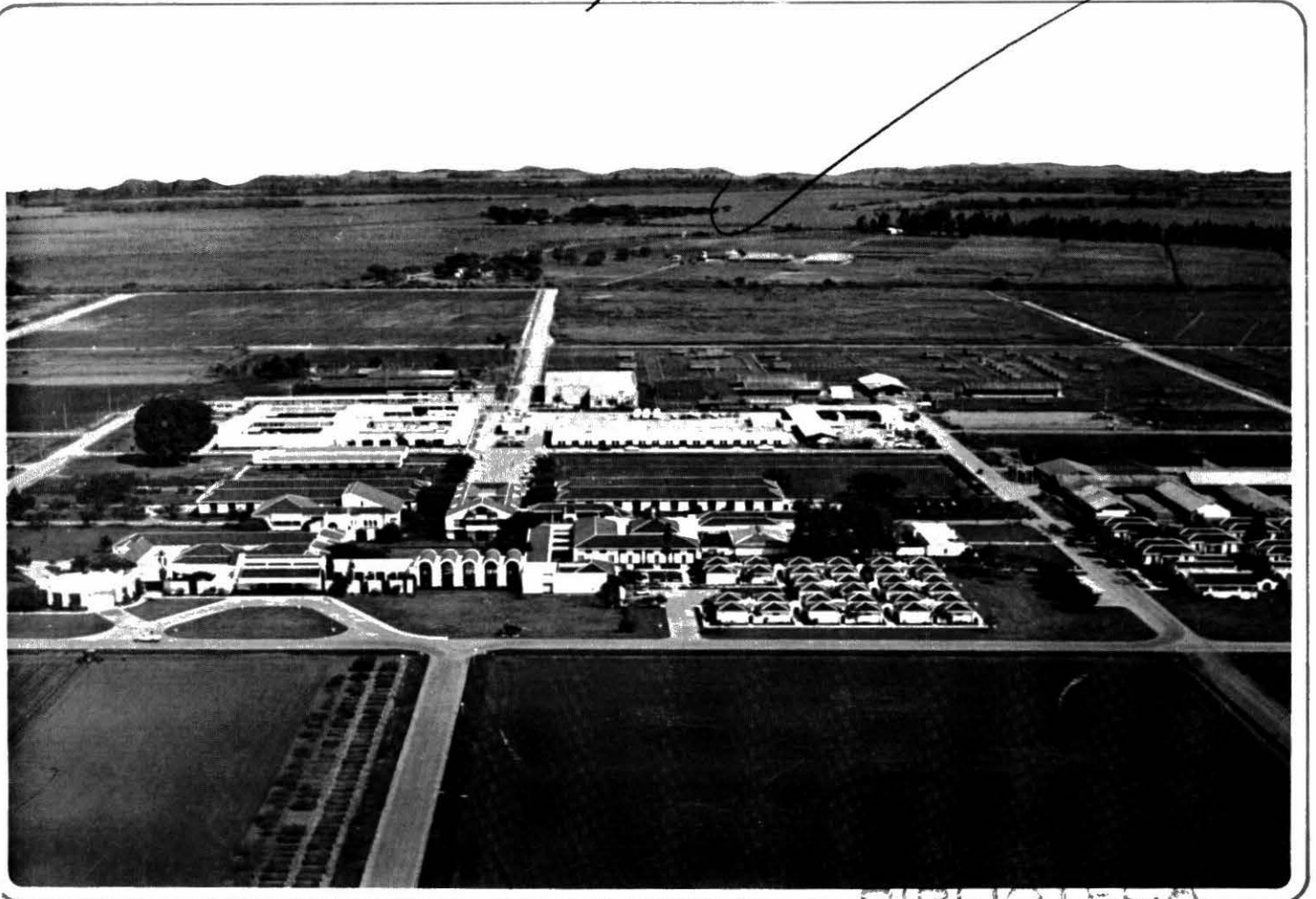


A

MIDTERM REPORT
Program and Budget
1982-1983

5
3

3204



5131-15-83

MIDTERM REPORT 1982-1983 Two-Year Budget

31 August, 1982



I. PROGRAM DEVELOPMENTS

The development of improved agricultural technology and its implementation at the actual production level requires years of continuous and dedicated research and development efforts. For an international center such as CIAT not only is it necessary to assemble a viable research infrastructure that allows for concentrated, interdisciplinary work on high-priority production constraints, but also requires systematic cooperation with national research and development institutions aimed at building up the capacity of these institutions to become full partners in the technology development and utilization process.

After little more than 10 years of CIAT's existence, it is evident that despite the magnitude of the task, the expectation that CIAT's efforts to increase the quality and quantity of selected staple foods come to an early fruition, can be met. CIAT's regional rice program—which is responsible for the Western Hemisphere and works in close collaboration with IRRI—has long been most successful in providing national programs with a continuous stream of high-yielding, good quality rice materials that have caused significant increases in the production and productivity of the irrigated rice sector in Latin America and the Caribbean. Now, CIAT's other programs (i.e., beans, tropical pastures, and cassava) have also reached the stage where they can count on viable new technology and strong networks of national collaborators as a basis for future production increases to be realized.

Recent program developments can be summarized as follows:

BEANS

The objective of the CIAT Bean Program is to develop production technologies that permit increased yields and improved yield stability over time. Reflecting CIAT's concern for resource-efficient production technology and the intensification of the small-farm sector, the Bean Program emphasizes technologies based on improved germplasm that combine: (a) resistance or tolerance to the principal diseases, pests, and soil and climatic constraints; (b) efficiency in the use of applied inputs; and (c) improved plant architecture and yield potential.

An integrated germplasm development and evaluation scheme has passed its formative years and has become fully operational. In breeding, notable progress was achieved in the development of improved characters. Among diseases, this includes improved resistance/tolerance to bean common mosaic virus (BCMV), bean golden mosaic virus (BGMV), rust, anthracnose, angular leaf spot, and common bacterial blight (CBB). Among insect pests, important advances were made in breeding bean lines resistant to leafhoppers and the *Apion* pod weevil. For the first time, promising sources of resistance to the most damaging and therefore economically important storage insects—the *Zabrotes*—were identified. Breeding success also extended to improved nitrogen-fixation technology for beans: through the recombination of promising donor materials, markedly higher levels of atmospheric nitrogen fixation were achieved. In the area of breeding for improved architecture, several new plant types were developed and are now in preliminary testing schemes to determine their usefulness in improving yield, yield stability, and mechanisms for disease and insect pest avoidance. Beyond improvement work for single traits, further advances were made in conferring desired combinations of improved characters onto the multitude of different seed types required by national programs. Already, improved bush and climbing bean materials are available for the majority of seed types required in the various production regions.

With the incorporation of resistance to bean common mosaic virus—the most widespread and serious seed-transmitted disease problem affecting current bean production in Latin America—into all materials leaving CIAT for further testing, and the availability of improved materials representative of a wide range of required seed types, the process of selecting from advanced breeding lines is being decentralized to collaborating national bean programs. In 1982, national programs in Latin America selected more than 20 lines from advanced-generation materials and entered these lines into seed multiplication and/or farm-level testing schemes. Bolivia, Costa Rica, El Salvador, and Brazil, have already named new varieties selected from such breeding lines. In August 1982, Mexico was added to these countries through the release by INIA, the national agricultural research institute, of “Negro Huasteco 81,” a superior line based on a cross performed at CIAT; early selection was carried out at the Instituto de Ciencia y Tecnología Agrícolas (ICTA) in Guatemala, while the finishing of the variety was done by INIA in Mexico. This new variety is intended for large-scale use in the Las Huastecas region of Mexico where 55,000 hectares of beans were grown in 1981.

At least two countries—Guatemala and Honduras— have already developed their own varieties based on early generation lines from CIAT crosses. The varieties developed by Guatemala are ICTA Quetzal, ICTA Jutiapan, and ICTA Tamazulapa; varieties developed in Honduras are Acacia 4 and Copan. Thus, the initial impact on bean production, which CIAT has achieved through the wide dissemination of available, non-CIAT improved commercial cultivars, can be expected to be redoubled in the near future through the wide cultivation of newly improved materials emanating from the cooperative breeding efforts between CIAT and national programs. With the active collaboration of the Bean Program’s regional project in Central America, these lines are distributed and tested throughout the region. For example, the variety ICTA Quetzal has already been adopted in Cuba; ICTA Jutiapan has been adopted in Nicaragua; and Acacia has been introduced into Costa Rica. At the same time, in 1982, 18 countries in Latin America and Africa requested more than 7000 germplasm accessions from CIAT for further testing and/or for use in their own breeding programs. These developments attest to the fact that a strong, viable international bean development effort is jointly underway.

CASSAVA

Cassava is the principal root crop and a major calorie staple in the rural lowland tropics. Today world cassava production of close to 120 million tons is divided among Latin America (250/o), Asia (360/o), and Africa (380/o). Some two-thirds of this production is consumed as human food, either in fresh or in processed form.

The CIAT Cassava Program seeks to satisfy the need for food and feed carbohydrates by converting cassava from a traditional rural staple to a major, multi-use carbohydrate source. In addition, the Program is developing germplasm and management systems to improve the utilization of cassava for direct human consumption.

Analyses of long-term data obtained in farm-level trials confirmed that the improved, low-input management practices developed by the Cassava Program can double traditional yields of 10 tons of fresh roots/ha. If, in addition, new selections or hybrids are used, stable yields of 30 tons per hectare can be obtained.

The viability of the new cassava technology is demonstrated by recent developments in Cuba. By early 1982, of the 20,000 hectares planted to cassava, more than half were cultivated under the so-called “Colombian System” which is based on CIAT technology adapted to Cuban conditions. With this change over to the new system, the national average is confirmed to be about 16 t/ha— more than 2000/o higher than four years ago. This dramatic increase in production has taken cassava off the rationed list in Cuba. While the two predominant varieties presently used as part of the “Colombian System” are selections from local cultivars evaluated through a regional trials network, a new hybrid, MCol-1468, introduced to Cuba several years ago, is now being

multiplied to increase the proportion of total area planted to this variety. This variety can be harvested earlier than the local clones and thus will extend the period during which cassava is available in the fresh market.

Research factors that may lead to the further improvement of management practices continued to be assigned high priority in the Program. A long-term fertility trial has confirmed the importance of potassium application with consecutive plantings of cassava. Also, the importance of a mycorrhizal association for normal growth of cassava in soils with low phosphorus availability was established. Studies of this association point to the likelihood that inoculation with highly efficient mycorrhizal strains will have significant effects on yield increases and will enable cheap, low-grade sources of phosphorus to be used effectively. The search for improved methods of cultural control of cassava insect pests was further boosted by the identification of a series of potentially useful natural enemies of economically important cassava pests.

Progress in the long-term cassava-improvement efforts is evidenced by the fact that yields of local cultivars in the various testing sites stayed constant, whereas average yields of the CIAT genotypes have increased progressively and significantly. Superior CIAT genotypes are available for a majority of the various edapho-climatic ecosystems in which the Program works. These genotypes are already in the hands of collaborating national institutions where they are used for further testing for eventual release, or are included in national hybridization programs. Today, the Program is well on its way to producing genotypes with high yield potential, high root dry-matter content, and good eating quality. The very short shelf life of cassava remains a problem for the fresh market.

TROPICAL PASTURES

Some 850 million hectares, or 420/o, of the land area in the tropical Americas, are acid, infertile soils (Oxisols and Ultisols)—nearly one-third of which is comprised of savannas. It is for these large and as-yet-underutilized land resources that the CIAT Tropical Pastures Program is developing pasture-production technology. The goal is increased cattle production, with the further expectation that the resulting infrastructural development will provide the basis for opening these land resources to agriculture in general. Recognizing that nutrition is the key to improved beef production in the savannas, the Tropical Pastures Program concentrates its efforts on the development of low-cost, low-input pasture-technology adapted to the ecological conditions and compatible with prevailing farming operations in the different regions. The Program pursues this objective by: (a) selecting pasture germplasm adapted to the soil and environmental constraints and tolerant to prevailing pests and diseases; (b) assembling the germplasm materials into persistent and productive legume-based pastures; and (c) integrating improved pasture technology into biologically and economically efficient animal-production systems. In its hierarchy of germplasm evaluation phases, the Program recognizes five categories as follows: I = Identification of germplasm with potential, II = Agronomic evaluation on small plots, III = Agronomic evaluation, IV = Pasture evaluation and management, and V = Pasture evaluation in production systems.

The intensive germplasm-evaluation work carried out by the Tropical Pastures Program in 1982 has allowed for continued advancement of a relatively large number of accessions to higher categories. By late 1982, some 75 legume accessions and 15 grass accessions had passed the very strict tests to be promoted to a category involving evaluation under grazing.

An analysis of data on animal performances using various pasture systems reveals that the grass/legume associations as developed by the Program produce liveweight gains of more than 200 kg animal/year, which is three times the liveweight gains obtained on well-managed native savannas. The data also show that the strategic use of legumes (i.e., so-called legume-banks planted in the native savanna so as to enhance the nutritional quality of fodder intake by grazing

animals) produces some 120 kg of liveweight gains per animal/year. These results confirm that improved pasture technology holds the key to substantial increases in animal performance in the acid, infertile soil areas of Latin America.

After the national research institutions in Colombia and Brazil released the grass *Andropogon gayanus* CIAT 621 in their respective countries, Venezuela and Panama have now followed suit. In August of 1982, ICA, the national agricultural research institute of Colombia, officially passed on to the seed production sector a blend of five accessions of *Stylosanthes capitata*. This was the first time that a legume that had successfully passed all evaluation stages of the Tropical Pastures Program has been adopted and promoted by a collaborating national program. The initiation of the release process of legumes constitutes a major step toward overcoming the critical constraint to forage quality for animal production in the savannas of tropical Latin America.

RICE

The CIAT Rice Program—physically the smallest of the four commodity research efforts—assumes regional responsibility for the Western Hemisphere. The Program collaborates closely with the global rice research effort of the International Rice Research Institute (IRRI), headquartered in the Philippines. From the very beginning of CIAT, excellent collaboration between the CIAT Rice Program and ICA has enabled rapid progress in adapting the new high-yielding rice varieties to the agronomic and consumer preference conditions in Latin America. These cooperative efforts have resulted in some 35 dwarf varieties released by national programs in the region. The improved new varieties are now annually grown on about 1.5 million hectares in both irrigated and highly and moderately favored upland systems. In conjunction with improved cultural practices, use of the new varieties has made it possible to obtain an average of 1 to 2 tons more rice per hectare and has provided the means for nearly all Latin American countries to reach self-sufficiency in rice supply.

Recent developments in Rio Grande do Sul (Brazil) serve as an example of the continuing impact which the Rice Program is having on the Latin American rice production scene. Rio Grande do Sul's share in Latin American rice production is 170/o. The limiting factors to the introduction of CIAT technology have been the very low temperatures during the planting season and the flowering period, as well as the rigid demand for high grain quality for the urban markets of Sao Paulo and Rio de Janeiro. But in 1979/80 a new variety, IRGA 409—based on a cross made earlier at CIAT—was released which met the agronomic and consumer requirements of the region. In 1980/81 this new variety was grown on 10,000 hectares, with average yields 1.5-2.0 tons/ha higher than the traditional variety. In the 1981/82 growing season the area sown to IRGA 409 increased to 200,000, representing one-third of the area devoted to irrigated rice in Rio Grande do Sul. At current farm prices, the value of the additional production is US\$50 million. Largely because of the introduction of this new variety in Rio Grande do Sul the import estimate for Brazil has been cut 150,000 tons to 100,000 tons. And the more widespread use of this new variety is still on the increase: it is estimated that the area that will be sown to this line in the 1982/83 growing season will reach 300,000-400,000 hectares.

The CIAT Rice Program continued to support the efforts of national rice programs by making available to them a multitude of promising genetic materials, which meet the particular agronomic needs and consumer preferences of the countries involved. These materials are pre-selected by CIAT from throughout the rice-growing world as well as from the CIAT rice-improvement program. In consultation with CIAT's collaborators at the national level, the nursery system by which national programs receive new materials was further streamlined to assure that new promising materials are tailor-made to the needs of given countries.

Much of the rice-improvement work continued to be directed at finding more durable resistance to rice blast disease, the major rice-production problem throughout the region. Initially, the Rice Program set its attention on one particularly promising new, highly tolerant line: 5738. This line has already been launched as a new variety by several collaborating countries.

The year 1981 saw the initiation of a modest rice-improvement effort in support of upland culture. Given that close to half the rice produced in Latin America is grown under upland conditions and yields in this sector have remained stagnant, even modest advances are likely to have an important impact on the rice-production scene in Latin America. At this time, the biological constraints to upland rice production have been charted, the research priorities have been set, and promising parental materials have been identified.

TRAINING

CIAT is a center for both research and training. The training component is considered the foundation for the further development of technology transfer channels among the national and international levels. At the same time, training is the principal means by which CIAT collaborates with national programs in building up in-country capabilities for cooperative and independent agricultural research. Beyond that, CIAT is keenly aware that the international commodity research networks in the Latin American region, which have been created to support CIAT-mandated commodities, are in no small measure the direct result of the Center's extensive and persistent training efforts. Training is offered by CIAT on a postgraduate basis in the following forms: (a) intensive courses on research for production related to CIAT commodities; (b) individualized internships that allow the training participant to specialize in a given aspect in any of the for CIAT commodities; and (c) thesis internships for M.S. and Ph.D. students.

In 1982, some 250 professionals received training at CIAT. The length of internships ranged from 1 to 12 months, with an average of close to 4 months. As a reflection of CIAT's primary concern for close working relationships with collaborating institutions in Latin America and the Caribbean, as well as for reasons of sheer proximity, full 90% of all training participants came from this region. Some three-fourths of the training participants received commodity-based, non-degree related training. Most of these individuals participated in one of the nine short-courses (of 4- to 12-week duration) offered by CIAT in 1982. As has become common practice in the last few years, about one-third of the course participants entered individualized internships for 3 to 4 months upon completing short-course participation.

The total number of professionals having received training at CIAT since the early 1970s now has surpassed 2300. Naturally, there has been some attrition of CIAT-trained professionals in collaborating national institutions. Nevertheless, it is felt that a critical mass of trained scientists is available and that, in the future, increasing emphasis can be placed on relatively long-term, especially degree-related, CIAT training to assist national institutions in their efforts to further upgrade the scientific level of their personnel.

In 1982, CIAT again increased its efforts to provide assistance to in-country courses on the production of commodities in the Center's mandate. Typically, these courses are intended to bridge the gap between research and extension and are aimed at personnel from both research and extension organizations, and are organized and conducted by collaborating national programs. CIAT's role in these courses is to provide organizational and technical assistance until such time that national programs are in a position to continue with the courses by themselves. In 1982, CIAT provided assistance to in-country courses in Brazil (beans), Colombia (beans and cassava), Cuba (beans and seed technology), Chile (beans), Costa Rica (beans), Haiti (cassava) and Honduras (rice).

II. GENERAL DEVELOPMENTS

In common with many commercial and public entities, CIAT's Board of Trustees this year named a special committee—the Audit and Finance Committee—in order to strengthen the Board's participation in and control over fiscal management at the Center.

As noted later in the section on Special Projects, CIAT has approached the W. K. Kellogg Foundation for a special grant to adapt the amphitheater building for use as an auditorium. The amphitheater was originally conceived and included in CIAT's buildings before the movement away from specific work on cattle. Consequently the amphitheater, as with the meat sciences laboratory—converted a few years ago to the genetic resources unit—is not needed. However, on the other hand, CIAT lacks an auditorium where conferences, workshops, seminars, etc. of 100 to 200 people can be held. The W.K. Kellogg Foundation which financed existing conference facilities, indicated its willingness to entertain a request for the modification of the amphitheater for use as an auditorium. With this project CIAT expects to have completed its physical facilities at headquarters.

A recent agreement with the national program of Panama—Instituto de Investigaciones Agropecuarias de Panama (IDIAP)—will enable CIAT to complement existing sites for off-station rice research.

III. BUDGET AND FINANCES

1981 FINANCES

Our financial statements for the year ended 31st December 1981 have been distributed to interested donors. They show that operating expenses were US\$900,000 less than budget but, because of a funding shortfall, US\$100,000 more than available funds.* Capital expenditures lagged somewhat behind so that at year end a balance of US\$265,000, which is fully committed, remained unspent.

CIAT incurred this substantial deficit for the first time ever because of inadequate and tardy information on donor contributions for the year. The CG Secretariat had led us to believe that contributions would be about US\$400,000 more than the actual total and it was not until mid-November that the true picture became apparent. Although every effort was then made to reduce expenses to a minimum for the rest of the year, it was not possible to achieve the 20% reduction needed to keep total expenditures within available funding.

1982-83 BUDGET AND FINANCES

In early 1981 CIAT prepared a budget proposal for the biennium 1982-83 which provided for a growth rate of 3% in real terms in each year. The proposal followed strictly the guidelines given by the CG Secretariat based on their appreciation at that time of total funding for the system. With such small margins for growth, many days of management time were spent discussing and deciding how to allocate the relatively small amount allowed for growth.

Budget 1982

TAC endorsed the proposal and recommended addition of the supplemental budget, included with the budget proposal, which gave CIAT a growth rate of 3.6% for 1982. However, the CG approved for funding in 1982 only the budget reduced by a fallback list which gave a total slightly lower in real terms than CIAT's 1981 budget and one less senior staff position.

The following activities were eliminated from CIAT's budget as a result of the lower level of funding approved for 1982:

- Biochemist for nutrition work
- Forage Agronomy - Humid tropics
- Cassava Regional Cooperation - Asia
- Rice Economics
- Beans Pathology
- Agroclimatology
- Restoration of program support reductions
- Restoration of Training and Conferences reductions
- 27% of new equipment items

* After the financial statements were prepared one donor's grant, which was included as a receivable at the year end, was received but for US\$126,000 less so that the real deficit in 1981 was US\$226,000.

Subsequently, when it became apparent that funding would be even lower than the CG approved level, CIAT prepared a list of reductions adding up to a further 10o/o reduction for consideration by TAC in March 1982. Pending recommendations by TAC, CIAT implemented a substantial part of the temporary measures to achieve the 10o/o reduction. TAC recommended a reduction of 6.2o/o in CIAT's case but funding at that level is far from assured so CIAT continues to apply temporary emergency reductions to adjust to a serious underfunding.

Budget 1983

The new guideline figures given by the CG Secretariat have completely nullified the 1983 part of CIAT's 1982-83 budget. Instead of a 3o/o growth, a new guideline figure, 4o/o below the CG approved budget for 1982, was given. To meet this CIAT is planning a 6o/o reduction in support staff and reductions in supplies and services.

Also, the following activities which had been proposed to be added in 1983 have been eliminated:

- Restoration of program support reductions
- Restoration of Training and Conferences reductions
- Rice Physiology for upland conditions
- Land Systems Analysis

In addition, the TAC at its June 1982 meeting had to consider what further budget reductions would be required to adjust to the new, lower estimates of available resources in 1983. The TAC recommended a 1983 budget for CIAT of US\$21.395 million, which is a net reduction of five senior staff positions (all previously filled, four currently filled).

The following table shows the fate of CIAT's recent budget proposals (gross budgets in current US\$000):

	Budget year		
	1981	1982	1983
Guideline budget given by the CG Secretariat	—	20,451	23,840
Approved by Board of Trustees	18,716	20,451	23,840*
Revised guideline budget given by the CG Secretariat	—	—	21,964
Recommended by TAC	17,750	20,694	21,395
TAC recommended fallback level	—	—	20,416
Approved by CG	17,750	19,615	N/A
Modified TAC recommendation	—	18,392	—
Funded	16,463	N/A	N/A

* As part of the (now obsolete) 1982-83 P & B proposal. In April 1982, the CIAT Board approved the lower figure of US\$21.964 million as per the new CGIAR Secretariat guideline figure.

N/A = figures are not yet available.

Another way of looking at budgets for the three years is given in the following table which shows the different budgets, fallback levels, guidelines, etc. in comparable terms, i.e., adjusted for inflation from one year to the next.

Comparison of Operating Budgets 1981-1983*

	Stated in thousands of		
	'81 Dollars	'82 Dollars	'83 Dollars
1981			
Budget			
Approved by Board	17,381	19,641	22,685
Increased inflation incorporated	540		
Reduction at TAC Lima Meeting	(810)		
Approved for funding by CG	17,111	19,335	22,332
Actual Expenditures ^a	16,211	18,318	21,157
1982			
Budget			
Approved by Board	17,566	19,849	22,926
Increased by TAC		176	
	17,722	20,025	23,129
Reduced by fallback		(744)	
Approved for funding by CG	17,063	19,281	22,270
Reduced level recommended by TAC in March, 1982 ^b	16,158	18,259	21,089
1983			
Budget			
Approved by Board ^c	18,191	20,556	23,742
Increased because of TAC decision on 1982 budget ^c			322
Adjusted proposal ^c	18,438	20,835	24,064
CG Guideline			
Budget			
1982 CG Approved Budget	17,063	19,281	22,270
Baseline Adjustment		(771)	
Adjusted base and guideline ceiling	16,381	18,510	21,379
1983 Request (based on latest TAC recommendations)	15,945	18,017	20,865

* This table shows the operating budgets for 1981, 1982 and 1983 and the adjustments made to them in US dollars of each of the three years.

^a Funding was US\$100,000 less.

^b In addition to this reduction, working capital and capital are being reduced by US\$234,000.

^c The 1982-83 budget assumed 130/o inflation between 1982 and 1983. However, revised estimates used in the CG Secretariat guidelines for 1983 give 15.50/o. Consequently, figures shown here have been adjusted for the higher inflation rate and are therefore larger than those shown in CIAT's budget document for 1982-83.

As noted new guidelines for the 1983 budget provide no growth for CIAT and start from a base which is 40/o below the 1982 budget. Any growth has to be achieved by reductions in ongoing activities. In addition, following the TAC meeting in Mexico in June 1982, CIAT was asked to reduce the 1983 budget by another 2.70/o as well as show how we would deal with underfunding as much as 70/o below the guideline figure.

The rest of this document is devoted to commentaries, explanations and justifications for the proposals being made for:

- A) Baseline Adjustment – in which proposals are made to adjust the 1982 budget downwards.
- B) Change List – in which proposals are made for severe reductions between 1982 and 1983, in order to make some modest additions while still achieving the reduced level of funding recommended by the TAC.
- C) Supplemental List – in which we propose adding all the activities included in CIAT's Long-Range Plan.
- D) Fallback List – in which we propose how we would deal with a funding shortfall of up to 4.70/o below the budget level recommended by TAC.

Attached to this document are the two standard CG tables: Table I - Summary of Manyears and Costs by Program and Activity; Table II - Summary of Sources and Application of Funds. These reflect actual results for 1981, the various budget figures for 1982 and 1983 and projections for 1984, 1985 and 1986.

A. BASELINE ADJUSTMENT

CIAT has been directed to reduce the baseline for its 1983 budget to 40/o below the approved 1982 fallback position and to prepare a Baseline Adjustment List to identify how the Center plans to accommodate this 40/o reduction. The very magnitude of the adjustment to be made ('82 US\$771,000), and the fact that it is a 40/o permanent reduction below the already low 1982 fallback position, makes this a very difficult and painful exercise. CIAT's proposal as to how this reduction is to be accommodated is given in Table A.1.

Table A.1. Baseline Adjustment List

	Positions	Senior Staff Manyears	Operations '82 US\$000
1. 1982 Budget			
a) TAC Recommended	67	58.6	20,025
b) CGIAR Approved	62	55.6	19,281
2. Program Items Reduced or Deleted			
a) Support Staff		—	586
b) Supplies and Services		—	185
			(771)
3. Baseline	62	55.6	18,510

The rationale for, and implications of, the proposed reduction are stated below.

Item 2a): Support Staff. The number of support staff per senior scientist at CIAT is already lower than in some centers. Current levels of support for the 1980-81 budgets were determined after thorough reviews during the budgeting process, and are considered to represent minimum levels required to achieve optimum productivity on the part of internationally recruited staff. Nevertheless, the support staff was further reduced by the austerity measures resulting from the "Lima Agreement"; the restoration of selected support staff components, each painstakingly reviewed, made up part of the 1982 change list. Nevertheless, this restoration was lost as a result of the fallback position for 1982. An additional cut of 30/o in support staff costs and 20/o in temporary personnel and overtime was included for 1982 in the reduction list (Item 7) that was proposed as a means to deal with the funding shortfall this year. Such a reduction, was meant to be a temporary one in 1982. Now, it is proposed to be incorporated in the Baseline Adjustment for 1983. Item 2a) shows a reduction in support staff of 60/o, or 30/o more than the reduced level of support staff in 1982. This additional cut of 30/o will need to be achieved through selective elimination of support staff personnel in given research programs and support units of the Center.

Support staff and other types of direct support for scientific staff (equipment, supplies, services and travel) are key to attracting and keeping the best scientists. A survey among senior staff personnel conducted by a private consultant showed that the good working conditions at CIAT was the number one reason for scientists wishing to continue to work at CIAT. They feel that they are doing something extremely important and can accomplish more at the Center than anywhere else. If this is changed because the scientists receive less support, the quality and quantity of research activities and, eventually, the increases in food productivity resulting from this work, will surely suffer. For this reason, the 60/o reduction shown in item 2a) is considered to represent the maximum cut possible; any larger reduction would too seriously affect the efficiency and the overall productivity of the Center.

Item 2b): Supplies and Services. The same careful considerations as described above for support personnel has been given to levels of supplies and services. A net reduction of '82 US\$73,000 in supplies for program and support units is proposed. Further reductions would tend to increase the percentage of the budget devoted to personnel costs, an item which has already been the subject of TAC criticism, and would no doubt affect the efficiency and productivity of the Center. The remaining '82 US\$112,000 represent net savings in utilities to be achieved through continued self-rationing in energy and telephone use.

B. CHANGE LIST

Part I: Reductions From Baseline Level

The CGIAR Secretariat guidelines do not provide for any growth for CIAT in 1983 over the 1982 CG-approved fallback budget. The difference between the reduced baseline and the guideline budget ceiling was precisely the sum of the calculated provisions for inflation and working capital, plus the amount budgeted for capital equipment for 1983 in the 1982-83 P & B proposal. Thus, all of the 2.60/o reduction below the baseline adjustment recommended by the TAC must be achieved by real program cuts, rather than merely foregoing growth. Furthermore, if any highest priority new activities are to be added, equivalent additional program reductions must be made to make this possible. Thus, in order to add the two new positions considered most essential, and at the same time achieve the recommended budget reductions it will be necessary to eliminate seven existing senior staff positions (six of which are currently filled). The change list summarizing these elements is given in Table B.1.

Table B.1. Change List

Part I - Reductions from Baseline Level			Senior staff Manyyears	Operations in '82 US\$000)
1.	Baseline		62	18,510
2.	Program Items Reduced			
	Module A.	Reduction in Administrative and Support Positions		
		1) Director	1	80
		2) Genetic Resources Specialist	1	82
	Module B.	Reduction in Size and Scope of Tropical Pastures Program		
		3) Animal Health Specialist	1	130
		4) Legume Breeder	1	137
		5) Pasture Evaluation in Production Systems Specialist (Brazil)	1	84
		6) Pasture Establishment Specialist (Brazil)	1	84
	Module C.	Reduction in Size and Scope of Cassava Program		
		7) Agronomist, Regional Trials	1	7
3.	Reduced level		<u>55</u>	<u>140 737</u> 17,773

Part II: Expansions, New Activities and Provisions Proposed for the 1983 Program & Budget

Priority	Description	Operations		Price Increase Allowance	Costs in '83 US\$000			Total Costs
		MY	'82 US\$000		Operating Costs	Capital Working	Exp.	
1	Provisions for price increases			2744	2744			2744
2	Adjustment of working capital					225		225
3	Addition of Agrometeorologist	1	130	20	150	2	18	170
4	Addition of Regional Cooperation position for cassava in S.E. Asia	1	140	22	162	2	22	186
5	Capital for existing activities						297	297
	Subtotal	<u>2</u>	<u>270</u>	<u>2786</u>	<u>3056</u>	<u>229</u>	<u>337</u>	<u>3622</u>
	Total 1983 request	<u>57</u>						<u>21395</u>

For these deletions, as well as those shown in the fallback list, it must be clear that most or all should be reinstated when the funding situation improves. These positions have been established over the years through long and careful analyses of the discipline/program mix required to achieve CIAT's objectives most effectively and efficiently. Most of them were projected through this decade in CIAT's carefully developed Long-Range Plan. Their deletion at this time must be considered a temporary expedient. A prioritized schedule for reinstatement will be presented when sufficient funding becomes available.

A brief summary of the nature of the proposed program and budget modifications summarized in the change list follows:

Module A: Reduction in Administrative and Support Positions

1) Directors. The current administrative superstructure of CIAT is composed of a Director General, four Directors, and an Assistant to the Director General. The four Directors are:

- 3 Technical Directors:
 - Director for Research for Crops
 - Director for Research for Land Resources
 - Director for International Cooperation
- 1 Director for Finance and Administration

It is proposed to reduce the Technical Directors from three to two and redistribute the workload accordingly.

In the current organization three of the research programs report to the Director for Crops Research, and only one (Tropical Pastures) to the other Research Director. Each also has several support units and special project activities under his supervision. The lesser number of research programs reporting to one of the Research Directors has made it possible for him to carry various additional center-wide responsibilities. Particularly since the incumbent is an Economist, such responsibilities have included overall planning, and analyses of socioeconomic benefits (or foregone benefits) of various budgetary options. By reducing the Technical Directors from three to two it will be necessary to distribute the international relations activities and management of the outreach services formerly falling chiefly under the Director for International Cooperation. The major portion of these responsibilities will be assigned to the Director for Land Resources Research whose title will be changed to Director for Resources Research and International Cooperation. Thus he will have less time to devote to center-wide planning activities. As CIAT already has less persons in the total senior management positions than some centers, the spreading of a greater workload to the remaining Directors and Director General will weaken CIAT's ability to respond to special requests by donors, maintain active contact with cooperating institutions, monitor CIAT's achievements, enunciate evolving priorities in relation to its long-range plans, and seek special project funding.

2) Genetic Resources Specialist. CIAT activities related to research in germplasm resources and in the maintenance, evaluation, documentation and distribution of world germplasm collections in *Phaseolus* species, *Manihot* species and in tropical pastures (grasses and legumes) are largely centralized in the Genetic Resources Unit (GRU). The Unit is composed of two senior staff positions: A Germplasm Specialist and a Physiologist (tissue culture). The Germplasm Specialist position is presently unfilled. Active recruiting did commence in October 1981. Despite the availability of a list of good candidates no appointment has been made pending the outcome of center-wide priority discussions. It is proposed to cut this position, but to maintain essential germplasm activities in all species. This can be achieved through providing continuing support to the Unit under the supervision of the remaining senior staff and through the contribution of the research associates in the GRU who are in charge of the germplasm work in each commodity.

Actual research related to the germplasm *per se*, particularly with respect to *Phaseolus* species, will be curtailed with the loss of this position. However, activities related to maintenance, evaluation, documentation and distribution of germplasm in all species will continue. The extra work required in supervising the Unit will obviously reduce the research output in tissue culture propagation of cassava. The recent appointment of an IBPGR Regional Officer for Latin America, to be located with the GRU at CIAT, will provide an important input into regional germplasm collection activities, particularly in beans and cassava. This latter activity was previously handled by the Germplasm Resources Specialist. It is considered that the loss of the position of Genetic Resources Specialist will be serious with respect to the on-going research effort on beans, but essential conservation and distribution activities will continue in all species.

Module B: Reduction in Size and Scope of Tropical Pastures Program

The reduction of four currently-filled senior staff positions in this program implies a reduction of 20% from current levels, resulting, no doubt, in the reduced ability of the program to cope with the extremely difficult and complex, though highly promising, task of developing pastures from previously undomesticated forage species and understanding the complex soil/plant/animal interrelationships in various ecosystems. The cut comes at a most inopportune time, just when the germplasm is flowing effectively through a well-organized evaluation sequence, and at a time when the program was prepared to expand its activities, as recommended by the TAC, to the humid tropics in order to contribute to ecologically sound and economically stable use of this important land resources as well as the recovery of the estimated 6-8 million hectares of cleared Amazonian forest in a state of degradation. A description of the impact of the individual components of this reduction follows.

3) Animal Health Specialist. Currently, animal health research in the Tropical Pastures Program has three functions. The first one is to maintain the health of test herds to reduce extraneous variability in grazing and pasture management trials. The second function is to evaluate the interrelationships between different pastures and the level of various diseases and their vectors, and their effect on animal production and productivity. The third function is to monitor the epidemiological implications of the introduction of large areas of improved pastures and the concomitant increases in the density of livestock populations. The first function can be performed by a veterinarian at the support staff level. The other two research functions, will become more important as the pasture evaluation and adoption process is developed. In spite of its high importance, this activity is currently considered to be of lower relative priority than other existing and proposed positions in the Center, including the expansion of testing and pasture renovation/management activities into the humid tropics ecosystem (proposed in the supplemental list). The proposed reduction includes the senior staff animal health position, and 60% of the support costs including support staff. The remaining support staff is to be attached to the cattle production systems section of the Tropical Pastures Program to fulfill the function of monitoring and maintaining the health of test herds in Quilichao and Carimagua, as well as test herds in the on-farm evaluation/validation research.

4) Legume Breeder. The pasture improvement activities consist of several overlapping phases: germplasm collection, multiplication and evaluation, identification of promising species and their limiting factors, screening of accessions within the species for the desirable missing character (e.g., resistance or tolerance to diseases and insects), and the generation and selection of new genetic recombinations to overcome specific constraints in a few selected promising species. The Tropical Pastures Program is currently engaged in all of these activities through a multidisciplinary research effort. Two Breeders (one a senior breeder with many years of experience in breeding of tropical forage legumes) are currently working in the Program. This level of staffing has been particularly important in methodology development, in training of scientific and technical support-level staff and in identifying possibilities of solving, through breeding, specific problems in the more adapted and promising species. Given the large number of materials involved it is

highly desirable to continue the breeding activities with two senior staff. However, in view of the forced budgetary reduction, the evaluation of available genetic diversity in the germplasm collection in various ecosystems, including the humid tropics, should be given higher relative priority in the immediate future. As the limitations of the natural diversity in the key species are becoming more evident, it will be essential to increase the level of breeding activities as soon as possible.

5 & 6) Legume Evaluation and Pasture Establishment Specialists (Brazil). The Tropical Pastures Program is at present conducting research for the two well-drained savanna ecosystems (hyperthermic/Llanos and thermic/Cerrados) in two major research sites (the Carimagua station of ICA in Colombia, and the Cerrado Center, CPAC, of EMBRAPA in Brazil, in close collaboration with the respective institutions). In each of these research sites, germplasm flows through a rational and coordinated evaluation sequence that is supported by an expanding collaborative international pasture network with regional trials in selected sites in most countries in the region. The evaluation sequence in each site covers three major research areas: (a) germplasm evaluation, (b) pasture development and evaluation, and (c) pasture evaluation in production systems.

Three senior scientists are outposted at the Cerrado Center, one in each of three research areas: (a) an Agronomist in charge of the evaluation of all collected accessions in pure stands and in mixtures under grazing, (b) a Pasture Development Specialist who also conducts research in soil/plant nutrition and pasture maintenance requirements, and (c) an Animal Production Specialist in charge of pasture evaluation under grazing, and of research on strategic use of pastures in production systems. This small team is very much needed at the present stage in which key species for this ecosystem have been identified and are subject to intensive research under grazing. Research by the three staff members is carried out in full and close collaboration with Brazilian scientists, with EMBRAPA providing for most of the research support costs. In the Long-Range Plan it was anticipated that as EMBRAPA develops its own scientific capabilities, the two latter positions would be phased out by 1985 and 1986, respectively, so as to provide room for tropical pastures regional cooperation positions for Central America and the Caribbean and for subtropical South America.

Due to budgetary reductions, these two positions (i.e., pasture development and cattle production systems) will need to be phased out in 1983. If EMBRAPA could absorb the two experienced scientists into the CPAC staff, the continuity of the research could be assured whereby the CIAT Pastures Program would continue to provide the necessary backstopping from headquarters. If such an arrangement is not possible, it is clear that the considerable research progress which has been achieved in collaboration with Brazilian scientists for this important ecosystem (thermic, well-drained savannas) will be in jeopardy.

Module C: Cassava Program

7) Agronomist, Regional Trials. During the initial phase of research on cassava, various locations in Colombia representing a range of major ecological zones of cassava production were used as testing grounds for accessions from the germplasm collection and new clones of cassava becoming available from the breeding program. The research was most effective in providing valuable information on the adaptation and stability of cassava genotypes, and on the extent of genotype-by-environment interaction in the species. This information has played an essential role in the evolution of the breeding strategies of the Program. As a result of this earlier work, the Cassava Program now conducts its germplasm development work (selection among segregating materials) within the context of a range of distinct production zones to take account of the considerable genotype-by-environment interaction which has been demonstrated.

With seven annual cycles of regional trials now completed in Colombia, the international purposes of this activity have been largely fulfilled. Thus it is hoped that regional trials in Colombia can become a responsibility of the national program, ICA. This will permit CIAT to place

greater emphasis on the international testing network. Given the high priority of establishing regional activities in Asia, the dedication of a full-time senior staff position to international testing can be delayed for several years, freeing up a position for the Asia Regional Cooperation functions. In the meantime international trials responsibilities will be shared by other scientists in the Program with the effect of reducing somewhat their productivity in their primary area of work.

Part II: Additions

1) Data Services Unit: Agrometeorology. This position was originally budgeted for 1982 and was endorsed by TAC as part of the recommended 1982 budget, but was lost in the fallback position.

To be cost-effective, CIAT's commodity programs require systematized information on existing conditions in their respective target areas in three main phases of their research activity: setting priorities, research strategy design and technology evaluation and transfer. A good understanding of the climatic conditions that govern agricultural production, and the variability and representativeness of these conditions, is a prerequisite for success in generating viable seed-based technology. This holds true particularly for CIAT commodity programs, because of the variability in ecosystems in Latin America and the strong germplasm-by-environment interactions in all commodities under rainfed conditions.

In the case of pastures, persistence is much affected by disease and pest resistance. Most of the adapted forage legumes which the Program regards as highly promising (i.e., *Stylosanthes*, *Zornia*, *Centrosema*) originate in the tropics of Latin America and, therefore, present strong gene-by-environment interactions in terms of disease and pest tolerance. Results from regional trials strongly support this observation. The same considerations apply to both cassava and beans, since both of these commodities have their center of origin in Latin America. Moreover, these two commodities are grown in a very wide diversity of cropping systems, particularly in the case of small farmers. Information from international trials suggests that there is a strong interaction between genotype, cropping system and climatic and edaphic factors. In both crops, there is a complex of biological constraints. These constraints tend to occur under similar ecological conditions and vary in their severity depending on the cropping system. Analysis of the relationships between performance of various genotypes and between-location/within-season weather differences will also aid in the development of material with greater yield stability. In rice, particularly in upland culture, a far better definition of target areas and their critical constraints is required before major steps are warranted to fine-tune research priorities and specific research objectives.

Target area analysis and evaluation also are critical components in the technological testing and validation stage. The availability of purposely collected and organized data on each program's target areas helps the cost-effective achievement of the objectives of the CIAT research programs. Sites for regional trials, international nurseries and on-farm validation studies, must be selected in terms of their representativeness of the various sub-ecosystems. The improved ability to extrapolate information to similar ecosystems will make network testing more relevant. Improved ability to associate germplasm with a given type or range of ecosystems will also significantly reduce the burden on cooperating national institutions and increase the confidence in networking. The TAC Stripe Review on farming systems research (1978) identified this lack of information as the major gap in CIAT.

Thus, the overall objective is to gain a better understanding of the agroclimatic zones and cropping systems and their interactions with germplasm, to provide within each commodity program for: (a) an analytical framework for problem identification and setting of program priorities; (b) a better understanding of sub-regional constraints and resource potentials; (c) a

sharper definition of production regions by integrating edaphic, climatic, cropping system and socioeconomic information; (d) a more objective and rational basis for technology evaluation and transfer; and (e) a more cost-effective and efficient collaboration with national institutions.

The Agroecological Analysis section (of which the Agrometeorologist will form part) is to collaborate with each commodity program in the collection, analysis and synthesis of relevant climatic, edaphic and cropping system data from its respective target areas. The section will eventually have two senior staff: an Agrometeorologist (in change list starting January 1983) and a Land Systems Specialist (in supplemental list). Rather than adding specialists in these two disciplines to each of the four programs, a small central unit will provide for this expertise. The inputs by agronomy, economics and other disciplines will be provided by the specialist in the respective commodity programs. The two positions for the Agroecological section were originally budgeted for 1982 and 1983, respectively, and as indicated above, the first one was endorsed by TAC as part of the recommended 1982 budget but was precluded by the fallback position. Only the Agrometeorologist position is included in the new 1983 budget.

2) Cassava Program: Regional Cooperation (Asia). CIAT has already put into action various activities related to cassava in Asia and has long planned an expansion of these activities. Past activities have been made possible through a short-lived special project and through the work of program scientists based at CIAT. There is a growing interest in increased cassava production in Asia; a number of national programs have been recently established with somewhat inexperienced staff. The highest priority has been given to the Asia position for cassava to provide a CIAT input into these nascent national efforts. A cassava Regional Cooperation position for Asia was recommended by TAC but was lost in the fallback position. The position has been placed in the positive change list for 1983 at the expense of an existing position as an indication of the priority this activity has at CIAT.

An active contribution to Asia from CIAT headquarters-based staff will be all but impossible in the coming years given the cuts already taken in travel funds for 1982 and the cuts expected for 1983.

C. SUPPLEMENTAL LIST

CIAT's budget request does not represent an indication of the real requirements of the Center to enable it to carry out its mandated functions most effectively. Instead the request indicates how CIAT would apply the resources allocated to it. The CG Secretariat instructions invite Centers to indicate how they would apply additional funds in the event that overall funding for the System is greater than that anticipated by the CG Secretariat and used by the TAC in arriving at the guidelines and subsequently reduced recommended budget levels. The information for CIAT is summarized in Table C.1.

Table C.1 contains all elements included in the Long-Range Plan, "CIAT in the 1980s". This plan was developed through an intense staff effort over a period of two years. It is based on thorough analysis of the socioeconomic context in which the Center operates and was prepared in an integrated, interactive process strongly involving CIAT's Board of Trustees and representatives of developing country national research systems. It is a shame that such a major effort was rendered practically useless by the current financial stringencies, and that the preoccupation of the TAC with short-term budget allocation responsibilities have hindered that important body from reviewing this plan. The inclusion of all items programmed for 1983, but which could not be included in the residual budget request, in the supplemental lists represents an affirmation by CIAT's Board and management that the Long-Range Plan was indeed sound and should be implemented to the maximum extent possible within funding constraints.

Table C.1: Supplemental Budget

	*Additional cost (83\$000)	
	In 1983	Full year
A. Positions Currently Filled but Eliminated Due to Budget Reductions		
1. Director	92	92
2. Germplasm Specialist ¹	89	89
3. Tropical Pastures - Animal Health Scientist	168	168
4. Tropical Pastures - Legume Breeding	175	175
5. Tropical Pastures - Legume Evaluation Specialist (Brazil)	109	109
6. Tropical Pastures - Pasture Establishment Agronomist (Brazil)	109	109
7. Cassava Regional Agronomist, Regional Trials	180	181
B. Positions Approved by Board of Trustees and Recommended by the TAC but Later Deleted due to Funding Shortfalls		
8. Pasture Germplasm Evaluation Specialist, Humid Tropics		
9. Bean Pathologist (Bacteriology)	171	214
10. Rice Economist	160	206
C. Positions Approved by Board as Part of 1982-1983 P & B Proposal but not yet Reviewed by TAC		
11. Rice Physiologist	184	234
12. Land Systems Specialist	139	208
13. Virologist - Cassava	185	239
14. Bean Regional Cooperation Agronomist - Eastern Africa	117	160
D. Positions Approved by Board as Part of Long-Range Plan, but not Reviewed by Board or TAC as Part of P & B Proposal		
15. Pasture Renovation Agronomist, Humid Tropics	132	160
16. Cassava Breeder, Subtropics	164	200
E. Restoration of General Support for Research and Training Activities		
17. Support staff	677	677
18. Supplies and Services	214	214
	3,197	3,595

¹ Previously filled, but currently vacant.

* Amounts include operating costs, adjustments to working capital and capital.

A narrative description is not provided here for the elements of the supplemental budget, since these have already been thoroughly described in the 1982-83 P & B Proposal and CIAT's Long-Range Plan. Indeed all have already been formally reviewed and approved by CIAT's Board and the majority have received the endorsement of the TAC.

No attempt has been made to assign priorities to the list in Table C.1. Since so many have already been endorsed by the TAC and all are components of a carefully developed and thoroughly reviewed plan, it should be clear that a large proportion of the supplemental request merits high priority for any additional funds which may be available to the System. When the amount of such supplemental funding is known priorities for its use, within the framework of elements in Table C.1, will be submitted by the CIAT management to its Board. It is likely that the cancellation of current plans to discontinue program activities listed in part A, and the initiation of regional cooperation activities in Africa and Asia will be given high priority for use of such funds.

D. FALLBACK LIST

The CGIAR Secretariat has requested each center to identify additional budget items which it plans to eliminate in the event that funding falls below the level recommended by the TAC. In the case of CIAT this would be exceedingly damaging to the work of the Center because a net loss of five existing positions and severe across-the-board austerity cuts have already been necessary to attain the recommended level. Temporary expedients, such as delaying unfilled positions or living off capital by further postponing necessary equipment replacement will be needed to fill the gap while the full-year-effect of phasing out these activities is reflected in expenditures. But such measures are not a sound response to longer-term budget deficits. Thus, if funding falls as low as US\$20,416,000, even more severe program reductions will need to be enacted. The CIAT Board of Trustees has approved a contingency plan through which more severe underfunding would be accommodated by discontinuing the items summarized in Table D.1.

A brief description of each of the fallback contingency items follows:

1. *Elimination of a position of Head, Information/Documentation Services.* Currently two outreach services units fall within the directorate of International Cooperation. These are: Information Services (comprising all the editorial, publications and public information activities); and Documentation Services (comprising the Library and a set of documentation/ current awareness activities). At this fallback level these would be merged under the leadership of a single Communications Support head. The resultant loss of one senior staff position from this body of complex activities would seriously reduce the Center's efforts in informing cooperating scientists and the public of CIAT program results, as well as reduce the core-funded efforts to provide scientists in national research systems with information related to beans, cassava, rice and tropical pastures through such services as literature searches, commodity newsletters and table of contents services. An attempt would be made to fill this gap through special project funds.

2. *Reduction in Posdoctoral Fellowships.* During the last few years, CIAT has budgeted funds for 15 manyears of posdoctoral fellowships per year. Appointments are made for one year, with the possibility of extension up to a maximum of two years. Budgeted funds cover only the posdoctoral personnel costs. Research support costs are provided by the program to which the fellow is assigned. The purpose of the fellowships is to provide young professionals with opportunities to further their training and professional development in tropical agriculture in general, and in CIAT commodities in particular. Many of the appointees are individuals from developing countries who either are interested in specific research fields within CIAT programs or are returning from their graduate studies and will be directly or indirectly responsible for research in these commodities as staff of collaborating institutions.

Table D.1: Fallback List

Program Activities Reduced	Estimated savings '83 (US\$000)	
	Item	Cumulative
1981 Budget Request		21,395
Module A - Further Reductions in Administrative and Support Positions		
1. Elimination of a Position of Head, Information/Documentation Services	117	
Module B. Training		
2. Reduction in Number of Post- Doctoral Fellowships	136	253
3. Reduction in Training Scholarships	135	388
Module C. Further Reduction in Size and Scope of Cassava Program		
4. Elimination of Cassava Utilization Research	347	735
5. Elimination of one Breeder Position	244	979
1983 Budget after Fallback		<u>20,416</u>

The four commodity programs value highly the incremental productivity resulting from having two to three postdoctorals working in each of their programs. The Cassava and Bean Programs, which do not have full-time coordinators, have found it to be most useful to have a postdoctoral fellow working in the same field of specialization as the program coordinator, as this enables the coordinator to maintain full research activities in his section at the same time that he assumes administrative and leadership responsibilities. Also, CIAT staff and management value highly postdoctoral fellowships as a means to identify candidates for staff positions in CIAT, in special projects, or in collaborating institutions.

The proposed budget cut ('83 US\$136,000) implies a reduction of five manyears of post-doctoral fellowships. Although this represents a substantial reduction, it still provides for ten manyears. A larger reduction than the one proposed above would seriously affect both CIAT-based research as well as collaboration with national programs.

3. **Reduction in Training Scholarships.** Training is one of the activities at CIAT that is considered to have a very high payoff. It has contributed to the creation of an independent research capability in many national programs and the establishment of close links between national research and CIAT. Since its inception CIAT has trained over 2,300 professionals from the third world. Training provided at CIAT, and the closely related conferences, have also contributed to the strengthening of research networks related to each of the Center's commodity programs which, in turn, has permitted a significant horizontal transfer of technology.

Reducing resources for training scholarships by '83 US\$135,000 would leave only '83 US\$225,000 for training scholarships in 1983. This is a 38% reduction from the CG approved 1982 budget. It is recognized that this reduction would seriously affect the level of technical collaboration with national programs. Given the already reduced availability of core funds for training scholarships, CIAT's management is, and will continue to be, actively searching for alternative ways to ensure a continuation in providing training opportunities to the countries with which the Center collaborates. Alternatives include:

a) **Increasing the number of self-funded trainees.** With respect to awarding scholarships, one could classify the national programs requiring a continued training contribution from CIAT into the three following general categories:

- countries capable of totally funding their training candidates at CIAT;
- poorest countries currently receiving technical assistance loans and grants from funding agencies, and thus capable of providing their scientists with scholarships financed by these loans and grants;
- partially developed countries not receiving significant external funding assistance and incapable of providing training scholarships from their own sources.

CIAT has initiated the policy of announcing courses for which the Center can provide only a small proportion of the scholarships and of pressing countries in the first two categories to provide scholarships from their own or other sources.

b) **Obtaining special project funds.** It is realized that the two sources of scholarships described above are insufficient for the training needs and demands of national programs with which CIAT collaborates; thus an aggressive strategy of special project development has been started to guarantee continued CIAT training services to the national programs.

4. **Cassava Utilization Research.** Cassava utilization research has been carried out by one core funded senior scientist with a larger than usual (for CIAT) budget allocation to provide for a wide range of activities, including partial funding for a visiting scientist in cassava drying research. Research has concentrated on developing methodologies for natural cassava drying systems and in the utilization of dried cassava in both human and animal diets. The loss of the position from the Cassava Program would mean the termination of all core funded research on utilization of dried cassava products in human and animal diets. This work is considered of particular importance given the problems of perishability of fresh cassava roots. The loss of the position would thus create a difficult situation which will need to be at least partially corrected through special projects, particularly in the area of cassava drying.

5. **Cassava Breeder.** The pressing need for breeding research in cassava for Asia has been recognized by CIAT in the Long-Term Plan. The transfer of a core position to Asia for this purpose in 1982 was proposed in the Plan for 1982. Arrangements have already been made in Thailand to locate one of the currently CIAT-based breeders in that country in early 1982 with regional responsibilities for breeding activities in collaboration with national programs. At this

deep fallback position this scientist would need to take on the role of regional coordination of all cassava research collaboration between CIAT and Asian countries, thus merging the two positions budgeted for Asia into one. The consequent overall reduction of breeding activities both in Asia and at CIAT would mean that a very large responsibility for cassava breeding would devolve to the one remaining breeder who would also be responsible for the field maintenance of the more than 3000 clones in the CIAT cassava germplasm collection. Thus, the effective loss of one breeding position considerably reduces the capacity of CIAT to respond to global germplasm needs of collaborating national programs.

VI. SPECIAL PROJECTS

CIAT's 1982-83 Program and Budget document set out the major special projects ongoing or foreseen for the period. The following information briefly details projects currently underway in 1982 and new projects which have been requested and are expected to come on stream within the next year or so.

Donor and Project	Senior Staff Manyears p.a.	Annual Budgets (US\$000)				
		1982	1983	1984	1985	1986
BEANS						
1) Switzerland (SDC) Regional Cooperation for Central America and Caribbean	3.0	375	453			
<p>The project is to produce and disseminate in collaboration with national beans programs improved bean technology to meet production constraints specific to the region. The three-man team consists of a coordinator, a plant breeder and a cropping systems agronomist. A proposal will be made to the Swiss to extend the project beyond 1983.</p>						
2) Switzerland (SDC) Research and Technology Transfer for Peru	1.0	90	55			
<p>The project is to support the national bean program in increasing production and stimulate liaison with CIAT.</p>						
3) Unspecified donor Regional Cooperation - Eastern Africa	4.0	—	982	996	1,095	1,252
<p>Funding is being sought for this project to station a team in Eastern Africa to strengthen regional and national research capacity to increase bean production in the region.</p>						

Donor and Project	Senior Staff Manyears p.a.	Annual Budgets (US\$000)				
		1982	1983	1984	1985	1986
CASSAVA						
1) Unspecified donor Regional Cooperation Asia	1.0	—	200	220	240	265
Funding is being sought for a regional coordinator to complete a two-man team for regional cooperation in Southeast Asia to increase cassava production and improve utilization technologies.						
2) UNDP Technology Transfer in Root & Tuber Crops	A —	56	276	262	334	—
An initial project has recently been renewed for a further three-year period. The project which involves IITA, CIP and CIAT provides funds for a training expert, training fellowships and courses and conferences or workshops.						
RICE						
1) Rockefeller Foundation Rice Blast Resistance	1.0	20 ^{1/}				
In mid-1980 the Rockefeller Foundation assigned one of their scientific staff to do research on developing new genetic strategies for blast resistance in rice. The Foundation provides funds for research expenses plus all salary and benefit costs of the scientist.						

^{1/} Plus salary and perquisites provided directly by the Foundation.

Donor and Project	Senior Staff Manyears p.a.	Annual Budgets (US\$000)				
		1982	1983	1984	1985	1986

TROPICAL PASTURES

- | | | | | | | |
|--|-------|---|-----|-----|--|--|
| 1) IDRC
International Pasture
Evaluation Network | A - C | — | 189 | 165 | | |
|--|-------|---|-----|-----|--|--|

This project is to select germ-plasm, train scientists, develop methodologies for agronomic trials and provide support to national institutions for grazing trials.

INTERNATIONAL COOPERATION

- | | | | | | | |
|---|-------|-----|-----|-----|--|--|
| 1) Switzerland (SDC)
Seed Unit (Training,
Outreach, Research) | A - C | 2.0 | 695 | 738 | | |
|---|-------|-----|-----|-----|--|--|

The initial three-year phase of this project ended in 1981. An extension for 2 years was recently approved. The project is to: train personnel in the development of seed programs and industries; extend technical collaboration; conduct research; and multiply, process, store and distribute breeder and basic seed for CIAT's commodities to collaborating countries.

- | | | | | | | |
|--|---|---|---|-----|-----|--|
| 2) Unspecified donor
Training & Conferences | A | — | — | 367 | 404 | |
|--|---|---|---|-----|-----|--|

A proposal has been made for a project to carry out training, conferences and workshops, monitoring tours and visits to CIAT for personnel from institutions in Latin America.

- | | | | | | | |
|--|-------|---|-----|-----|--|--|
| 3) W. K. Kellogg Foundation
Audiotutorial Training
Materials | A B C | — | 216 | 282 | | |
|--|-------|---|-----|-----|--|--|

This 3 1/2-year project is for the design, development, production, and utilization of training materials on improved agricultural production technology with emphasis on the commodities in CIAT's mandate.

Donor and Project	Senior Staff Manyyears p.a.	Annual Budgets (US\$000)				
		1982	1983	1984	1985	1986
4) W.K. Kellogg Foundation Construction of an Auditorium	—		550			

A request has been made for funds to convert a rarely used amphitheater into an auditorium capable of holding 200 or more participants.

In addition to the above projects, many smaller projects of a collaborative nature, often involving visiting personnel, are underway or contemplated. Also CIAT continuously seeks special project funding for activities which are included in the Long-Term Plan but which, because of funding problems, have not been incorporated in the core budget.

Not included above are cases where CIAT acts as host to staff from other institutions. Currently the following are in this category: CIMMYT - Andean Region Maize team (2 senior staff); IFDC - Phosphorus project (2 senior staff); IRRI - International Rice Testing Program (1 senior staff); GTZ - Regional Training Officer (1 senior staff); IBPGR - Regional Officer (1 senior staff). Shortly INTSOY and INTSORMIL are also expected to station one staff member each at CIAT.

TABLES

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

SUMMARY OF MAN-YEARS AND COSTS BY PROGRAM AND ACTIVITY

TABLE 1

	ACTUAL		1982 BUDGET				1983 BUDGET				PROJECTIONS g/		
	1980	1981	Bd. Approved d/	CG Approved b/	Restated c/	Estimate d/	Bd. Approved e/	Modified e/	Restated f/	1984	1985	1986	
	M-Y 80\$000	M-Y 81\$000	M-Y 81\$000	M-Y 81\$000	M-Y 82\$000	M-Y 82\$000	M-Y 81\$000	M-Y 81\$000	M-Y 82\$000	M-Y 82\$000	M-Y 82\$000	M-Y 82\$000	
CROPS RESEARCH													
Office of the Director	1.0 234	1.0 249	1.0 287	1.0 287	1.0 324	1.0 308	1.0 292	1.0 290	1.0 328	1.0 324	1.0 330	1.0 330	
Beans	10.4 1526	10.0 1623	12.5 1944	12.0 1825	12.0 2062	10.0 1844	13.0 2014	12.0 1792	12.0 2025	12.5 2197	13.0 2276	14.5 2510	
Cassava	10.0 1531	10.0 1713	10.0 1729	10.0 1716	10.0 1939	10.0 1901	10.0 1737	10.0 1678	10.0 1896	10.0 1954	10.0 1963	11.0 2185	
Rice	3.0 429	3.8 599	4.5 713	4.0 622	4.0 703	4.0 692	5.5 867	4.0 611	4.0 690	4.5 806	5.5 980	6.0 1042	
Genetic Resources	2.0 260	1.5 295	2.0 326	2.0 326	2.0 369	1.0 297	2.0 327	1.0 265	1.0 299	2.0 368	2.0 369	2.0 376	
Research Services	1.0 337	0.6 306	1.0 293	1.0 291	1.0 329	1.0 321	1.0 303	1.0 276	1.0 312	1.0 331	1.0 342	1.0 354	
Station Operations	1.0 630	1.0 770	1.0 787	1.0 787	1.0 889	1.0 871	1.0 807	1.0 753	1.0 851	1.0 889	1.0 912	1.0 946	
SUB-TOTAL	28.4 4950	27.9 5555	31.0 6079	30.0 5854	30.0 6615	27.0 6234	32.5 6347	29.0 5665	29.0 6401	31.0 6869	32.5 7172	35.5 7743	
LAND RESOURCES RESEARCH													
Office of the Director	1.0 207	1.0 225	1.0 243	1.0 243	1.0 275	1.0 261	1.0 240	1.0 243	1.0 275	1.0 275	1.0 271	1.0 271	
Tropical Pastures	16.8 2474	17.5 2682	20.0 2772	20.0 2765	20.0 3124	20.0 3071	20.0 2786	16.0 2350	16.0 2656	20.0 3132	20.0 3148	20.5 3230	
Carimagua	4.5 465	5.1 518	5.1 561	5.1 561	5.1 634	5.1 630	5.1 573	5.1 556	5.1 628	5.1 634	5.1 648	5.1 659	
Data Services	1.0 417	1.0 524	2.0 643	1.0 528	1.0 597	1.0 583	2.5 752	2.0 626	2.0 707	2.0 727	2.5 850	3.0 921	
SUB-TOTAL	18.8 3563	19.5 3949	23.0 4219	22.0 4097	22.0 4630	22.0 4545	23.5 4351	19.0 4275	19.0 4266	23.0 4768	23.5 4917	24.5 5081	
TOTAL RESEARCH	47.2 8513	47.4 9504	54.0 10298	52.0 9951	52.0 11245	49.0 10779	56.0 10698	48.0 9440	48.0 10667	54.0 11637	56.0 12089	60.0 12824	
INTERNATIONAL COOPERATION													
Office of the Director	0.5 70	1.0 136	1.0 153	1.0 153	1.0 173	1.0 171	1.0 154	1.0 81	1.0 91	1.0 173	1.0 174	1.0 174	
Training & Conferences	1.0 1024	1.0 784	1.0 1061	1.0 908	1.0 1026	1.0 878	1.0 1178	1.0 896	1.0 1013	1.0 1199	1.0 1331	1.0 1437	
Communication Support	1.8 770	2.0 813	3.0 906	3.0 906	3.0 1024	3.0 1007	3.0 917	3.0 782	3.0 884	3.0 1024	3.0 1036	3.0 1130	
Documentation	0.8 457	0.5 432	1.0 473	1.0 470	1.0 531	1.0 525	1.0 474	1.0 464	1.0 524	1.0 534	1.0 536	1.0 536	
TOTAL INTL. COOP.	4.1 2317	4.5 2165	6.0 2593	6.0 2437	6.0 2754	6.0 2581	6.0 2723	5.0 2223	5.0 2512	6.0 2930	6.0 3077	6.0 3297	
ADMINISTRATION													
Board of Trustees	1.0 48	1.0 58	1.0 55	1.0 55	1.0 62	1.0 62	1.0 55	1.0 55	1.0 62	1.0 62	1.0 62	1.0 62	
Director General	1.0 170	1.0 189	2.0 257	2.0 257	2.0 291	1.0 179	2.0 258	2.0 255	2.0 288	2.0 291	2.0 292	2.0 292	
Controller	1.0 398	1.0 429	1.0 447	1.0 447	1.0 505	1.0 498	1.0 448	1.0 435	1.0 491	1.0 505	1.0 506	1.0 507	
Executive Officer	1.0 565	1.0 666	1.0 672	1.0 672	1.0 759	1.0 742	1.0 676	1.0 651	1.0 736	1.0 759	1.0 764	1.0 770	
TOTAL ADMINISTRATION	3.0 1181	3.0 1342	4.0 1431	4.0 1431	4.0 1617	3.0 1481	4.0 1437	4.0 1396	4.0 1577	4.0 1617	4.0 1624	4.0 1631	
GENERAL OPERATING EXPENSES													
Physical Plant	979	1102	1184	1184	1338	1303	1194	1129	1276	1338	1349	1406	
Motor Pool	555	1015	910	910	1028	1015	940	798	902	1028	1062	1115	
General Expenses	816	1083	976	976	1103	1100	1019	807	912	1103	1152	1142	
TOTAL GENERAL OPERATING	2350	3200	3070	3070	3469	3418	3153	2734	3090	3469	3563	3663	
OTHER													
Contingency			174	174	196		180	174	197	197	203	214	
Provision for Price Changes h/			2283	2218			5037	4862	2786	5828	9226	13468	
TOTAL CORE	54.3 14361	54.9 16211	64.0 19849	62.0 19281	62.0 19281	58.0 18259	66.0 23228	57.0 20829	57.0 20829	64.0 25678	66.0 29782	70.0 35097	
TOTAL SPECIAL PROJECTS	2333	1933	2500	2500	2500	2500	2750	2750	2750	3000	3000	3000	
CATEGORIES OF EXPENSES													
Personnel Costs	9452	10701	11398	11127	12574	11923	11697	10249	11581	12880	13218	13863	
Honoraria, Stipends & Allow.	758	473	861	763	862	734	933	763	862	973	1054	1106	
Supplies & Services	2664	2908	3254	3199	3615	3605	3331	2994	3393	3677	3764	3828	
Travel	935	1037	1027	948	1071	1037	1077	925	1057	1160	1217	1328	
Equipment	372	693	622	622	703	701	741	622	703	703	838	1028	
Other	180	399	230	230	260	259	232	230	260	260	262	262	
Contingency			174	174	196		180	174	197	197	203	214	
SUB-TOTAL	14361	16211	17566	17063	19281	18259	18191	15967	18043	19850	20556	21629	
Provision for Price Changes h/			2283	2218			5037	4862	2786	5828	9226	13468	
TOTAL CORE	14361	16211	19849	19281	19281	18259	23228	20829	20829	25678	29782	35097	

a. This is the budget approved by the Board of Trustees in May 1981 and shown in the printed 1982/83 Program & Budget document.
 b. The CG approved for funding a budget reduced by the fall back list approved by the Board of Trustees.
 c. This is the CG approved budget with inflation distributed amongst programs and units.
 d. This is the budget recommended for CIAT by TAC at its March 1982 meeting.
 e. This is the modified budget proposal based on the level recommended by TAC at its June 1982 meeting.
 f. This is the modified 1983 budget restated in 1982 dollars i.e. with inflation distributed.
 g. Projections given previously assumed growth in earlier budget years. Since no growth has been possible, the foundation for projections has changed. Consequently projections now assume a 2 year delay in achieving previously budgeted or projected amounts; i.e. previously budget amounts for 1982 are now projected for 1984, 1983 for 1985 and 1984 for 1986 and all amounts have been restated in 1982 dollars.
 h. Price changes used are: 1981 to 1982 13%, 1982 to 1983 15.5%, 1983 to 1984 12%, 1984 to 1985 12% and 1985 to 1986 12%.
 The apparent reduction is because photocopying and certain printing services previously budgeted in the Communication Unit are now charged to programs.
 The apparent reduction is because the budget for gasoline, previously included in the Motor Pool, has been distributed to programs.

SUMMARY OF SOURCES AND APPLICATION OF FUNDS

(C US\$ Thousands)

SOURCES OF FUNDS	ACTUAL		1982 BUDGET			1983 BUDGET		PROJECTIONS		
	1980	1981 c/	Board Approved	CG Approved	Current Estimate	Board Approved	Modified	1984	1985	1986
Core Operations										
Australia	209	288			362					
Belgium	201	147			154					
Brazil					600					
Canada	979	1054			1171					
European Economic Community	1373	1318			1354					
Ford Foundation	100	100			75					
Germany (Federal Republic)	1276	1156			1032					
Interamerican Development Bank	2900	3190			3500					
International Development Association					253					
International Fund for Agricultural Development	770	900			1000					
Japan	800	950			1200					
Mexico	124	250								
Netherlands	300	285			310					
Norway	210	196			187					
OPEC Fund for International Development					600					
Rockefeller Foundation	300	150			150					
Spain					50					
Switzerland	402	412			407					
United Kingdom	528	466			524					
United States of America	3650	4350			4900					
Unidentified sources			19449	18881	509	22828	20429	25278	29382	34697
Balance from previous period	7				(226)					
Income applied in year	232	470	400	400	400	400	400	400	400	400
TOTAL CORE OPERATING FUNDS	14361	15985	19849	19281	18259	23228	20829	25678	29782	35097
Capital										
International Development Association	500	352								
Other a/	147	326								
Unidentified sources			602	334	133	612	566	1060	672	1068
Balance from previous period	850	198			265					
Income applied in year	280									
Balance of working funds	950	1326	1551	1551	1326	1631	1359	1562	2100	2450
TOTAL CAPITAL FUNDS	2727	2202	2153	1885	1724	2243	1925	2622	2772	3518
Special Projects										
Belgium	40	37			27					
CIMMYT	87	99			110					
German Agency for Technical Coop. (GTZ)	91	173			106					
IBPGR	23	49			45					
International Development Research Centre (IDRC)	108	37			77					
International Fertilizer Development Center (IFDC)	133	236			157					
International Rice Research Institute (IRRI)	70	161			148					
Kellogg Foundation	133	262			148					
Kresge Foundation	192									
Netherlands	43									
Rockefeller Foundation	47	68			23					
Switzerland	89	1426			767					
UN Development Programme (UNDP)	834	131			56					
United States of America	83	23			23					
Other	4	30								
Unidentified sources			2500	2500	248	2750	2750	3000	3000	3000
Balance from previous period	830	474	400	400	1115	400	400	400	400	400
TOTAL SPECIAL PROJECTS	2807	3206	2900	2900	3050	3150	3150	3400	3400	3400
TOTAL FUNDS	19895	21393	24902	24066	23033	28621	25904	31700	35954	42015
APPLICATION OF FUNDS										
Core Operations	14361	16211	19849	19281	18259	23228	20829	25678	29782	35097
Capital b/	1204	611	522	301	365	322	337	522	322	618
Special Projects	2333	2091	2500	2500	2650	2750	2750	3000	3000	3000
Unexpended Balances										
Unrestricted Core (deficit) c/		(226)								
Capital	197	265								
Working Funds	1326	1326	1631	1584	1359	1921	1588	2100	2450	2900
Special Projects	474	1115	400	400	400	400	400	400	400	400
TOTAL APPLICATIONS	1997	2480	2031	1984	1759	2321	1988	2500	2850	3300
TOTAL APPLICATIONS	19895	21393	24902	24066	23033	28621	25904	31700	35954	42015
Memo :										
1. Total Core Operating Funds Required	14361	16211	19849	19281	18259	23228	20829	25678	29782	35097
Less Unexpended balance previous period	(7)	-	-	-	226	-	-	-	-	-
Less Earned Income Applied	(232)	(470)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)
Net Core Operating Funds Required	14122	15741	19449	18881	18085	22828	20429	25278	29382	34697
2. Total Capital Funds Required	2580	1876	2153	1885	1724	2243	1925	2622	2772	3518
Less Unexpended balance previous period	(850)	(198)	-	-	(265)	-	-	-	-	-
Less Balance Working Funds	(950)	(1326)	(1551)	(1551)	(1326)	(1631)	(1359)	(1562)	(2100)	(2450)
Less Earned Income Applied	(280)									
Net Capital Funds Required	500	352	602	334	133	612	566	1060	672	1068
3. Total Funds Required from donors	14622	16093	20051	19215	18218	23440	20995	26338	30054	35765
4. Total Earned Income	512	470	400	400	400	400	400	400	400	400
Applied to Core Operations	(232)	(470)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)
Applied to Capital	(280)									
Balance	-	-	-	-	-	-	-	-	-	-

a/ These amounts are the increases in the value of replaced assets; similar amounts are included in Capital in the Application Section.

b/ Figures do not include CIAT's aircraft purchased out of working funds.

c/ The audited financial statements show a deficit of US\$100,000 on operations. However, after the year end one donor's contribution, which was included as a receivable at December 31, 1981 was received for US\$126,000 less than expected. The deficit has therefore been increased to US\$226,000.

