

PD-DAQ-125

AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT DATA SHEET	1. TRANSACTION CODE <input type="checkbox"/> A = Add <input type="checkbox"/> C = Change <input type="checkbox"/> D = Delete	Amendment Number _____	DOCUMENT CODE 3
--	--	------------------------	---------------------------

2. COUNTRY/ENTITY Southern Africa Regional	3. PROJECT NUMBER 690-0224
--	--------------------------------------

4. BUREAU/OFFICE Africa	5. PROJECT TITLE (maximum 40 characters) Regional Sorghum and Millet Research
-----------------------------------	---

6. PROJECT ASSISTANCE COMPLETION DATE (PACD) MM DD YY 09 3 08 18	7. ESTIMATED DATE OF OBLIGATION (Under 'B' below, enter 1, 2, 3, or 4) A. Initial FY 8 4 B. Quarter # 4 C. Final FY 8 4
---	--

8. COSTS (\$000 OR EQUIVALENT \$1 =)						
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total				14.8		14.8
(Grant)	()	()	()	(14.8)	()	(14.8)
(Loan)	()	()	()	()	()	()
Other U.S.						
1.						
2.						
Host Country						
Other Donor(s)				3.1		3.1
TOTALS				17.9		17.9

9. SCHEDULE OF AID FUNDING (\$000)									
A. APPRO- PRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) ESF	111	080		-0-				14.8	
(2)									
(3)									
(4)									
TOTALS									

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each) 074 311	11. SECONDARY PURPOSE CODE
--	-----------------------------------

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)							
A. Code							
B. Amount							

13. PROJECT PURPOSE (maximum 430 characters)

To establish a regional sorghum and millet research program/ for the southern Africa region in order to develop new improved varieties which will result in increased production and consumption of these two crops.

14. SCHEDULED EVALUATIONS Interim MM YY 02 85 MM YY 10 87 Final MM YY 1 0 87	15. SOURCE/ORIGIN OF GOODS AND SERVICES <input checked="" type="checkbox"/> 000 <input type="checkbox"/> 941 <input type="checkbox"/> Local <input type="checkbox"/> Other (Specify) _____
--	--

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment.)

17. APPROVED BY	Signature: <i>John F. Hicks</i> Title: John F. Hicks Director (Acting)	Date Signed MM DD YY 08 25 83	18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION MM DD YY
------------------------	--	----------------------------------	--

1x

INSTRUCTIONS

The approved Project Data Sheet summarizes basic data on the project and must provide reliable data for entry into the Country Program Data Bank (CPDB). As a general rule blocks 1 thru 16 are to be completed by the originating office or bureau. It is the responsibility of the reviewing bureau to assume that whenever the original Project Data Sheet is revised, the Project Data Sheet conforms to the revision.

Block 1 - Enter the appropriate letter code in the box, if a change, indicate the Amendment Number.

Block 2 - Enter the name of the Country, Regional or other Entity.

Block 3 - Enter the Project Number assigned by the field mission or an AID/W bureau.

Block 4 - Enter the sponsoring Bureau/Office Symbol and Code. (See Handbook 3, Appendix 5A, Table 1, Page 1 for guidance.)

Block 5 - Enter the Project Title (stay within brackets; limit to 40 characters).

Block 6 - Enter the Estimated Project Assistance Completion Date. (See AIDTO Circular A-24 dated 1/26/78, paragraph C, Page 2.)

Block 7A. - Enter the FY for the first obligation of AID funds for the project.

Block 7B. - Enter the quarter of FY for the first AID funds obligation.

Block 7C. - Enter the FY for the last AID funds obligations.

Block 8 - Enter the amounts from the 'Summary Cost Estimates' and 'Financial Table' of the Project Data Sheet.

NOTE: The L/C column must show the estimated U.S. dollars to be used for the financing of local costs by AID on the lines corresponding to AID.

Block 9 - Enter the amounts and details from the Project Data Sheet section reflecting the estimated rate of use of AID funds.

Block 9A. - Use the Alpha Code. (See Handbook 3, Appendix 5A, Table 2, Page 2 for guidance.)

Blocks 9B., C1. & C2. - See Handbook 3, Appendix 5B for guidance. The total of columns 1 and 2 of F must equal the AID appropriated funds total of 8G.

Blocks 10 and 11 - See Handbook 3, Appendix 5B for guidance.

Block 12 - Enter the codes and amounts attributable to each concern for Life of Project. (See Handbook 3, Appendix 5B, Attachment C for coding.)

Block 13 - Enter the Project Purpose as it appears in the approved PID Facesheet, or as modified during the project development and reflected in the Project Data Sheet.

Block 14 - Enter the evaluation(s) scheduled in this section.

Block 15 - Enter the information related to the procurement taken from the appropriate section of the Project Data Sheet.

Block 16 - This block is to be used with requests for the amendment of a project.

Block 17 - This block is to be signed and dated by the Authorizing Official of the originating office. The Project Data Sheet will not be reviewed if this Data Sheet is not signed and dated. Do not initial.

Block 18 - This date is to be provided by the office or bureau responsible for the processing of the document covered by this Data Sheet.

TABLE OF CONTENTS

- I. SUMMARY AND RECOMMENDATIONS
- II. BACKGROUND
- III. STATEMENT OF THE PROBLEM
 - A. Need for Increased and Stable Food Production in Southern Africa
 - B. U.S. Cooperation with the Southern Africa Development Coordination Conference
 - C. U.S. Commitment to Improving Africa's Agriculture Research Capabilities.
- IV. PROJECT DESCRIPTION
 - A. Project Goal and Purposes
 - B. Project Outputs
 - C. Project Inputs
 - D. Implementation Plan
 - E. ICRISAT Purchase
 - F. Evaluation Plan
- V. PROJECT ANALYSES
 - A. Economic Analysis
 - B. Environmental Analysis

ANNEXES

- A. Proposal prepared by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) for a Regional Sorghum and Millet Research and Training Program for Southern Africa (SADCC Countries).
- B. Letter of request from ICRISAT to AID for a grant to help carry out the program.
- C. Letter from the Government of Botswana to the Government of Zimbabwe on behalf of the Southern Africa Development Coordination Conference (SADCC) asking Zimbabwe to host the program.
- D. Economic Analysis
- E. Final Determination on site development/construction of the regional research station to be located at Matopos, Zimbabwe.
- F. Request for Categorical Exclusion on Environmental Impact and Use of Pesticides.
- G. ICRISAT Purchase Policy.

I. SUMMARY AND RECOMMENDATIONS

A. Financial Plan: A grant in the amount of \$14.8 million dollars to be provided over two years with \$ million be provided in FY 1983 and \$ million in FY 1984.

Term of Project: Five years.

Description of Project: The project provides funding for an activity being carried out by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) to establish a regional sorghum and millet research and training program for the nine member states of the Southern Africa Development Coordination Conference (SADCC). AID assistance would be in addition to that provided by other donors. The AID funding would be used to finance: 1) the construction of a regional research facility to be located at Matopos, Zimbabwe; 2) a team of nine scientists for a total of 34 person years plus consultants who would work out of the regional facility in carrying out basic research on the development of improved varieties of the two grains and interact with national research systems; and 3) train scientific personnel from the region in order to ensure adequate staffing for an ongoing regional program and national programs in sorghum and millet research.

D. Project Purpose: The project purpose is to create a regional research program for sorghum and millet in order to develop new varieties which will result in increased production and consumption of these two crops which are suited to southern Africa's large tracts of dry and drought-prone farmland.

E. Background: The project is based upon a program proposal which was prepared by ICRISAT at SADCC's request and presented to donors for financing at SADCC's annual meeting with donors held in Maseru, Lesotho, in January 1983. ICRISAT was approached by SADCC after the April 1980 meeting in Lusaka with a request that it field a fact finding mission to the region to examine existing production constraints and the status of research and development on the five crops which fall within ICRISAT's mandate. Out of this mission a recommendation was made that a program be established to carry out basic research on two of the five crops, sorghum and millet, which are particularly well suited to the region's drier areas. ICRISAT was asked to prepare a full program document for consideration by SADCC. This was done and the document received SADCC's official approval at the May 1983 meeting of its Council of Ministers in Dar es Salaam. It was also decided that the program would operate out of a regional research facility to be created at Matopos, Zimbabwe, the site of an existing research station and where Zimbabwe's own national sorghum and millet program was to be re-located. Incorporated into the program is an extensive outreach program to national research systems and a training program to ensure that the necessary scientific manpower would be trained from within the region to enable national research systems to effectively carry out their country specific and regional responsibilities and, in time, provide staff for the regional facility. The proposal, reflecting experience elsewhere in research, assumed a 25 year timeframe with a ten year planning range and five year initial program.

G. Waivers Required: No waivers are needed at the time of authorization. It may prove necessary as the project is implemented to issue procurement waivers if items required for site development/construction or equipping of the regional research facility prove unavailable for the two authorized sources, the U.S. and Zimbabwe. These can be handled within the authority of the Mission Director, USAID/Zimbabwe. The overall program includes three countries where AID cannot currently provide direct assistance. The AID grant will be structured such that any program expenditures which can be construed as constituting direct assistance will be disallowed and ICRISAT will be required to use funding from other sources.

H. Conditions Precedent and Covenants:

ICRISAT will be required within thirty days of the signing of the grant to have concluded an agreement with the Government of Zimbabwe as to the availability of the site in Matopos and the confirmation of privileges and immunities and tax-free status of project financed goods, services and personnel stationed at the Matopos research station. A copy will be provided to the Regional Development Officer, USAID/Zimbabwe.

ICRISAT and INSTORMIL will be required to provide to the Regional Development Office for AID's concurrence within ninety days of the grant signing a training plan which reflects projected manpower needs of both the regional and national programs ten years in the future.

Nominations for members of the ICRISAT staff to be assigned to the Matopos research station will be submitted to the Regional Development Officer for AID's concurrence prior to the signing of contracts.

I. Background

At its 1980 Summit Meeting in Lusaka, Zambia, the Southern African Coordination Conference (SADCC) requested that the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) field a mission to the nine member countries to assess agriculture production, constraints on production and the status of research on the five crops in ICRISAT's mandate (sorghum, millet, groundnuts, pigeonpeas and chickpeas). One outcome of this mission was a recommendation by ICRISAT in late 1980 that a program be established to carry out research on sorghum and millet, two crops important for both food and fodder in the region's dry and drought-prone areas.

The Government of Botswana, which at the time had responsibility within SADCC for research relevant to agriculture in semi-arid areas (subsequently Botswana was given responsibility for all agriculture research), asked that ICRISAT act upon this recommendation and prepare a program proposal for consideration by SADCC. The initial proposal was subsequently presented in 1981 and given tentative approval by SADCC's Consultative Technical Committee (CTC) on Research (a body composed of the heads of research from all nine member governments and created with a grant from AID). With some modifications the proposal was presented for consideration at SADCC's annual meeting with donors held in Maseru, Lesotho in January 1983. The U.S. Delegation at that meeting expressed interest in the proposal. This was followed up in February 1983 by a meeting between AID representatives and Government of Botswana officials acting on behalf of SADCC at which it was agreed AID would work directly with ICRISAT to develop a project under which U.S. assistance could be provided.

The final proposal as submitted in August 1983 to USAID for funding under the Southern Africa Regional Program incorporates revisions resulting from field and AID/W reviews of the earlier drafts, including the draft reviewed by AID/W in July 1983. Simultaneously, ICRISAT has provided final versions to SADCC and has entered into preliminary negotiations with the Government of Zimbabwe on specific points to be incorporated into a program implementation agreement. Early discussions with the Zimbabwe Government were necessary to ensure the provision of necessary assurances for carrying out the program's development of the regional facility at the Matopos research station and the stationing of expatriate personnel in the country.

II. STATEMENT OF THE PROBLEM

A. Need for Increased and Stable Food Production in Southern Africa:

The nine member states of SADCC represent a combined population of almost sixty million people. It is a rapidly growing population. Food productivity to meet demand in the given situation is not encouraging. Productivity has been stagnating or even declining, a fact made more disturbing when it is considered that the region was in the past a net food exporter. Today only two countries, Malawi and Zimbabwe, are usually self-sufficient in terms of their food needs and these have seen production severely curtailed by drought the past two years. Agriculture also generates most employment in the region. The future growth of the region's economies is consequently linked to a reversal of the trend in agriculture productivity. The need to do so is recognized and the constraints to doing so are known in general terms. Improved policies, more inputs such as fertilizers, pesticides, and seeds, a more effective physical and human resource infrastructure to support the farming sector, and greater investment by governments and the private sector are required.

Agriculture encompasses a wide variation in growing conditions throughout the region. There is excellent farm land which receives good rainfall, but a vast amount of the area used for farming, particularly by small farmers, is in areas which are normally dry or semi-arid by nature and which prove highly vulnerable to the drought cycle which affects the region for a few years every decade. Much of the effort to fore in assisting agriculture in the region has addressed the needs of the higher potential areas. In the short term such reliance is probably a sensible choice. But longer term considerations require that efforts begin to address the problems affecting farming in the drier parts of the region. It was recognition of this fact which gave rise to SADCC's decision to ask for ICRISAT's assistance in looking at the problem.

Sorghum and millet are two food grains which offer the potential for better performance on the sandy soils that exist in the dry farming areas and which can help the region become less susceptible to fluctuations in food production resulting from drought. This is particularly true in fringe areas where farmers in good rainfall years can do well raising maize but who risk total crop failure when the rain is less than normal. Sorghum and millet are native grains in Africa yet much of the research carried out to date has been done outside the region and for conditions different from those found in the African environment. Soils and soil temperatures, pests, weather patterns, and agronomic practices are significantly different than those which exist in India where ICRISAT has been working for the past decade. Efforts to transfer the results of research conducted at ICRISAT's center in Hyderabad to Africa have been almost singularly unsuccessful. It was decided, therefore, that on-the-ground research in Africa was

required. ICRISAT initiated a program in West Africa in 1975 with assistance from the UNDP to carry out such research in the local environment. The southern Africa program is the second such effort and is based on the combined knowledge gained in establishing ICRISAT's original program in India and their experience in West Africa. The establishment of this program is expected to result in development of new varieties of sorghum and millet which meet the conditions found in the region and produce greater and more reliable yields to help alleviate the problems of production stagnation and need for stable crop output.

B. U.S. Cooperation with SADCC: As part of its effort to ensure that the tensions in southern Africa caused by ongoing conflicts, tensions emanating from South Africa's apartheid system and the stance between it and its neighbors, and by the consequences of continued poverty for the vast majority of the region's inhabitants, the United States has pursued a policy of constructive engagement with both South Africa and its neighbors. One element of this policy has been support for the Southern Africa Development Coordination Conference (SADCC), an organization representing the nine independent states apart from South Africa which make up the region.

SADCC was formed in order that its members could work together to ensure that development investments were maximized by avoiding duplication of effort and by taking advantage of efficiencies of scale in areas where 'regional' programs or projects made more sense than individual national efforts. To pursue these objectives SADCC selected nine major sectors and assigned responsibility to member states for developing programs. These sectors and states are as follows: Angola - Energy; Botswana - Agriculture Research/Animal Disease Control; Lesotho - Soil Conservation/Land Management; Malawi - Fisheries/Forestry/Wildlife; Mozambique - Transportation/Communications; Swaziland - Manpower; Tanzania - Industry; Zambia - Mining; and Zimbabwe - Food Security.

The U.S. has engaged with SADCC since its first meeting with donors in Maputo, Mozambique in 1980. As part of this engagement the U.S. has indicated to SADCC its willingness to provide assistance for transportation, manpower, and agriculture activities as well as assistance in its planning efforts. Within agriculture this has meant a focus on food security and agriculture research.

C. U.S. Commitment to Improved Agriculture Research: The focus on agriculture research by the Southern Africa Regional Program follows on not only the identifiable need for this critical aspect of Africa's agriculture situation, but also reflects AID's own high priority both Agency-wide as represented by the efforts of the Science and Technology Bureau to increase the flow of resources in this area and by the Africa Bureau's initiatives. The Agency has also taken a lead role within the donor group, Coordination for Development in Africa (CDA), to develop and support a coordinated approach by the seven members to address the problems of the continent's agriculture research infrastructure by providing both sustained and increased support. This lead role is even more

specific in southern Africa where the U.S. has been selected within CDA to be the lead donor in working with SADCC to assess the region's specific needs and devise appropriate responses. While the ICRISAT developed proposal for sorghum and millet pre-dates any CDA involvement with SADCC, the initial CDA assessment team to visit the region endorsed the proposal as a needed and high priority input.

The development of an agriculture research capacity to respond to southern Africa's food production problems is recognized from the outset to involve a large injection of external financial and scientific resources and a commitment to see the job through, a commitment which at the outset must be seen as being decades in length. In supporting the initial five year proposal for the establishment of a regional sorghum and millet research program, AID must also be aware that the task will require a longer time frame and commit itself to be prepared to consider additional support in future years. This commitment is implicit in participating with other donors in funding the initial phase of the program.

IV. PROJECT DESCRIPTION

A. Project Goal and Purpose: The goal of the AID grant to be provided under this project is to make southern Africa less susceptible to food shortages as a result of low productivity and the effects of periodic drought conditions. The purpose of the grant is to help create a regional research program for sorghum and millet which will result in the development and introduction of new varieties of these crops and increase their production and consumption as a means of meeting future food requirements. In assisting this activity AID is also contributing to the more general purpose of developing an African agriculture research infrastructure. This is consistent with the Agency's own prioritization of needs on the continent and with its lead role within CDA.

At the end of the first five year phase of the ICRISAT program described in detail at Annex 'A', the AID grant will have been instrumental in the establishment at Matopos, Zimbabwe of a fully equipped and staffed research station devoted to the conduct of a regional sorghum and millet research effort. It will also have assisted in the training of some twenty MSc and four PhD students and participation in local training programs and ICRISAT/India training programs by students and scientists from six of the nine SADCC countries. The grant will also have supported the conduct of workshops and seminars and interaction among scientists from within the region and the regional research facility aimed at sharing knowledge and introducing new scientific information and methods.

B. Project Outputs: In order to achieve the project purpose the AID grant will result in the following outputs during the five year life of the first phase of the research program. It should be noted that it is not anticipated that there will be any major breakthroughs in this phase in terms of new varietal materials being developed which will increase yields in the region. Five years is not a realistic timeframe for such accomplishments in agriculture

research. In effect this first phase of the program is to lay the foundation. In laying this foundation the following outputs are expected:

1. The establishment of an operating regional research facility at Matopos.
2. The collection by scientists at the region of promising local varieties of sorghum and millet, the importation of improved varieties from ICRISAT/India and from West Africa, and the initiation testing and cross-breeding.
3. The conduct of multi-locational trials throughout southern Africa to test varieties for local conditions in terms of pests, soils, climate, etc.
4. The training of 20 MSc students from six countries and the first year of training for 4 PhD students.
5. The conduct of workshops and seminars at which scientists at the regional facility can interact with national scientists.
6. The establishment of a regional sorghum and millet germ plasm bank at the Matopos facility.

C. Project Inputs: AID will provide a grant to ICRISAT in the amount of US\$14.8 million which will meet approximately 83% of the total costs of the first five years of the program. These funds would be applied by ICRISAT to the costs of constructing, equipping and operating the Matopos research facility; the provision of thirty four person years of long-term scientific staff; local staff; consultancies; academic training for an estimated twenty MSc students and four PhD students for their first year of training; and the conduct of workshops/seminars. AID's grant will not be used for any activity able to be construed as direct assistance to any of the currently three prohibited countries in the SADCC region. These are Angola, Mozambique and Tanzania.

D. Implementation Plan:

1. AID Responsibilities: Project management will be the responsibility of the Regional Development Officer (RDO) located in Harare in the USAID/Zimbabwe Mission. Necessary technical and legal support in carrying out this responsibility will be provided by REDSO/ESA and the Regional Legal Advisor in Mbabane, Swaziland. ICRISAT will submit all reports on grant expenditures to the Controller, USAID/Zimbabwe.

2. ICRISAT Responsibilities: The project will be administered by ICRISAT, which has its headquarters in Hyderabad, India, and come specifically under the direction of ICRISAT's Director for International Cooperation. ICRISAT will receive the grant directly and together with funds provided by other donors carrying out the overall program presented in detail at Annex 'A'. The program will be implemented within Zimbabwe under an agreement

between the ICRISAT and the Government of Zimbabwe, as outlined at Annex 'E' of the ICRISAT proposal attached as Annex 'A' of this document. The program will operate within the nine member states of SADCC based on the unanimous approval of the activity by the SADCC Council of Ministers at its 1983 meeting in Dar es Salaam. Specific details of the program's relationships with individual SADCC member states will emerge in the course of implementation, but no problems are anticipated based on the extensive prior consultations during the course of the program's development. Implementation responsibilities will be vested with the Project Manager who will function as a member of the ICRISAT provided contract scientific staff assigned to the Matopos research station.

The ICRISAT program involves extensive procurement of goods and services related to the establishment of the the Matopos research station. The AID grant will specify that AID funds will be used only for procurement from the U.S. and Zimbabwe but will rely upon ICRISAT's existing procurement practices. These are presented in detail at Annex 'F'. While most goods and services are expected to be procured from the two eligible sources or would fall within the already extant shelf item limits and AID blanket vehicle waiver for right-hand drive vehicles, there may be instances where waivers may be required. These are not expected to be extensive or large in value and can be handled on a case by case basis within the authority of the USAID/Zimbabwe Director.

F. Evaluation Plan: Construction and site development at the Matopos research station will be carried out by ICRISAT using contractors. The Government of Zimbabwe Ministry of Construction has indicated to ICRISAT that it will assist with architectural work on structures such as laboratories, stores, and housing for local staff and assist in the issuance of tenders for construction contracts. The contracting and management of contracts will be the responsibility of ICRISAT which has included as a member of the professional staff during the first three years of research 'Farm Development Specialist'. This function will be further supplemented by ICRISAT/India's Station Manager, an individual who has overseen the establishment of ICRISAT's headquarters in Hyderabad and its new Sahelian center in Niamey. Cost estimates for the construction and site development have been increased over the initial proposal based on the findings of an AID engineer who reviewed ICRISAT's estimates. While it is believed these costs reflect realistic projections on material and services, the possibility of cost overruns cannot be entirely discounted based on experience in other construction activities. If such a situation arises, ICRISAT will undertake to secure additional financing from other sources and will not divert funds provided in the AID grant which are intended for other project activities. In any event ICRISAT will keep AID fully apprised as to progress and budget uses throughout implementation.

Ultimately it is intended that the program being begun by ICRISAT will become a permanent institution within the SADCC framework. As such it is implicit that SADCC countries which will be the main beneficiaries of this program must begin to provide funding from their own resources. It is not planned that such

funding will be provided during the first five year phase except as each country applies its own budgetary resources to carrying out research and extension activities in conjunction with or as a consequence of its interaction with the regional program. ICRISAT has included in its budget a line item for assistance to national programs but this is intended only as a last resort in situations where time is critical and where it becomes apparent that national programs for whatever reason - budgetary or bureaucratic bottlenecks - are unable to undertake a regional program activity such as field trials. ICRISAT early on in the project will initiate discussions with SADCC, probably through the newly established Southern Africa Center for the Coordination of Agriculture Research (SACCAR) in Botswana, to establish procedures and levels of contribution on the part of SADCC member states to the regional program. This will also be a point to be taken into consideration by the International Advisory Panel.

Two evaluations are planned during the life of the project. Funding is provided in the grant for this purpose. The first will occur eighteen months after the start of implementation. The second is planned for the beginning of year four. Both evaluations will be carried out by independent consultants and AID, through the Regional Development Officer in Harare and REDSO/ESA in Nairobi, will be involved in the preparation of the terms of reference for the evaluation team and in the review of the findings. In addition the program incorporates the establishment of an International Advisory Panel to be composed of six members, three of whom will be from within the region and three from outside. AID will provide one member of this panel from the Science and Technology Bureau. This panel will meet annually to review progress and make suggestions on

V. PROJECT ANALYSES

A. Economic Analysis

1. Introduction: Investment in agricultural research has been increasing in recent years, due in part, to the high actual or estimated rates of return on such investment. Although data are limited in many cases, many studies have consistently confirmed that rates of return from investments in agricultural research are generally two to three times higher than returns from alternative investment options in agriculture and rural development. Economic returns to particular research activities typically exceed 20 percent a year and frequently are greater than 40 percent. While most of the published economic analyses concern research on rice, wheat, and corn, a study done by Griliches, covering the period 1940-1957, shows an internal rate of return (IRR) at 20 per cent for sorghum research in the United States.

Results from the introduction of hybrid sorghum in India reveal that the rate of return on investment in research on hybrid varieties was extremely favourable. From 1948 to 1971 the average sorghum yield in India was 400 to 500 Kg ha depending on rainfall. The 1969-71 average sorghum yield was 484 Kg ha. The first hybrid sorghum varieties were released to farmers in October 1964. By 1978-79

there were 13.3 million hectares sown to sorghum in 116 Districts of India of which 21 percent of the area was sown to hybrids. The average yield of hybrid sorghum in 1978/79 was 788 Kg ha or an increase of 304 Kg ha over local varieties. With sorghum valued at \$US190 per ton the increased value of sorghum production was \$161 million in 1978/79. The lack of data precludes a precise computation of benefit/cost ratios but the results suggest extremely favourable rates of return to research on hybrid varieties and to improved cultural practices, including higher rates of fertilizer application.

If you have any objections to addition of above in economic analysis section please cable.

The information provided in the ICRISAT proposal is, admittedly, inadequate for purposes of determining the economic soundness of AID investment in the establishment of a SADCC regional research center for sorghum and millet in Zimbabwe. However, because of the economic potential of investments in agricultural research in general, and the growing need for technological advancement in sorghum and millet, the AFR/TR/ARD staff prepared an economic analysis of the SADCC request for AID support of a sorghum/millet agricultural research center. Due to inadequacy of information in AID/W and the general difficulty of quantifying ex ante benefits from agricultural research, the economic analysis presented here is illustrative and indicative, rather than definitive.

2. Methodology: The original proposal prepared by ICRISAT calls for a total AID investment of \$17.2 million over a five-year period. However, review in AID/W revealed inadequacies in project design, and consequently budgeting, which necessitates the addition of \$1.0 million to include more technical assistance (e.g., agricultural economist and nutritionist, construction and training).

For political reasons, AID support to the project may have to be limited to interventions serving the needs of only six of the nine SADCC countries-- Botswana, Lesotho, Malawi, Swaziland, Zambia, and Zimbabwe. This means that AID funding will drop to about \$15.0 million. In any case, the economic analysis assumes that other donor funding will be solicited to fill the gap.

The ICRISAT proposal does not provide indication of how much additional investment from national governments and farmers will be required to achieve positive results. Given current low levels of support by host countries to sorghum and millet research/marketing, and the minimal investment by farmers in the production of these subsistence crops, a sensitivity analysis testing the effect to internal rates of return of additional costs of 25 percent is provided.

The proposal indicates that yield increases of up to 40 percent can be achieved in Southern Africa. This estimate is analyzed, but additional assumptions using more modest yield increases are likewise tested. In addition, for purposes of providing more conservative results, the economic analysis assumes that the maximum

yield increase is achievable only after year 11 and will remain constant at that level through the rest of the period being analyzed (year 25). Further, no more than 50 percent of the maximum yield increases will be realized before year 7. No increases in hectareage are predicted in the analysis, mainly because of the current low priority attached to sorghum and millet as cash crops in Southern Africa. While the present trend may reverse in the future, for purposes of conservatism, it is assumed that sorghum and millet will not displace the position of corn, a major food and cash crop in the region. Average sorghum and millet prices are assumed to remain constant at \$100 per metric ton.

Finally, the following benefits are not included in the analysis, either because they are not directly quantifiable or because tenuous assumptions will have to be made in attaching values to them:

- a. Improved nutrition
- b. Drought insurance
- c. Dollar savings from reduced cereal imports (mainly corn) due to the increased availability of sorghum and millet.
- d. Multiplier effect of increased farmer incomes due to increased sorghum/millet productivity.
- e. Increased farmer incomes and/or food supplies resulting from farmers switching portion of their sorghum/millet areas to other crops (this may occur if sorghum/millet yields increase).

3. Findings (Attachments 1 - 5):

Scenario 1. - Using ICRISAT estimates that yields will increase by 40 percent after 1994 results in an IRR of 69 percent. This is a rather optimistic scenario, especially since the analysis assumes that the yield increase requires no additional input from national government and farmers, i.e., that even with existing national government and farmer investment, yields will increase by 40 percent.

Scenario 2. - Under this analysis, an IRR of 59 percent will be achieved, assuming, as in Scenario 1, that yields will increase by 40 percent after 1994. This scenario includes incremental investment by host countries and farmers equivalent to 25 percent of total donor funding. This is a more likely scenario, but still optimistic.

Scenario 3. - Scenario 3 assumes a more modest yield increase after 1994, i.e., 20 percent of current yields. It however, assumes that no incremental investment from host governments and farmers will be required to achieve an IRR of 38 percent.

Scenario 4. - This scenario modifies Scenario 3 by including costs equivalent to 25 percent of external funds, to be contributed by

host countries and participating farmers. Given these costs, the IRR will drop to 32 percent. This perhaps, is the most likely scenario.

Scenario 5. - This last scenario tests very conservative assumptions-- only a 10 percent increase in yields after 1994, coupled with an additional 50 percent investment by national governments and farmers. Under this scenario, an IRR of about 15 percent is estimated.

4. **Conclusions:** Based on the analyses discussed above, it appears that on the whole, investment by AID and other donors in the establishment of a regional research center for sorghum and millet in Southern Africa is economically sound. Even under the worst case scenario, the IRR still equals the opportunity cost of capital in the region. All the IRR estimates presented above however, assumes that pricing policies will not continue to serve as a disincentive to the production of sorghum and millet. In this connection, close linkages with and support from host governments will be necessary. For this reason, AFT/TR/ARD has recommended that the project include an agricultural economist in the technical assistance team to serve as liaison and pricing policy analyst. In addition, it is also recommended that the project link up very closely with on-going Farming Systems Research (FSR) projects in the SADCC countries. These FSR projects investigate and monitor the impact of critical socio-economic factors on technology adoption and farm-level productivity. The inclusion of a nutritionist in the technical assistance team was also recommended to ensure that the sorghum and millet varieties to be developed have potentials of being accepted by consumers, taste-wise.

Within the short and medium term, it is not expected that substantial surpluses of sorghum and millet will be produced in the SADCC countries (even at the 40 percent yield increase scenario) to merit too much concern with serious domestic and international marketing problems. Whatever increases will be achieved are expected to be sufficient to augment the cereal requirements of traditional sorghum and millet consumers in SADCC. Following this, it is most likely that a substantial portion of the additional sorghum and millet to be produced will be kept for home consumption/home use.

In summary, AFR/TR/ARD feels that with the design/budgetary changes recommended, and with host country support in the areas of national research, extension and pricing, the proposed establishment of a regional sorghum and millet research center in Zimbabwe is an economically sound investment option for AID.

Attachment 1

Scenario 1: (\$ million)

<u>Year</u>	<u>Costs</u>	<u>Benefits</u>	<u>Cash Flow</u>
(1984) 1	3.5	0	- 3.5
(1985) 2	4.9	0	- 4.9
(1986) 3	3.3	4	0.7
(1987) 4	3.2	9	5.8
(1988) 5	3.3	13	9.7
(1989) 6	3.3	17	13.7
(1990) 7	3.3	24	20.7
(1991) 8	3.3	28	24.7
(1992) 9	3.3	32	28.7
(1993) 10	3.3	36	32.7
(1994) 11	3.3	40	36.7
12-25	3.3	48	44.7
IRR = 69%			

Assumptions:

1. 40% increase in yields after 1994.
2. 50% of total yield increase to be achieved by year 7.
3. No incremental costs to host governments and farmers.

Attachment 2

Scenario 2: (\$ million)

<u>Year</u>	<u>Costs</u>	<u>Benefits</u>	<u>Cash Flow</u>
(1984) 1	4.4	0	- 4.4
(1985) 2	6.1	0	- 6.1
(1986) 3	4.1	4	- 0.1
(1987) 4	4.0	9	5.0
(1988) 5	4.1	13	8.9
(1989) 6	4.1	17	12.9
(1990) 7	4.1	24	19.9
(1991) 8	4.1	28	23.9
(1992) 9	4.1	32	27.9
(1993) 10	4.1	36	31.9
(1994) 11	4.1	40	35.9
12-25	4.1	48	43.9
IRR = 59.1%			

Assumptions:

1. Assumptions for benefits same as those used under Scenario 1.
2. Incremental host country and farmer costs increase Scenario 1 costs by 25%.

Attachment 3

Scenario 3: (\$ million)

<u>Year</u>	<u>Costs</u>	<u>Benefits</u>	<u>Cash Flow</u>
(1984) 1	3.5	0	- 3.5
(1985) 2	4.9	0	- 4.9
(1986) 3	3.3	0	- 3.3
(1987) 4	3.2	3	- 0.2
(1988) 5	3.3	6	2.7
(1989) 6	3.3	9	5.7
(1890) 7	3.3	12	8.7
(1891) 8	3.3	14	10.7
(1992) 9	3.3	16	12.7
(1993) 10	3.3	18	14.7
(1994) 11	3.3	20	16.7
12-25	3.3	24	20.7

IRR = 38%

Assumptions:

1. 20% increase in yields after 1994.
2. 50% of total yield increase to be achieved by year 7.
3. No incremental host government or farmer costs.

Attachment 4

Scenario 4: (\$ million)

<u>Year</u>	<u>Costs</u>	<u>Benefits</u>	<u>Cash Flow</u>
(1984) 1	4.4	0	- 4.4
(1985) 2	6.1	0	- 6.1
(1986) 3	4.1	0	- 4.1
(1987) 4	4.0	3	- 1.1
(1988) 5	4.1	6	1.9
(1989) 6	4.1	9	4.9
(1990) 7	4.1	12	7.9
(1991) 8	4.1	14	9.9
(1992) 9	4.1	16	11.9
(1993) 10	4.1	18	13.9
(1994) 11	4.1	20	15.9
12-25	4.1	24	19.9

IRR = 32.2%

Assumptions:

1. Assumptions for benefits same as those used under Scenario 3.
2. Incremental host government and farmer costs increase Scenario 3 costs by 25%.

Attachment 5

Scenario 5: (\$ million)

<u>Year</u>	<u>Costs</u>	<u>Benefits</u>	<u>Cash Flow</u>
(1984) 1	5.3	0	- 5.3
(1985) 2	7.4	0	- 7.4
(1986) 3	5.0	0	- 3.0
(1987) 4	4.8	2	- 1.8
(1988) 5	5.0	4	- 1.0
(1989) 6	5.0	5	0
(1990) 7	5.0	6	1
(1991) 8	5.0	8	3
(1992) 9	5.0	9	4
(1993) 10	5.0	10	5
(1994) 11	5.0	11	6
12-25	5.0	12	7

IRR = 14.9%

Assumptions:

1. Yields increase by 10% after 1994.
2. 50% of total yield increase will be achieved by year 7.
3. Incremental host country and farmer costs increase Scenario 1 costs by 50%.

B. Environmental Analysis:



INTERNATIONAL CROPS RESEARCH INSTITUTE
FOR THE SEMI-ARID TROPICS
(ICRISAT)

Phone : Hyderabad 224016
Telex : 0152-203
Cable : CRISAT, Hyderabad
Airport : Hyderabad

ICRISAT Patancheru P.O.
Andhra Pradesh 502324
India

23 August 1983

Mr. Roy A. Stacy
Director, USAID
Southern Africa Regional Program
1 Pascol Avenue
Harare
ZIMBABWE

Dear Mr. Stacy:

On behalf of ICRISAT I would like to formally request consideration by the Agency for International Development for a grant to assist ICRISAT to carry out in response to the request of the Southern Africa Development Coordination Conference (SADCC) a research and training program for sorghum and millet.

As you may know SADCC requested ICRISAT to carry out a feasibility study and design a long term research program for these crops which are highly important for southern African drier areas. I am attaching a copy of the final program proposal. This program was formally approved by the SADCC's Council of Ministers representing all nine member states at their May, 1983 meeting in Dar-es-Salaam, Tanzania. ICRISAT is fully prepared to carry out this activity but will require donor resources. AID's favorable action on this request would be greatly appreciated.

Sincerely yours,

L.D. Swindale
Director General

cc: CRJ LRH

ANNEX C

COPY OF LETTER FROM BOTSWANA TO ZIMBABWE ASKING
THAT ZIMBABWE HOST REGIONAL PROGRAM BEING SENT
BY CABLE FROM USAID/BOTSWANA

DATE: August 15, 1983

FROM: Denis Light, Gen. Engineer REDSO/ESA, thru Dale Pfeiffer

SUBJECT: SADCC Regional Sorghum and Pearl Millet Improvement Program SADCC

TO: Mr. R. Stacy, Director AID/2

1. GENERAL The regional program is to use approximately 100 hectares of the National Research Farm at Matopos which contains a total of 2800 hectares. Matopos is located some 30 kilometers south of the city of Bulawayo. It is an excellent site for research because of its differing soils, temperatures and rainfalls.

The 100 hectares is bounded by the main highway, the main access road to the farm center and buildings, and existing farm roads. Access to the 100 hectares is therefore convenient and inexpensive. In addition water and electrical lines are readily available and in sufficient capacity. Shared maintenance facilities are a possibility. Irrigation water will be pumped up from Lake Matopos to a storage tank via existing lines. See aerial photos scale 1:25000, 1:6250.

Housing, offices, laboratories, storage will be adjacent to the existing main access to the national farm and sewage disposal will be by collective septic tanks. A security fence will be placed around the 100 hectare site.

Houses will be ministry standard design F-12 and F-13 for government support staff. Professional staff housing will be bought housing adjacent to the site.

The office and laboratory building, seed storage and processing building, shops and storage buildings will be prefabricated buildings of 30 and 40 foot spans respectively, the office and lab building being of better finish. See floor plans. No visit has been made to the site as the project is only in the concept phase with no actual layout, but the aerial photographs and discussions with Mr. Grant on the site location and utilities do tend to give a firm anticipated layout more so than is usual at that particular phase. A site visit at times of preliminary plans would help to refine costs as well as more economical solutions to potential problems.

Construction will include an office and laboratory building approximately 30' x 210', a seed storage and processing building approximately 40' x 120' a storage and shops building 40' x 240', 34 houses F-12, 55 houses

F-13. Heavy earthwork equipment will be bought for farm and development purposes. Support vehicles and motor cycles will be bought for transportation purposes. Farm equipment and accessories together with tools will be bought to make the research independently operated.

Costs for capital construction were checked out with Ministry of Works, Construction Department and with independent companies in Harare. Prices of equipment and vehicles were also checked out with independent companies in Harare and broken out into local bought (tax free) and imported. Capital costs were also related to a mid construction time of late 1984 due to the need for architect/engineer design, preparation of bid documents and out to construction. Appropriate equipment, personnel, vehicles, tools etc would tie into the completion of staged buildings construction.

It should be noted that inflation in Zimbabwe on construction is proceeding at the rate of two and a half to three percent a month, and if the project is to proceed forward, it should do so with the utmost expediency otherwise inflation on the capital portion of the project will increase at a rate of \$125,000 a month which will quickly erode the project budget.

A 611(a) certification has been made based on the data available, which is limited, but is able to be made due to the fixed site location and its convenient access to roads and utilities. However if the project lags in time or if major policy changes are made REDSO reserves the right to modify the costs and certification.

2. COSTS

On Tuesday and Wednesday August 9 and 10, 1983, I reviewed the Project Proposal by ICRISAT dated July 1983. The main items relate to the Budget shown as Table 14 on Page 65 split into Years 1,2,3,4,5 and Total all in US\$.

The budget relates to a) Professional Staff, b) Support staff, c) Operational, d) Training, e) Project Evaluation, f) Assistance to National Research Systems for Technology Transfer, g) Capital, h) ICRISAT overhead. The cost item relating to Engineering and 611(a) is g) Capital which is subdivided into 1. Building, construction and Purchase, 2. Farm and Station Development, 3. Equipment. This construction and center development is detailed in Annex IV with implementation scheduled as architectural input 6 to 10 months followed by construction 12 to 15 months and equipment ordered in the first few months.

A. Buildings

1. Housing

a. Professional staff housing. Purchase 8 at \$50,000 OK

b. Middle level housing. Furnishings at \$15,000 each. OK Ministry F-12 Construct 34 at \$2000.

Change. Electricity, water, sewage at \$1200 each. OK.

c. Lower level housing. Ministry F-13 Construct 55 at \$1300.

Change. Electricity, water sewage at \$1000 each. OK.

2. Office and Laboratory Buildings

8536 square feet of building of which extras over the standard building would be for the 3 toilets, kitchen, library, conference room, 3 laboratories, extra heating ducts and roof span over the conference room. Change to \$400 per square meter.

3. Seed storage and processing building

This is a 40 foot span building, 4800 square feet utilitarian of which the \$121 per square meter is low. Change to \$200. The additional cost for seed drier, cold stores, shelves appear to be ok.

4. Field shelters and crop work area

3 @ 72 square meters @ \$75 appear ok.

5. General Stores

130 square meters \$80 sq. meter appears low. Recommend \$120 shelving ok.

6. Class houses

Cost appears ok but recommend local materials except perhaps soil sterilization equipment and water de-onization unit.

(Savings will probably be minimal. Delivery and control better).

7. Shops, spare parts, farm machinery, storage buildings 9600 square feet or 892 sq. meters at \$121 is low. Change to \$180.

Allowing for building inflation of two and a half percent per month, and add ten percent for contingencies.

Note: Costs taken from Construction Ministry of Works and telephone calls to prefab. buildings. Assume midpoint of construction late 1984.

Total building costs changed to \$3,343,200 from \$2,883,160 an increase of \$460,040.

B. STATION DEVELOPMENT. The site of 100 hectares is adjacent to the main road and the main national offices giving easy water and electrical, telephone hookup. Irrigation will be from Lake Matopos. New access roads will be limited. Major work will be irrigation and security fencing against adjacent wildlife areas.

Allowing for ten percent contingencies, costs changed to \$227,300 from \$197,650 an increase of \$39,650.

C. FARM EQUIPMENT. The items were changed to reflect tax free equipment bought in Zimbabwe. Prices were generally low. In addition if Bulldozers and Scrapers are to be used for development and farming, it is better to allow for new equipment instead of from excess property which is unreliable. Recommended cost is \$564,770 instead of 448,660, an increase of \$116,110.

D. Shop Equipment Add freight \$5,770.

E. Buildings and Lawn Maintenance Equipment ok.

F. Vehicles

All items low. The items were changed to reflect tax free equipment bought in Zimbabwe. Recommended cost is \$307,800 instead of \$224,260, an increase of \$83,540.

In addition the budget allows for the following items
office equipment \$50,000
Laboratories equipment \$180,000
Crop processing and storage \$40,000
Office and labs furniture \$110,000
Micro computers \$25,000

Items missing

Furniture 34(F-12) 55(F-13) houses. Allow for at \$100,000.

Equipment was checked out with local firms

Grand Total for Section G. Capital is now \$4,992,860 from \$4,058,430 an increase of \$932,430.

3. 611(a) Certification

The overall expansion plan for Matopos Regional Sorghum and Pearl Millet Improvement Program SADCC provides for the construction of housing, farm buildings, research offices, laboratories, storage and maintenance buildings together with access roads, expansion of utilities and fencing of the research area from the adjacent wildlife. The project allows for orderly expansion and development with minimal environmental disruption in the surrounding area.

All buildings to be financed by this grant will be located on the Matopos research station in proximity to the existing core facilities and road system. Building costs are based on review of similar construction by Ministry of Works. The cost of the proposed structures included price escalation to midpoint of construction. A ten percent contingency in addition to escalation has been added to project costs to compensate for unpredictability of

bidders, materials escalation and uncertainties which might arise due to off shore procurement and transportation. The preliminary plans, standards specifications, costs estimates and physical descriptions of the buildings were reviewed by AID and found to be sufficient that plans cannot be altered to give major increases in construction and that cost estimates are reasonably firm. Expansion of utilities and access to the buildings and research form are reasonably fixed in relation to existing roads, buildings and utilities that costs should be reasonably firm. The requirements of the FAA are accordingly satisfied.

ICRISAT PURCHASE POLICY

In general, ICRISAT's purchases are to be made from the most competitive markets and sources with cost and quality being the main criteria and without preferences and prejudices. The purchasing policy of ICRISAT is formed with this end in view. As a result, the purchases are spread all over the world. The abstract of purchase policy guidelines are:

- (1) Purchase of equipment, supplies or services shall be concluded after competitive bidding in writing. A comparative analysis of all offers received shall be kept on record.
- (2) Exceptions to (1) above are:
 - a) Small value orders not exceeding Rs.2000.00 (apx.US\$250.00) -- These may be finalised on the basis of telephone quotations duly recorded in the purchase order file.
 - b) Emergency requirements -- Where the exigencies of particular work requirements do not permit the delays involved in competitive bidding and the related formalities, such purchases may be finalised on the basis of telephone quotations which are subsequently confirmed by the respective suppliers in writing for record.
 - c) Where the prices are fixed by Government regulations.
 - d) Where the purchase relates to proprietary articles or perishable supplies.
 - e) Selected makes of certain laboratory equipment -- ICRISAT has standardized on the makes of certain laboratory equipment to be

purchased. The standardization was done on the recommendation of a committee of user scientists and maintenance engineers based on their experience with several makes. The standardization was done with a view to achieve (i) economy, (ii) lower parts inventory, (iii) better maintenance and service (manufacturers/suppliers' after-sales service facility is not available in India for many equipment and hence these are to be maintained and serviced by ICRISAT's staff engineers), (iv) increased efficiency in the use of equipment facilitated from prompt servicing by trained engineers and better availability and interchangeability of parts. Competitive bidding is inappropriate on these categories of equipment. More items of equipment may be added to this category from time to time.

f) In cases of major items of equipment, where ICRISAT had previously chosen a particular make after competitive bidding, future purchases may not be subjected to this exercise. In the interest of servicing, maintenance and spare parts stocking, purchase of the same make may be repeated. The make in question then receives the status similar to a proprietary purchase.

(3) Final choice of the supplier is to be made after taking into account all related aspects including requirements of delivery schedule, quality of materials, standing and reputation of the suppliers and facilities for after-sales service where applicable. Where these requirements warrant, offers other than the lowest may be accepted. The purchase order file must contain sufficient documentation to justify such situations.

- (4) In respect of domestic purchases having estimated values exceeding Rs.15,000.00 (apx. US\$1,850.00), the suppliers are required to submit their bids in sealed envelopes. Such bids are opened, soon after expiry of the due date, in the presence of representatives from the Purchase Division and Fiscal Division. Where considered necessary and appropriate, the user department's representative is also invited to participate in this function. Soon after opening, an immediate record is made and signed by all present.
- (5) All purchase orders are to be in writing in the printed forms prescribed for the purpose. Domestic and overseas purchases are covered by different forms.
- (6) ICRISAT purchase activity is headed by the Purchase & Stores Manager who reports to the Principal Administrator. The written purchase orders are to be signed by officers authorised for the purpose subject to limits fixed by the Director General from time to time.
- (7) ICRISAT reserves the right to reject any or all offers. Where this clause is applied in the interest of ICRISAT, the reasons therefor are to be recorded in the relevant file, along with a decision to go in for new competitive tenders or enter into a negotiated contract.
- (8) In the case of certain domestic purchases, where the value exceeds Rs.20,000.00 (apx.US\$2,500.00), ICRISAT insists on a 5% earnest money deposit by the supplier which will be forfeited in case the supplier fails to execute the order in accordance with the mutually agreed terms and conditions.

- (9) Purchases in USA are handled through the Institute of International Education, New York, who arranges collection of bids, consolidation for shipment purposes through a freight forwarding company in New York which is again chosen on the basis of competitive bids. All competitive bids obtained by IIE prior to their placement of purchase orders are generally received by ICRISAT and available in the relevant purchase order file. In cases where this is not true, such information is available in the IIE files. All major purchasing decisions are made by ICRISAT. Where ICRISAT has obtained quotations from sources outside USA also, IIE is used only for final negotiations and routing of orders in case the final choice falls on a US supplier.
- (10) Selected purchases in UK are handled through an agent in London. ICRISAT's guidelines with respect to comparative bidding are followed in these cases.
- (11) Payment to overseas suppliers are preferred by way of US dollar cheque on receipt of invoice and evidence of shipment. Wherever this mode of payment is not acceptable to the supplier, letters of credit are opened. In a few cases, however, payment is made in advance along with the order. These are generally limited to small value orders particularly on new suppliers.
- (12) With respect to special projects, the specific grant terms of the donors are to be followed. For example, purchases against the ADB grant are to be restricted to ADB's regional and non-regional member countries. Where such terms are more liberal than ICRISAT's own guidelines, the latter will apply.

- (1) Petty cash purchases are approved where necessary. Generally, these are limited to small value purchases below Rs.500.00 (apx. US\$65.00).
- (14) The Government of India has permitted ICRISAT to purchase goods from Indian manufacturers who are registered exporters at International export prices on the basis of ICRISAT making payment in free foreign exchange and the supplier getting the prescribed export benefits from the Government of India. Every effort is to be made to make best use of this facility.
- (15) Purchases direct from manufacturers or sole distributors, avoiding middlemen, to the maximum extent possible, are to be attempted and practiced.
- (16) Following a policy of keeping a low profile, smaller vehicles are preferred -- usually 4-cylinder cars. While the prices of different makes around the world are considered, once a particular make is chosen, ICRISAT tries to retain the same make as long as possible in the interest of spare parts stocking and maintenance. However, periodically, prices of different makes are again considered and a change of make is approved if circumstances warrant.
- (17) All deviations from written procedures will need to be clearly documented in the relevant purchase order file and supported by justification.

.....