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PROJECT COMPLETION REPORT
FARMING SYSTEMS RESEARCH PROJECT 621-0156 - TANZANIA 

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TABLE OF CONTENTS

	<u>Page No.</u>
I. BACKGROUND.....	1
II. END OF PROJECT STATUS.....	2
A. Development of Farming Systems	
Research Capability.....	2
B. Management Assistance to TARO.....	5
C. Improvement of Facilities at Ilonga	
Agricultural Research Institute...	6
III CONTRIBUTION OF PARTICIPANTS	7
A. Financial Support by AID.....	7
B. Financial Inputs by URT.....	9
C. Technical Assistance Provided by	
USAID.....	10
D. Tanzanian Personnel.....	12
IV PROJECT ACCOMPLISHMENT.....	13
V. ATTAINMENT OF PURPOSE.....	15
VI. RECOMMENDATION FOR ADJUSTMENTS.....	15

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I. BACKGROUND:

The Agency for International Development (AID) and the United Republic of Tanzania (URT) signed an agreement in September 1982 which provided for an AID grant of up to \$8,300,000 over a four year period in support of the Farming Systems Research (FSR) Project. The grant was to be made in increments with an initial grant of \$3,000,000. The purpose of the project was to improve the food crops research program by increasing its relevance to farmers through the introduction of a farming systems approach. The project was to have three components:

(1) The development of a farm/village oriented farming systems research capability and the pilot testing of strategies to implement application of the capability;

(2) Continuing support for food crop research initiated under the predecessor Agricultural Research Project and completion of the development of the 160 hectare research facility; and,

(3) Installation of an organization management/coordination system in the Tanzania Agricultural Research Organization (TARO) to sustain components (1) and (2).

A contract was negotiated with the Consortium for International Development (CID) to assist TARO in implementing the project. The contract was signed in April 1983 and \$2,225,000 obligated for initiation of the work.

By early 1983, it had become apparent that the Brook Amendment restricting future funding would be applied to the Tanzanian program. However, the full implication of this action was not known, particularly for previously approved projects. As requirements for compliance were clarified and it became evident that further increments would not be forthcoming, plans for drastically modifying the project were developed. The Revised Life of Project Work Plan presented by the CID team in September 1984 retained the original project components relating to introduction of the farming systems approach and provision of management assistance to TARO but eliminated the component that would have provided continuing support for food crops research. This latter component had in effect been eliminated earlier by TARO. An amendment to the original CID contract was finally developed and approved in September 1985 which formalized the elimination of the food crops research component. The amendment also relieved CID of responsibility for assisting TARO in developing a coordinated and integrated research program and for supervision of the development of the irrigation system and other facilities at the Ilonga Research Station. The USAID mission assumed responsibility for supervising or arranging for supervision of development and construction. The amendment narrowed the scope of some other activities but left the purpose and objectives unchanged.

II. END OF PROJECT STATUS

The re-focussing of the project required considerable shifts in planned staffing and operating procedures. Two of the expatriate staff who were in-country were eliminated. Others who had been recruited were not appointed. It had been expected that a substantial number of scientists and technicians trained under the Tanzania Agricultural Research Project would be posted to the Farming Systems Research Project but these postings never occurred. Recruitment of alternative personnel was slow and, in fact, never completed. For these and other reasons, progress toward attaining expected objectives was spotty.

A. Development of Farming Systems Research Capability

Development of farming systems research capability includes two core activities. - training and research. Training included both long-term academic training and short-term in-country training. Ten participants were sent for advance degree training in the United States. Four of these were financed from the Farming Systems Project and six from the Training and Rural Development Project. Two are candidates for Ph.D. degrees, one in plant breeding and one in agronomy. Of the remaining eight, five are candidates for M.Sc. degrees in agricultural economics and one each in plant pathology, entomology and agricultural engineering. Only one had completed work for her degree and returned to Tanzania by the time the project was terminated September 30, 1986. Fortunately, CID was able to arrange for FAO to finance the cost for the remainder of the candidates to complete their degrees. This group, along with the group that has worked on the FSR project in-country for the past two years would constitute an excellent cadre for continuation of the FSR program. However, only four of the ten advance degree trainees were employed on the FSR project prior to starting their graduate program. There is no assurance that the six not previously employed in the FSR unit will be posted there on their return. In fact, there is no assurance that even the four previously employed in the FSR unit will be retained there.

Short-term training included a series of seminars and workshops designed to acquaint new recruits with the philosophy and general approach of farming systems research as well as instructing them in appropriate techniques and procedures. Participants included extension people and commodity researchers in addition to the TARO/FSR staff. The formal training was supplemented with on-the-job training provided by the expatriate technicians. This training plus the experience and increased responsibility for conducting farming systems research have created a competent small group that will be a valuable resource for future development of the program. When the FSR project terminated, the TARO/FSR staff included three social scientists, three biological scientists and seven field trial officers.

In addition to the TARO/FSR staff, seven commodity researchers were working on joint experiments. Two Peace Corps volunteers with a B.Sc. in agriculture had been recruited to serve as research/extension training officers. If this group can be retained and if all or even most, of the ten participants in the long term training program are assigned to the FSR program when they return, an adequate staff will be available to continue and rapidly expand the program to other areas.

In the process of re-vamping the project to adjust to the sharply reduced budget, the number of districts in which pilot testing of strategies for implementing the farming systems approach would be conducted was reduced from 15 to 6. Subsequently, it was decided to concentrate on only three. Pre-diagnostic, diagnostic and verification surveys were made in these three districts and the results used in planning a series of on-farm and on-station trials that were initiated in 1984. The trials included evaluations of various varieties of maize and sorghum, different plant densities and planting dates and various combinations of inter-crops. Farmers participating in the trials also participated in discussions of results and assisted in interpretations. Ten on-farm trials were conducted in the three districts in 1985/1986. On-station experiments included some replications of on-farm trials and experiments which because of legal prohibitions or other reasons, could not be conducted on farms. Eighteen on-station experiments were conducted in 1985/1986.

There was general agreement that the survey results were very useful in identifying appropriate subjects for both on-farm and on-station research and for assigning priorities. Results of the on-farm trials and on-station experiments were mixed. As might be expected, poor weather resulted in failure of some trials. Shortages of manpower and lack of experience of the district teams hampered progress particularly during the first year. In spite of the availability of survey results, problems arose in selection of priority work areas particularly in the first year. The FSR team in one district, Moshi, conducted a series of very successful on-farm trials over a two year period and reportedly made a major impact on commodity researchers by arousing their interest in determining priority needs of farmers and incorporating these needs in their research planning.

Perhaps the most successful trials were the ones in Kilosa district to improve the sequential crop production pattern. These trials focused on testing the feasibility of including a short-season variety of maize in the Vuli (short rains) season. The variety tested was Kito which had been developed earlier by breeders at the Ilonga Station, but had gained little acceptance among farmers. The station had placed major emphasis on developing varieties for production during the Masika (long rains) season which was more dependable and had higher yields. The short season Kito planted in the Masika season would reduce the risk of crop failure from drought but in normal seasons

produced lower yields than full season varieties. However, if planted in the Vuli season, the Kito variety yielded as well as the traditional long season varieties. It provided a supply several weeks earlier than the traditional varieties when supplies normally were very short. It was also found that subsequent Masika season crops of maize or cotton following Kito planted in the Vuli season yielded 20 to 30 percent more than they did if planted after traditional full season varieties. Over the two year period that the trials were run approximately 50 farmers per season grew Kito and in the 1986/86 season Kito seed were sold to an additional 500 farmers.

The work on the project has demonstrated what the FSR approach can accomplish. It has provided excellent training for a substantial cadre of farming systems researchers and established the FSR approach as a valuable complement to other research programs. A number of commodity researchers have been convinced of the value of the FSR approach as evidenced by their participation in planning and conducting joint research projects with the FSR staff. Efforts to establish close ties with extension workers have been less successful due at least partially to differences in level and type of training. However, substantial progress has been made as demonstrated by the joint working arrangements between FSR and extension staff in the districts.

The Government's position relative to the FSR approach is set forth in the section on agricultural research in The Agricultural Policy of Tanzania published by MOA March 31, 1983. It is stated that a comprehensive research program would be developed which would...."be linked with the extension program as closely as possible" so that..."the peasant's experience may be incorporated in research"....and"research will be given a farm-centered problem-solving approach." In spite of the project's notable success in establishing good relationship with agriculture workers and with farmers in areas where it has functioned and in obtaining a declaration of support in official policy statements, it has failed to establish a firm organizational niche within the Government structure. Several factors may have contributed to this failure. It may have been quite unrealistic to expect to achieve institutionalization within the limited time frame and restricted geographic area in which the project was required to operate. The strained budgetary position of the Government was probably a contributing factor also. While able to provide continuing support from PL 480 funds and even limited re-current budgetary support for the FSR program for a year beyond termination of USAID support, the Government may be unable or unwilling to commit continuing re-current budget support for a new organizational unit within the existing Government structure. Finally, the continued weakness of TARO, to which the FSR unit is attached, has probably discouraged formal institutionalization.

B. Management Assistance to TARO

The second component specified to be undertaken by CID in its revised contract was to install an organization management/coordination system in TARO to sustain its farming systems and food crop research programs. The Revised Life of Project Work Plan prepared by CID specified that the primary responsibility of the Chief-Of-Party (COP) was to offer advice to improve the management of TARO. Components of the improvement program were to include development of research plans, priorities, budgets and management guidelines for conducting basic and applied research; strengthening linkages between on-farm and on-station research; and to establish linkages with other Tanzanian institutions serving agriculture.

The main strategy followed in attempting to improve TARO management appears to have been joint involvement of TARO and CID staff in developing annual and longer term detailed work plans; establishing priorities for food crop research using FSR criteria and survey results; preparing annual and five year budgets and justifications; organizing and conducting research activities; and in analyzing and reporting results. In addition, management courses were organized for TARO, MALD and other agricultural organization staffs. Technical advisors also were recruited to address specific planning or management problems identified in TARO or related organizations. Technical reports and guidelines were developed on such topics as improved financial and research management, record keeping and the inventorying, monitoring and managing of physical properties. Working committees, study teams and workshops were organized to provide an opportunity for exchange of information and for representatives of different organizations to become acquainted with the work of others.

There is no quantitative measure available for improvement in management of an organization such as TARO or in linkages among agricultural organizations. The quantity and quality of research output can be assessed with some specificity but, with the variety of factors affecting output, establishing any causal relationship between changes in output and changes in managerial skills is highly unlikely. It seems probable that the experience of going through planning, budgeting, monitoring and other exercises involved in a research program jointly with trained and experienced researchers such as provided by CID must have improved the skills and capability of the TARO staff to carry out these activities in the future. However, there is no basis for concluding that interpersonal aspects of management would have been improved by the joint activities undertaken. In fact, the consensus appears to have been that no appreciable improvement occurred. Any improvement in TARO management that did occur may have been wiped out with the dismissal of the TARO Director and other top staff shortly before USAID/CID participation terminated.

Efforts of the project staff to establish and strengthen ties with other agricultural organizations appear to have been more successful than improvement of TARO management capability. The joint research undertaken with commodity researchers and extension personnel has been noted above. At least fourteen FSR staff members attended international conferences, establishing ties with FSR personnel in other countries that doubtlessly will continue for many years. The series of in-country technical and institutionalization conferences provided an opportunity for personal contacts and discussions that reportedly significantly strengthened the relationships between the FSR staff, TALIRO and other units in TARO. The supplementary outside studies (a marketing study, a gender issues study and development of an annotated bibliography) further strengthened ties with the universities and MALD. Work on testing and promoting the short-season Kito seed established working relationships with Tansed and Msimba Seed Farm. Contacts also have been established with at least a limited number of district political authorities beyond the districts where trials have been conducted.

C. Improvement of Facilities at Ilonga Agricultural Research Institute

Shortly after initiation of the USAID/IITA Tanzania Agricultural Research Project in 1973, it became apparent that land and physical infrastructure available at Ilonga were inadequate for development of an effective food crop research program. Planning for the development of the land and for new physical facilities was started shortly thereafter. Additional land for breeding and experimental work was acquired in 1981. Architectural and engineering plans were developed under financing provided by the Agricultural Research Project.

After revision of FSR project plans, TARO was given responsibilities for implementing the land development work including land leveling, constructing a dam for impoundment of water, and the installation of a pumping facility, a reservoir and the irrigation pipes and ditches. All work has been completed except for leveling the land, construction of the dam and installation of the pumping station. Funds have been depleted although not fully accounted for. No arrangements have been made for obtaining additional funds and completing the work nor is there any indication when or if such arrangements will be made. If ever completed, recurrent budget support will have to be provided.

A contract was negotiated with a private contractor to construct 19 building at Ilonga. These include laboratories, workshops, storage facilities and administration buildings. Numerous delays were experienced so that the work was not completed at the PACD of September 1986. However, the USAID and REDSO/ESA engineers reported that prospects were good for full

and satisfactory completion of all work by the end of calendar year 1986. Just prior to the PACD, contracts were signed for the purchase and installation of cold room facilities in the seed storage building. There is some old equipment and furniture that can be moved into the new buildings, but additional funding, including foreign exchange, will have to be provided for the purchase of additional laboratory and office equipment, supplies and office furniture before the facilities can become fully functional. Sustaining the facility will require a substantial increase in operating costs and recurrent budgets.

III. CONTRIBUTIONS OF PARTICIPANTS

Resources to be provided by the parties to the agreement included U.S. dollars granted by AID to be used to finance foreign exchange costs and some agreed upon local currency costs. Support also included URT resources for reimbursing personnel employed in developing the project, physical facilities, and local currency from PL 480 proceeds or government revenues to cover recurrent operating costs.

A. Financial Support by AID

AID committed U.S. \$3,000,000 to support the FSR project when the agreement was signed. Of this amount, \$775,000 was designated for use by USAID/T and \$2,225,000 for a contract with the Consortium of International Development (CID) to provide technical assistance and training for the project.

Of the funds obligated for USAID/T use, \$50,000 was spent for project design and negotiation and \$62,000 for a personal service contract with an engineering specialist to provide technical assistance in planning and for training local staff for implementating a land development program at Ilonga. The land development was part of the general improvement of the research facilities at Ilonga initiated under the predecessor Agricultural Research Project. An additional \$58,531 was obligated for out-of-country travel for participants in short-term training activities. Ninety-two percent of this amount had been spent by August 1, 1986. Of the remainder of the \$775,000 retained for USAID/T use, \$104,468, was obligated for the purchase of overseas commodities required for the land development and the construction of buildings at Ilonga Agricultural Research Institute. On August 1, 1986, \$539,394 or 89 percent of the funds budgeted for improvements at Ilonga had been committed and \$454,511 or 75 percent had been disbursed. Negotiations since August for installing cold rooms in the seed storage facility at a cost of about \$85,500 will, if successful, fully commit available funds. Of the total \$775,000 retained for use by USAID/T, 92 percent had been committed and 80 percent disbursed by August 1, 1986.

The contract between AID and CID signed in April 1983 provided \$2,225,000 to cover costs of technical advisors,

participant training, equipment, supplies and agreed upon project operating costs for the period of March 1, 1983 to February 28, 1985. It was expected that an additional \$3,011,000 would be provided with increments becoming available by February 28, 1986 sufficient to keep the project operating at the originally planned level. However, even before the contract was signed, the project came under the restrictions on obligating funds specified by the Brooke Amendment. The full implications of the imposition of the amendment on agreements already signed were not known and since there was the possibility that the restrictions might be eliminated before the end of the two year period for which funds were already provided, it was decided to initiate the project in accordance with originally conceived and agreed upon plans. CID proceeded with steps to implement the plans very promptly, recruiting the long-term technical staff in 1983 and posting three of them to Tanzania within seven months of the signing of the contract. Development of contingency plans was initiated in the first quarter of 1984, but firm information on funds to be made available was still lacking. During the second quarter, a decision was made to limit project funding to the amount allocated for the first two years, but retain the original PACD of September 30, 1986. This development necessitated immediate and intensive review of plans and action to adjust to the reduced funds available. In late June 1984, the Principal secretary, Ministry of Agriculture and Livestock Development (MALD) and the Director General of TARO informed project officials that the phases of work relating to crop breeding and improvement were to be discontinued and that the maize crop improvement specialist who had arrived in October 1983 and the sorghum/millet crop improvement specialist who had arrived in February 1984 were to cease activities and depart by July 1, 1984. Further workplan revision was undertaken over the next several months and formal renegotiation of the contract with CID was undertaken in July 1985 which resulted in amendment of the original contract in September 1985. The Amendment continued the project until September 30, 1986, but restricted the scope of the project, re-allocated the funds among line items and spread the \$2,225,000 available over the entire life of the project rather than over two years. The original and revised budgets and expenditures through December 31, 1985 are presented below:

CID BUDGET FOR FSR PROJECT

	Original Proposed 4/83	Amended 9/85	Revised 12/31/85	Disbursements 3/1/83-12/31/85
Technical Assit.	\$ 4,576,000	\$ 1,917,300	\$ 1,398,000	\$ 1,074,989
Commodities	200,000	102,700	85,000	41,972
Training	400,000	175,000	215,000	91,972
Supplie	120,000	30,000	30,000	44,672
Indirect costs	-	-	497,000	418,627
Total	\$ 5,236,000	\$ 2,225,000	\$ 2,225,000	\$ 1,671,659

Although only 75 percent of the total funds provided under the contract had been disbursed by the end of 1985, the contract still had nine more months to run and it appears probable that the full amount of the budgeted funds would be spent.

In 1986, several discussions were held with Dutch and Swedish donor agencies regarding financial support for the FSR program after termination of USAID support in September 1986. Both organizations expressed interest but neither could make commitments at that time. The Tanzanian national coordinator indicated that he would continue discussion with the two agencies.

B. Financial Inputs by URT

As a part of the Grant Agreement, the URT agreed to provide resources for the project of not less than the equivalent of U.S.\$5,193,000. This support was to be made up of funds obtained from the sale of PL 480 commodities, funds from the government's recurrent budget and "in-kind" resources including use of research facilities, office space and personnel costs of TARO, MALD or other organizational staff participating in the development of the project. Although the scope of the project was drastically cut back as a result imposition of the Brooke Amendment and the US input scaled back from an anticipated \$8,300,000 to \$3,000,000, there is no available record of a formal renegotiation and amendment of the agreement or of URT's commitment of support. If the URT commitment in the original agreement were reduced proportionally to the US input, their revised commitment would be only the equivalent of \$1,876,989. If the URT inputs in T.Shs were converted to dollar equivalent on the basis of the official exchange rate, the financial inputs alone would exceed this estimated total commitment.

Financial Inputs of United Republic of Tanzania
FSR Project 3/83 - 9/86 - T.Shs.

<u>Activity</u>	<u>Allocated</u>	<u>Disbursed or Committed</u>	<u>Available For Future Use</u>
FSR/CID Project:			
URT recurrent budget	4,531,000	3,354,000	1,175,000
PL 480	16,580,000	12,824,000	3,756,000
Ilonga Constructions PL 480	23,516,967	23,516,967	-
Ilonga Land Development PL 480	7,266,000	7,266,000	-
Total	<u>51,893,967</u>	<u>46,962,967</u>	<u>4,931,000</u>

Intermittently, there have been long delays in the transfer of both recurrent budget and PL 480 funds to the FSR/CID project. However, the T.Shs.16,580,000 of PL 480 funds allocated for support of the FSR/CID project includes T.Shs.3,600,000 allocated in the July/September 1986 quarter for forward funding of work during the

coming year. There also is expected to be an unspent balance of PL 480 funds on September 30, 1986 of about T.Shs.156,000 from previous allocations that will be available for support of work in the coming year. Additionally the funds from the government's recurrent budget includes T.Shs.1,175,000 for the coming year. Thus the project is assured a total of T.Shs.4,931,000 to be used in the year following termination of AID participation.

Funds for the improvements at Iionga have all been committed and although the contractor for the construction work has not submitted bills for the full amount of the contract, the supervisory engineer is of the opinion that expenditures will fully equal or exceed the amount budgeted. Funds for the land development work have been completely disbursed even though the work is far from complete.

The "in-kind" resources cannot be readily translated into dollar equivalent. Research facilities have been made available in accordance with the agreement for the work undertaken although, with the cutback in the scope of the project, at a level considerably below that originally contemplated. Office space provided in the beginning was inadequate and USAID had to provide space for a considerable time. Recently the government has provided adequate quarters for the office. In regard to human resources, the Government of Tanzania covenanted "...to furnish sufficient human resources necessary to the effective, and permanent functioning of TARO (the implementing agency) during the life of the project." This agreement was not been kept. As indicated in the Discussion of personnel below, there were long delays in assignment of personnel and several positions still had not been filled when the project terminated.

C. Technical Assistance Provided by USAID

With exception of assistance of the engineering specialists who assisted in planning and training staff for implementation of the land development program, all technical assistance was provided under the contract with CID. The contract signed in April 1983, specified an input of 25.5 person years of technical assistance. This included 10 person years of technical assistance in farming systems research, 9 person years in food crop research, 3 person years in research planning and management, 2.5 person years in professional project management and support services and 1 person year of engineering services. In addition, approximately 30 person months of short-term technical assistance was planned for the life of the project. The first slash in personnel occurred when the decision was made to terminate the crop improvement phase of the project. Other planned positions were eliminated during the extended revision of work plans starting in 1984. The amended contract approved in September 1985 reduced the total inputs of long-term technical assistance from 306 person months specified in the original contract to 150 and reduced short term technical assistance from 30 person months to 19. The composition and length of service of the long-term technical

assistance team provided for in the original contract of March 1983, in the revised Life-of-Project Workplan of September 1984, in the Amendment to the contract of September 1985 and the actual inputs are presented in the tabulation below:

CID Technical Assistance Team - Planned and actual
Person Years or Months of Input

Position	Original Contract	Revised L-O-P Workplan	Amended Contract	Actual Input
Agricultural Research Plan/Management	3 PY	2.67 PY	2.92 PY	2.50 PY
FSR Senior Prod. Econ.	3	2.00	2.25	2.17
FSR Senior Agronomist Agr. Prod.	3	2.33	2.00	1.79FSR
Agronomist	2	-	-	-
FSR Social Scientist	2	-	-	-
Agr. Engineer	1	-	-	-
Grain legume Crop Imp. Spec.	2	-	-	-
Maize Improvement Specialist	3	-	-	1.00
Maize Breeder	2	-	-	-
Sorghum/Millet Specialist	2			0.58
Home Office Support	2.5	2.08	2.25	1.75 ^{1/}
Total	25.5 PY	9.08 PY	10.92 PY	9.79 P.Y
Short-term P.M. ^{2/}	30 P.M	19 P.M.	19 P.M	12.8 P.M

^{1/} Not reported in available records. Estimated as one professional available half time for full period.

^{2/} U.S. technical advisors for period 4/83 - 12/85. In addition, an estimated input of 9.1 person months of TARO and Sokoine University of Agriculture staff was provided from PL 480 funds.

D. Tanzanian Personnel

Personnel inputs of Tanzanian staff have fallen short of needs. The expatriate staff generally operated without benefit of specifically assigned counterparts. This may have been partially due to the series of project mutations associated with adjustments required by the drastic reduction in funds from original expectations. Most of the expatriate staff originally were scheduled to be stationed in the field but with the reduction in staff, it was more expedient to have them stationed in Dar es Salaam and cover the several locations from there. However, there were long delays in assigning any Tanzanian staff and, although two zonal teams were functional at the close of the project, all of the personnel requested was never appointed. The FSR staff during 1986 included the following:

- 1- National FSR Coordinator at headquarters
- 1- Senior Zonal Agronomist/Coordinator
- 1- Zonal Agronomist
- 2- Zonal Economists
- 1- Agricultural Engineer
- 7- Field Trial Officers

The most critical needs were for one additional senior agronomist to serve as coordinator for the second zone and social scientists.

In addition to the FSR staff, there were at least seven scientists from other TARO units working on joint projects. Also, eight extension people were working with the FSR staff in conducting field trials.

IV PROJECT ACCOMPLISHMENT

The Amplified Project Description that was a part of the original Project Grant Agreement between URT and USA indicated that at the end of the project, there would be:

1. In the 15 pilot districts approximately 18,000 farmers utilizing new technological packages of maize, sorghum/millet and grain legumes;
2. A tested methodology for using Farming Systems Research as a dissemination strategy in three different agro-ecological zones;
3. Three trained teams of Tanzanian researchers prepared to train their colleagues in these Farming Systems Research methods;
4. A strong Tanzanian human resource base for the continuation of food crop research and adaptive research; and
5. A national research organization (TARO) capable of sustaining and extending food crop research and adaptive research on a national scale.

In addition, the project would establish strong reinforcing linkages among TARO, the Tanzanian Rural Development Bank (TRDB), and the decentralized region and district rural development structures through which the Farming Systems Research trials would be executed. This would be accomplished, in part, through close collaboration between this project, several other USAID supported projects, and cooperation with other donor agencies.

The original Project Grant Agreement statement of expected end of status project was never amended or revised. However, a number of occurrences after the signing of the agreement in September 1982 changed the project environment markedly. These events were summarized in the Revised Life of Project Workplan in September 1984 as follows:

1. Buchanan as COP, Cunard as FSR agronomist, and Tang as Maize Improvement Specialist arrived in country in the fall, 1983 and participated in the annual National Crop Coordinating Committee Meetings and FSR/E training sessions held in Arusha in October 1983.
2. Diagnostic surveys were conducted in Kilosa and Dodoma Districts in November 1983 and in Moshi and Arumeru Districts in December and January 1984.

3. Dr. John Mann INTSORMIL sorghum/millet breeder arrived in February 1984 and was posted immediately to Ilonga.
4. Considerable team effort, especially COP effort, was expended in April and May at the request of AID/T to assist in the process of developing documents associated with, at first, the orderly termination of the project, and later, to initiate the process of phasing out the project without additional funding. In both instances the activities were reactions to influences related to the Brooke Amendment.
5. The Government of Tanzania disallowed the services of Dr. Mann and Dr. Tang at Ilonga, effective July 1, 1984.
6. Dr. Larry Luv, Senior FSR Economist arrived July 3, 1984 and immediately began work in Kilosa District.
7. The Mission and OSU acceded to the Government decision. Dr. Mann departed Tanzania August 5. Dr. Tang departed in the late fall 1984 after arrangements were made for his extension to complete computer programs for recording and analyzing maize and sorghum/millet experiments and for training of personnel in their use.
8. The positing of TARO counterparts and team members was not complete. The Director of Research position remained unfilled; TARO counterparts had not been named and posted to the National FSR/E Team; the Ilonga and Lyamungu Zonal FSR/E teams were not complete.
9. There was a great deal of delay each quarter, and especially the current one, in obtaining the Tanzanian shillings approved for contract use under P.L. 480 funding.

As a consequence of the above changes, the revised workplan reflected expected project output levels limited to a three person expatriate team and to limited TARO capacity to provide National Zonal and District FSR/E counterpart's and team members. It was expected at that time that adjustments in the budget due to reduced funding required that the services of the Senior Production Agronomist and National FSR Coordinator be terminated in December 1985, but that the services of the Senior Agricultural Economist would be continue only until approximately June 1986. The Research Management Advisor and Chief of Party was expected to leave approximately August 1986. Long-term participant training costs were covered only until the end of the Project, September 30, 1986.

The Revised Life of Project Workplan was followed very closely in the remaining two years of the project. Actual accomplishments relative to those initially planned are indicated below.

1. Instead of 18,000 farmers in 15 districts utilizing new technology, some 500 farmers in 3 districts are utilizing at least one technology package;
2. The methodology for using FSR as a technology development and dissemination strategy has been tested in two rather than three agro-ecological zones;
3. One team is staffed and trained to teach colleagues FSR methods, and two teams are partially staffed and partially trained;
4. The human resource base for continuing food crops and adaptive research is not clearly known. Some of the scientists trained under the predecessor Agricultural Research Project are known to have returned and are on the TARO staff but the number is not known. In total, TARO was reported to have 93 national professionals on the staff and 26 nationals studying for advanced degrees in 1983/84. It is expected that all or most of the 10 trainees associated with the FSR project will return to some unit within TARO. It would appear, therefore, that TARO does have a strong resource base developed through a number of programs. However, only a small fraction are agricultural economists and none are social scientist.
5. TARO will most likely continue to sustain a food crop/adaptive research program on a national scale. The quality and relevance of the research is more questionable.

V. ATTAINMENT OF PURPOSE

The purpose originally established and maintained in the revised version of the project was to improve the food crops research program by increasing its relevance to farmers through the introduction of the farming systems approach. The project certainly has been successful in introducing the farming systems approach, but it was on too limited a scale and conducted for too short a time to have had any significant impact on improving the research program.

VI. RECOMMENDATIONS FOR ADJUSTMENTS

The project has been terminated so that recommendations for final adjustments in design or operating procedures are not

relevant. However, if the opportunity develops for continued monitoring, it should be done for the purpose of collecting information on factors that affect the future success or future of the FSR program and which might be used to guide establishment of similar programs elsewhere. Also, advantage should be taken of any opportunity to assist directly or indirectly the future development of the program. A successful start has been made toward improvement in the research system which deserves continuing support. The major lesson that should have been learned, or perhaps more appropriately re-learned, is that development of a research capability and the institutionalization of such capability is a very long term activity. Resources that are used for short-term support of such activities are generally, if not always, wasted.