

CLASSIFICATION
PROJECT EVALUATION SUMMARY (PES) - PART I

Report Symbol U-447

| | | | | |
|---|--|--|--------------------------------------|--|
| 1. PROJECT TITLE CIMMYT ON-FARM RESEARCH | | | 2. PROJECT NUMBER 698-0444 | 3. MISSION/AID/W OFFICE AFR/DP |
| 4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) <u>698-85-03</u> Final Evaluation, Phase I <input type="checkbox"/> REGULAR EVALUATION <input type="checkbox"/> SPECIAL EVALUATION | | | | |
| 5. KEY PROJECT IMPLEMENTATION DATES A. First PRO-AG or Equivalent FY <u>83</u> B. Final Obligation Expected FY <u>85</u> C. Final Input Delivery FY <u>85</u> | 6. ESTIMATED PROJECT FUNDING A. Total \$ <u>1,213,000</u> B. U.S. \$ <u>1,213,000</u> | 7. PERIOD COVERED BY EVALUATION From (month/yr.) <u>12/82</u> To (month/yr.) <u>12/84</u> Date of Evaluation Review <u>12/84</u> | | |

B. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

| A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.) | B. NAME OF OFFICER RESPONSIBLE FOR ACTION | C. DATE ACTION TO BE COMPLETED |
|---|---|--------------------------------|
| (1) Phase II proposal to be funded. | AFR/RA | 5/85 |
| (2) Add agronomist and economist to FSR team. | CIMMYT | 5/85 |
| (3) Additional staff time funded under Phase II to be devoted to FSR operational assistance as follow-up to training activities. | CIMMYT | Phase II |
| (4) Extend PACD of Phase I to 12/31/85. | REDSO/ESA | 3/85 |
| (5) Employ short-term extension advisors to help in training courses. | CIMMYT | continuing |
| (6) Review national extension programs and determine extent of integration of FSR methods. | CIMMYT | 9/85 |
| (7) Coordinate with ILCA and/or secure short-term livestock assistance. | CIMMYT | continuing |
| (8) Develop a regional approach to data management. | CIMMYT | continuing |

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

| | | |
|--|--|--|
| <input type="checkbox"/> Project Paper | <input checked="" type="checkbox"/> Implementation Plan, e.g., CPI Network | <input checked="" type="checkbox"/> Other (Specify) PACD |
| <input checked="" type="checkbox"/> Financial Plan | <input type="checkbox"/> PIO/T | <input type="checkbox"/> Other (Specify) |
| <input type="checkbox"/> Logical Framework | <input type="checkbox"/> PIO/C | |
| <input type="checkbox"/> Project Agreement | <input type="checkbox"/> PIO/P | |

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

A. Continue Project Without Change

B. Change Project Design and/or

Change implementation Plan

C. Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)

Robert McColaugh - REDSO/ESA
 Robert Armstrong - REDSO/ESA
 James Dempsey - REDSO/ESA
 Mike Collinson - CIMMYT Economics

12. Mission/AID/W Office Director Approval

Signature: *William H. Naylor, Jr.*
 Typed Name: William H. Naylor, Jr.
 Date: 3/20/85

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CIMMYT ON-FARM RESEARCH
PROJECT EVALUATION
(698-0444)

I. SCOPE OF WORK FOR THE EVALUATION

A. Follow-up and continued progress of project in major areas reviewed in October 1983 Evaluation

1. Assess the effectiveness of CIMMYT inputs provided under the project and the impact these have had on achieving the project purpose and outputs.

Examine the relationship of the Project to USAID research programs in the region as well as the S&T Farming Systems Support Project.

3. Review project implementation and rate of expenditures to determine project progress and the reasonableness of achieving future objectives.
4. Since there are differences in the adoption of the farming systems approach among countries, project resource allocations should be different. The evaluation should review the CIMMYT's rationale for this allocation decision. Additionally, given the experience of CIMMYT to date, how should resources be allocated to each of the project components?

B. Additional specific program issues to be evaluated include:

1. Agronomic input needed for the project
2. Livestock evaluation for FSR
3. Extension service link to Project
4. Networking strategy
5. Information base for FSR in the region
6. Need for continued long term commitment to the development of FSR in East and Southern Africa

II. CONCLUSIONS AND RECOMMENDATIONS

The evaluation of the CIMMYT On-Farm Research Project (698-0444) shows that it is a successful activity. Economics Program staff of CIMMYT, which is implementing the project in East and Southern Africa, has assisted 7 contractors in their understanding and application of Farming Systems Research (FSR) to specific bilateral AID projects. This technical assistance to the advisors has facilitated greatly the implementation of these project which plan to use, in some form, a farming system approach. Project funding has also been provided for the training of 470 agricultural officers from the countries in the region. This training and the CIMMYT network activities in the region can be credited with fostering the acceptance and understanding of FSR by national agricultural services. On-farm research with a farming system perspective has been incorporated fully into the Zambia and Malawi systems while in Kenya and Zimbabwe, the approach is in the process of being integrated into the present agricultural research and extension structure.

The goal of the project is to help national agricultural institutions to identify and introduce to small holders new technologies which are appropriate to their farming system. Although progress has been made in accepting and using the FSR approach to identify and test new technologies, it is still too early in the process to show success in introducing new technologies in the region.

Presented below are the evaluation recommendations:

- (1) The process of developing on-farm/farming system research in East and Southern Africa is a long term activity. The CIMMYT Economics Program has made substantial progress in its work during the last two years, but clearly the Center must receive support over the long term to have FSR accepted and used in the region. To take advantage of the success to date and to achieve the long term goal, funding for Phase II is necessary. The evaluation team strongly recommends AID funding for Phase II. (AFR/RA Action by April, 1985)
- (2) The expansion of interest in FSR and the increasing number of AID funded and other donor projects in the region which use a farming systems approach have put a strain on the human resources available to the Economics Program. Thus, the evaluation team recommends that an agronomist and an economist be added to the core staff of the project immediately. CIMMYT would have its own specialist to help

in the agronomic questions related to farming systems. The economist would carry on the core activities of the project, including field work. (CIMMYT Action, ASAP)

(3) Although the proposal is to increase the size of the staff, the number of formal training programs should remain unchanged. The additional staff time should be devoted to FSR operational assistance as follow-up to the training activities. This field work becomes more important as additional countries begin to implement on-farm research programs. (CIMMYT Action, Phase II)

(4) Project expenditures are behind schedule which, in this case, indicates a successful project. The training activities have been in such demand that other sources of funding have been found. Project funds planned for training support have been saved. With the addition of two new staff and at the present rate of expenditure, project funds are sufficient to ensure that bridge financing is available to carry the project through to Phase II. The evaluation team recommends extending the PACD until December 31, 1985 by which time Phase II should be approved and authorized. However, to ensure continuity of the project activity, the evaluation team recommends approval and obligation of funding for a Phase II of the project before mid FY 1985. (AFR/RA Action by April 1985)

(5) The evaluation team recommends that no extension staff be added to the core CIMMYT/ESA staff, either through secondment or direct hire. CIMMYT should continue to use short term extension advisors to help in its training courses. The Economics Program is successfully integrating extension personnel into the program and places heavy emphasis on the role of extension in the process of selection of appropriate technologies. To expand its scope of work to include a direct extension training function could seriously impede implementation of the core FSR program and would conflict with CIMMYT's research mandate.

(6) Although the evaluation concluded that the Economics Program is integrating, to the extent practical, extension into its activities, the recommendation is to have the project review the national programs which have integrated FSR into their agricultural institutions to determine the role and contribution of extension. A report will be prepared on the subject. (CIMMYT Action by September 1985)

(7) CIMMYT should continue to explore ways of including livestock analysis in its farming systems approach. Separation of livestock and crops in national organizational structures and the limited cropping systems scope of some AID projects make this integration difficult. However, continued work and coordination with ILCA is useful. If special needs arise, project funding of a short term livestock advisor may be required. (CIMMYT Action, continuing)

(8) CIMMYT should begin to develop a regional approach to data management and control systems which can help in the application of findings from one country to others in the region. The collaboration of other institutions, such as CATIE and ILCA, where such systems are in operation will be sought. (CIMMYT Action, continuing)

III. BACKGROUND

A. Project Purpose and Justifications

Purpose: To assist CIMMYT to provide technical assistance and training in farming systems research methodology to national agricultural research and extension institutions and AID supported agricultural programs in Eastern and Southern Africa.

In 1976 CIMMYT introduced its FSR methodology in East Africa and then carried out a number of successful programs in the region. However, the demands from African institution and USAID Missions for assistance and training programs vastly exceeded CIMMYT's capacity. Additional resources were needed if the Centre was going to continue to respond to the priority needs in the region. Thus, in 1982 AID and CIMMYT signed an agreement for an AID grant of \$1,213,000 for CIMMYT-Farming Systems Research (698-0444).

It is important to note that there are complementary and mutually supportive interests on the part of CIMMYT and AID in the area of farming systems research. CIMMYT's mandate in its Economics Program is to build the capacity of national institutions in East and Southern Africa to undertake farming systems research in order to select appropriate technologies for small holder farmers in the region. AID has begun or is planning 12 projects that implement some form, or part of, the farming systems concept. As these projects came to implementation, the Missions in the region realized the need to train project staff in FSR. Overwhelmingly, the staff members were from Title XII institutions and had little training or experience in FSR. AID identified the CIMMYT

Economics Program as an excellent source for training. Obviously the goal was to improve the skills of the team members in order to strengthen the projects. The purposes of these AID projects varied, but all had as one of the objectives or outputs the increase in the capacity of the research or extension service to help small holder farmers, usually through some application of the FSR methodology. Thus, CIMMYT in training USAID project personnel would be meeting its mandate, although somewhat indirectly. However, project funds are also provided to support directly the training of local research and extension personnel in on-farm research using FSR methodology. Although the purpose of the project is two-fold, they are mutually supportive. CIMMYT accepted the AID grant realizing that it would have to change the direction but not the general approach of its work and training. In funding the grant AID bought not only training for its personnel, but also general support for building African capacity in FSR. Thus, we find in Kenya and Zimbabwe that, although there are no USAID FSR projects, CIMMYT is using this project's funds to support major training in FSR. This is consistent with the project scope and objectives.

B. Project Components

The project has four main components, all of which support the goal of institutionalization of FSR. The original CIMMYT proposal identified institutionalization as a component, but it is more appropriately classified as a goal. The project plan is to build intra-regional exchanges of information and experience in order to expedite and improve the implementation of on-farm research programs. The components which are being implemented are as follows:

(1) In-country Training

The comprehensive in-country training covers the complete FSR process for technology generation in a series of training sessions (4-8 "calls") over a 12 to 18 month period. The grant called for four in-country training programs during the two year life of the project. So far, the cycle of training has been completed in Zambia and is in process in Malawi and Kenya. The training is a mixture of classroom work and study as well as on-farm practice. This combination gives the students, who are both extension officers and researchers, the skills necessary to conduct FSR in their national programs.

(2) Other Types of Training

This training relates to the comprehensive training discussed above, but is generally exploratory or explanatory in nature. Orientation Seminars are run by the project to make the new staff of the AID projects and the individuals in the national programs familiar with FSR and the possible application of the methodology. Regional Workshops are conducted at the University of Zimbabwe to train individuals in national programs that have not yet fully accepted FSR or are still very small. In many ways this training sets the stage for the institutionalization of FSR in national programs. A comprehensive in-country program is the logical next step. The regional training program was not part of the original proposal. The development of this training demonstrates the flexibility and innovativeness of the CIMMYT staff in the project. They acted positively and quickly to a target of opportunity that has developed into an important project component.

(3) Direct Cooperation (Technical Assistance)

Direct technical assistance in the process of on-farm research has been given by the CIMMYT staff to various programs throughout Africa. This is the logical follow-on to the training provided in the first two components discussed above. Direct assistance also includes counsel on the reorganization of research systems, such as that provided to Zambia and Malawi.

(4) Networking

Four activities are included in this component.

- i. First, there is the newsletter which performs the usual functions of this type of communication.
- ii. A second activity is a recurring seminar of research administrators which addresses common problems and builds an understanding of FSR among top personnel.
- iii. A third activity is a series of technical workshops which address a single problem area using FSR methodology and involve both FSR personnel and conventional researchers.
- iv. The last way of building a FSR network is through a program of inter-country visits. Persons involved in FSR wanting to study other country programs can apply to the project for travel assistance.

C. October 1983 Evaluation

The findings and recommendations of the 1983 evaluation (Annex C) was an initial review to help set the course for the activities during the remainder of project. The grant was authorized in mid 1982 and personnel were on board by January 1983, so the evaluation was conducted after only ten months of project operation. The evaluation was based largely on subjective judgements made by host country officials, members of USAID bilateral programs, and U.S. university contractors, and on the information these groups supplied to the evaluation team. The evaluation team concluded that after only 10 months of implementation, the project had and was contributing substantially to research/technology adoption in East and Southern Africa. This quick start was, to a large part, due to CIMMYT's considerable experience base and previous programs in the region. The host country official and researchers as well as AID personnel found the assistance of the CIMMYT Economics Program extremely useful. A better understanding of the methods and applications of FSR was the main benefit, but also there was the added benefit of the network which was being established among agricultural researchers and extension agents. The relationship between CIMMYT and the U.S. university teams was complementary, and CIMMYT's experience had made a major contribution to a number of university and national programs. In Swaziland, the Penn State University team felt that having access to CIMMYT's system had saved them a year's time.

In terms of institutionalization, CIMMYT's work has helped bring about a major reorganization of agricultural research in Zambia and Malawi. The research institutions in these two countries had been redirected to do on-farm studies to support the small-scale farmer. CIMMYT's work with the newly emerging farming systems unit in the Ministry of Agriculture in Zimbabwe was having a similar affect.

The evaluation team criticized CIMMYT in three areas, "(1) the neglect of livestock, (2) its lack of agronomists, and (3) for not integrating extension adequately". CIMMYT/ESA was aware of these constraints, and had done their best to address them within the design of the original project. The evaluators felt that these three criticisms were not a major constraint to the future of the project, and made recommendations as to how they could be overcome.

IV. PROJECT IMPLEMENTATION AND ACHIEVEMENTS

A. CIMMYT's Regional Strategy for the Introduction of FSR

FSR methodologies and management is not a mature "science". The state of the art is evolving and CIMMYT's Economics Program is one of the major contributors to this evolution. CIMMYT's view of its work in East and Southern Africa is that of on-farm research with a farming systems perspective. The in-country training program teaches to extension officers and researchers a system of methodologies which identifies small holder farming constraints. Then, the teams can establish appropriate on-farm research which will test and identify technologies which are appropriate to the small holder's farming system.

Once agroclimatic regions and the circumstances of farmers within these regions are systematically identified and integrated into research, the chances of developing suitable production technologies are greatly enhanced. Moreover extension programs are strengthened and governments better fit research to national priorities. CIMMYT, through its research starting as early as 1972, has devised procedures which facilitates efforts to generate useful recommendation. These are characterized as area-specific, collaborative and on-farm, starting and finishing with farmers.

An article describing the approach to help the reader understand what is being evaluated appears in Annex A. All training within the project has an objective of fostering a better understanding of this methodologies of on-farm research with a farming systems perspective. For simplicity throughout this evaluation paper, this approach is abbreviated as FSR.

Since the start of the CIMMYT Economics Program in 1976, the major emphasis in East and Southern Africa (ESA) has been to encourage National Agricultural Research Services (NARS) to use an FSR approach to help develop technologies more appropriate to small holder needs. Program strategy has been to seek targets of opportunity in ESA by focussing on the NARS Directors who perceive that their programs have a problem with relevancy of the technology produced and are strong leaders and have influential positions within their ministries. Usually, the Directors are key in setting out a FSR approach within the ministry. The Economics Program uses project funds to support the new direction by training key individuals.

The emphasis on targets of opportunity does not exclude the provision of basic FSR training in other countries. This training and the project's networking activities prepare the

way for acceptance of FSR in these other countries. Usually, it is necessary to wait for a NARS director who is keen on FSR before the comprehensive training program can begin.

The strategy suffers from the fact that top people change and new personalities may not have the same perceptions and strengths, thus, shifting directions before the FSR methodologies have become an integral part of the agricultural establishment.

CIMMYT Economics sees its project with USAID, a major donor with high levels of resources to bring to bear, as a continuation of this strategy but with a slight shift through cooperation with USAID contractors as well as NARS. The Economics Program has operated more with USAID project funded country programs where the possibilities of a sustainable national FSR effort look high. (Zambia, Malawi, Swaziland, Sudan). However, it has also operated relatively intensively in countries in which there is no USAID FSR program, but a strong USAID interest (Kenya, Zimbabwe).

In-Country Training involves a major commitment of CIMMYT personnel. It is only undertaken where CIMMYT sees an opportunity to build a sustainable capacity in FSR within the agricultural services. This requires commitments on the part of NARS demonstrated by:

1. A minimum of 10 professional staff allocated to FSR program;
2. A government budget line item established for the operation of FSR programs.

Regional Training Workshops (RTW) established prior to CIMMYT Economics grant with USAID, are complementary to in-country training. The workshops train scientists from countries with a new or limited commitment to FSR and, thus, are not in a position to undertake a comprehensive in-country training program. Trainees also come from countries which have completed, or are well into the comprehensive in-country training, and have new staff coming into their cadre. Thus, Zambia with some ten Zambian professionals and more than ten technical assistance professionals (including three USAID funded University of Illinois contract staff) committed to FSR, has completed the comprehensive training and will now, again, send newly recruited professionals to Regional Workshops. Zimbabwe, on the other hand with only two Zimbabwe and two technical assistance staff directly involved in FSR has made heavy use of the RTW's to orient specialist staff to the concepts and approach of FSR.

B. Training Programs

1. Summary

As indicated in the summary table below, CIMMYT/ESA's various programs have trained an impressive number of agriculturalists. To date, CIMMYT has held thirteen orientation meetings for seven different U.S. University Contract Teams and six national program briefings. They have conducted in-country training programs in three countries, with twelve training "calls" for 107 participants. Two hundred fourteen participants have attended seven different Regional Training Workshops, while 83 senior agricultural researchers officers from seventeen different countries have participated in the two Regional Administrator's Workshops. Finally, 65 technical officers from thirteen different countries have attended at least one of three Technical Networkshops.

In the process, a total of 470 participants have participated in the CIMMYT training programs, including eighty-eight social scientists/economists, 171 technical scientists, 33 extension officers, and 17 livestock specialists. The remaining participants have been research administrators and general technical officers.

SUMMARY OF TRAINING THROUGH DECEMBER 31, 1984
CIMMYT ACTIVITY

| | IN COUNTRY TRAINING PROGRAMS | REGIONAL TRAINING WORKSHOP | SR. & TECH NETWORK SHOPS | TOTALS |
|------------------------------------|------------------------------------|----------------------------------|--------------------------------|--------|
| Number of Countries | 3 | 15 | 17 | |
| Sessions | 11 | 7 | 5 | |
| Participants | 107 | 215 | 148 | 470 |
| ===== | | | | |
| Type of Participant | | | | |
| Sr. Res. Administrator | | | 83 | 83 |
| Technical Officer | | 2 | 65 | 65 |
| Social Scientist & or Economist | 17 | 68 | | 85 |
| Technical Scientist | 52 | 119 | | 171 |
| Extension Officer | 26 | 7 | | 33 |
| Livestock | | 17 | | 17 |
| Gen. Adm. Officer | 12 | 4 | | 16 |
| TOTALS TRAINED | 107 | 215 | 148 | 470 |
| ===== | | | | |

2. Comprehensive In-country Training (ICT)

The in-country training program is the comprehensive approach to training scientist and extensionists in FSR. Where CIMMYT perceives a strong commitment to the concept (10 national professionals allocated, a line in government budget allocations, strong research leadership), it will mount an in-country program. The program consist of a research cycle in an area of the governments choosing, carrying through from initial diagnosis to the analsis and interpretation of a first cycle of experiments and planning for a second cycle. The training is implemented through 5-9 'calls' over a 15-18 month period. At each call of 5-15 days, two or more CIMMYT staff members guide up to 30 national researchers, extensionists and adminisrators through the FSR process. Annex B contains the in-country training schedule for Malawi which provides an idea of what is covered during each call. Once a country has completed an ICT cycle (for example Zambia) new recruits are initiated through the Regional Training Workshops before joining field teams in the country concerned.

A calendar of activities since mid 1982 under this in-country training program activity is set out below:

A. Meetings for Orientation in FSR.

- | | | |
|------------|---|---|
| July 1982 | - | Pennsylvania State Team and CIMMYT staff visit to Malkerns, Swaziland for orientation. |
| Sept. 1982 | - | University of Illinois Team and Zambian resarch staff Adaptive Research Planning Workshop, Mount Makulu Chilanga, Zambia. |
| Nov. 1982 | - | Washington S.U. team, Kadugli, Sudan, for briefing and evaluation. |
| Apr. 1983 | - | Washington S.U. Team and Blue Nile I.A.D.P. Team and Agricultural Research Council Staff, Workshop on FSR, Khartoum, Sudan. |
| July 1983 | - | Research Station Directors Workshop, Nyeri, Kenya. |
| Aug. 1983 | - | University of Florida Team and Malawian Researchers for Adaptive Research Orientation in Lilongwe, Malawi. |

- Oct. 1983 - Oregon State University Team and Senior Tanzanian Staff, Arusha, Tanzania, Orientation workshop.
- Jan. 1984 - University of Arkansas, Rwanda FSR Project Preparation Team briefed in Nairobi.
- Feb. 1984 - Senegalese Research Directors visit Nairobi for discussions.
- Apr. 1984 - Kenya, Provincial Directors of Agriculture and all Research Station Directors meet for 3 days of Orientation in Nairobi.
- May 1984 - Southern Sudan and USAID Contractor Team and Sudanese Counterparts briefed at Yambio, Sudan
- Tanzanian Adaptive Research Team briefed at Morogoro, Tanzania.
- Sept. 1984 - Washington State Contract Staff briefed for Second phase of the USAID FSR Project, Lesotho.

Periodic and informal meetings have been held with these, and with other contractor teams working in Swaziland (Penn. S.U.), Botswana (Kansas S.U.). Orientation seminars have been held in Zimbabwe and Kenya where there is no USAID involvement.

In-Country Training programs are being operated in Malawi and Kenya. Zambia was the first ICT, commencing in March 1983 and finishing in July 1984.

(a) Zambia: By the end of July 1984 five ICT calls had been completed, requiring some 26 weeks of CIMMYT staff time.

Call. 1. March 7-17, 1983: introduction, review of farmer circumstances and demonstration of informal survey techniques.

Call. 2. May 3-13, 1983: review of informal survey reports and demonstration of formal verification survey methods.

Call. 3. August 23-Sept.2, 1983: prescreening of technical interventions and the formulation of an experimental programme.

Call. 4. March 25-31, 1984: field visits to the experiments and an introduction to analytical techniques.

Call. 5. July 3-12, 1984: agronomic and economic analysis of 1983/84 experiments, review of survey and experimental findings and planning experiments for 1984/85.

There were 21 participants in the Zambia ICT, additional research and extension workers attended relevant sessions. In the course there was a mixture of agronomists, farm economists and extension staff.

(b) Malawi: By the end of August 1984 four ICT calls have been completed absorbing some 15 weeks of CIMMYT staff time in Malawi.

Call. 1. October 10-14, 1983: review of informal survey reports and a formulation of an experimental program for 1983/84.

Call. 2. March 7-16, 1984: review of experiments in the field and demonstration of informal survey techniques.

Call. 3. April 29-May 6, 1984: evaluation of the informal survey, prescreening of possible interventions, planning and implementation of a formal verification survey.

Call. 4. August 20-31, 1984: evaluation of the results of the formal survey, review the results of 1983/84 experiments and develop an experimental program for 1984/85.

There are 31 participants in the Malawi ICT, additional research and extension workers attend relevant sessions. A list of participants is attached Annex D.2

(c) Kenya: Two cycles of In-Country Training have been started in Kenya, using a slightly different format after experience in Zambia and Malawi. Cycle 1. covers research stations west of Rift Valley, it has some 27 participants. Cycle 2. covers research stations east of the Rift Valley, it has some 32 participants. Each cycle will consist of 4 formal 'calls' with individual teams carrying out their own field work, supported by visits from CIMMYT staff, in between Calls 2 and 3, and Calls 3 and 4.

West of Rift Valley:

Call. 1. An overview in the classroom of the whole process of On Farm Research with a Farming Systems Perspective, from the identification of Target Groups to the evaluation of On Farm Experiments. Three working weeks in Nairobi in January 1984.

Call. 2. Two weeks field work in East Bunyore Location, part of Kakamega District, West Kenya, implementing the diagnostic sequence of FSR .

East of Rift Valley:

Call. 1. Classroom overview of FSR process.

Fieldwork: Teams from four research stations, including staff from District and Divisional Extension offices, commenced field work in selected areas in November 1984. A feature of this fieldwork is that it expands the exposure of locally based research and extension staff to FSR.

Annex D.3 gives the names and positions of staff involved in this ICT.

The impact of the in-country training has been high because of CIMMYT's requirement that personnel and funds be already allocated before the comprehensive training program begins. This has been the case in Zambia, Malawi and Kenya. The training is, thus, directly and immediately applicable within the country.

It is too early in the process to determine what new technologies will be identified and applied. However, the institutionalization of FSR is an output that is clearly a major project benefit. See Section IV B, Institutionalization.

3. Regional Workshop and Training

Twice yearly workshops for participants from countries in the region are provided under the project. Participants may be senior research or extension personnel, traditionally oriented agricultural researchers or newly recruited graduates. They are predominantly bench scientists and almost wholly East and Southern African nationals. A few places (10%) go to technical assistance agencies who are helping to fund and staff programs. Regional Training Workshops have been held since 1979. There was one each year in 1979 and 1980, and two a year from 1981 onwards. The RTW's were started in Nairobi directly administered by CIMMYT Economics Programme. In 1983 the RTW's were moved to the Department of Land Management, University of Zimbabwe, Harare. CIMMYT Economics provides financial support and resource people to teach approximately half of the sessions. The University administer the workshops and plays an increasing role in the teaching (60% Of the teaching by the end of 1985).

(a) RTW Nairobi, April 1981: This workshop covered planning management and evaluation of on-farm experiments. There were 38 participants from 10 countries--Kenya 9, Ethiopia 2, Sudan 6, Uganda 3, Tanzania 6, Malawi 4, Zambia 1, Zimbabwe 1, Lesotho 4, Botswana 2. Thirteen were economists and 25

technical scientists, mainly agronomists.

(b) RTW Nairobi, October 1981: This covered diagnostic surveys of farming systems for planning on-farm experiments. Thirty-four participants attended from 12 countries--Kenya 8, Botswana 2, Ethiopia 3, Lesotho 1, Malawi 2, Nigeria (IITA) 1, Sudan 4, Swaziland 1, Uganda 6, Upper Volta 1, Zambia 2, Zimbabwe 3. Ten participants were social scientists, 24 technical scientists including 2 animal production specialists. Three of the social scientists were also working with livestock.

(c) RTW Nairobi, June 1982: This workshop covered the planning management and interpretation of on-farm experiments. It had 32 participants in the 1st week and 27 in the 2nd week. Participants represented 12 African countries including Botswana (2) Lesotho (1) Malawi (1) Sudan (3) Tanzania (3) and Zambia (2) with USAID country programmes. Eighteen participants were agronomists, 10 farm economists and 2 were livestock researchers and 2 research administrators.

(d) RTW Harare, February 1983: This workshop covered the diagnosis of farm systems and identification of relevant research thrusts. There were 24 participants from 9 African countries, 9 participants were agronomists and 15 were farm economists or anthropologists.

(e) RTW Harare, Sept. 1983: This workshop, the second in the 1983 cycle, covered the planning management and interpretation of on-farm experiments. A list of the 28 participants is attached as Annex D.5.

(f) RTW Harare, Feb. 1984: This workshop, the first in the 1984 cycle, covered the diagnosis of farm systems and identification of relevant research thrusts. A list of the 28 participants is attached at Annex D.6.

(g) RTW Harare, Sept. 1984: The second in the 1984 cycle, covered planning implementation and evaluation of on-farm experiments. A list of the 30 participants is attached as Annex D.7.

CIMMYT's Economics Program operates workshops of two types: for research and extension administrators and for technical bench scientists. Two administrators and three bench scientists workshops had been held the the end of 1984.

(a) Research Administrators Workshops:

(i) the first research administrators workshop was held in

Nairobi during April 1983. 32 participants attended, including 25 senior agricultural research administrators. A list of participants is attached as Annex D.8.

ii) The second administrators workshop was jointly sponsored by CIMMYT Economics, the World Bank and USAID in Kenya in June 1984. 58 research and extension administrators attended and discussions focussed on the research/extension linkage problem. A list of participants is attached as Annex D.9.

(b) Technical Workshops:

(i) The first technical workshop was held in Swaziland in October 1983 and centered around the theme of poor draft animal condition at the end of the dry season. 26 participants from 10 countries attended. A list of participants is attached as Annex D.10.

ii) The second technical workshop was held in Malawi in May 1984, in cooperation with the Department of Agricultural Research, Government of Malawi. It focussed on methodological issues on on-farm experimentation raised by agronomist in the region. 30 agronomist from 9 countries discussed the issues. A list of participants is attached as Annex D.11.

iii) A third technical workshop was held in Zambia during November of 1984 in collaboration with Research Branch, Ministry of Agriculture, GOZ. It centred around the place of social scientists in Farming Systems Research. A list of the participants is attached as Annex D.12.

In addition to these relatively formalised activities CIMMYT Economics staff collaborates closely with national research staff in cooperating countries, directly participating in planning and implementing on-farm research programs in the field.

For both the RTW's and the Networkshop, there is a growing demand which reflects their positive impact on the understanding and adoption of FSR in the region. The following summary chart for the four RTW's held in the last two years shows an increasing number of self-funded individuals and a high application rate for the entire period. Both facts reflect a high demand for RTW's.

Regional Training Workshops
Participants Application and Funding

| | <u>1983</u> | | <u>1984</u> | |
|----------------------|-------------|--------------|-------------|--------------|
| | <u>Feb.</u> | <u>Sept.</u> | <u>Feb.</u> | <u>Sept.</u> |
| Total Applied | 47 | 57 | 53 | 50 |
| Accepted/attended | 25 | 28 | 31 | 27 |
| of which self funded | 8 | 12 | 15 | 13 |
| Observers | 2 | 2 | 5 | 6 |

Measuring the impact of the project training on technology selection in the region is impossible at this stage. However, from feedback and interviews throughout the region, there is a growing acceptance and enthusiasm for FSR. The RTW and Networkshops have contributed substantially to this fact.

C. Direct Cooperation (Technical Assistance)

Direct technical assistance in the process of on-farm research has been given by the CIMMYT staff to various programs throughout Africa. This is the logical follow-on to the training provided in the first training discussed above. Direct assistance also includes counsel on the reorganization of research systems, such as that provided to Zambia and Malawi.

For nearly all training it has been shown that follow-on visit to help guide the former participant in their work greatly facilitates the learning and retention process. The FSR training is not exception in this regard. CIMMYT believes that direct technical assistance in FSR research is an area which has suffered during the life of the project. The AID funded program has emphasized the formal training at the expense of the informal training that takes place during staff TDY's to on-farm research sites. Usually the staff works with former participants. The evaluation team believes that this emphasis is requirement in the region is to increase the number of scientists and extension workers who are familiar with FSR. Also, it is generally the task of the AID project personnel in the specific countries to carry out the follow-on field training. Notwithstanding this fact, the evaluation team believes it would be useful to increase the project staff to enable them to do short consultation of not only the local staff, but also the AID contract prsonnel who have participated in CIMMYT training. IT is probably cost effective for AID t have the CIMMYT staff who are far more experienced in FSR than the local project staff do a portion of the follow-up

visitation. CIMMYT's staff expertise will lead to a quicker resolution of problems and clarification of points.

D. Networking

CIMMYT has been very successful in the development of a FSR network for East and Southern Africa, given the very limited understanding and level of skill found in the region at the start of the project. The approach of the CIMMYT team has been less formal than some other networking development strategies. The staff of the Economics Program has not set periodic meetings for a regular group of scientists and administrators, but rather has sought to include a broad range of agriculturalists, many of whom participate in several aspects of the network program. Given the lack of internal information networks for most of the target countries, it makes little sense to bring the same group back together on an international basis if they can not spread the information within their own countries. CIMMYT uses four main activities to strengthen the national and international networks for FSR.

1. A newsletter
2. Senior seminars
3. Technical workshops
4. Study visits

The seminars and workshops have been discussed previously. Intra-regional study visit funding is relatively small. The number of seminars and workshops available to FSR personnel enables them to gather much information without study visits. Also, because on-farm research is just getting started in the region, visits within the region are not yet very useful. Travel outside the region is not considered particularly helpful because both the institutional framework and the specific farming systems are quite different in other regions of the world.

The newsletter, the latest copy of which is attached as Annex E, has proven to be a useful tool for the exchange of ideas and general education purposes. It is a cost effective means to build the ESA network. Approximately 550 newsletters are distributed at each publishing, of which over 400 are sent out within the region.

E. Institutionalization

Zambia and Malawi have fully institutionalised FSR into their research services, though both countries are still building up professional capacity for effective implementation. In both Zambia and Malawi FSR has been institutionalised as a discrete cadre in the research services. Organised regionally, FSR

teams draw from, and feedback, to all commodity and disciplinary technical research teams. These two programs were discussed in detail in the October 1983 evaluation.

During 1984, both Zimbabwe and Kenya have taken some initial decisions on institutionalising FSR.

Zimbabwe:

Zimbabwe's Research and Specialist Services is organized into 3 main Departments, Crops, Livestock and Specialist Services (covering pathology, entomology, computing, soil sampling etc). During 1984 a small Farming Systems Research Unit has been set up independent of these main Departments, responsible to the Deputy Director of the Service. This unit has a relatively small staff of some five professionals, including two advisors. It will operate pilot projects to test and develop an approach to on-farm research suitable for the communal areas of Zimbabwe, to establish working linkages with both technical researchers in Crops, Livestock and Specialist Services, and with extension workers.

Kenya:

Following the CIMMYT sponsored workshops in June 1983 (Research Station Directors) and April 1984 (Research Station Directors and Provincial Directors of Agriculture), and the appointment of a new Director of the Scientific Research Division, Ministry of Agriculture and Livestock Development, decisions have been taken to set up on-farm research (OFR) teams at major research stations. Each station involved nominates an OFR Coordinator and a National OFR Coordinator was appointed in December 1984. Currently four OFR teams are operating; six further teams, from Stations East of Rift are in training. A major feature in Kenya, and potentially experience for transfer elsewhere, will be how effectively FSR can be coordinated with T & V extension, which has already launched its own research efforts on farmers fields.

F. Financial Status of Project

The summary of expenditures in Table 2 shows that although CIMMYT has completed nearly two years of work (the originally planned length of the project), there still remains \$617,479 of funding which represents 51% of the total AID grant.

Table 2

CUMULATIVE CIMMYT EXPENDITURES TO DEC. 31, 1984 (EST)

| LINE ITEM | EST. OCT/DEC 84 | TOTAL TO DATE | TOTAL BUDGET | BALANCE AVAILABLE |
|---------------------|--------------------|-------------------|---------------------|----------------------|
| I. Tech. Assistance | 33,000.00 | 265,555.00 | 288,000.00 | 22,445.00 |
| II. Office Support | 10,000.00 | 73,002.00 | 198,000.00 | 124,998.00 |
| III. Travel | 13,500.00 | 77,415.00 | 70,000.00 | -7,415.00 |
| IV. Training | 29,600.00 | 39,476.00 | 360,000.00 | 320,524.00 |
| V. Conferences | 7,200.00 | 61,547.00 | 120,000.00 | 58,453.00 |
| VI. Publications | 1,400.00 | 2,066.00 | 20,000.00 | 17,934.00 |
| Sub-Total | 94,700.00 | 519,061.00 | 1,056,000.00 | 536,939.00 |
| Admin. Fee (15%) | 14,205.00 | 77,859.15 | 158,400.00 | 80,540.85 |
| TOTAL | 108,905.00 | 596,920.15 | 1,214,400.00 | 617,479.85 |

Several factors have contributed to the savings. First, the dollar has been extremely strong during the last two years which has resulted in local currency expenditures, primarily for training cost to be much less than planned. Secondly, because CIMMYT has worked well and coordinated programs with the local AID projects, these projects have funded many of the local training activities, including the orientation training of the AID contract staff. Thirdly, the host countries have also contributed substantially more than what was planned in the proposal. These last two points must be seen as very positive signs about the acceptance and impact of the project. In this case slow disbursements are a sign of a successful project.

Table 2 also shows that expenditures for the October-December 1984 quarter are approximate \$110,000. Projecting this level forward, would lead to the conclusion that project funding is sufficient to operate the project until approximately May of 1986. However, with the addition of an agronomist and a third economist, quarterly expenditures will increase by approximately \$80,000. Thus, at the \$190,000 per quarter rate, sufficient funds are available to carry the project until the end of fiscal year 1985. The evaluation team recommends that, in order to ensure continuity of funding, the Phase II Grant should be authorized and signed before the end of June. Expenditure from the new grant are likely to begin in the first quarter of FY 1986. The PACD for Phase I should be extended until December 31, 1985.

V. IMPLEMENTATION ISSUES AND PROJECT MODIFICATIONS

A. Agronomic Input

An examination of the training reports submitted for the most recent year end (1984), attest to the fact the CIMMYT has made a successful shift in their program to give greater emphasis to the agronomic activities of FSR. This has been accomplished by including greater numbers of agronomist from the host country programs and by increasing the role of agronomics as part of the courses.

CIMMYT has never had any philosophical problem including a heavy emphasis on agronomy; in fact, agronomic evaluations have always been part of the methodology. The reason for the greater emphasis on economics in this project was based on a design decision that the agronomy input would be adequately supplied by other outside sources, i.e. scientist from national programs and from TITLE XII University teams. Another factor that influenced the initial design of CIMMYT's On-Farm Research Project was the fact that the Economics Program at CIMMYT was not permitted by its headquarters to hire agronomists as this was the specific mandate of the Maize and Wheat Programs. CIMMYT Economics is still not permitted to hire agronomists. However, two new agronomists from the Wheat and Maize Program will be posted to the ESA region and will work part time with the Economics Program, in effect providing full time agronomic assistance.

CIMMYT has satisfactorily overcome the "criticism" that it lacks agronomists for this project. The only remaining constraint is AID's delay in the obligation of the funds which would assure CIMMYT of a long-term commitment to hire the necessary agronomists for their ESA staff.

B. Livestock and FSR

The concern over the neglect of livestock in the CIMMYT Economics Program was raised as an issue in the previous evaluation and remains a question for this evaluation. Although CIMMYT has done much to resolve the problem, there are a number of external factors that make a completely satisfactory solution difficult. First, the organizational structure in many East and Southern Africa countries separates livestock from crops. The Economics Program can not force

countries to bring these two services together to do on-farm research with a farming system perspective which includes livestock. Secondly some of AID's own projects are restricted to on-farm research in crops. Both the Zambia and the Swaziland Projects are this way. Finally, livestock is the mandate of ILCA, another International Agricultural Research Center (IARC) and, therefore, CIMMYT is obliged to address the issue through it. This results not only in a IARC coordinating problem, but also in a methodological difficulty. ILCA has not progressed as far as CIMMYT in Farming System Research and, thus, there are still methodological questions on how to address the livestock component of the system.

On the positive side, ILCA staff has participated in all project workshops since October of 1983. Further, ILCA along with CIMMYT and seven other IARC's, met in October, 1984 to discuss the coordination of FSR activities in Africa. For details see Section E below, but generally this coordination should help integrate livestock activities into FSR.

Several project accomplishments in the integration of livestock into FSR deserve note. First the Economics Program has strongly supported and helped in the decisions leading to a newly formed FSR unit in Zimbabwe which includes livestock specialists as part of the FSR team. Thus, the move by the Ministry of Agriculture to institutionalize FSR has brought livestock and crop research together. In Western Sudan, the FSR places heavy emphasis on livestock analysis because of the key role that animals play in the system. The farming systems perspective has enabled the on-farm research to be adjusted to the reality of agriculture in Western Sudan. Finally, in Kenya primarily as a result of CIMMYT and ILCA working together with the Ministry of Agriculture and Livestock Development, the Kenya OFR teams now include an animal scientist.

In conclusion, the evaluation team believes that the Economics Program has been quite successful in bringing livestock into the farming systems equations.. However, much remains to be done because of the traditional division between livestock and crop production in East and Southern Africa. Continued efforts in the area are required, which will require CIMMYT Economics to continue to follow-up on targets of opportunity that may exist in the region. Energy and good will should not be used changing an entrenched system that keeps crop production and livestock separate.

C. Extension Service link with the Project

The formal evaluation of Project in 1983 called CIMMYT's attention to the need for research/extension linkages in FSR

country programs being implemented throughout the ESA region. The review team, and later the REDSO/ESA agricultural staff, were concerned about 1) the lack of formal extension training units offered to the course participants and 2) no firm work plans for the required inclusion of extension workers into the on-farm research methodology espoused by CIMMYT's regional program. These findings are certainly not new to FSR programs as the extension linkage, often spoken of as the most critical element of the process, in most cases does not exist or is quite difficult to handle. Few FSR programs have been successful in making formal linkages between extension and research, or in defining what the role of the extension officer should be throughout the entire FSR process. The lack of mechanisms to ensure participation of extension personnel during the entire research and investigation stages of FSR have been a major failure in the process. The CIMMYT charter, as an international maize and wheat improvement center, in some ways even makes this task of a successful marriage between investigators and change agents even more difficult since their normal points of contact at the national levels are primarily research agencies. In many countries these research institutions are not well connected with the extension divisions, or are not under the same director, or even at times in the same ministry.

The CIMMYT staff has pointed out that both research and extension staff must be involved in on-farm research with a farming systems perspective. Getting acceptance of FSR by national programs in East and Southern Africa is not an easy task. Acceptance comes in stages and a strong contact within the national structure is essential to successful introduction of FSR. For CIMMYT the strongest contacts are in the research establishment and, thus, the program has tended to introduce FSR in the research establishment first. However, in all cases extension staff have participated in the training. In several countries, Kenya and Zimbabwe, the extension and research staff are moving together in the use of FSR to help in the identification and introduction of new technologies. CIMMYT's approach is to introduce FSR in the research establishment and then spread it to extension and other services.

CIMMYT has made progress in the inclusion of extension workers in its program since the last evaluation. Most of their in-country courses have included a good mixture of extension staff participants. 26 extensionists have been, or are being trained, as part of the in-country programs. This represents 24% of the total number trained in the comprehensive program. For the Regional Workshops, 7 extension workers, representing 3% of the total, have participated.

CIMMYT, as an activity of their FSR regional project, together with the World Bank and AID sponsored an Africa wide workshop on extension and research methodologies. Leaders from some dozens countries, representing both extensions and research, participated in a week long workshop in order to understand better the common support linkages that both organizations must have. Extension without site specific research is not an effective in the dissemination of new technologies. Further, the effectiveness of a research system is not measured solely by the developments of new technologies or products, but also by the extent to which the technologies developed are adopted by the target group. It is extension that must carry this technology to the client. CIMMYT did an excellent job of getting this message of needed interactions and formal linkages to the key leaders who participated in this international seminar.

In the orientation and backstopping activities carried out by CIMMYT with Title XII and other donor institutions, major efforts and resources have been devoted to the extension advisors who are assigned to these teams.

We are aware of no conflict in this extension oriented activity and that of the CIMMYT charter. We do not expect regional personnel of CIMMYT to have specific or direct dissemination or extension responsibility to African farmers. Neither do we expect CIMMYT to teach extension techniques per se. We do anticipate that a much more refined methodology for the integration of extension personnel into the total FSR process will take place including well defined change agent roles, extensionist specific research tasks, model linkage agreements, supervisory duties, and FSR dissemination techniques.

The evaluation team recommends that no extensionist be added to the core CIMMYT/ESA staff. The project's present scope is appropriate to ensure successful implementation. Expansion of its training function for extension would seriously jeopardize implementation of the project. The team recommends that the project staff review the national program that have integrated FSR into their agricultural research systems to determine the role and contribution of extension. A report will be prepared on the subject.

D. Information Base for FSR in East and Southern Africa

The regional nature of the CIMMYT On-Farm Research Project is unusual in this area of Africa. The opportunities to impart a standardized methodology for on-farm research and a systems approach to site specific investigation provides a convenient channel for information and data exchange and research results extrapolation. Several excellent examples of this effort can

be found in the activities of Phase I. CIMMYT through its Newsletter has begun to introduce a common information coding system for FSR research and investigation materials. Its special position as a regional leader allows further opportunities in the coming years to develop and refine a methodology for information and data control systems for all FSR projects in the region. Unless common coding is used for the documentation of all projects and until compatible data storage, retrieval and analysis systems are applied, the possibilities of extrapolating results from one analogous area to another, within and between countries, will be quite remote.

CIMMYT is expected to move into the use of a standardized area profile approach with the national projects and country teams that it backstops. This approach will allow FSR researchers to describe sites and evaluate investigation results for possible first approximation extrapolation activities. Commonality and standardization for profile indicators such as:

- a. Natural production determinants
 1. Climate
 2. Soils
 3. Water
- b. Current technology use
- c. Socio-Economic
 1. Production and marketing practices
 2. Level of live indicators.

The evaluation team encourages collaboration between CIMMYT and other international institutions such as CATIE (Center of tropical agriculture investigation and teaching, located in Costa Rica) and ILCA that have more advanced FSR data and information approaches. We encourage closer working relationships and the possible adaptation of on-going FSR data and information systems during the the project.

E. Coordination With Other International Agricultural Research Centers (IARC) On FSR

Recently there was a meeting held in Nairobi by nine IARC's to discuss, among other things, the need for coordination on farming systems research. There are various approaches and interests in relation to farming systems research. The recent meeting set out these differences with the objective of coordinating the various interests and approaches. Coordinators were assigned from the Center staffs to ensure that there is no duplication of effort and to act as a contact person for the national directors. There had been some confusion on the part of few of the directors because of the different IRC programs. Both Mike Collinson and Allan Low from the project were assigned to be coordinators for the countries in their immediate region.

F. Development of Local Training Capacity

Not only is it necessary to develop the use of FSR in the region for the selection of appropriate technology, but it is also important to build the local capacity to meet the on-going FSR training needs. This requires both the identification and training of local resource people and the development of relevant training materials.

The original project proposal did not identify the development of locally relevant training materials as an output, but implied in the training proposal is the requirement that successful training methodologies and materials be developed. The Training Advisor in Nairobi has begun to put together a practical teaching manual that sets out a detailed listing of what needs to be covered in the courses as well as case studies and examples specifically from East and South Africa. He is working with CIMMYT/Mexico which is producing an overall FSR teaching methodology. Additionally, he is incorporating some of the ideas on the teaching of FSR that are being developed by FSSP

Similarly there is little discussion in CIMMYT's original proposal of the need to train a core of FSR resource people from the region for local training. Quite appropriately the proposal emphasized just getting the FSR methodology accepted in the region. CIMMYT's success in this task in many countries offers the opportunity to take the next step of developing a local capacity to do the training. Looking forward from this evaluation and given the plans for a Phase II, the Economics Program should begin to place more emphasis on the development of the local training capacity. This is not to imply that CIMMYT has not accomplished some important achievements in this area in the last two years. First, the development of the Regional Workshop Program at the University of Zimbabwe is an important step in the institutionalization of FSR training. The University has committed itself to have 60% of the training at the Workshops provided by its own staff. Secondly, the CIMMYT Economics staff has, to the extent practical, recruited resource people from the region for the various courses

presented through the project. Finally, using non-project funds, the staff is about to undertake an evaluation which will identify and review alternative ways to bring local people into FSR teaching. One important aspect of this issue is the extent to which national programs can incorporate in-house training as an integral part of the FSR activities.

Overall, CIMMYT has done a good job, at this early stage of FSR development in Africa, of starting to institutionalizing its training capacity in local institutes and professionals.