Agropecuaria para la Subregión Andina
PROCITROPICS	Proyecto Cooperativo de Investigación y Transferencia de Tecnología para los Trópicos Sudamericanos
PROFRIJOL	Programa Cooperative Regional de Frijol para Centro América, México y el Caribe
PROFRIZA	Proyecto Regional de Frijol para la Zona Andina, Bolivia
RIVM	Rijksinstitut voor Volksgezondheid en Milienhygiene (National Institute of Public Health and Environmental Protection), the Netherlands
RMWG	Resource Mobilization Working Group (CIAT)
SDC	Swiss Development Cooperation
SEAFRAD	Southeast Asia Feed Resources Research and Development Network
SINGER	Systemwide Information Network on Genetic Resources (CGIAR)
SWNM	Systemwide Program on Soil, Water, and Nutrient Management (CGIAR)
TAC	Technical Advisory Committee (CGIAR)
TCA	Amazonian Cooperation Treaty
TSBF	Tropical Soils Biology and Fertility Program, Kenya
UNEP	United Nations Environment Programme, Switzerland
UNIVALLE	Universidad del Valle, Colombia
USAID	United States Agency for International Development
USDA	United States Department of Agriculture

WARDA	West Africa Rice Development Association, C.te d'Ivoire
WRI	World Resources Institute, USA
WWW	World Wide Web

Abbreviations

ACMV	African cassava mosaic virus
AROs	Advanced research organizations
BCMNV	Bean common mosaic necrosis
BCMV	Bean common mosaic virus
BGMV	Bean golden mosaic virus
CA	Costa Rica
CBB	Bean common bacterial blight; Cassava bacterial blight
CD-ROM	Compact disk—read-only memory
CLOs	Comités locales
DNA	Deoxyribonucleic acid
DS	Decision support
DSSAT	Decision Support System for Agrotechnology Transfer
FM	Forest margins
FPR	Farmer participatory research
GA	Gender analysis
GIS	Geographic information systems
HS	Hillsides
IARCs	International agricultural research centers (CGIAR system)
ICM	Integrated crop management
IPM	Integrated pest management
LAC	Latin America and the Caribbean
LoRSDIs	Local rural sustainable development initiatives
MTAs	Material transfer agreements (used in germplasm exchange)
MTP	Medium-Term Plan (CIAT)
NARIs	National agricultural research institutions
NARS	National agricultural research systems
NGOs	Nongovernment organizations
NRM	Natural resource management
PB	Plant breeding
PPB	Participatory plant breeding
PRGA	Participatory research and gender analysis
QTLs	Quantitative trait loci (genetics)
R&D	Research and development
RHBV	Rice "hoja blanca" virus
S	Savannas
SP	Systemwide program (of the CGIAR)
SS	Senior staff (CIAT)
TLA	Tropical Latin America