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ICRISAT
Midterm
Budget
Report
1983-84

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INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS

1983-84 MIDTERM BUDGET REPORT

I. Statement of Objectives

The mandate of ICRISAT is to:

1. Serve as a world center for the improvement of grain yield and quality of sorghum, millet, chickpea, pigeonpea, and groundnut and to act as a world repository for the genetic resources of these crops.
2. Develop improved farming systems that will help to increase and stabilize agricultural production through more effective use of natural and human resources in the seasonally dry semi-arid tropics.
3. Identify constraints to agricultural development in the semi-arid tropics and evaluate means of alleviating them through technological and institutional changes.
4. Assist in the development and transfer of technology to the farmer through cooperation with national and regional research programs, and by sponsoring workshops and conferences, operating training programs, and assisting extension activities.

II. Current Stage of Development

ICRISAT entered its second decade in 1983 with expanding programs of research in Africa and with achievements of the first 10 years coming into evidence in farmers fields in South Asia, the Middle East, and Latin America. The emphasis through the rest of the 1980s will be to build on the good start we have made in these four large areas of the semi-arid tropics and to begin to make an impact in Southeast Asia as well.

Particularly challenging in the decade ahead will be the vexing problem of how to help the increasing, undernourished populations of drought-prone Sahelian Africa to feed themselves better. The new ICRISAT Sahelian Center in Niger, which will be the main base for our work on millets and groundnuts, and for farming systems in that region, began operations in a rudimentary way last year. The 500-hectare site south of Niamey was fenced in, some temporary buildings were erected, and initial experiments were planted. Six staff members were on the scene: a millet breeder, pathologist, entomologist, and agronomist, a soil fertility scientist, and an economist specializing in village level studies.

We have contracted with a French architectural firm to design the permanent laboratories and offices for the Sahelian Center and hope to see construction start in this biennium. Meanwhile, we will add three members to the staff through cooperative arrangements with Texas A&M University, The University of Wageningen, and ILCA. They will provide a soil physicist, a tillage engineer, and a forage scientist, respectively. The coordinator of our West Africa program, formerly based in Senegal, is now headquartered at the Sahelian Center.

Our newest undertaking in Africa is a regional groundnut research program, which began last September with the posting of a breeder in Malawi, who will be joined by a pathologist. Their efforts will be directed toward improving groundnut production in southern and eastern Africa. This team represents our initial response to an invitation from the Southern African Development Coordination Commission (SADCC) to help improve agricultural production in the region. We have also developed a comprehensive proposal for sorghum and millet research and training for the nine countries involved and expect to implement it before the end of 1983. We will field a multidisciplinary team consisting of a project manager, sorghum breeder, millet breeder, production agronomist, a cereals entomologist, cereals pathologist, and an economist. They will be based in Zimbabwe but work throughout the region. Training aimed at strengthening national research capabilities will be a primary objective. U.S.AID will be a major donor.

In Mexico and Central America, sorghum research carried out by an ICRISAT breeder posted at CIMMYT is beginning to produce good results. ICRISAT-bred sorghums are being used increasingly as a substitute for, or in combination with, maize in making tortillas, especially in drier areas where maize does not grow as well as sorghum. We are developing in Mexico cold-tolerant, high-altitude sorghums that are being sent for testing in other parts of the world, such as Kenya and Nepal. This research effort was strengthened last year with the addition of an ICRISAT agronomist to the team.

Our technology for double cropping deep black soils in areas of assured rainfall in India, where most farmers previously grew a post-rainy season crop only, has now spread from a 2-year-old pilot project at Taddanpally village in Andhra Pradesh to extensive research and demonstration efforts in four states of India in cooperation with state departments of agriculture.

Specific achievements for 1982, from ICRISAT Center and from posts overseas, are listed below under appropriate program headings.

III. Summary of 1982 Research Achievements

Sorghum Improvement

- o Six of our drought-resistant breeding lines yielded 460 to 630 kg/ha compared with 220 kg/ha for the recommended check cultivar during severe drought at Anantapur in southern India. In Upper Volta's severe drought four of our varieties significantly outyielded local sorghums.
- o ICRISAT's elite variety SPV 351 performed consistently well in advanced testing in India and moved within one step of release to farmers.
- o Our SPH 221 was top yielder in the Advanced Hybrid Trial of the All India Coordinated Sorghum Improvement Project. Another ICRISAT line, SPV 386, was recommended for the All India Minikit Trials in 1983, and for release to farmers in Zambia.
- o Two ICRISAT sorghum cultivars were released in El Salvador by Centro Nacional de Tecnologia Agropecuaria and three of our lines were in advanced testing in Venezuela.
- o Four derivatives from our population breeding program were released to farmers in northeastern China.
- o Farmers in Upper Volta made increasing use of E 35-1, a sorghum that ICRISAT introduced from Ethiopia. This variety is replacing local cultivars in more productive fields under better management because of its higher yield and excellent grain quality.
- o Three ICRISAT varieties (SAR 1, SAR 2, SAR 16) significantly outyielded all other varieties and hybrids where Striga infestation is severe in India.
- o Use of nitrogen enriched with isotope $^{15}\text{N}_2$ demonstrated that nitrogen fixed in the root zone of 25-day-old sorghum seedlings is transferred to the shoots within 7 days.
- o Our postrainy-season variety D71240 averaged 2900 kg/ha at three locations in India compared with 1900 kg/ha by Maldandi, the popular local postrainy-season variety.
- o Tests were completed to enable screening for charcoal rot without artificial inoculation.
- o A standard infector-row technique was used in large-scale downy mildew resistance screening under field conditions to identify good sources of resistance.

- o An improved soil-core assay technique to estimate nitrogenase activity of field-grown sorghum was developed. We grew plants with their roots enclosed by the core 21 to 30 days after planting, which increased activity 20 times that estimated by the normal assay method.

Pearl Millet Improvement

- o Research on breeding, agronomy, entomology, and pathology was started at the new ICRISAT Sahelian Center at Niamey in Niger.
- o Many requests for breeders' seed of our newly released downy mildew resistant variety WC-C75 were received. We distributed 340 kg to agencies that multiply seed and 970 kg to agricultural departments in various states of India.
- o We supplied 750 kg of seed of synthetic variety ICMS 7703 to the All India Coordinated Millet Improvement Program (AICMIP) where it is in the final year of trial for intensive on-farm testing, and 400 kg to state agricultural departments of agriculture in India.
- o Two of our millet synthetics bred in Senegal, which averaged 22% higher yield than the standard variety Souna III in national trials over the last 3 years, advanced to the prerelease stage in on-farm evaluation.
- o Inoculating field-grown millet with nitrogen-fixing bacteria had a strong effect on productivity. In one variety grain yields were increased by 36% when Azospirillum lipoferum was used, but decreased by 26% when A. braziliense was used.
- o A new seedling inoculation technique to screen for downy mildew resistance in greenhouses or laboratories was developed. The technique is now used to screen all key breeding materials.
- o A nondestructive, tube-culture assay technique to estimate nitrogenase activity of millets was developed. It allows the detection of cultivar differences 15 to 20 days after planting.
- o Under low soil fertility pearl millet cultivars differed in ability to use acquired nitrogen for grain production.
- o We demonstrated that plants systemically infected with downy mildew can recover and produce healthy heads if sprayed with metalaxyl, a systemic fungicide. The disease can therefore be controlled after it has appeared in a field.

- o Several promising new dwarf seed parents, including some which are very early maturing, were identified.
- o Dwarf versions of our major composites that lodge less and mature normally were produced. This will provide breeders access to greatly increased diversity.
- o Inoculation with mycorrhiza increased growth and phosphorus uptake by pearl millet and sorghum grown in sterilized soil.

Groundnut Improvement

- o A regional groundnut improvement program was begun in Malawi with IDRC assistance. The research effort there is expected to benefit the southern African region. In the first year (1982), more than 2000 lines were planted for evaluation.
- o More than 4000 breeding populations, advanced lines, and germplasm lines were supplied to groundnut breeders in 16 countries.
- o Four ICRISAT selections, which performed well consistently in post-rainy seasons, advanced to the last stage of evaluation before release to farmers by the All India Coordinated Research Project on Oilseeds.
- o Eight genotypes with resistance to rust and late leafspot yielded 2 1/2 times as much (1000 to 400 kg/ha) as any of three released cultivars under severe disease pressure during the 1982 rainy season.
- o Several drought-resistant genotypes yielded more than 1000 kg/ha under drought stress compared with 500 to 800 kg/ha by released cultivars during the 1982 rainy season at Anantapur, in southern India.
- o Four ICRISAT selections were advanced to the Coordinated Variety Trial of the All India Coordinated Research Project on Oilseeds.
- o The breeding program began using derivatives from wild groundnuts with resistance to leafspot and rust diseases.
- o Hormones were used to produce crosses--previously considered incompatible--that give us genes useful in groundnut breeding.
- o Six germplasm lines were found tolerant to peanut clump virus disease, and two genotypes were found tolerant to peanut mottle virus disease.

- o A few transgressive segregants for hairiness, which is associated with resistance to jassids, were recovered.
- o Early-maturing lines with seed dormancy were selected from segregating populations and bulked for further testing and hybridization.

Pigeonpea Improvement

- o Two ICRISAT varieties are now under consideration for release to farmers in India: ICPL 92 in Himachal Pradesh and ICPL 87 in Gujarat.
- o The University of Queensland in Australia released a line named Hunt, derived from ICRISAT material.
- o We continued to develop good hybrids using our new male sterile lines. One early hybrid, ICPH 8, which has been selected for All India Coordinated Tests, yielded nearly 4000 kg/ha in northern India.
- o By using ammonium sulphate labeled with ^{15}N , we calculated that more than 80% of pigeonpea's nitrogen uptake from a Vertisol is derived from biological fixation.
- o Pigeonpea ICP 8863 was widely distributed after resisting fusarium wilt at all 11 Indian locations where tested. The All India Coordinated Pulse Improvement Project recommended this variety for their breeding programs.
- o We selected 331 plants with multiple resistance to sterility mosaic, fusarium wilt, and phytophthora blight for further testing.
- o Crosses were made to increase resistance to Heliothis armigera and to combine it with resistance to fusarium wilt.
- o The All India Coordinated Pigeonpea Trials were supplied with 11 wilt-resistant and 14 sterility mosaic-resistant lines with good agronomic characters.
- o We identified a new isolate (P3) of phytophthora blight fungus that killed all lines that resisted the earlier known isolate, P2.
- o An off-season crop of late-maturing pigeonpea was produced in the Palni Hills of India. This provides the long-sought possibility of growing two crops a year of long-duration pigeonpea, thus accelerating the breeding process.

- o Pigeonpea varieties that resist wilt and sterility mosaic when sown after the rainy season produced three harvests and substantial firewood.
- o Our pheromone trap network was extended to monitor Heliothis armigera populations in India, Pakistan, and Bangladesh.

Chickpea Improvement

- o Our high-yielding, medium-duration desi cultivar ICC 4 was released for general cultivation in Gujarat State, India.
- o Syria recommended ICRISAT/ICARDA kabuli type ILC 482, resistant to ascochyta blight, for winter sowing as well as general cultivation in that country. It has yielded, on average, 113% more than the local variety when winter sown. A second chickpea cultivar, ILC 484, has been approved for prerelease seed multiplication and for large-scale winter trials in Jordan.
- o The highest yielding variety in the Coordinated Variety Trials in the Central Zone of India was ICRISAT's P 326. Our ICC 22 also performed well.
- o Since rhizobia applied to seed coats do not reach the root zone without rain or irrigation, we found that alternative inoculation methods are needed for chickpeas grown primarily on moisture remaining after the rainy season.
- o Sources of good resistance to Heliothis armigera were confirmed in chickpea. We are transferring this resistance to better adapted backgrounds.
- o We showed that resistance to fusarium wilt is conferred by two recessive genes that separately delay wilting but must be present together for complete resistance.
- o Our surveys established that fusarium wilt is important in Chile, Mexico, and USA as well as in South Asia, and that northern India, Pakistan, and several countries bordering the Mediterranean suffered severe losses from ascochyta blight.
- o Two of our desi cultivars were accepted for the Initial Evaluation Trials in the Central Zone of India and two others, ICC 27 and ICC 29, advanced to the next stage of testing. Four kabuli cultivars were included in the Kabuli Coordinated Trials.
- o We identified 28 new lines resistant to fusarium wilt.

- o Methods to screen for resistance to botrytis gray mold were standardized and 16 lines with resistance identified. Gray mold attacks chickpeas in humid areas in northern India, Pakistan, and Bangladesh.
- o We confirmed that low temperature, low light, and high soil moisture cause pseudoflowers and aborted flowers. Chickpea reaction to light, cold, and moisture is important in determining adaptability and yields.

Genetic Resources

- o More than 2500 new germplasm samples were collected in Brazil, Burundi, Ethiopia, India, Kenya, Nigeria, Rwanda, South Africa, and Zimbabwe.
- o Scientists in 28 countries received 31,936 lines of germplasm from our mandate crops and minor millets.
- o We assembled 1187 Malian sorghum and 480 millet germplasm samples in collaboration with national scientists and IBPGR.
- o New wild taxa of groundnut were collected and little-known ones recovered in a collaborative mission to Brazil
- o Two wild races of sorghum that are immune to downy mildew were added to the germplasm collection.
- o Sorghum segregants with desirable zera-zera heads, improved grain yield and quality, photoperiod insensitivity, and shorter plant height were produced.
- o We identified new sources of dwarfing genes and male sterility in pearl millet.
- o New large-seeded, late-maturing pigeonpeas were collected in Kenya.
- o We identified and maintained male sterility in pigeonpea's three maturity groups--early, medium, and late.
- o Interspecific hybrids between pigeonpea and its wild relatives from Australia were produced.
- o Cicer yamastitae, a wild relative of chickpea from Afghanistan, was successfully multiplied for the first time.

Farming Systems

- o The on-farm testing in India of our double-cropping technology for deep black soils expanded considerably. The pilot project at Taddanpally village in Andhra Pradesh was extended to neighboring farms at the request of farmers, and similar projects were initiated in Karnataka, Madhya Pradesh, and Maharashtra.
- o A pigeonpea/groundnut intercrop was found to yield 58% more than sole crops in a medium deep Alfisol.
- o ICRISAT engineers developed a mechanical crust breaker that increased sorghum emergence from 0-10% to 50-70% and damaged few, if any, emerging seedlings.
- o We made progress in promoting manufacture of wheeled tool carriers in India. Demand increased from about 10 to 100 units per month.
- o A sorghum/groundnut intercrop was found to yield up to 148% more under drought stress--and 28% more without drought stress--than is produced under the same conditions without intercropping.
- o Millet as an intercrop used nitrogen applied to an adjacent crop row much more efficiently than groundnut. Groundnut seemed to use little, if any, from that far away. Nitrogen applied to millet in an adjacent row did not affect groundnut's capacity to fix nitrogen.
- o We demonstrated that even when it is crucial to do certain operations while the soil is wet, only the furrow zone, not the bed zone, should be used for human movements. Compaction was minimized in a Vertisol watershed with broadbed-and-furrow land management using a wheeled tool carrier.
- o The recovery of nitrogen fertilizer applied to sorghum in the very wet rainy season was increased from less than 30% when broadcast to more than 50% when placed near, but not touching, the seed. The loss was reduced from 23% to 7% of the applied fertilizer.
- o Deep plowing and rebuilding broadbeds during summer increased crop yields in the deep Vertisols and helped control the noxious perennial weed, Bermuda grass.
- o We co-sponsored a symposium/planning meeting on the agrometeorology of sorghum and millet in the semi-arid tropics with the World Meteorological Organisation (WMO), Food and Agriculture Organisation (FAO), International Sorghum and Millet Program (INTSORMIL), and Texas A&M University. Participants included 112 agriculturists and climatologists from 18 countries.

- o Drought stress from pod filling to maturity reduced groundnut yields most; stress from emergence to pegging did not reduce yields.
- o We developed a procedure to determine the length of beds and furrows to safely dispose of irrigation runoff. The procedure uses information on soil infiltration, rainfall characteristics, bed and furrow geometry, and furrow roughness.

Economics

- o Farmers who used improved watershed-based technology in Taddanpally village obtained returns exceeding 240% of their investment for additional inputs.
- o Studies of stabilization policies for 93 SAT districts showed that instability of yields is the dominant source of risk in the drier districts, while price variability is more important in the highly irrigated regions. Price stabilization programs are unlikely to benefit farmers in the poorer SAT regions.
- o Various data sets and methodologies were used to show that better market facilities will increase farm production, first benefiting large farmers but later small and medium-size farmers even more as they gain better access to facilities.
- o Incidences and causes of crop failure were analyzed in 3805 fields in six study villages. Estimated probabilities of crop failure ranged from 0.03 to 0.26 yet the difference in mean rainfall between the low- and high-failure villages was only 100 mm. High risks are associated with rainy season cropping in Vertisols where rainfall is less dependable.
- o Large-farm households received about 140% more income per person than landless labor, small-farm, or medium-farm households in an analysis of 240 household incomes in six villages. But average incomes in these regions are extremely low--only half of the Indian average per capita income.
- o We confirmed that breeding for yield stability in sorghum should generate good supply response in the black-soil, cotton-growing regions of Maharashtra. A 30% reduction in yield variation should bring an initial 46% increase in hybrid sorghum acreage.
- o In traditional farming, varying capabilities among farmers were found to make little difference in yields; thus new technology and superior management are needed to increase yields.

Training

- o We invested 191 man months to train international interns and postdoctoral fellows in five programs at ICRISAT Center; 24 trainees from 12 universities and 11 countries spent 164 man months on Ph.D. and M.Sc. thesis research. Fellows from four developing countries received 15 man months of intensive training.
- o Training was provided in Crop Improvement, Crop Production, and Farming Systems for 26 francophone and 36 anglophone trainees and other scientists and technical assistants.
- o Long-term training (at least 6 months) in research and extension methods was provided for 90 persons from 29 countries.
- o Short-term training was conducted for agricultural officers, policy makers, and bank officers to help them transfer and apply technology to farmers in deep Vertisol areas.
- o In cooperation with WMO, we trained 17 scientists from 11 countries in agrometeorology.
- o As part of the ICRISAT program in Mexico, we trained 15 Latin American scientists in sorghum improvement
- o We helped train Malian students for employment by their government as agricultural research scientists.

IV. 1982 Fiscal Performance

The Governing Board of ICRISAT requested a budget for 1982 of U.S. \$18,558,000 gross as approved by TAC. The net budget was \$18,408,000. The CGIAR approved a budget at the fallback position of US \$17,410,000 (net \$17,260,000) but indicated that a further shortfall in funds would have to be accommodated and requested TAC to make recommendations as to how this should be done. As a consequence a reduced gross budget of \$15,838,000 (net \$15,688,000) was finally approved for ICRISAT with the proviso that additional funds could be given if available. The actual funds received from donors were \$15,632,000; in addition, \$258,000 has been pledged but not yet received.

Some reductions were necessary at ICRISAT Center to accommodate to the reduced budget. The core program in social anthropology was deleted and the principal scientist position in pulse physiology was deferred, and there were some reductions in work on pigeonpea breeding, in microbiology, in farm power and equipment, and in core funds for training. The latter reduction was compensated for by

training funds provided by special projects and external agencies.

Despite the budget restraints, we carried out a vigorous program of research in 1982. Highlights of this work have already been outlined in an earlier section of this report. A first full year of research was undertaken in millet improvement and farming systems at the Sahelian Center and although the work was hampered by the lack of facilities and the lack of rain in July, some useful results were obtained and experience gained in working in these conditions.

The overage of expenditure in both core operational and capital was 2.4% over the approved budget but was 1.2% below the available income (donor contributions and earned income) available for these purposes. Core operational expenses were marginally high because of the need to replace vehicles. The increase in capital expenditure resulted from necessary additional allocations for capital equipment (\$38,000), purchase and installation of a generator (\$106,000), and needed expenditures in the African Capital program (\$176,000).

	1982: US \$		
	Budget	Actual	(Overage)
Core operational	13,923,000	13,989,579	(66,579)
Capital	1,850,000	2,162,135	(312,135)
TOTAL	15,773,000	16,151,714	(378,714)

The additional expenditures noted above were made possible because earned income in 1982 increased by \$331,000 over the original estimate of \$225,000 and the allocation of core support costs to special projects increased from \$35,927 in 1981 to \$134,955 in 1982.

V. 1983 Prospects

The Governing Board of ICRISAT, after the discussions and recommendations of TAC, proposed a budget of \$18,380,000 for 1983. The CGIAR approved a budget for ICRISAT within a bracket depending upon the availability of funds between the Board's requested figure and \$17,009,000, that is, 7.5% below the maximum. In addition, the Institute may have

approximately \$252,000 in carryover funds from 1982, depending on whether these funds are received as pledged by two donor governments.

The distribution of funds at the two levels is given below:

	Budget Bracket US \$'000	
	Top	Bottom (Current Ests.)
Core Operations	16,951	15,832
Capital	1,420	1,420
Incremental working capital	9	9
	-----	-----
Total	18,380	17,261
	-----	-----
Less Earned Income	(225)	(225)
Less unexpended balance (end of 1982)	--	(252)
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Net funds from CG	18,155	16,784
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The approved budget does not include the special projects approved by TAC/CGIAR for transfer into core in 1983, nor a special restricted core contribution from the Government of the Netherlands for tillage research in Africa.

In order to bring the budget of ICRISAT down to the approved level of funding, most of the recommendations made by TAC for reductions in ICRISAT's program have been put into effect. These include reductions in sorghum, millet, and groundnut breeding, in groundnut biochemistry and pulse entomology, and deletion of the principal sorghum agronomist post in the West African core program.

With the funds available, however, it will be possible to fill three approved positions. These are a principal groundnut entomologist position at ICRISAT Center, a cropping systems agronomist at the Sahelian Center, and a sorghum pathologist to be stationed either at Samaru, Nigeria or Ouagadougou, Upper Volta. A partial restoration of the 1982 cuts in core funds for the training program will also be possible.

In accordance with the recently approved Ten Year Plan, ICRISAT will strengthen its regional activities in 1983 by an allocation of core program funds to an Asian regional network in legume improvement. The objectives of the

network will be to assist, strengthen, and stimulate activities on groundnut, pigeonpea, and chickpea in the developing countries in Asia where these crops are grown. Participating countries are expected to include Pakistan, Bangladesh, Thailand, Malaysia, Indonesia, and Sri Lanka. Burma and China may also be added. The project will assist scientists in these countries to participate in cooperative research projects and multilocational trials and to visit ICRISAT at least once a year at the time of the annual field day for each of the crops, to participate in network planning sessions and to select improved materials from ICRISAT for their own research and trials.

ICRISAT's farming systems, economics, and training programs expect to be involved with on-farm aspects of the improved deep Vertisol technology in India for the next 2 or 3 years. A special allocation of core funds has therefore been made to enable this work to proceed; it will provide additional temporary personnel and some vehicles and allow monitoring of the implementation of this technology at some 20 locations in the vast area of Central India to which the technology probably applies. Much of the work involves training and assisting personnel from development banks State Departments of Agriculture in Madhya Pradesh, Maharashtra, Karnataka, and Andhra Pradesh in learning how to implement the technology and to train their own staff in its use. In addition, valuable feedback is being obtained about the technology and its reception by the farmers involved in the applied research and demonstration project. The All India Cooperative Research Program on Dryland Agriculture will be intimately involved with the on-farm research in Andhra Pradesh.

The CGIAR, on the recommendation of TAC, has approved the transfer of the following special projects to restricted core:

1. African Cooperative Program for Improvement of Sorghum and Millet - UNDP

The UNDP-supported program of sorghum and millet improvement in West Africa commenced in 1975 and is now in its third phase. The program is helping to train national scientists working with these crops, develops new breeding materials for national programs, and provides a major network for regional trials and exchange of plant material in the Sahelian countries of West Africa. In 1983 UNDP will support research by five millet breeders and one sorghum breeder stationed in Senegal, Upper Volta, Niger, Nigeria, and Sudan.

2. Semi-Arid Food Grain Research and Development - USAID

SAFGRAD is a joint project between the Organization of African Unity, USAID, IFAD and some other donor agencies. IITA, ICRISAT, IRAT, and Purdue University are the main institutes conducting research work on the main cereal and grain legume crops of the semi-arid areas and on farming systems. Although the program is pan-African in intent, work is concentrated in West Africa. ICRISAT's responsibilities under SAFGRAD are funded by USAID which in 1983 were to conduct sorghum research and accompanying farming systems research in the wetter portions of the semi-arid region, and to develop a regional network for sorghum and millet improvement in the uplands of East Africa.

3. Groundnut Improvement Program in Eastern and Southern Africa - IDRC

IDRC will support a groundnut breeder and pathologist to undertake research on groundnut improvement for the eastern and southern African region. The program is located in Malawi. It was approved by the CGIAR for core funding in 1980 and 1981 but funds were insufficient to get the program underway. IDRC's support as a special project has enabled the project to get underway and continue through 1983 and 1984.

4. Rural Economic Research in Africa - IDRC

ICRISAT's core economics research program in Africa provides support for two economists and some technical staff to undertake a network of village-level studies in the Sahelian region of West Africa. IDRC funds supplement the work of the core program with that of a social anthropologist and additional technical staff. Training opportunities are also being provided for African scientists to learn the methods of this micro-economic farm management research.

5. Sorghum and Millet Information Center - IDRC

SMIC was established in 1976 to collect, collate and disseminate information about sorghum and millet among research workers around the world. The project is now in its second phase during which it is expected to set up computerized storage and retrieval systems for better utilization of the large store of material that has been collected. The project also puts out a regular SMIC newsletter to keep research workers in the field aware of current developments.

6. Tillage Research in West Africa - Netherlands

The Government of the Netherlands has provided \$106,000 in restricted core funds for a cooperative research project on tillage research by ICRISAT and the University of Wageningen to be conducted at the Sahelian Center. The project will allow a scientist from the university to work at the Sahelian Center and supplement the work of ICRISAT's farming systems program there.

7. Capital Grants for Sahelian Center - Italy and Switzerland

The two capital project proposals amounting to \$4,617,000, confirmed by the Governments of Italy and Switzerland in June 1983 for assistance in the development and construction of the ICRISAT Sahelian Center near Niamey, Niger, have been included in restricted core as recommended/approved by TAC/CGIAR. The total amount of \$4,617,000 is expected to be received from these Governments in two instalments, with \$2,731,000 likely to be received in 1983.

8. Cold-Tolerant Food Sorghum for Central America - IFAD

Work on developing sorghum for the cool, dry highlands of Central America was started by CIMMYT in 1970 and became ICRISAT's responsibility in 1977. IFAD funds support a plant breeder and an agronomist in this program, which has proved to be very successful. Several varieties have been developed and released and are now being tested in farmer's field trials throughout the region.

9. Nitrogen and Phosphorus Research in SAT - IFDC/UNDP/IFAD

UNDP and IFAD are donors to IFDC to study nitrogen utilization in rainfed agriculture in the semi-arid tropics and the beneficiation and utilization of natural phosphate deposits in the Sahel. ICRISAT, as a sub-contractor to IFDC undertakes much of the field research. The nitrogen work is being done mostly at ICRISAT Center in Hyderabad and the phosphate research at the Sahelian Center in Niger. The program supports the work of two soil fertility specialists, one at each location, and a soil chemist in Niger who is responsible for soil testing and preparation of soil samples for isotope analysis which is carried out at the IFDC headquarters laboratories in USA.

The funding implications of these transfers are given in the following table:

BUDGETS OF PROJECTS TRANSFERRED TO RESTRICTED CORE
(IN US\$ '000)

ACT.VITIES	Approved 1983		Budget				Grant Period	Donor's name		
	MY	COST	1984		1985				1986	
	MY	COST	MY	COST	MY	COST	MY	COST		
A. OPERATIONAL:										
1. FARMING SYSTEMS:										
i) SAFGRAD	1	150					1.1.79 to 31.12.83	USAID		
ii) Nitrogen Phosphorous - ICRISAT Center-Phase II	1	90	1	83			1.8.82 to 30.6.84	UNDP/IFAD		
Africa	2	143					1.4.82 to 31.12.83	IFDC		
iii) Tillage Research in Africa	0.25	73	2	360	2	196	2	205	1.11.83 to 30.10.87	Govt. of Netherlands
Sub-Total	4.25	456	3	443	2	196	2	205		
2. SORGHUM:										
i) SAFGRAD	4	650					1.1.79 to 31.12.83	USAID		
ii) African Coop. Program UNDP	1	186	1	199	1	206			1.11.81 to 31.12.85	UNDP
iii) Cold Tolerant Sorghum Central America	2	236	2	350					1.1.81 to 31.12.84	IFAD
Sub-Total	7	1,072	3	549	1	206				
3. MILLET:										
i) African Coop. Program UNDP	6	1,167	6	1,176	6	1,342			1.11.81 to 31.12.85	UNDP
Sub-Total	6	1,167	6	1,176	6	1,342				
4. GROUNDNUT:										
i) Groundnut Improvement Program in Eastern and Southern Africa	1	246	1	130					1.3.82 to 30.6.84	IDRC
Sub-Total	1	246	1	130						
5. ECONOMICS:										
i) Rural Economics Research in Africa	1	151	1	66					1.4.81 to 30.6.84	IDRC
Sub-Total	1	151	1	66						
6. LIBRARY & DOCUMENTATION:										
i) Sorghum & Millet Informa- tion Centre - Phase II		93		52		16			1.4.82 to 31.3.84	IDRC
Sub-Total		93		52		16				
TOTAL - OPERATIONAL	19.25	3,185	14	2,416	9	1,760	2	205		
B. CAPITAL:										
Sahelian Center - Capital:										
Government of Italy		1,731		1,386		-		-		
Government of Switzerland		1,000		500		-		-		
TOTAL - CAPITAL		2,731		1,886		-		-		
GRAND TOTAL - OPERATIONAL & CAPITAL	19.25	5,916	14	4,302	9	1,760	2	205		

These details are also included in the Budget Tables as "Approved Increase for Transferred Projects". The inclusion of these projects in the operating budget does not alter in any way the contractual relationships between ICRISAT and the donors with regard to substance or lifetime of projects, funding commitments, reporting, or contractual status of personnel.

Considering both the approved core budget and the approved increase for transferred projects the budget for 1983 stands as follows:

		Gross US \$'000
(i) APPROVED CORE BUDGET :		17,009
Table I : Operations	15,832	
Table II: Capital	1,420	
Incremental Working Capital:	9	
Funds b/f from 1982 Unrestricted	(194)	
Restricted	(58)	
(ii) APPROVED INCREASE FOR TRANSFERRED PROJECTS:		
Table I : Operations	3,185	
Table II : Capital	2,731	
	-----	5,916
Table II: Adjustment of opening and closing unexpended balances:		
Unexpended balance end 1982	(385)	
Unexpended balance end 1983	507	
	---	122
(iii) TOTAL (Gross)		23,047
(iv) Less: Earned Income		(225)
(v) (Table II) Net funds from CG		22,822

VI. 1984 Budget Request

TAC has recommended a budget of \$19,363,000 for ICRISAT for 1984. ICRISAT's budget proposal includes \$17,887,000 for operations, \$200,000 for an external program review (quinquennial review), \$1,100,000 for capital expenditure and \$176,000 for incremental working capital.

The proposed operating budget would allow most current programs to continue but several internal adjustments are being made to enable a substantial strengthening of the core research program in Africa. The following positions approved by the Governing Board of ICRISAT have been recommended by TAC:

1. Station Manager, Sahelian Center

As the Sahelian Center gets underway and field research work is undertaken, it is obvious that the Institute must have a fulltime station manager to ensure proper support to the field experimental work. The station manager will also be responsible for the maintenance and care of the Sahelian Center facilities when they are completed.

2. Millet Agronomist, Sahelian Center

A position for a principal millet agronomist was approved by the CGIAR in 1981. Shortage of funds prevented our filling this position in 1981 and 1982. We must keep it vacant again in 1983 because of the budget ceiling, but it has been included in the 1984 request.

3. Groundnut Program, Southern Africa

Positions for a plant breeder and pathologist for a groundnut program in southern Africa were approved by the CGIAR in the ICRISAT core program request for 1980 and 1981. The program, however, was initiated as a special project in Malawi with funds provided by IDRC. The CGIAR has recently approved the transfer of this project to restricted core, retaining, however, the limited duration of the project. It is now proposed that this be restored to the core program in 1984. The program serves the southern African region including Tanzania, Mozambique, Malawi, Zimbabwe and Zambia, in all of which groundnut production is of considerable importance.

4. Groundnut Program, Sahelian Center

A breeder and a pathologist are required to produce adapted disease- and drought-resistant material for the semi-arid tropics of West Africa. The scientists will be stationed at the ICRISAT Sahelian Center. Multiple disease resistance is sought to combine against such pathogens as leaf spots, rusts, Aspergillus flavus, and rosette virus. Germplasm and breeding material from ICRISAT Center will be crossed with local cultivars. Other research will include breeding for increased biological nitrogen fixation and producing cultivars suited for intercropping with pearl millet.

5. Sorghum Agronomist, West Africa

This position was originally approved in 1980. In 1983 it was deleted from the budget in order to make the necessary reductions to the available funds. The post would be located at the Kamboinse Research Station in Upper Volta to provide agronomic input to the regional sorghum improvement team.

Considering both the approved core and increase for transferred projects the budget for 1984 stands as follows:

	Gross US \$'000	
(i) RECOMMENDED BUDGET FOR 1984:		19,363
Table I : Operations	18,087	
Table II : Capital	1,100	
Table II : Incremental Working Capital	176	
(ii) APPROVED INCREASE FOR TRANSFERRED PROJECTS:		
Table I : Operations	2,416	
Table II : Capital	1,886	
	-----	4,302
Table II: Adjustment of opening and closing unexpended balances:		
Unexpended balance end 1983	(507)	
Unexpended balance end 1984	443	(64)
(iii) TOTAL (GROSS)		23,601
(iv) Earned Income		(225)
(v) (Table II) Net Funds from CG		23,376

VII. Capital Development Program

Capital development requests for 1983 and 1984 and projections for 1985 and 1986 are shown in Table V(a); Tables V(b) and V(c) show the separate requests for ICRISAT Center and the African stations.

ICRISAT Center

The second phase of capital construction was 90% completed in 1982. Only some modifications to the original design, finishing work, rectification of errors, landscaping, installation of equipment, and payment of final bills will remain for 1983. The Asian Development Bank provided a grant of \$450,000 for storage chamber and equipment for the new Genetic Resources facility.

As the new buildings are occupied the existing facilities must be modified to make them suitable for their new functions. In particular a substantial area of laboratory space which has been used over the last three years for offices is being reconverted to laboratory space for the microbiology program. Completion of Phase II and the subsequent modifications to existing facilities will require \$439,000 in 1983.

A substantial increase in greenhouses and screenhouses will be required at ICRISAT Center. Houses built as part of Phase I meet only about 40% of the needs and very little addition has been possible in the last few years during the construction of the Phase II facility. With the funds requested for 1984 a small start can be made to fulfill this need. Other items of minor construction include the provision of a permanent facility for the ICRISAT school and rain-out shelters for use in research on drought resistance.

Scientific equipment requirements for 1984 are listed in Table VI. The major needs are to provide equipment for the radioisotope laboratory, for the Groundnut Program to bring that up to full establishment, aluminium wire mesh cages in pigeonpea breeding to prevent outcrossing, an additional disk drive for the computer, and micro processors to be hooked to automatic data logging equipment in agroclimatology and physiology. We hope to catch up with the needs for new equipment in 1985 and 1986.

ICRISAT Sahelian Center

At the ICRISAT Sahelian Center funds are needed to continue site development, provide field storage facilities, one greenhouse, and for equipment. The Governing Board has decided not to request the CGIAR for capital construction funds from the unrestricted core budget. Under restricted core the Italian Government has agreed to provide funds for site development, equipment, water supply, tractors and farm machinery, and farm workshop equipment in 1983/84. The Swiss Government has agreed to provide funds to commence construction of the research laboratories and offices.

SUMMARY TABLE

PRESENT ESTIMATES OF CAPITAL EXPENDITURE ARE AS FOLLOWS:

	Actual	Current	Budget	Projections	
	1982 \$'000	1983 \$'000	1984 \$'000	1985 \$'000	1986 \$'000
A. CORE CAPITAL					
1. Site Development ICRICAT Center	25	18	88	115	125
2. Campus External Work	106	11	65	-	-
3. Building Construction - Phase II	1145	290	-	-	-
4. Other Construction (Modifications/Improvements)	-	250	164	326	179
5. Equipment	363	141	306	681	860
6. Others: including Architect fees	97	50	-	-	-
7. West Africa-Capital unrestricted core	426	660	445	950	720
8. Contingencies 3%	-	-	32	62	57
SUB-TOTAL	2162	1420	1700	2134	1941
B. APPROVED INCREASE FOR TRANSFERRED PROJECTS					
9. Sahelian Center - restricted core (estimate)	--	2731	1886	--	--
	2162	4151	2986	2134	1941

VIII. Assumptions on Future Price Changes

Within the budget recommended by TAC for 1984 an allowance of only 9% was made for price increase.

A revised scale of salaries and benefits for nationally recruited staff (1286 positions) of ICRISAT in India was implemented effective 1 January 1983. A pay commission consisting of a retired senior officer of the Government of India (who is presently in private sector), three senior officers of the Government of India, one representative of UNDP, and one advocate from Supreme Court of India studied in detail the scales of salaries and other benefits of locally recruited staff and recommended substantial increases. On the basis of their recommendations, approved by the Executive Committee of the Governing Board of ICRISAT, the revised scales of salaries and benefits were implemented. The financial impact was assessed at \$815,000 for 1983, and this worked out to around 5.1% on the total operating budget.

India

The Government of India in its budget of February 1983, increased the charges of railways (average increase is around 11%) for passenger fares and freight, air fares, postal charges including postage, telegrams, telephones, etc. In August 1983, the Planning Commission of the Government of India asked the State Electricity Boards to consider appropriate revision of power rates as part of the efforts to improve their financial condition. It is expected that such increases will have an inflationary impact and will most likely affect our budget estimates for travel, electricity, administrative expenses, etc. It is also quite possible that further increases in prices may take place in the Government of India's budget in February 1984.

USA

Citibank, New York, forecasts the inflationary trend in the USA as likely to be 5.6% during 1984.

Africa

Core operations for ICRISAT in Africa are presently in Niger and Upper Volta. The average increases in the price index in Niamey in 1981 and 1982 were 23% and 11.6%, respectively. In Upper Volta it was 7.5% in 1981.

IX. Recommended Top and Bottom Funding Levels for 1984

TAC recommends that ICRISAT's funds not be less than \$18,045,000 in 1984 if total funds are insufficient to provide the recommended budget of \$19,363,000. ICRISAT proposes the following sequential reduction if required to reach the lower figure.

	IN US \$'000
RECOMMENDED TOP LEVEL	19,363
Reductions if Required:	
1. Sorghum Improvement - Africa	177
2. Groundnut Improvement - Africa	493
3. Millet Improvement - Africa	167
4. Pulse Improvement - Asia	200
5. Station Manager - Sahelian Center	281
RECOMMENDED BOTTOM LEVEL	18,045

Each programmatic reduction in the above list includes an appropriate reduction in administrative and support costs, allowances for price increases, and contingencies.

ACTIVITIES	ACTUAL 1981		ACTUAL 1982		APPROVED Budget 1983		CURRENT Est. 1983		PROPOSED BUDGET				PROJECTIONS			
	MY	COST	MY	COST	MY	COST	MY	COST	1984 Original	1984 Revised	1985	1986	MY	COST	MY	COST
1. MAJOR ACTIVITIES:																
a. RESEARCH PROGRAMS:																
Farming Systems	8	954	8	1,223	9	1,594	12.25	1,952	7.5	1,872	12	2,014	11	1,896	13	2,248
Sorghum	7.75	1,002	7	1,196	7	1,483	14.50	2,462	10.5	2,037	12	2,061	11	2,021	11	2,097
Millet	5.50	770	8	1,096	8	1,363	14	2,431	8.5	1,544	15	2,448	15	2,646	10	1,687
Pulses Chickpea & Pigeonpea	8	1,167	7	1,221	7	1,301	7	1,272	7	1,441	7	1,262	8	1,432	8	1,499
Groundnut	5	688	5	799	5.5	917	6.75	1,146	9	1,540	10	1,463	10	1,606	10	1,730
Economics	5	520	5	672	4	720	5	791	4	778	5	697	4	664	4	700
Sub-Total	39.25	5,121	40	6,207	40.5	7,378	59.5	10,054	48.5	7,212	61	9,945	59	10,265	56	9,961
b. RESEARCH SUPPORT SERVICE ACTIVITIES:																
Off. of the Dir (Res)	1	108	1	129	1	170	1	140	1	185	1	138	1	153	1	165
Plant Quarantine	-	62	-	48	-	67	-	73	-	75	-	75	-	77	-	79
Genetic Resources Unit	2	292	2	310	2	355	2	371	2	381	2	366	2	384	2	419
Biochemistry	1	153	1	167	1	191	1	195	1	211	1	193	1	206	1	216
Farm Dev. Operations	1	529	1	737	1	764	1	754	2	1,112	2	986	2	1,075	2	1,143
Lib & Documentation	-	132	-	211	-	187	-	269	-	202	-	241	-	217	-	211
Information Services	3.5	420	4	418	4	441	3.5	449	4	481	4	493	4	516	4	548
Computer Services	1	132	1	212	1	156	1	168	1	176	1	59	1	185	1	204
Statistical Services	1	66	1	90	1	91	1	113	1	100	1	120	1	125	1	130
Sub-Total	10.5	1,894	11	2,322	11	2,422	10.5	2,552	12	2,923	12	2,781	12	2,938	12	3,115
2. INTL. COOP. ACTIVITIES:																
Off. of the Dir.Int.Coop.	2	173	1.75	204	2	252	2	242	3	396	2	239	3	365	3	381
Training & Fellowships	1	508	1	366	1	518	1	478	1	559	1	462	1	483	1	495
Conferences & Symposia	-	150	-	44	-	243	-	339	-	252	-	322	-	322	-	322
Sub-Total	3	831	2.75	614	3	1,013	3	1,059	4	1,209	3	1,023	4	1,170	4	1,198
3. GENERAL ADMINISTRATION:																
Board of Governors	-	121	-	83	-	135	-	121	-	140	-	115	-	115	-	115
Administration	4	1,048	5	1,291	5	1,350	5	1,544	5	1,532	5	1,499	5	1,637	5	1,776
Quinquennial Review	-	-	-	-	-	-	-	-	-	-	-	183	-	-	-	-
Sub-Total	4	1,169	5	1,374	5	1,485	5	1,665	5	1,672	5	1,796	5	1,752	5	1,891
4. GENERAL OPERATIONS:																
Transportation-Motor Pool	-	316	-	298	-	340	-	379	-	370	-	363	-	376	-	389
Physical Plant Services	1	667	1	768	1	870	1	940	1	948	1	902	1	945	1	1,073
Housing & Food Services	1	263	1	270	1	314	1	332	1	353	1	320	1	352	1	386
General Expenses	-	1,753	-	2,137	-	2,048	-	1,982	-	2,293	-	1,680	-	1,700	-	1,720
Sub-Total	2	2,999	2	3,473	2	3,572	2	3,633	2	3,964	2	3,265	2	3,413	2	3,568
5. ALL OTHERS:																
Contingency	-	-	-	-	-	160	-	54	-	191	-	-	-	179	-	195
Provision for future Price Change	-	-	-	-	-	-	-	-	-	2,301	-	1,693	-	4,039	-	6,703
Sub-Total	-	-	-	-	-	160	-	54	-	2,492	-	1,693	-	4,218	-	6,898
GRAND TOTAL CORE BUDGET	58.75	12,014	60.75	13,990	61.5	16,030	80	19,017	71.5	21,472	83	20,503	82	23,756	79	26,631
TOTAL CORE (BEFORE TRANSFER)	58.75	12,014	60.75	13,990	61.5	16,030	60.75	15,832	71.5	21,472	69	18,087	73	21,996	77	26,426
Total 'Approved Increase for Transferred projects'	-	-	-	-	-	-	19.25	3,185	-	-	14	2,416	9	1,760	2	205
SPECIAL PROJECTS	2,320		3,193		2,308		2,185				4,063					
CATEGORIES OF EXPENSES:																
Personnel Services	6,355		7,132		7,988		10,127		10,530		10,525		11,243		11,710	
Supplies & Services	4,670		5,445		6,705		6,919		7,060		6,320		6,312		6,065	
Equipment Replacement	87		466		339		560		348		600		630		660	
Travel	902		947		838		1,357		1,042		1,365		1,353		1,298	
Others: Contingency/Future price changes	-		-		160		54		2,492		1,693		4,218		6,898	
TOTAL :	12,014		13,990		16,030		19,017		21,472		20,503		23,756		26,631	

NOTE : Included and retained following programs both in 'Approved increase for Transferred Projects' and in Core

- (i) Groundnut - 1984
- (ii) Sorghum Mexico - 1985

SUMMARY OF COSTS BY PROGRAM AND ACTIVITY 1983-1984 CORE BUDGET
SHOWING AFRICA, ICARDA AND TRANSFERRED PROJECT PROGRAMS SEPARATELY (US \$ '000)

ACTIVITIES	ACTUAL 1981		ACTUAL 1982		APPROVED Budget 1983		CURRENT Est. 1983		PROPOSED BUDGET				PROJECTIONS			
	MY	COST	MY	COST	MY	COST	MY	COST	1984 Original		1984 Revised		1985		1986	
	MY	COST	MY	COST	MY	COST	MY	COST	MY	COST	MY	COST	MY	COST	MY	COST
MAJOR ACTIVITIES																
RESEARCH PROGRAMS:																
FARMING SYSTEMS:																
ICRISAT Center	7	828	6	1,026	6	1,136	5.5	1,175	6	1,219	6	1,275	6	1,376	8	1,693
Africa Core	1	126	2	197	3	458	2.5	321	3.5	653	3	333	3	345	3	372
Transferred Projects	-	-	-	-	-	-	4.25	456	-	-	3	406	2	175	2	163
SORGHUM:																
ICRISAT Center	4.75	759	5	861	5	966	5	962	5	1,029	5	951	5	998	5	1,050
Africa Core	3	243	2	335	2	517	2.5	428	4.5	792	4	606	4	644	5	847
Mexico	-	-	-	-	-	-	-	-	1	216	-	-	1	195	1	200
Transferred Projects	-	-	-	-	-	-	7	1,072	-	-	3	504	1	184	-	-
MILLET:																
ICRISAT Center	4.5	683	5	787	5	886	5	923	5	940	5	898	5	955	5	996
Africa Core	1	87	3	309	3	477	3	341	3.5	604	4	471	4	493	5	691
Transferred Projects	-	-	-	-	-	-	6	1,167	-	-	6	1,079	6	1,198	-	-
PULSES-CHICKPEA & PIGEONPEA:																
ICRISAT Center	6	1,054	5	1,038	5	1,085	5	1,108	5	1,248	5	1,099	6	1,261	6	1,314
ICARDA	2	133	2	183	2	216	2	164	2	193	2	163	2	171	2	185
Transferred Projects	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GROUNDNUT:																
ICRISAT Center	5	688	5	799	5.5	917	5.75	900	6	1,041	6	950	6	1,035	6	1,126
Africa Core	-	-	-	-	-	-	-	-	3	499	3	394	4	571	4	604
Transferred Projects	-	-	-	-	-	-	1	246	-	-	1	119	-	-	-	-
ECONOMICS:																
ICRISAT Center	3	323	3	373	2	392	2	368	2	425	2	370	2	390	2	411
Africa Core	2	197	2	299	2	328	2	272	2	353	2	266	2	274	2	289
Transferred Projects	-	-	-	-	-	-	1	151	-	-	1	61	-	-	-	-
SUMMARY - RESEARCH																
ICRISAT Center	30.25	4,335	29	4,884	28.5	5,382	28.25	5,436	29	5,902	29	5,543	30	6,015	32	6,590
Africa Core	7	653	9	1,140	10	1,780	10	1,362	16.5	2,901	16	2,070	17	2,327	19	2,803
ICARDA	2	133	2	183	2	216	2	164	2	193	2	163	2	171	2	185
Mexico	-	-	-	-	-	-	-	-	1	216	-	-	1	195	1	200
Transferred Projects	-	-	-	-	-	-	19.25	3,092	-	-	14	2,169	9	1,557	2	183
TOTAL	39.25	5,121	40	6,207	40.5	7,378	59.5	10,054	48.5	9,212	61	9,945	59	10,265	56	9,961
RES. SUP. SER. ACTVTS. LIBRARY AND DOCUMENTATION:																
ICRISAT Center	-	132	-	211	-	187	-	196	-	202	-	193	-	203	-	211
Transferred Projects	-	-	-	-	-	-	-	93	-	-	-	48	-	14	-	-
TOTAL	-	132	-	211	-	187	-	289	-	202	-	241	-	217	-	211
FARM DEVELOPMENT OPERATIONS:																
ICRISAT Center	1	529	1	737	1	764	1	754	1	844	1	745	1	830	1	892
Africa Core	-	-	-	-	-	-	-	-	1	268	1	241	1	245	1	251
Transferred Projects	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	1	529	1	737	1	764	1	754	2	1,112	2	986	2	1,075	2	1,143
GENERAL ADMINISTRATION:																
ICRISAT Center	3	893	4	1,022	4	1,084	4	1,247	4	1,247	4	1,207	4	1,337	4	1,462
Africa Core	1	155	1	269	1	266	1	297	1	285	1	291	1	300	1	314
Transferred Projects	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	4	1,048	5	1,291	5	1,350	5	1,544	5	1,532	5	1,498	5	1,637	5	1,776
ICRISAT Center	34.25	5,889	34	6,854	33.5	7,417	33.25	7,633	34	8,195	34	7,688	35	8,385	37	9,155
Africa Core	8	808	10	1,409	11	2,046	11	1,659	18.5	3,454	18	2,602	19	2,872	21	3,368
ICARDA	2	133	2	183	2	216	2	164	2	193	2	163	2	171	2	185
Mexico	-	-	-	-	-	-	-	-	1	216	-	-	1	195	1	200
Approved Increase for Transferred Projects	-	-	-	-	-	-	19.25	3,185	-	-	14	2,217	9	1,571	2	183
GRAND TOTAL	44.25	6,830	46	8,446	46.5	9,679	65.5	12,641	55.5	12,058	68	12,670	66	13,194	63	13,091

Best Available Document

SUMMARY OF SOURCES AND APPLICATION OF FUNDS
1983-1984 BUDGET (US \$ '000)

	<u>Actual</u>		<u>Budget</u>		<u>TOTAL</u> (1983+1984)
	1981	1982	1983	1984	
<u>SOURCES OF FUNDS</u>					
<u>I. CORE OPERATIONS</u>					
<u>A. UNRESTRICTED (OPERATING & CAPITAL)</u>					
1. Australia	447	461	449	-	449
2. Belgium	91	83	80	-	80
3. Canada	974	1,177	1,303	-	1,303
4. Federal Republic of Germany	595	740	726	-	726
5. France	133	130	-	-	-
6. India	500	125	125	-	125
7. Mexico	100	100	100	-	100
8. Nigeria	149	158	100	-	100
9. Netherlands	290	320	365	-	365
10. Norway	179	170	242	-	242
11. Sweden	723	690	586	-	586
12. Switzerland	383	384	439	-	439
13. United Kingdom	951	1,103	988	-	988
14. USAID	2,900	3,900	4,350	-	4,350
15. World Bank	265	1,260	740	-	740
16. Italy	-	269	472	-	472
17. Unidentified Sources	-	-	631	17,879	18,510
Unexpended Balance from Previous Year	1,160	1,062	1,321	1,136	2,457
Adjustments of Previous Year	(133)	15	-	-	-
Sub-Total	9,707	12,147	13,017	19,015	32,032
<u>B. RESTRICTED (OPERATING)</u>					
<u>EXISTING PROGRAMS</u>					
1. i) UNDP-Sorghum and Millet Phase II	1,124	1,236	-	-	-
ii) UNDP-Sorghum and Millet Phase III	-	-	1,080	1,149	2,229
iii) Funds from United Nations Development Program (African Cooperative Projects) Special Project	120	110	110	110	220
2. European Economic Community (Pulses)	1,072	1,162	1,145	-	1,145
3. France (Afro Economics - Africa)	-	-	123	-	123
4. Government of Japan (Groundnut)	1,347	1,300	1,500	-	1,500
5. IDRC - Striga Upper Volta Phase II	-	200	183	-	183
6. OPEC FUND - (Groundnut)	-	100	95	-	95
7. Rockefeller Foundation (Sorghum and Millet)	-	-	100	-	100
8. The Leverhulme Trust (African Core Program)	585	654	752	-	752
Unexpended Balances from Previous Year - Core	-	-	58	-	58
Sub-Total Core Restricted (Before Transfer)	4,248	4,762	5,146	1,259	6,405
<u>APPROVED INCREASE FOR TRANSFERRED PROJECTS TO CORE</u>					
9. Government of Netherlands - Tillage Research in West Africa	-	-	106	360	466
10. UNDP - African Coop. Program for improvement of Sorghum and Millet - Phase III	-	-	1,688	1,375	3,063
11. USAID - Semi-Arid Food Grain Research & Development	-	-	800	-	800
12. IDRC - Groundnut Improvement Program - Malawi	-	-	213	20	233
13. IDRC - Rural Economic Research in Africa	-	-	162	123	285
14. IDRC - Sorghum and Millet Information Center - Phase II	-	-	48	41	89
15. IFAD - Cold Tolerant Food Sorghum for Central America	-	-	75	350	425
16. IFDC, IFAD & UNDP - Nitrogen and Phosphorus Research in SAT	-	-	215	83	298
Unexpended Balances 'Approved increase for Transferred Projects' from previous year	-	-	385	507	892
Sub-Total Approved increase for Transferred Projects	-	-	3,692	2,859	6,551

TABLE II Contd.

	Actual		Budget		TOTAL (1983+1984)
	1981	1982	1983	1984	
C. (i) Total Core Funds (Operating and Capital) Before Transfer	13,955	16,909	18,163	20,274	38,437
(ii) Total Core Funds - Approved increase for Transferred Projects	-	-	3,692	2,639	6,551
II. CAPITAL					
<u>EXISTING PROGRAMS</u>					
1. Government of Japan	103	-	-	-	-
2. US Government Excess Property	1	-	-	-	-
3. OPEC Fund - Groundnut	-	65	-	-	-
<u>APPROVED INCREASE FOR TRANSFERRED PROJECTS TO CORE</u>					
4. Government of Italy - Sahelian Center	-	-	1,731	1,386	3,117
5. Government of Switzerland - Sahelian Center	-	-	1,000	500	1,500
Unexpended Balance from Previous Year	-	-	-	-	-
Unexpended Balance 'Approved increase for Transferred Projects'	-	-	-	-	-
TOTAL CAPITAL FUNDS BEFORE TRANSFER	104	65	-	-	-
TOTAL - APPROVED INCREASE FOR TRANSFERRED PROJECTS	-	-	2,731	1,886	4,617
III. SPECIAL PROJECTS					
<u>(i) FUNDING OF TRANSFERRED PROJECTS</u>					
1. UNDP - African Cooperative Program for Improvement of Sorghum and Millet - Phase II	104	1,060 (110)	-	-	-
2. USAID - Semi-Arid Food Grain Research and Development	455	716	-	-	-
3. IDRC - Groundnuts Improvement Program - Malawi	-	242	-	-	-
4. IDRC - Rural Economic Research in Africa	-	88	-	-	-
5. IDRC - Sorghum & Millet Information Center Phase II	-	99	-	-	-
6. IFAD - Cold Tolerant Food Sorghum for Central America	300	225	-	-	-
7. IFDC, IFAD & UNDP - Nitrogen and Phosphorus Research in SAT - Phase II	105	164	-	-	-
Unexpended Balance from Previous Year	7	-	-	-	-
Sub-Total	971	2,484	-	-	-
<u>(ii) OTHER SPECIAL PROJECTS</u>					
8. ADB - Establishment of G.R. Lab	450	-	-	-	-
9. Ford Foundation Fellowship of Mr. R.C. Sachan	2	-	-	-	-
10. Ford Foundation - Agrometeorology Meeting	-	4	-	-	-
11. GTZ-Cooperation with University of Hamburg	90	54	104	-	104
12. GTZ-Cooperation with University of Gieben	-	30	76	-	76
13. GTZ-Cooperative Program for Scholar in Economics	-	10	-	-	-
14. Government of Newzealand	-	2	-	-	-
15. IDRC-Sorghum & Millets Information Centre-Phase I	25	16	-	-	-
16. IDRC-Striga Upper Volta Phase I	117	5	-	-	-
17. IDRC-Nitrogen Fixation with Non-Legumes Symposium	-	2	-	-	-
18. Texas Agricultural University - Sorghum Insect Identification Hand Book	-	18	-	-	-
19. United Nations University	17	-	-	-	-
20. UNDP-African Cooperative Projects - Phase II	820	-	-	-	-
UNDP - Funds Transferred to Core Restricted	(120)	-	-	-	-
21. UNDP Symposium on Agrometeorology of Sorghum & Millets in SAT	-	20	-	-	-
22. USAID Cooperative Program Mali - Phase I	121	-	-	-	-
23. USAID Cooperative Program - Mali Phase II	284	647	774	885	1,659
24. USAID Cooperative Program - Southern Africa (SADCC Countries)	-	-	400	3,978	4,378
Unexpended Balance from Previous Year	518	975	831	-	831
Sub-Total	2,324	1,783	2,185	4,863	7,048
TOTAL SPECIAL PROJECTS FUNDS	3,295	4,267	2,185	4,863	7,048

	Actual		Budget		TOTAL (1983+1984)
	1981	1982	1983	1984	
IV. EARNED INCOME	403	557	225	225	450
V. TOTAL FUNDS	17,757	21,798	26,996	30,107	57,103
<u>APPLICATION OF FUNDS</u>					
a) Core Operations (Before Transfer of Approved Special Projects)	12,014	13,990	15,832	18,087	33,919
b) Approved increase for Transferred Projects (Operational)	-	-	3,185	2,416	5,601
c) Special Projects	2,320	3,393	2,185	4,863	7,048
d) Approved increase for transferred projects (Capital)	-	-	2,731	1,886	4,617
e) Capital (Core)	1,386	2,162	1,420	1,100	2,520
Sub-Total (a) + (b) + (c)	15,720	19,545	25,353	28,352	53,705
f) Unexpended Balance :					
Unrestricted Core	-	194	-	-	-
Restricted Core	-	58	-	-	-
Restricted - Transferred Projects - Operational	-	-	507	443	950
Capital (Core)	-	-	-	-	-
Approved increase for Transferred Projects-Capital	-	-	-	-	-
Working Funds	1,062	1,127	1,136	1,312	2,448
Special Projects	975	874	-	-	-
Sub-Total - Unexpended Balances - Before Transfer	2,037	2,253	1,136	1,312	2,448
Sub-Total - Unexpended Balances - Approved increase for Transferred Projects	-	-	507	443	950
TOTAL APPLICATIONS	17,757	21,798	26,996	30,107	57,103
<u>M E M O</u>					
1. Total Core Funds (Operation & Capital) required	13,955	16,909	18,163	20,274	38,437
Approved increase for Transferred Projects	-	-	3,692	2,859	6,551
Earned Income applied in Year	403	557	225	225	450
	14,358	17,466	22,080	23,358	45,438
Less: Unexpended and adjustments from previous year:					
Unrestricted	(1,026)	(1,077)	(1,321)	(1,136)	(2,457)
Restricted Existing	-	-	(58)	-	(58)
Restricted Approved increase for Transferred Projects	-	-	(385)	(507)	(892)
Earned Income	(403)	(557)	(225)	(225)	(450)
Working Capital Request	(222)	(65)	(9)	(176)	(185)
Sub-Total - Unexpended balances and adjustments	(1,651)	(1,699)	(1,613)	(1,537)	(3,150)
Sub-Total - Approved Increase for transferred projects	-	-	(385)	(507)	(892)
Net Core Operating Funds required from CG (a)	12,707	15,767	20,082	21,314	41,396
Total Capital Funds required - Core	103	65	-	-	-
Total Capital : Approved increase for transferred projects	-	-	2,731	1,886	4,617
Less: Unexpended Balances from Previous Year - Core	(1)	-	-	-	-
Unexpended Balances from Approved increase for Transferred Projects	-	-	-	-	-
Net Funds required from CG (b)	102	65	2,731	1,886	4,617
Working Capital (c)	222	65	9	176	185
2. Total Funds from CG (a) + (b) + (c)	13,031	15,897	22,822	23,376	46,198
3. Total Earned Income acquired in Current Year	403	557	225	225	450
Applied to Core and Capital	(403)	(557)	(225)	(225)	(450)
Balance Carried Forward	-	-	-	-	-

DATA 1981-1982

6(US \$ '000)

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	Actual	
	1981	1982
CURRENT ASSETS:		
Cash and Bank Balances	721	1,114
Short Term Investments:		
Citibank, New York	-	1,700
Others	2,310	2,310
Receivables from Donors	955	1,105
Other Receivables	799	941
Inventories - On hand	708	506
- In transit	1	22
Prepaid Expenses	130	216
Vehicle Revolving Account	337	-
Other Current Assets	-	
Interest accrued on:		
Short term Investments		2
Others		
Total Current Assets	5,961	7,916
FIXED ASSETS		
Operating Equipment	429	412
Research Equipment	3,707	3,808
Vehicles	1,589	1,607
Furnishing and Office Equipment	2,182	2,238
Buildings	14,071	13,275
Buildings under construction	-	2,125
Other Fixed - Site Development	2,582	
Etc,		2,709
African Co-operative Program Assets:		
Buildings (Including: under-	277	
construction)		522
Other Fixed Assets	203	382
Assets in Transit	392	428
Total Fixed Assets	25,432	27,506
Total Assets	31,393	35,422
LIABILITIES		
Accounts Payable	2,656	2,722
Provision for Contingencies		2,310
Grants Received in Advance	456	630
Other Liabilities-Overdraft with	812	-
Bank		
Total Liabilities	3,924	5,662
CAPITAL BALANCE AND UNEXPENDED FUNDS		
Capital Grants:		
Fully Expended	25,432	27,506
Unexpended		
Sub-total	25,432	27,506
UNEXPENDED OPERATING GRANTS:		
Core and Capital	1,062	1,379
Restricted Projects	-	-
Special Projects	975	875
Sub - total	2,037	2,254
Retained Income	-	-
Total Capital Balances	27,469	29,760
Total Liabilities and Capital	31,393	35,422

1983-84 BUDGET ESTIMATES
TABLE OF POSITIONS AND MAN YEARS

ACTIVITIES	SENIOR (PRINCIPAL) STAFF								SCIENTIFIC AND SUPERVISORY STAFF								OTHER SUPPORT EMPLOYEES							
	POSITIONS				MAN YEARS				POSITIONS				MAN YEARS				POSITIONS				MAN YEARS			
	ACT 1981	ACT 1982	BUD 1983	BUD 1984	ACT 1981	ACT 1982	BUD 1983	BUD 1984	ACT 1981	ACT 1982	BUD 1983	BUD 1984	ACT 1981	ACT 1982	BUD 1983	BUD 1984	ACT 1981	ACT 1982	BUD 1983	BUD 1984	ACT 1981	ACT 1982	BUD 1983	BUD 1984
1. MAJOR ACTIVITIES:																								
a. RESEARCH PROGRAMS:																								
Farming Systems	3	9	16	14	8	8	12.25	12	25	21	24	24	25	21	18.5	20	225	236	232	240	204	206	222.5	212
Sorghum	6	8	15	12	7.75	7	14.5	12	17	17	14	15	17	17	12	12.5	175	168	205	194	173	165	203.5	189.5
Millet	6	8	14	15	5.5	8	14	15	18	18	13	13	15	18	12	12	164	142	158	192	152	142	183	186.5
Pulses: Chickpea & Pigeonpea	6	7	8	8	6	7	7	7	23	22	22	22	23	22	19.5	20	171	174	182	182	173	174	178.5	179
Groundnut	5	5	9	11	5	5	6.75	10	12	14	17	20	12	14	14	16.5	131	131	146	149	130	131	133.5	137
Economics	5	5	5	5	5	5	5	5	6	6	8	8	6	6	8	8	46	42	54	54	41.75	42	40	41
T O T A L :	40	42	67	65	39.25	40	59.5	61	101	98	98	102	98	98	84	89	899	860	1004	981	868.75	860	971	945
b. RESEARCH SUPPORT SERVICE ACTIVITIES:																								
Office of the Dir. (Res)	1	1	1	1	1	1	1	1	3	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1
Plant Quarantine	-	-	-	-	-	-	-	-	2	2	3	3	2	2	3	3	11	11	11	11	11	11	10.5	11
Genetic Resources Unit	2	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	75	76	79	78	74	76	77	79
Biochemistry	1	1	1	1	1	1	1	1	2	2	4	4	2	2	3	3	26	26	27	27	26	26	25	25
Farm Dev. Operations	1	1	1	2	1	1	1	2	9	7	9	9	6	7	6.5	7	240	233	226	226	233.5	203	218.5	219
Lib. & Documentation	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	22	22	24	24	21	22	24.5	25
Information Services	4	4	4	4	3.5	4	3.5	4	8	7	9	9	7	7	8	8	24	21	23	23	21.75	21	24	25
Computer Services	1	1	1	1	1	1	1	1	4	3	6	6	3	3	3.5	4	10	9	11	11	9	9	10	10
Statistical Services	1	1	1	1	1	1	1	1	-	1	3	3	-	1	1.5	2	4	2	4	4	1	2	2.5	3
T O T A L :	11	11	11	12	10.5	11	10.5	12	36	31	44	44	29	31	34.5	36	323	321	416	416	367.25	371	394	398
2. INTL. COOP. ACTIVITIES:																								
Off. of the Dir. Int. Coop.	2	2	2	2	2	1.75	2	2	4	3	3	3	3	3	3	3	3	5	7	7	4	5	5	5
Training & Fellowships	1	1	2	2	1	1	1	1	3	3	4	4	3	3	4	4	16	13	15	15	11	13	12	12
T O T A L :	3	3	4	4	3	2.75	3	3	7	6	7	7	6	6	7	7	19	18	22	22	15	18	17	17
3. GENERAL ADMINISTRATION:																								
Administration	4	5	5	5	4	5	5	5	23	23	30	30	21	23	24.5	26	295	305	354	354	272.75	305	314.5	323
T O T A L :	4	5	5	5	4	5	5	5	23	23	30	30	21	23	24.5	26	295	305	354	354	272.75	305	314.5	323
4. GENERAL OPERATIONS:																								
Transportation Motor Pool	1	1	1	1	1	1	1	1	1	1	3	3	1	1	1.5	2	101	87	72	72	88.5	87	89	63
Physical Plant Services	1	1	1	1	1	1	1	1	10	12	17	17	10	12	15.5	16	264	241	277	277	247.5	241	226.5	253
Housing & Food Services	1	1	1	1	1	1	1	1	3	3	3	3	2	3	3	3	110	102	146	146	101.75	102	129	132
T O T A L :	2	2	2	2	2	2	2	2	14	16	23	23	13	16	20	21	475	430	493	493	434.75	430	414.5	448
TOTAL CORE	60	63	69	74	58.75	60.75	60.75	69	181	174	202	206	167	174	170	179	2071	1954	2190	2206	1958.5	1954	2012	2072
TOTAL APPROVED TRANSFERRED PROJECTS	-	-	20	14	-	-	19.25	14	-	-	-	-	-	-	-	-	-	-	99	99	-	-	99	99
GRAND TOTAL	60	63	89	88	58.75	60.75	80	83	181	174	202	206	167	174	170	179	2071	1954	2289	2265	1958.5	1954	2111	2131

Senior (Principal) Staff : ICRISAT Category Principal/International Staff
 Scientific and Supervisory Staff : ICRISAT Category I to V
 Other Support Employees : ICRISAT Category VI to XI and Regular and Continuing Farm Labour

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1984-85 BUDGET ESTIMATES
TABLE OF POSITIONS AND MAN YEARS
ICRISAT CENTER ONLY

ACTIVITIES	SENIOR (PRINCIPAL) STAFF								SCIENTIFIC AND SUPERVISORY STAFF								OTHER SUPPORT EMPLOYEES							
	POSITIONS				MAN YEARS				POSITIONS				MAN YEARS				POSITIONS				MAN YEARS			
	ACT 1981	ACT 1982	BUD 1983	BUD 1984	ACT 1981	ACT 1982	BUD 1983	BUD 1984	ACT 1981	ACT 1982	BUD 1983	BUD 1984	ACT 1981	ACT 1982	BUD 1983	BUD 1984	ACT 1981	ACT 1982	BUD 1983	BUD 1984	ACT 1981	ACT 1982	BUD 1983	BUD 1984
1. MAJOR ACTIVITIES:																								
a. RESEARCH PROGRAMS:																								
Farming Systems	7	7	8	8	7	6	6.5	6	22	16	24	24	22	16	18.5	22	210	204	210	210	206	201	200.5	202
Sorghum	5	6	5	5	4.75	5	5	5	13	12	14	14	13	12	12	12	164	152	153	153	164	152	150.5	151
Millet	5	5	5	5	4.5	5	5	5	14	12	13	13	11	12	12	12	144	135	134	133	133	136	131	131
Pulses: chickpea & Pigeonpea	6	6	6	6	6	6	6	6	22	20	24	24	22	20	18.5	22	171	176	176	176	169	176	172.5	175
Groundnut	5	5	5	5	5	5	5	5	12	14	17	17	12	14	17	17	134	134	143	143	129	134	133.5	135
Economics	3	3	2	2	3	3	2.75	2	6	6	7	7	6	6	7	7	46	46	40	40	41.5	39	38.5	39
Total	31	31	32	32	30.25	29	28.25	29	89	80	96	96	86	80	82	86	864	824	851	851	814.5	824	818	823
b. RESEARCH SUPPORT																								
Service Activities:																								
Office of the Dir. (Gen)	1	1	1	1	1	1	1	1	3	3	3	3	3	3	3	3	11	11	11	11	11	11	11	11
Plant Quarantine	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	11	11	11	11	11	11	11	11
Genetic Resources Unit	2	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	22	22	22	22	22	22	22	22
Biochemistry	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	11	11	11	11	11	11	11	11
Farm Operations	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	22	22	22	22	22	22	22	22
Library & Documentation	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	11	11	11	11	11	11	11	11
Information Services	4	4	4	4	3.5	4	3.5	4	8	7	9	9	8	7	9	9	44	44	44	44	44	44	44	44
Computer Services	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	22	22	22	22	22	22	22	22
Statistical Services	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11	11	11	11	11	11	11
Total	11	11	11	11	10.5	11	10.5	11	36	31	44	44	38	31	34.5	36	363	351	351	351	351.5	351	356	350
2. INTL. COOP. ACTIVITIES:																								
Office of the Dir. Int. Coop.	2	2	2	2	2	1.75	2	2	4	3	3	3	3	3	3	3	11	11	11	11	11	11	11	11
Training & Fellowships	1	1	2	2	1	1	1	1	3	4	4	4	3	4	4	4	11	15	15	15	11	15	15	15
Total	3	3	4	4	3	2.75	3	3	7	7	7	7	6	7	7	14	26	26	26	22	26	26	26	
3. GENERAL ADMINISTRATION:																								
Administration	3	4	4	4	3	4	4	4	23	18	26	26	21	18	21.5	22	206	212	200	200	212.5	212	200.5	209
Total	3	4	4	4	3	4	4	4	23	18	26	26	21	18	21.5	22	206	212	200	200	212.5	212	200.5	209
4. GENERAL OPERATIONS:																								
Transportation Motor Pool	-	-	-	-	-	-	-	-	1	1	3	3	1	1	1.5	2	104	87	110	110	110.5	109	89	84
Physical Plant Services	1	1	1	1	1	1	1	1	10	11	17	17	10	11	15.5	16	264	265	271	271	261.5	265	258.5	253
Housing & Food Services	1	1	1	1	1	1	1	1	3	3	3	3	2	3	3	3	110	102	106	106	101.5	102	129	132
Total	2	2	2	2	2	2	2	2	14	15	23	23	13	15	20	21	478	454	486	486	473.5	476	414.5	468
GRAND TOTAL	50	51	53	53	48.75	48.75	47.75	49	169	151	196	196	158	151	164	171	2016	1886	2023	2023	1904.5	1886	1906	1957

Senior (Principal) Staff : ICRISAT Category Principal International Staff
 Scientific and Supervisory Staff : ICRISAT Category I to V
 Other Support Employees : ICRISAT Category VI to XI and Regular and Continuing Farm Labour

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1983-1984 CAPITAL BUDGET
ICRISAT CENTER AND AFRICAN STATIONS

TOTAL COST \$ (000):						
CATEGORIES	Previous year 1982	Current Year 1983	Budget		Projected	
			Original 1984	Revised 1984	1985	1986
1. Advance expenditure	-	-	-	-	-	-
2. Land and improvements	288	139	390	293	315	195
3. Building and Site Improvements:						
- Structure		2,047	346	1,154	162	89
- Mechanical Services		429	104	287	82	45
- Electrical Services		588	104	287	140	76
- All other and site improvements		257	67	222	92	79
Total building & improvements	1,233	3,321	621	1,950	476	289
4. Installed Equipment etc.						
- Furniture		-	-	-	-	-
- Fittings		-	-	-	-	-
- Equipment		391	456	556	1,181	1,300
- Spares		-	-	-	-	-
Total FF & E	544	391	456	556	1,181	1,300
5. Consulting services	97	300	30	155	100	100
6. Other costs	-	-	-	-	-	-
7. TOTAL BEFORE CONTINGENCIES	2,162	4,151	1,497	2,954	2,072	1,884
8. Contingencies	-	-	43	32	62	57
9. TOTAL CAPITAL COST	2,162	4,151	1,540	2,986	2,134	1,941
TOTAL: CORE CAPITAL	2,162	1,420	1,540	1,100	2,134	1,941
TOTAL APPROVED INCREASE FOR TRANSFERRED PROJECTS	-	2,731	-	1,886	-	-

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1983-1984 CAPITAL BUDGET
ICRISAT CENTER

TOTAL COST \$ (000)						
CATEGORIES	Previous year 1982	Current year 1983	Budget		Projected	
			Original 1984	Revised 1984	1985	1986
1. Advance expenditure	-	-	-	-	-	-
2. Land and improvement	131	29	250	153	115	125
3. Building and Site Improvements						
- Structure		260	136	84	162	89
- Mechanical Services		112	54	32	82	45
- Electrical Services		112	54	32	65	36
- All other and Site Improvements		56	27	16	17	9
Total Building & Improvements	1,145	540	271	164	326	179
4. Installed Equipment, etc.						
- Furniture		-	-	-	-	-
- Fittings		-	-	-	-	-
- Equipment		141	316	306	681	860
- Spares		-	-	-	-	-
Total FF & E	363	141	316	306	681	860
5. Consulting services	97	50	-	-	-	-
6. Other costs		-	-	-	-	-
7. TOTAL BEFORE CONTINGENCIES	1,736	760	837	623	1,122	1,164
8. Contingencies	-	-	25	19	33	35
9. TOTAL CAPITAL COST	1,736	760	862	642	1,155	1,199

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1983-1984 CAPITAL BUDGET
AFRICAN STATIONS

CATEGORIES	TOTAL COST \$ (000)					
	Previous year 1982	Current year 1983	Budget		Projected	
			Original 1984	Revised 1984	1985	1986
1. Advance expenditure	-	-	-	-	-	-
2. Land and improvements	157	110	140	140	200	70
3. Building and Site improvements:						
- Structure		1,787	210	1,070	-	-
- Mechanical Services		317	50	255	-	-
- Electrical Services		476	50	255	75	40
- All other and Site Improvements		201	40	206	75	70
Total Building & Improvements	88	2,781	350	1,786	150	110
4. Installed Equipment, etc.						
- Furniture	-	-	-	-	-	-
- Fittings	-	-	-	-	-	-
- Equipment	-	250	140	250	500	440
- Spares	-	-	-	-	-	-
Total FF & E	181	250	140	250	500	440
5. Consulting services		250	30	155	100	100
6. Other costs	-	-	-	-	-	-
7. TOTAL BEFORE CONTINGENCIES	426	3,391	660	2,331	950	720
8. Contingencies	-	-	18	13	29	22
9. TOTAL CAPITAL COST	426	3,391	678	2,344	979	742

1984 CAPITAL BUDGET
 ADDITIONAL MACHINERY & EQUIPMENT
 ICRISAT CENTER
 (IN US '000)

ORGANIZATION UNIT	Items	1984
RESEARCH PROGRAMS		
Farming Systems	Microprocessor and data logger	22,000
	Sundries	3,000
		25,000
Sorghum	Neutron probe	6,000
	Precision oven	6,000
	Leaf area meter	8,000
	Sundries	2,000
		22,000
Millets	Incubation chambers	4,000
	Gas chromatograph detector	7,000
	Laminar flowhood	4,000
	Sundries	2,000
		17,000
Pulses	Seed counter	6,000
	Automatic Weight recorder	5,000
	Aluminium mesh cages	8,000
	Insect cabinets	8,000
	Line source irrigation	10,000
		37,000
Groundnuts	Elisa automation equipment	15,000
	Ovens	5,000
	Microscope and camera	4,000
	Incubator	4,000
		28,000

ORGANIZATION UNIT	Item	1984
Radioisotope Lab.	Fumehood	8,000
	Centrifuge	10,000
	Laboratory fittings	12,000
		30,000
Electron Microscope	Ultra deepfreeze	8,000
		8,000
<u>RESEARCH SUPPORT ACTIVITIES</u>		
Genetic Resources Unit	Office furniture	4,000
	Sundries	3,000
		7,000
Biochemistry	Amylograph	8,000
	HPLC Accessories	4,000
		12,000
Farm Development Operations	Irrigation piping	6,000
	Irrigation pump	5,000
	Sundries	4,000
		15,000
Library & Documentation Services	Ricoh offset copier	5,000
		5,000
Computer Services	Addl. disk drive & massbuss	30,000
	Addl. terminals	4,000
	Additional line printer	15,000
		49,000
Information Services	Enlarger	4,000
	Sundries	3,000
		7,000
Training	Video terminals, audiovisual equpt.	10,000
	Furniture and display equipment	5,000
		15,000

ICRISAT

TABLE VI Continued

ORGANIZATION	Item	1984
Housing & Food Services	Kitchen equipment	5,000
		5,000
Administration	Addl. Video terminals	15,000
	Photocopier	6,000
	Sundries	3,000
		24,000
	GRAND TOTAL	306,000