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**ADMINISTRATIVE MANAGEMENT REVIEW
OF THE
BEAN/COWPEA COLLABORATIVE RESEARCH SUPPORT PROGRAM**

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**AGRICULTURAL DEVELOPMENT CONSULTANTS, INC.
100 S.W. 117 AVENUE, SUITE C-103 • MIAMI, FLORIDA 33186 • PHONE: (305) 598-5777 / FAX: (305) 598-5885**

REVIEW TEAM

**John Fasullo
AID/LAC/DR/RD**

**William Frederick Johnson
AID/BIFAD/S/RD**

**Harvey Hortik, Team Coordinator
AID/S&T/AGR/AP**

**Johnny Pendleton, Team Leader
Independent consultant contracted by AGRIDEC**

**George Primov
Senior Project Officer, AGRIDEC**

EXECUTIVE SUMMARY

As preparation, the Review Team visited the Management Entity/Management Office (ME/MO) of the Bean/Cowpea Collaborative Research Support Program (B/C CRSP) at Michigan State University, and two collaborating universities, Purdue University (PU) and the University of California, Riverside (UCR)). Discussions were held with administrators of each institution, members of the Board of Directors (BOD), the Technical Committee (TC) and the External Evaluation Panel (EEP), with the the ME/MO staff, and with Principal Investigators from MSU, PU, UCR and the University of Wisconsin (UW). Numerous documents were provided by the MO and extensively used in preparing this report (Appendix A).

Administrators at all three institutions are supportive of the CRSP and mentioned the advantages to the State, University, staff, and even students.

Beans and cowpeas are sometimes considered minor crops, however, this is far from true. The justification for the existence of this CRSP is as valid today as it was twelve years ago because: (1) the estimated worldwide production is 7.7 million hectares for cowpeas and 10.3 million hectares for beans, and is mostly located in LDCs; (2) the crop provides an important dietary component (protein) for many of the world's poorest people; (3) the crops are better adapted to poor marginal soils and low, erratic rainfall areas where population pressures are forcing more intensive farming.

This report deals primarily with the past three years (1989-1991). While the previous Administrative Management Review Team complimented the MO for its adept management of the CRSP during a period of declining budgets, this team compliments their sound management during a period of increasing budgets. The team feels that the apportionment of the budget increase recognized new and needed research and training thrusts within the projects recommended in the five-year extension (1992-1997). Secondly, the team supports the initiation of new emphasis in the area of economics and Women in Development (WID). The latter two needs have been repeatedly stressed in recent EEP recommendations.

The team observed that the procedures and criteria used to initiate new projects, move projects to other countries, or to phase out projects, are well documented and are carried out carefully and efficiently.

The B/C CRSP is operating in its twelfth year. Significant technological advancements have been developed through interdisciplinary research in the area of germplasm improvement for both U.S. and HC growers. This CRSP is supplying "upstream research" in biotechnology areas that have tremendous worldwide potential, at the same time, it is also generating simple technologies such as improved varieties, cultural practices,

control of field and storage insects, and improved nutrition. The CRSP scientists have used the full range of scientific methodologies to reach their research objectives.

Linkages have been established with other CRSPs, the IARCs, and other scientific research institutions around the world. Through these linkages, the CRSP has been able to extend its technologies to other scientists and to producers in many countries. This includes female farmers in Africa, Latin America and the Caribbean.

Training has been and continues to be an important component of the CRSP. During its first decade, the program has provided degree training for 219 students and non-degree training for 899 participants. During the last three years, significant increases in the number of students trained have been achieved.

The WID component has contributed significant input to most of the projects. The recent addition of an Economics component will provide equally valuable contributions.

In summary, the management of this CRSP has performed all the essential services and financial management requirements, as spelled out in the CRSP Guidelines and the Program Grant Agreement. During site visits and interviews, the team sensed no real problems at any time or at any place. However, the review team has identified opportunities to improve overall management procedures. Thus, the recommendations contained in this report are made in an effort to "fine tune" the management of an efficiently operated and productive research program which has had measurable impact in both the U.S. and in host countries.

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GLOSSARY

AID	Agency for International Development
BIFAD	Board for International Food and Agricultural Development
BOA	Basic Ordering Agreement
BOD	Board of Directors
BTI	Boyce Thompson Institute
CIAT	International Center for Tropical Agriculture
CRSP	Collaborative Research Support Program
CU	Cornell University
EEP	External Evaluation Panel
GP	Global Plan
HC	Host Country
IARC	International Agricultural Research Center
IITA	International Institute of Tropical Agriculture
INTSORMIL	Sorghum and Millet CRSP
IPIA	International Programs in Agriculture
IR	Institutional Representatives
LDC	Less Developed Countries
ME	Management Entity
MO	Management Office
MSU	Michigan State University
NASULGC	National Association of State Universities and Land Grant Colleges
OCGBA	Office of Contracts and Grants Business Office
PI	Principal Investigator
PU	Purdue University
TC	Technical Committee
UCD	University of California, Davis
UCR	University of California, Riverside
UG	University of Georgia
UM	University of Minnesota
UN	University of Nebraska
UPR	University of Puerto Rico
UW	University of Wisconsin
WID	Women in Development
WSU	Washington State University

REVIEW

A. Organizational Structure

The structure and functions of the B/C CRSP remain essentially the same in 1991 as they were during the 1988 Administration Management Review. This structure is composed of MSU, which serves as the ME and the MO, and is responsible for managing the CRSP, and the ten other U.S. universities which participate in the research and training programs which operate under sub-grant agreements with the ME. Superimposed on this structure are the BOD, the TC, and the EEP. Together, these groups facilitate planning, budgeting, implementation and quality control.

This management structure has withstood the tests of numerous appraisals and reviews, which have been unanimous in their praise of the effectiveness, efficiency, and cost-effectiveness of the program. Current evidence provided to this team leads it to the same conclusion. Nevertheless, opportunities for minor improvements are identified in the present review (see below).

A.I.D. has found no better model for accessing, organizing and utilizing the scientific skills of U.S. universities, which are equipped with unmatched scientific infrastructure and support. The structure has evolved through the lessons learned by implementing the results of its evaluations and reviews. The flexibility of the structure permits periodic adjustments, some of which are still taking place. The weaknesses that have been identified are often human-related or caused by inadequate funding, or are attributable to conditions in the HCs.

The BOD, the TC, the EEP and A.I.D. all seem to be playing their prescribed roles, as these are outlined in the CRSP Guidelines; the MO routinely utilizes their input and decisions. This review team offers one suggestion for improving the operations of the EEP, namely, that the TC be occasionally invited to meet with the EEP in order to improve communications between the two groups and establish an understanding of the different criteria used by the CRSP for evaluating projects and determining funding priorities.

The TC and the MO generally respond promptly to the recommendations issued by the EEP regarding problem projects and institutions, either by implementing them or by providing reasons for alternative courses of action. For example, the EEP recently noted its concern regarding the professional leadership at some of the HC institutions and recommended the use of co-PIs, the MO is currently considering the implementation of this suggestion.

The team noted no significant examples of redundant or marginal activities within the operational structure of the CRSP. However,

it did note that much time and effort are being expended by the MO and the PIs in responding to and preparing for the frequent technical and management reviews of the CRSP.

The team did not uncover any instances where progress reports had not been prepared in accordance with the grant document. The PI progress reports are summarized by the MO and are provided to A.I.D. and to other interested parties, as required. The B/C CRSP has submitted its progress reports in a timely fashion.

The scope of the present progress reports is satisfactory. However, the team feels that progress reports should better address the global applicability of the program's research results by outlining possible outreach possibilities of research results.

In the past three years, organizational effectiveness and efficiency have been addressed and enhanced. The MO has added staff from both core and non-core funds. This staff has been strengthened since the last administrative review by the addition of a half-time secretary and the funding of an economist. Total staffing has been increased by 0.50 FTE. However, the team notes that the workload of the MO has also increased substantially (addressed below).

Although the team did not have an opportunity to compare directly the administrative costs of the B/C CRSP with those of other research institutions, past studies, and the current percentage of management expenditures to total operational costs (about 20 percent), indicate that the costs are very competitive.

The MO has been able to maintain active collaborative research with appropriate documentation (including MOUs) and budgets, in the great majority of the projects. In those cases where it has not been possible to maintain active collaboration and progress, the CRSP has implemented either the termination of the country sites (Botswana) or transferred the projects to new countries (from Nigeria to Ghana and from Brazil to Guatemala).

The MO has generally provided effective liaison between the HC, the PIs, the USAID missions, and A.I.D. The team notes that providing such services in an effective manner requires a great deal of time and effort. This task is sometimes made more difficult by the lack of cooperation and slow response by the USAID missions.

MOUs developed between the ME and the HC exist at each active country and are being negotiated at the new sites. None of the MOUs have been up-dated because they function as generic documents and allow for modifications to occur through the annual sub-agreements. Thus, the technical and financial updates are channelled through the sub-agreements in the annual work plan and budget. Annual work plans appear to be complete, concise and comprehensive in the view of the team. There were no indications

from the interviewees contacted by the team regarding inadequacies in either the MOUs or the work plans.

The research topics developed in the global plan of the CRSP represent valid needs. However, in some research projects, the global applicability of the research results have not yet been demonstrated. The release of new cowpea germplasm from the U.S. to Senegal is a good example of technology that has been transferred to another ecological region of the world (California to Senegal).

The EEP recommended that the CRSP management consider moving toward regionalization and the use of prime ecological country site mode in organizing worldwide research, as recommended by the CRSP Guidelines. This team feels that there are both advantages and disadvantages in both the concentrated and dispersed systems, and that A.I.D. should fund a special study of international development scientists of different modes of conducting global research used by all CRSPs, and to make recommendations.

The EEP's recommendations regarding problem projects and institutions have been promptly implemented by the CRSP. For example, the recent programmatic changes involving the termination of existing projects, the initiation of new ones (the biological nitrogen fixing project in Ecuador), or their transfer (the appropriate food technology project from Nigeria to Ghana), are the result of recommendations initiated by the EEP.

The staff of the MO has been strengthened since the last administrative/management review by the addition of one-half time secretary (from core funds), and the addition of one half-time secretary from non-core funds. Also, 40% of the time of an economist from MSU faculty has been added from core funds.

Part of this increase was made possible by the 20 percent increase in funding of the CRSP, and part from the buy-in from USAID/Cairo.

MO Core Funded Staff

Program Director	90% FTE
Deputy Director	75%
Administrative Asst.	100%
Secretary	100%
Secretary	50%
	<hr/>
	4.15 FTE

Non-MO Core Funded Staff

WID Expert	50% FTE
Economist	40%
	<hr style="border-top: 1px dashed black;"/>
	0.90 FTE

Non-Mo Non-Core Funded Staff

Secretary	50% FTE
	<hr/>
	0.50 FTE
 TOTAL	 5.55 FTE

B. Training/Institution Development

Background

The B/C CRSP is both a research and training partnership. Trained individuals are the key elements in institutionalizing development-related research programs in the HCs and the U.S. Training continues to be a key component of the B/C CRSP. As project-trained HC scientists and technicians take over increasingly responsible positions in their countries and maintain contact with one another, a crucial mechanism is being developed to foster the growth and sustainability of the CRSP's principal objectives.

The team had access to numerous documents to assess the viability of the training component. Two policy elements of the "The Global Plan of the Bean/Cowpea CRSP" deal specifically with training. Policy item 9 states that "the Bean/Cowpea CRSP has a major goal of strengthening the Host Country institutions through the training of HC nationals, a critical resource necessary for successful long-term research. To achieve this goal, CRSP projects are to give emphasis to the training of HC persons over the training of U.S. persons. This policy adopts a HC priority rather than U.S. exclusion and refers to both short-term training and graduate education".

Policy item 10 notes that "it is in the best long-term interest of each HC institutions that its personnel achieve training from a diversity of institutions in an effort to avoid institutional "in-breeding". CRSP institutions and their HC collaborators are encouraged to consider using an assortment of different CRSP training sites for nationals from the same HC". The team comments later in this section on program accomplishments relative to these two items.

The major results of the team's review indicate that overall there are no apparent or significant management problems relative to the implementation of the B/C CRSP training component, there are, however, opportunities (discussed below) for improving various aspects of it.

Training Accomplishments/Progress

The team found that increasing attention over the last three year period has been placed on the training of students, both overseas and in the U.S. A total of 219 degree programs were completed during the FY 80-90 grant period, many of them during the last three years of this period; of these, 153 were graduate students. During the 10 year project period, 64 percent of the advanced degrees were in the agricultural sciences, 29 percent were in the food sciences and technology/nutrition, and the other 7 percent were in the social sciences or in agricultural economics. Of the students receiving degrees, 162 were from HCs and other LDCs and 57

were from the U.S.; there were 66 B.S., 99 M.S. and 56 Ph.D. degrees granted.

There were 899 students who participated in non-degree programs during the FY 80-90 period, most of them (826) were from HCs and other LDCs and 73 were from the U.S.

As in previous years, the higher the degree, the greater the proportion of male students. Despite the fact that women received more than half of the 66 BS degrees (53 percent), only 41 percent of the women received M.S. and Ph.D. degrees; only 27 of the advanced degrees to non-U.S. nationals went to women. Continued problems appear to exist with recruiting women for the PhD program, although the situation has improved in the last three year period. The MO should encourage PIs to determine opportunities for recruiting women into PhD programs.

A recent survey included in the Training Report documents the importance of CRSP training for the individuals involved as well as the institutions from which they come. Of the students who responded to this survey, 51 percent reported being very positive about their CRSP training, especially in relation to the relevance of the content or subject matter of their programs, and the specific skills learned.

At the time of this review, 69 degrees are still in progress; 12 at the B.S. level, 25 at the M.S., and 32 at the Ph.D.

Of the 899 participants who had completed non-degree training through September 1990, almost 40 percent were trained in specially organized courses, such as the biological nitrogen fixation workshops and short courses on the micro-biological control of bean and cowpea pests.

Training Guidelines

In 1987 the TC developed guidelines to be used by the PIs for degree training. The management review team considers the training guidelines to be appropriate and consistent with B/C CRSP objectives. However, the overall effectiveness of the guidelines could be enhanced if additional information or advice were provided to the PIs regarding student obligations when returning to their HC, and support to U.S. graduate students. Furthermore, the guidelines do not address the issue of HC scientist turnover and the potential need to rebuild HC research capacity in ongoing CRSP projects.

Studies/Annual Work Plans

The MO is to be commended for the studies initiated in FY 90 related to training, each of the studies brings additional insight to the benefits of training to the CRSP. The MO also completed a

follow-up study of CRSP graduates. The task for the MO now is to insure that the results of these studies are incorporated into policy guidelines for training in the CRSP as well as in overall and specific project training plans. Similarly, more effort needs to be applied in analyzing the data collected, including a systematic follow-up of results of the CRSP Alumni Report.

In developing annual work plans, the MO should also insure that training is adequately covered in the plans in terms of funding, program objectives, identifying trainees, training area/categories, training requirements, institutional development, and program follow-up. More specifically, training should be a separate element of the annual work plan and should be discussed or described in some detail.

Funding

In examining current and projected budget information concerning the training component, the management review team concluded that the CRSP is focusing adequate attention on the overall training needs of the project. Although the team realizes that the central focus of the CRSP is research, it is also keenly sensitive to the overall success and sustainability of the B/C CRSP. In this regard, the team was pleased with current and projected trends in the funding of training activities. The team noted that there is an increase of almost 200 percent in the project funds available for training purposes between FY 86 and FY 91, compared to the first seven years of the program. The team views training as a positive and necessary aspect of the CRSP program.

Impact on HC Capabilities

A review of the documents and reports made available to the team showed that the CRSP has had a significant positive impact on strengthening HC research capabilities. This has been accomplished, in large measure, through the training activities built into the individual country programs. The CRSP programs in Malawi, Cameroon, and Senegal are good examples of how training has combined in an important way towards the achievement of research objectives and institution building.

Institutional Linkages

It appears that strong linkages have been established between and among the U.S. institutions and their overseas collaborators. "Cross-CRSPing" is encouraged and promoted by MO and the BOD, and has resulted in such collaborative efforts as the ones between B/C and INTSORMIL scientists at PU on striga control or in the proposed multi-CRSP effort in Honduras. Examples of interdisciplinary project interfacing include the Purdue/Senegal linkage on seed storage research; the Minnesota/Tanzania linkage on biological nitrogen fixation; and the linkages in the Dominican Republic between the universities of Puerto Rico, Wisconsin, Nebraska. To

provide opportunities for all CRSPs to benefit from these relationships, funds are provided for PIs to interact with other projects. In addition, international meetings, such as the ones held in East Lansing in 1990; Dakar in 1989; and Costa Rica in 1988; have brought together the projects and other national programs to help facilitate and promote interaction. The MO should identify opportunities for more cross-CRSPing through seminars and workshops.

Impact on HC Priorities/Policies

The B/C CRSP has had, as far as the team can determine without actually visiting the HCs and all the participating universities, a positive and significant impact on the HCs' institutional research activity priorities. The results, thus far, are less clear concerning the project's overall effects on government policies, although several significant HC developments have occurred, such as the ones described below.

It would appear from a review of CRSP documents that many of the HCs are now placing much more emphasis on bean and cowpea research and extension than in the past. For example, in Cameroon, Malawi, Senegal, and Tanzania, there is strong evidence that the knowledge obtained from research and training is ready for practical application, much of what has been gained through research is now being disseminated to farmers. Many of the project's research activities have resulted in higher crop yields and an increased usage of new technologies. In the Dominican Republic, the government, based on CRSP recommendations, suspended in certain areas the planting of beans and other crops that are host to the white fly in order to interrupt the reproductive cycle of this disease vector.

HC/U.S. Collaboration

There is strong and convincing evidence to suggest that HC and U.S. institutional collaborators are, and continue to be, involved at project work sites. HC and U.S. collaborators travel to each other's work sites annually to review and actively collaborate in the projects, as well as to plan the next year's work plans and budgets. Usually, the U.S. scientists accompany HC scientists into the fields during these visits, in order to personally assess the research activities and to learn more about the context for which interventions are sought. The team recommends that the MO encourage, where project budgets permit, more frequent visits in order to improve the management of the research activities, fiscal oversight, and institutional linkages.

The team would like to see more exchanges between the post-doctoral scientists and graduate students from the lead institutions and HC organizations. The benefits to be derived from such interchanges would certainly enhance the overall success of the CRSP and

contribute towards efforts aimed at project sustainability. CRSP collaboration has demonstrated that there is as much for the U.S. to learn and gain from other ecological settings and from HC scientific expertise, as there is for U.S. research to contribute. Through such partnership arrangements, the CRSP will be able to support an expanded bean and cowpea international agricultural research community that is likely to continue generating benefits well beyond the life of the CRSP.

C. Research Program

Accomplishments/Achievements

The team notes that the 1990 EEP report gave this CRSP the highest overall rating allowed by AID (Highly satisfactory).

The MO plays an important role in publishing research achievements. Two examples are:

(1) An excellent booklet, "Foundation of the Future", was recently prepared, it reports on the first ten years of the B/C CRSP. Many of the research accomplishments are highlighted therein.

(2) Concise annual summaries are prepared of research progress and achievements, these are widely distributed to HC and USAID Missions. They help to spotlight the importance of beans and cowpeas in alleviating hunger and the progress on each identified global constraint.

Achievements in science are correlated with the quality of the personnel. One indication of the quality of the scientists involved in the CRSP is the program's extensive bibliography (153 pages). These publications have not only advanced science, but have also increased the interest in the two crops among other scientists and decision makers. Another indication of the quality of the B/C CRSP scientists is the publication "Peer Recognition and Outstanding Achievement Awards" prepared by the MO; this lists the many individual honors that they have received. An early and continuing objective of the MO is to assemble the "very best brainpower" available to solve bean and cowpea constraints, and they seemingly have done so.

The team believes that the CRSP projects are on target and making steady progress by all reasonable criteria. Agricultural research is a slow step-by-step advance on problem-solving and, therefore, it is extremely difficult to predict time frames for its completion.

There is evidence that the HCs can sustain their existing research programs, and that CRSP can begin to cooperate with other countries to further its global plans. For example, the discontinued Nigerian and Brazilian projects show every indication of being continued because of the training provided to a core of scientists and the awareness of the governments and/or institutional decision-makers of the importance of beans and cowpeas in those countries.

The team observed excellent interdisciplinary research taking place in the Dominican Republic between UW, UN and UPR. Other interdisciplinary research also is taking place in Tanzania and Malawi.

Contribution to U.S. Agriculture

The incorporation of foreign germplasm into U.S. germplasm has resulted in the release of new improved varieties to U.S. growers. For example, the increased yields afforded to Michigan bean growers by the new higher-yielding varieties is calculated to be worth 3.7 million additional dollars annually. Several other useful genes for specific purposes have been identified in HC germplasms and are in various stages of incorporation into U.S. types. This CRSP is supplying "upstream research" in biotechnology areas that have tremendous potential for both U.S. and HC growers. An interesting observation was made by the team at Purdue University, one of the CRSP projects which uses ultrasonics and computers to monitor insect damage in stored cowpeas is featured in a School of Agriculture brochure entitled "Research: The Future of Agriculture". This brochure is designed to attract high school students into the agricultural sciences; this is an indication of the exciting science taking place in the B/C CRSP and of its potential long-range benefits.

Contribution to HC agriculture

Twenty-two research accomplishments are highlighted for the developing countries by the CRSP, these are listed in its publication "Foundation for the Future" (pp. 42-45). Many of these are simple technologies that can be adopted by small, resource-poor farmers without cash. These include varieties with resistance to country or, oftentimes, regional constraints; simple techniques for controlling storage insects; and seed with improved cooking and nutritional characteristics. The screening for many of these improved characteristics occurred in U.S. laboratories using advanced "cutting edge" technology.

Technology transfer is challenging in some of the regions where the B/C CRSP works because of generally under-funded extension services. To facilitate the transfer of technology, the CRSP hosts international and regional meetings and workshops, and also conducts short-term informal training. The Tanzania/WSU project holds annual workshops on bean research in conjunction with CIAT/SADDAC for scientists in southern and eastern Africa. This is the best-attended and most important bean meeting in Africa and attracts bean researchers from many African as well as non-African countries. By these means, technology spreads throughout ecological zones.

On-farm trials in the HCs are also important means by which technology is spread informally. A CRSP-sponsored Senegalese female sociologist has discovered that the best way to extend new technologies to women in Senegal - who generally are responsible for growing, storing, and cooking beans and cowpeas - is by radio. Another example are the publications prepared at PU concerning the use of wood ash and solar heaters to reduce storage insect losses

in cowpeas; while developed in Cameroon, this technology is applicable in other countries and for other crops as well.

The noteworthy contributors and achievements of the WID component of the B/C CRSP are described in a separate section.

Review Mechanisms

Projects recommended for extension (1992-1997) have met their short-term goals and objectives, as indicated in their annual reports and work plans, according to the careful reviews of the TC and EEP; but their long-term objectives persist. When progress does not occur, projects are phased out. For example, four projects are to be terminated in 1991-92, but two of them are being transferred to other countries. Sometimes, special review consultants have been used for advice, before such actions are taken. The term "survival of the fittest" might well apply to the present projects recommended for continuation in the five year extension.

After a project has been approved, the U.S. and HC PIs are required to prepare Annual Reports and Work Plans for the ensuing year. These are closely scrutinized by the TC in order to ascertain progress and to determine if the original objectives are being addressed. The TC recommendations are forwarded to the BOD for its approval.

The CRSP research program is also evaluated annually by an External Evaluation Panel (EEP) of distinguished scientists who can also raise questions and make recommendations to the TC, the BOD, and the MO. An in-depth management review of the ME occurs every three years and the EEP conducts annual technical reviews. Responses to these two external peer reviews are prepared by both the TC and the MO, as required in the CRSP guidelines.

On the whole, the checks and balances in the CRSP review model for research are exemplary and widely acclaimed by research administrators. The team judges the peer review program mechanisms to be working well in this CRSP. The responses to peer reviews were generally respectful, effective, and rapidly executed.

The tenacity and perseverance which this, and other CRSPs, exhibited by surviving major budget cuts in 1986 and 1987 (totaling 32 percent over the two years), produced accomplishments that were recognized by A.I.D. and Congress. This resulted in a 20 percent budget increase in 1991, which is an indication of the quality of their research and management and of the existing peer review system.

Recent Review Process

The last management review team (1988) examined and commented

favorably on how the B/C CRSP met the challenges of a budget decrease. The present review team has examined how the program has dealt with the more favorable circumstances of a budget increase, and was similarly impressed.

The present team also focused on the criteria and mechanisms used to phase out or to initiate new projects, noting that four projects (two on beans and two on cowpeas) are being phased out and that another four projects are being initiated (Appendix B). Nine of the present projects (seven on beans and two on cowpeas) have been recommended for extension. After careful review of their excellent progress and future work plans toward solving well-conceived objectives, the team concurs with this recommendation. With two new cowpea projects, a better research balance is achieved between the two crops.

The team was impressed by the efficiency and rapidity of the actions taken by the MO following notification by A.I.D., in early January, that increased funds were to become available. This information was relayed to all PIs on January 10, with a deadline response of January 21 for a one page pre-proposal indicating specific uses for new funds and documenting how such funds would provide short/long-term benefits not possible without them.

The proposals were received by the MO and faxed immediately to the TC on January 22, 1991. A conference call occurred on January 23 among the TC members and the MO. The recommendations were forwarded to the BOD that same evening. The BOD held a conference call the following day and approved the recommendations. This example illustrates the excellent internal working relationship which exists at all management levels of this CRSP.

It might be argued that these decisions may have been made too quickly, however, after examining the new research thrusts that were developed, reflecting on the critical need for the new project objectives, and reading the recent EEP evaluations, the team commends highly the actions taken in January and in the ensuing months. For example, great care is being exercised in choosing the U.S. and HC institutions for the new projects, TC members and short-term consultants have made a number of site visits to the new institutions presenting competing proposals. Appendix C presents the criteria used for rating new projects. This again illustrates the great care exercised by the B/C CRSP management to involve the best scientists and to assure high quality research which is targeted on well-defined global research needs.

Table 1 presents a breakdown and comparison of the previous budget and the new budget containing the 20 percent increase. The team judges the new budget to be the result of long and careful deliberations and in line with the original priorities listed by A.I.D. We hope that this level of funding will continue and will increase to compensate for inflation.

Table 1. Distribution of the 20 percent funding increase, by project.

	Before Increase (FY-91)	After Increase (FY-92)	Percent Increase
Brazil/BTI	144,900	153,399	5.8
Cameroon/PU	191,500	266,506	38.9
Dominican Republic/UW	219,000	282,715	29.1
Dominican Republic/UW	85,000	125,719	18.4
Ecuador/UM	130,000	228,512	75.8
Guatemala/CU	100,000	148,655	48.6
Honduras/UPR	155,000	208,354	34.4
INCAP/WSU	180,000	252,361	40.2
Malawi/UCD	189,050	226,181	19.6
Mexico/MSU	150,000	211,689	40.6
Nigeria/UG	132,650	209,864	77.2
Senegal/UCR	228,000	285,213	25.1
Tanzania/WSU	207,500	290,649	40.1
Project Support			
WID	44,600	59,294	32.9
TC Intra-CRSP	15,000		
Student Workshop	8,520		
Economics Component		16,667	
Project Support		30,610	
Planning Grant		90,000	
Total	2,189,396	3,092,398	41.2
Other Costs			
MO	411,000	457,156	11.2
BOD	17,200	17,854	3.8
TC	26,500	37,420	41.2
EEP	77,100	58,300	(24.3)
Sub-contract Overhead		23,000	
Total	531,800	593,831	11.7
Total CRSP	2,721,196	3,686,330	

. 14

The primary criteria used for phasing out B/C CRSP projects are:

1. EEP Recommendations
2. TC Recommendations
3. Completion or progress on original objectives
4. Inadequate progress reports, work plans or collaborative perspective.

Note: the TC commissioned external reviewers to examine certain projects before phasing them out:

Roberts/Brazil - Dr. Louis Jakai (IITA)
Wallace/Guatemala - Dr. Ken Frey (Iowa State University), Dr. Jim Jones (University of Florida), and Dr. Dennis Egli (University of Kentucky)

These criteria seem to be appropriate. Changes in projects have been made, as indicated in Table 1, but only after approval by the TC, EEP, and the BOD. The MO seemingly implements the closing-out of projects in an orderly, humane and scientifically defensible manner.

The increased funding for WID and for socioeconomic activities are commendable and will be discussed more fully in another section. The presence of the WID and Economics staff on the TC will add significant inputs to the review mechanism.

Collaboration

The team noted the many linkages within and between the B/C CRSP and other CRSPs on U.S. campuses and at HC institutions. Examples of these linkages are the collaboration between PU B/C and INTSORMIL CRSP scientists on the eradication of striga in Africa; or the excellent collaboration in biotechnology research between researchers at UW and UN. The team believes that this is an important strength which promotes the original interdisciplinary approach to problem-solving documented in early CRSP/BIFAD guidelines.

The team was particularly pleased with the close collaboration between the U.S. and HC PIs; collaboration is implemented by at least two annual exchange visits, this is far less expensive than stationing an expatriate scientist in the HC and it allows the HC scientists to design, budget, implement and interpret their own research. With this arrangement, sustainability is more likely to occur after the CRSP ceases than with many of the more traditional country development projects.

Collaboration with other CRSPs in a HC has occurred and will increase in the new "cross-CRSP" projects presently being planned

by the CRSP Council. CRSPs that might benefit from collaborative research with the B/C CRSP are: Tropsoils, Nutrition, Intsormil, and Peanut.

The team viewed favorably the regional collaboration fostered by workshops and seminars arranged by the MO, such as the annual workshop held in Tanzania.

Collaboration has existed from the beginning of the B/C CRSP with CIAT and IITA. This occurs at the scientific level through exchange of germplasm and technical know-how; in addition, the two IARCs each have a representative in the TC. This promotes complementary research and reduces duplication. IITA is presently making a special grant to one of the CRSP projects at PU to screen germplasm for a specific characteristic. The team sees this collaboration as positive and productive.

Collaboration with private industry was listed as a priority by A.I.D. when it announced increased CRSP funding in January 1991. The B/C CRSP has moved rapidly to consolidate interaction and collaboration in this area. Examples are the close informal working relations being forged with the Gerber Food Company by the Breeding/Food Technology project at MSU, and the collaboration with Agracetis, Inc. by the Biotechnology Virus project at UW. The MO, the EEP, and A.I.D. should observe these relatively new collaborations with industry and determine how they may best be managed for mutual benefits.

The B/C CRSP has collaborated with USAID Mission projects in Cameroon, Senegal and Honduras, as well as receiving buy-ins in Cameroon, Jamaica, Zimbabwe, and Egypt. These buy-ins are monitored carefully to ensure that they are within the global research objectives of the CRSP. The pros and cons of buy-ins are discussed in the Contracts and Grants section below.

The team noted that scientists from other research institutions, both in the U.S. and abroad, have collaborated with CRSP PIs. Examples are exchanges with Italian storage insects researchers; with Australian virus researchers; with the USDA Germplasm Laboratory in Georgia; and with the Department of Plant Pathology at Oregon State University, for virus identification. CRSP seems to be the catalyst which brings institutions together to solve common research problems.

Contracts and Grants

Outside grants are only accepted if the objectives are complementary to those of the CRSP and if they provide their own administrative support. Without these two criteria, the CRSP would be weakened rather than strengthened. It would seem preferable to have the individual PIs identify and select outside grant opportunities rather than the MO.

Several of the projects within the B/C CRSP could use increased funding. At first glance, buy-ins from A.I.D. missions would seem highly desirable to meet funding needs of the PIs, in either research and/or training, and at the same time to accelerate progress toward the common goal of producing more and better food in the HCs.

The following pros and cons are offered by the MO for mission buy-ins:

- Benefits:
- (1) additional financial support to fill out research programs
 - (2) increased linkages to other related research programs
 - (3) greater ecological diversity for more comprehensive research
 - (4) potentially expanded outlets for the new technology generated
 - (5) project could have greater organizational flexibility

- Detriments:
- (1) research requested may be related but not central to project mission
 - (2) generating and developing buy-ins is extremely demanding on the MO staff in terms of travel, professional time and attention
 - (3) in a formal buy-in, the additional research can only go to the existing team, this can over-load the team rather than expanding it
 - (4) core projects could have decreased management attention if Mission approval and reporting requirements are extensive

Recognizing these factors, the team feels that this is an area which should be approached cautiously and that guidelines be prepared for their implementation. The real danger may be overloading the U.S. PIs; similarly, the MO does not have the time to include technical assistance and service to individual USAID missions, unless this is funded and outlined in the core grant scope of work.

D. Financial - Budget and Financial Management

The contributions of this, and other CRSPs, to U.S. agriculture and to the level of science in HC agricultural development persuaded Congress to increase the level of funding for CRSPs by 20 percent in FY92 over FY91. Tables 2 shows the distribution of funds before the increase and Table 3 shows the same information after the increase.

As new projects are developed for funding, the CRSP should always bear in mind their potential regional or ecological applicability, which is not always clear in documents (see Appendix D). The team also cautions against a decrease in the EEP's funding, especially since this group will have to oversee an expanded research effort in FY-92.

The CRSP's management structure appears to be both cost effective and efficient. The CRSPs appear to be an excellent vehicle for accessing, organizing and utilizing the scientific skills of U.S. universities.

CRSP management should take account of the recent increased workload of the MO in extra curricular activities. If these activities are recurring, a decision should be made to accommodate and fund them, providing such use of funds is legal (paragraph 3, Attachment 2B of Modification 5 of the Grant document for 1991 requires interpretation by the Contract Office: Priority be given to "3. Greater regionalization in projects and Hosts and Countries locations, especially in ways that may eventually generate buy-ins from missions (both current missions and those not now participating") (Appendix E).

The team met at length with the fiscal officers of the Grants and Contracts Business Office at MSU and concluded that this office is providing sufficient oversight of the financial operations of the CRSP. Procedures used at MSU for auditing this program are discussed later.

Leveraging of Resources Through Outside Collaboration

Resourceful work by the PIs and by the MO has succeeded in securing additional resources for the research projects. Examples are:

- Collaboration between MSU and the Gerber Food Company in Costa Rica and in Michigan in the development of baby weaning foods based on bean products. The project has gained access to Gerber's laboratory and food processing equipment.
- Collaboration between UW and Agracetus, Inc. in the utilization of that firm's particle gun for the inoculation of beans with cloned DNA.

TABLE 2

BEAN/COMPEA CRSP BUDGET BY LINE ITEM FOR 10/01/90-09/30/91

PROJECT	PERSONNEL	EQUIPMENT	TRAVEL	MAT/SUP	TRAINING	OTHER DIRECT	TOTAL DIRECT	INDIRECT	TOTAL BUDGET
BRAZIL/BTI	\$59,405.00	\$0.00	\$19,800.00	\$23,200.00	\$13,950.00	\$4,547.00	\$120,902.00	\$23,998.00	\$144,900.00
CAMEROON/PURDUE	68,378.00	14,000.00	30,679.00	31,004.00	14,441.00	3,917.00	162,419.00	29,081.00	191,500.00
DOM REP/UNL	119,327.00	1,500.00	18,500.00	17,223.00	15,600.00	10,000.00	182,150.00	36,850.00	219,000.00
DOM REP/UWI	33,251.00	1,800.00	5,800.00	14,127.00	2,647.00	2,300.00	59,925.00	25,575.00	85,500.00
ECUADOR/UMN	57,250.00	6,000.00	11,000.00	11,543.00	14,500.00	0.00	100,293.00	29,707.00	130,000.00
GUATEMALA/CORNELL	49,451.00	4,000.00	7,327.00	10,395.00	2,000.00	8,068.00	81,241.00	18,759.00	100,000.00
HONDURAS/UPR	93,720.00	0.00	10,762.00	6,500.00	18,000.00	8,874.00	137,856.00	17,144.00	155,000.00
INCAP/WSU	103,729.00	0.00	8,000.00	6,039.00	2,450.00	27,145.00	147,363.00	32,637.00	180,000.00
MALAWI/UCD	43,759.00	2,150.00	46,500.00	20,181.00	32,500.00	1,259.00	146,349.00	42,701.00	189,050.00
MEXICO/MSU	70,610.00	12,926.00	10,500.00	21,700.00	1,500.00	9,500.00	126,736.00	23,764.00	150,500.00
NIGERIA/UGA	48,250.00	0.00	23,050.00	19,402.00	19,750.00	2,000.00	112,452.00	20,198.00	132,650.00
SENEGAL/UCR	71,928.00	0.00	20,274.00	28,197.00	66,578.00	0.00	186,977.00	41,023.00	228,000.00
TANZANIA/WSU	67,454.00	0.00	19,986.00	4,924.00	74,383.00	3,697.00	170,444.00	37,056.00	207,500.00
PROJECT SUPPORT									
WID	26,331.00	0.00	2,500.00	1,500.00	0.00	1,077.00	31,408.00	13,192.00	44,600.00
TC INTRA-CRSP COLLABORATION			10,563.00				10,563.00	4,437.00	15,000.00
TC STUDENT WORKSHOP			8,520.00				8,520.00	0.00	8,520.00
PROJECT DEV						5,294.00	5,294.00	2,382.03	7,676.03
TOTAL PROJECTS	\$912,843.00 41.7%	\$42,376.00 1.9%	\$253,761.00 11.6%	\$215,935.00 9.9%	\$278,299.00 12.7%	\$87,678.00 4.0%	\$1,790,892.00 81.8%	\$398,504.03 18.2%	\$2,189,396.03 100.0%
MGT OFFICE	233,750.00	3,000.00	20,000.00	18,000.00	0.00	15,574.00	290,324.00	120,676.00	411,000.00
BOD	0.00	0.00	11,513.00	0.00	0.00	600.00	12,113.00	5,087.00	17,200.00
TC	0.00	0.00	18,000.00	0.00	0.00	662.00	18,662.00	7,838.00	26,500.00
EEP	0.00	0.00	28,700.00	0.00	0.00	25,596.00	54,296.00	22,804.00	77,100.00
OVERHEAD							0.00	0.00	0.00
TOTAL OTHER	\$233,750.00 44.0%	\$3,000.00 0.5%	\$78,213.00 14.7%	\$18,000.00 3.4%	\$0.00 0.0%	\$42,432.00 8.0%	\$375,395.00 70.6%	\$156,405.00 29.4%	\$531,800.00 100.0%
TOTAL CRSP	\$1,146,593.00 42.1%	\$45,376.00 1.7%	\$331,974.00 12.2%	\$233,935.00 8.6%	\$278,299.00 10.2%	\$130,110.00 4.8%	\$2,166,287.00 79.6%	\$554,909.03 20.4%	\$2,721,196.03 100.0%

Table 3

BEAN/COWPEA CRSP
FY 91 BUDGET AFTER 20 PERCENT INCREASE*

PROJECT	PERSONNEL	EQUIPMENT	TRAVEL	OPERATIONS	TRAINING	OTHER DIRECT	OVERHEAD	TOTALS	A.I.D.	ESTIMATED US MATCH	ESTIMATED HC MATCH
BRAZIL/BTI	59,405.00	0.00	23,299.58	23,200.00	13,950.00	9,547.00	23,998.00	153,399.58			
CAMEROON/PURDUE	83,270.00	40,275.00	43,438.00	34,334.41	14,441.00	14,324.35	36,423.42	266,506.18		102,982.00	68,200.00
DOMINICAN REPUBLIC/UWL	144,988.97	1,500.00	24,711.00	28,281.17	18,100.00	12,313.38	52,821.09	282,715.61		26,114.00	112,425.00
DOMINICAN REPUBLIC/UWI	51,873.00	1,800.00	8,573.91	16,959.00	2,647.00	6,060.00	37,806.09	125,719.00		69,332.00	27,900.00
ECUADOR/UMN	80,669.00	25,617.00	16,583.00	19,495.00	14,500.00	30,196.00	41,452.00	228,512.00		65,553.00	0.00
GUATEMALA/CORNELL	51,565.15	4,000.00	7,327.00	10,623.15	2,000.00	49,275.73	23,864.18	148,655.21		33,300.00	2,720.00
HONDURAS/UPR	115,461.91	2,770.87	14,062.00	14,181.22	18,000.00	19,952.99	23,930.62	208,359.61		36,869.00	16,000.00
INCAP/WSU	169,110.00	0.00	8,000.00	6,039.00	2,450.00	33,846.52	32,916.47	252,361.99		18,260.00	57,164.00
MALAWI/UCD	57,634.00	2,150.00	50,700.00	28,181.00	32,500.00	3,259.00	51,757.00	226,181.00		55,391.00	32,075.00
MEXICO/MSU	80,247.00	30,809.00	11,000.00	37,103.00	1,500.00	18,300.00	32,730.85	211,689.85		10,918.00	40,237.00
NIGERIA/UGA	64,229.00	26,600.00	33,107.85	31,301.41	19,750.00	2,350.35	32,525.51	209,864.12		20,839.00	45,000.00
SENEGAL/UCR	84,285.76	0.00	22,274.00	40,921.69	66,578.00	14,429.02	56,724.63	285,213.10		19,106.00	15,000.00
TANZANIA/WSU	75,787.00	15,558.90	43,748.82	5,303.60	87,573.50	22,170.30	40,507.35	290,649.47		80,915.00	188,760.00
WID	30,821.00	0.00	7,284.81	2,500.00	0.00	1,147.00	17,541.66	59,294.47		30,024.00	12,000.00
PROGRAM ECONOMIST	8,505.00	2,000.00	1,500.00	200.00	0.00	124.00	4,338.00	16,667.00		0.00	0.00
PROJECT SUPPORT	8,100.00	0.00	9,150.00	2,200.00	0.00	1,800.00	15,360.63	36,610.63		0.00	0.00
PLANNING GRANTS	0.00	0.00	60,000.00	0.00	0.00	2,069.00	27,931.00	90,000.00		0.00	0.00
PROJECT DEVELOPMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
TOTALS FOR PROJECTS	\$1,165,951.79	\$153,080.77	\$384,759.97	\$300,823.65	\$293,989.50	\$241,164.64	\$552,628.50	\$3,092,398.82		\$569,603.00	\$617,481.00
PERCENTAGES FOR PROJECTS	38%	5%	12%	10%	9%	8%	18%	100%	72%	13%	15%
MGT. OFFICE	233,750.25	9,876.73	24,959.33	23,063.40	0.00	33,190.40	132,316.78	457,156.89			
BOD	0.00	0.00	11,429.83	513.00	0.00	630.78	5,280.46	17,854.07			
TC	0.00	0.00	22,690.66	62.00	0.00	3,600.00	11,068.08	37,420.74			
EEP	0.00	0.00	26,557.90	-457.56	0.00	15,025.00	17,274.62	58,399.96			
SUBCONTRACT OVERHEAD	0.00	0.00	0.00	0.00	0.00	0.00	23,000.00	23,000.00			
TOTALS FOR MANAGEMENT	\$233,750.25	\$9,876.73	\$85,637.72	\$23,180.84	\$0.00	\$52,446.18	\$188,939.94	\$593,831.66		\$0.00	\$0.00
PERCENTAGES FOR MGT	39%	2%	14%	4%	0%	9%	32%	100%	100%	0%	0%
TOTALS FOR CRSP	\$1,399,702.04	\$162,957.50	\$470,397.69	\$324,004.49	\$293,989.50	\$293,610.82	\$741,568.44	\$3,686,230.48		\$569,603.00	\$617,481.00
PERCENTAGES FOR CRSP	38%	4%	13%	9%	8%	8%	20%	100%	75%	12%	13%

*It was decided to end the four projects which are not continuing into the extension on 9/30/91 (the end of the CRSP fiscal year) rather than 4/27/92 (the end of the current extension). The funds which had originally been budgeted for those four projects for 10/1/91-4/27/92 were redistributed to the continuing projects. This amount is also included in the figures of this report as are encumbrances from FY 90. Five-month 20% increase = \$220,000; redistributed funds = \$345,000; encumbrances = \$400,000 (all approximate). Encumbrances include 4th quarter HC expenditures which have not yet been formally reported.

- Closer cooperation with IITA and CIAT, the CRSP conducts regular exchanges of germplasm and scientists with the IARCs.
- Annual meetings and visits between PU and Italian scientists.

Impact Evaluations

The CRSP program has already generated technologies whose adoption has resulted in economic benefits which far surpass the total funding of this CRSP. For example:

- An impact evaluation of the purchase and introduction of 700 tons of a U.S. drought-resistant cowpea variety in Senegal by the European Economic Community and UCR resulted in averting an imminent famine among over a million Senegalese in the the mid-1980s. The cost benefit ratio for this project was calculated at a 63 percent return on the dollar investment.
- Another impact study determined that a new higher-yielding variety of bean developed from African germplasm and introduced into Michigan, resulted in an increased annual production valued at \$3.7 million.

The Budget Process - Financial Reports

The team determined, on the basis of interviews with the Contract and Grants fiscal officers of the ME and of the other sites visited, that all A.I.D. financial management guidelines are being followed. The team concludes that the financial report by the sub-grantees to the MO, and those of the MO to A.I.D., are carried out on a timely basis.

Federal grants are made by the A.I.D. to the ME, which makes sub-grants to each participating institution according to sub-grant agreements. A.I.D. holds the ME responsible for the program and accountable for the funds. The ME, in turn, holds each participating university responsible for its share of the program and accountable to the ME for the federal funds that it receives in sub-grants.

Many of the problems which previously complicated the budgeting process, such as the use of a cash accounting system by the universities and of an accrual accounting system by A.I.D., seem to have been resolved. The budgeting process appears now to be well-standardized, especially after the issue of the MO's publication on CRSP guidelines for budgeting - "Bean/Cowpea CRSP Budget Process" (1989).

However, it appears that this publication has not reached all of the personnel involved in the fiscal management of the CRSP at the various universities. It would be very useful if the MO re-circulated copies of these guidelines to every individual who

participates in the processing of CRSP accounts in the participating universities.

Some inconsistencies were reported between the accounting requirements issued by the B/C CRSP and those of other CRSPs. For instance, the PU OCGBA staff reported having to use different forms for equivalent accounts for the B/C CRSP and the INTSORMIL CRSP.

Similarly, the accounting staffs at both PU and UCR reported that preparing the ten-column budget form required by the B/C CRSP is very cumbersome and time-consuming, especially since it is not easily adaptable to computerization. The staffs were also interested in learning more about the software being utilized by the MO to process its budgeting and accounting operations.

For these reasons, the team recommends that the B/C CRSP organize a training session for the accounting and business staffs of the participating universities, such as the session which was organized by A.I.D. in Chicago a few years ago. The session should cover all aspects of accounting, financial reporting, processing of vouchers, and other similar topics. Such a meeting could result in the simplification of forms, records and procedures, in the increased standardization of accounts and reports, and in the exchange of more useful and efficient software.

Audits

The team found no changes in audit procedures from those reported in 1988 by the last management review team. The ME feels that it is fulfilling its obligations for auditing by pre-auditing all expenditures. The ME protects itself by sub-grant agreements with the universities, which require the latter to reimburse the ME for any expenditures which it may have approved but which are later disallowed by an audit.

Although MSU is audited regularly by a private accounting firm (the last audit results were reported in September 1990, (see Appendix F), the MO states that the CRSP account has never been included in the annual samples selected for auditing by the ME's accounting firm.

The team feels that after an existence of more than a decade and cumulative expenditures of approximately \$30 million dollars, it would be prudent to conduct a general and complete audit of the CRSP. However, the team is also cognizant that such an audit would require significant funding and is therefore not realistic at the moment. Additionally, the A.I.D. Contracts Office has also determined that overseas audits of the CRSP accounts would not be cost-effective. For these reasons, the team does not recommend a general audit but very strongly recommends that spot audits be carried out by the MO, as is being done now.

HC Reimbursements

The team echoes the recommendation made by the previous management review team that the MO study closely the solutions developed by some of its projects to ease the problems of HC funding and the transfer of funds to the HC PIs.

Alternative transfer methods should be investigated for those countries where it may take several months for the HC PI to receive reimbursement and be used as examples to be shared with other problem HCs. Some projects, such as the Senegal/UCR project, have been relatively successful in recently identifying more efficient means for the transfer of these funds.

Budget Problem Areas

Delays by Congress in authorizing the annual Federal budget continue to cause hardships for the CRSP. Recently, MSU advanced \$500,000 of its own funds in order to maintain the operation of the CRSP.

The present Federal budgeting delays have forced the CRSP to operate on two budgets each year, a practice which is extremely inefficient and costly. The team would like to see a return to the two-year forward budgeting procedure, however, it recognizes that this is extremely improbable during present U.S. fiscal conditions.

Matching Contributions

Cost matching requirements have been met by the CRSP. During the last three years, matching levels by the U.S. institutions have run between 48 and 49 percent.

The matching requirements of this CRSP have resulted in the greater identification of the participating U.S. universities with the program and have helped to increased their interest in international development.

The team feels that it cannot make an informed judgement on future HC funding levels for research. The team was informed that in at least two cases, Brazil and Nigeria, where the CRSP has terminated its projects, the governments have continued to fund the research activities initiated in collaboration with the CRSP. An additional discussion of this issue is found in the section on Sustainability.

Administrative Costs and Oversight

Except for financing the extra-curricular activities of the MO. the team feels that the administrative costs appear to be adequately covered.

The team feels, after extensive meetings with the higher administrative and business management staff, that MSU is providing close and effective oversight of the CRSP's fiscal operations.

E. Buy-ins

Although the project "buy-in" concept has been encouraged as an alternative mechanism for motivating non-CRSP countries and USAID missions to participate in the B/C CRSP, such efforts have met with mixed results.

To implement buy-ins to CRSP projects, A.I.D. has established BOAs to act as a companion instrument to the CRSP grant. The BOA permits the acquisition of contract services from institutions participating in a CRSP project which are complementary to the research activities being conducted by such institutions under the CRSP grant, and are therefore included in the statement of work and subject to the terms and conditions set forth in the BOA. This has several significant implications, including: appropriateness of the contract mechanism, ensuring that the proposed buy-in activity included in the BOA scope of work is consistent with the CRSP objectives.

There are several limitations with the current A.I.D. regulations regarding the use of the BOA mechanism for buy-ins into a CRSP program. One such constraint is that the BOA delivery order for a buy-in must be issued and completed before the estimated completion date of the CRSP Grant Agreement. There is also a \$25,000 minimum level for any buy-in. In addition, there is also a cumulative funding ceiling for delivery orders not to materially exceed core funding in each BOA. The funding authorization must be planned and developed in the budgeting process - one or two years in advance to insure the availability of funds. These, and other terms and conditions of the BOA, are constraints to using the buy in mechanism.

There are, however, other alternative means for USAID missions, including those in countries with active CRSP projects, to participate in the B/C CRSP. For example, a USAID mission can use its own contracting authority and award its own grant. The USAID mission in Egypt is an example of a direct grant. Cooperative agreements may also be appropriate. Missions may also contribute to the CRSP by providing local support to its activities providing transportation, office space, and training opportunities funded by other programs which are congruent with and complementary to the CRSP's efforts.

While the MO is to be commended for the benefits brought to the CRSP through buy-ins, it must also consider the operational and administrative costs expended to obtain these and other sources of funding. Such efforts have inevitably had some impact on the overall operational efficiency of the MO. Recently, there have been heavy demands on the MO for a number of extra curricular activities such as, the managing of buy-ins, support for the design of the Sustainable Agriculture and Natural Resources Management CRSP, and CRSP Council activities.

The MO clearly recognizes the consequences of these additional demands and requirements. However, the CRSP's management elements should take stock of these increased demands on the MO. If these demands are likely to persist, then they should be formally recognized within its scope of responsibilities and additional staff be provided to implement them.

There are several A.I.D. documents which have been used to guide USAID missions and the MO in the use of the buy-ins, such as A.I.D. Handbooks 1 (Chapter 25) and 13 (Chapter 6) and the 1980 A.I.D. Project Officer's Guidebook. In this regard, the team believes that A.I.D. should review its contracting documents governing the use of buy-ins to determine if there are ways to streamline and improve this process, especially as it relates to CRSPs. In addition, the team also recommends that the existing CRSP Grant Agreement with MSU be modified to include a buy-in component which would contain, at the least, funding to carry out ME's specific objective of organizing and mobilizing financial and human resources. The intent would be to include funding for the MO to carry out activities involving document preparation, travel, and other logistical support for processing the buy-in proposals that it receives.

A formal mechanism exists and is in place for tracking activities through the buy-in-mechanism. In this regard, PIs are encouraged to incorporate buy-in information, including their effects, in their annual work plans. Project documentation indicates that the buy-ins have complemented existing CRSP activities and have made positive contributions to its projects. In addition, buy-ins such as those in Cameroon (now completed), Egypt and Jamaica, are kept in separate accounts from core funds and are normally reported separately by the MO.

The mechanisms for measuring the substantive effects of buy-ins are, unlike those for training activities, less formal and concise. In large part, buy-ins are set up to support existing CRSP activities and it is difficult to apportion their impact.

As evidenced by the inquiries received by the MO, there appears to be increased interest on the part of non-participating countries and USAID missions in establishing buy-ins with the CRSP. Confidence in the the activities of the B/C CRSP by institutions in non-participating countries suggest a willingness to commit their own funds to the program.

Experience has shown that valuable and complementary research has resulted from the buy-ins, such as those with Jamaica and Cameroon, and that they have enhanced the overall effectiveness of the CRSP. Buy-ins have accelerated the achievement of project objectives and have provided funds for additional project-related activities such as, the preparation of extension pamphlets and the scientific exchanges. These activities have expanded the research fields, the

germplasm base and the cadre of scientists focused on CRSP objectives. The research projects have not altered their focus or objectives as a result of buy-ins.

The MO has been extremely careful to insure that the buy-ins contribute directly to solving the original constraints identified by the CRSP and that they do not address peripheral new areas.

The team notes that the achievement of the CRSP's original objectives are achievable without buy-ins and therefore that the CRSP does not have to depend on them. However, it also notes that in some instances, buy-ins have facilitated their achievement while simultaneously serving the interests of the USAID missions.

F. Sustainability

The issue of sustainability is mandated indirectly by Article 13 of the Global Plan wherein the B/C CRSP is directed to facilitate institution-building and to develop collaborative relationships.

The institutional sustainability of the B/C CRSP cannot be directly measured, nor is it amenable to predictive analysis. Most of the factors which determine the institutional sustainability in the host country of international agricultural development programs, lie beyond the control of the programs themselves.

Thus, the most that the CRSP can do is to implement measures which will maximize the possibility that the host country technical personnel will have the necessary experience and expertise to pursue their research programs after their termination. The B/C CRSP appears to have uniformly addressed this issue by striving to enhance the research capabilities and resources of its host country counterpart institutions by:

- a. Training LDC scientists.
- b. Demonstrating the economic and nutritional importance of bean and cowpea production and stimulating local demand for new production and storage technologies.
- c. Having HC personnel responsible for all phases of their research programs from their onset.
- d. Establishing various types of international linkages between bean and cowpea researchers.
- e. Establishing linkages with the HC private sector.

Training LDC Scientists

Training researchers from the target countries is the most important single step in achieving institutional sustainability; it is a necessary step, although it is not sufficient by itself. This development of human resources has to be well planned and systematic so as to create a critical mass of interdisciplinary researchers who are simultaneously able to collaborate with each other and to work as an independent unit.

The B/C CRSP has made significant progress in establishing this potential in many of their projects; however, in some cases these results appear to be fortuitous rather than planned. In most cases, the returning trainees appear to be able to rely on small cadres of trained national researchers to carry on their professional work.

We have to be somewhat skeptical of the expectation held by most of the PIs that their trainees will assume or resume research positions. In all likelihood, some of these trained scientists will undoubtedly be moved to administrative positions once they return to their countries and will most likely be unavailable to do research. There is nothing that the PIs can do about this loss, except to try to anticipate this factor and be cognizant of it as they help develop the local scientific human resources.

There is one training consideration which might improve the eventual sustainability of the various research capabilities being developed by the B/C CRSP. The selection of long term trainees should be based in considerable part on the institutional needs of their organizations and should not hinge primarily on their personal potential or fortuitous availability. While it is always prudent to select the brightest and most promising candidates, care should be taken to choose candidates who are likely to advance the scientific needs of their countries by specializing in high priority areas and by retaining their research appointments after graduation.

In general terms, training is essential for the eventual sustainability of the program's efforts, and for this reason, it is very important that the B/C CRSP's current training efforts be increased.

Focusing Attention on Bean and Cowpea Research

A second means for developing sustainability by the B/C CRSP has been to document the economic importance of bean and cowpea production to local governments. In many of countries where the B/C CRSP operates, beans and cowpeas have been treated as low priority crops by policy makers and have received little funding support for their breeding or improvement. By documenting the current importance and future economic potential of these crops, the B/C CRSP has in many cases stimulated or re-awakened government interest in them.

As a result of the presence of the B/C CRSP, many of the governments have been more willing to support bean and cowpea research in their countries. Having made such a commitment, and having developed the necessary scientific human and physical resources for its implementation, it seems very likely that these programs will be continued after the termination of B/C CRSP activities, albeit perhaps not at the same levels of funding.

A related development which also serves to enhance the sustainability of the various national research programs is the producer interest that has been created in some countries as a result of new technologies or practices which have been developed and demonstrated in on-farm trials by the programs and subsequently adopted by producers. As producers benefit from new production and

storage technologies, they place increasing importance on these crops and are likely to demand the resolution of other existing constraints. Such demands will help to maintain bean or cowpea production as a high priority crop and thus facilitate continued funding for research.

HC Responsibility for Local Research

Although the practice of not posting overseas long-term expatriate scientists was the result of budgetary restrictions on the B/C CRSP, one important result has been that this practice will enhance the sustainability of its projects. The HC scientists are already responsible for the research efforts in their countries and have acquired the necessary scientific, administrative and fiscal skills necessary to operate research programs. Thus, the termination of B/C CRSP activities in these countries will not signal the absence of personnel capable of maintaining the research efforts, as it often happens in many international agriculture development projects.

International Linkages

The B/C CRSP program has been very active in fostering linkages amongst bean and cowpea researchers. These linkages have taken many different forms and together serve to bind the researchers into a network which can support individual research efforts and distribute new knowledge. HC scientists are thus able to use this network as a means of scientific support and communication which can help sustain their individual research efforts and prevent their professional isolation in the future.

Linkages have been established not only among the various scientists participating in the B/C CRSP, but also with scientists in other CRSPs, in the IARCs, in other national and international research programs, and in neighboring countries with similar research agendas or problems.

Of special note is the ME's recent effort to create some sort of alumni association of its trainees. This effort will serve the trainees to maintain ties with the program and to keep abreast of developments within it. This alumni association would be the ideal means for obtaining systematic data on the subsequent professional activities of B/C CRSP graduates and, thus, on the program's general sustainability.

There is very limited documentary evidence that the B/C CRSP takes into account the financial and institutional requirements for the sustainability of its activities after its termination. The team encourages the PIs to prepare brief concise statements regarding the institutional requirements for sustainability for their HC counterpart institutions and develop strategic plans for helping to implement them within the mandates of the CRSP. As mentioned above,

the B/C CRSP should also be encouraged to pay closer attention to the institutional requirements of its counterpart organizations, especially in selecting its trainees.

Taking into account financial requirements is a much more difficult task. Besides assuming that in the long run funding levels will be either be very limited or inadequate, there is little that the program can do to adjust its activities to the long-term financial requirements of its counterpart organizations. The B/C CRSP should perhaps be encouraged to place emphasis, as much as reasonable, on the development of personnel rather than on capital-intensive research capabilities. Although current HC matching levels may be adequate or even generous, and thus demonstrate commitment, the program cannot assume that they can or will be sustained in the long run.

The B/C CRSP has documentary evidence which suggests that HC scientists and producers in many of the participating countries are motivated to support bean and cowpea research; this point has been discussed above. However, this support cannot be interpreted to mean that this automatically translates into ensured long-term sustainability. Unfortunately, it is much more likely that national economic and political factors will be more important determinants of the long-term viability of the national research programs than the support of the target audiences.

After a decade of implementation, there is strong indication that most of the CRSP programs are viable and sustainable. Of the three countries which no longer participate directly in the CRSP, Brazil is perhaps the best positive example of the impact and sustainability of the CRSP's efforts. The Brazilians continue to fund and operate the research efforts begun in collaboration with the CRSP. The team was not able to identify any programs which appeared non-sustainable or in danger of being so.

The B/C CRSP appears to have taken most of the steps necessary to improve the post-program sustainability of its research activities. While some minor adjustments are possible, such as in the selection criteria for trainees, the program has performed admirably in building a viable and sustainable international research effort.

The team has two additional recommendations to enhance the future sustainability of the present programs. The first is that the CRSP conduct follow-ups of their graduate programs to determine their current viability and its causes. A report with plans, should be made, to capitalize on the utilization of research findings and institutional experience in the countries where projects have been phased out.

The second, is that the HC scientists, and their institutions, be encouraged to develop linkages with the private sector, especially those programs working in food technology and seed production.

G. Women in Development

This issue is mandated by Article 10 of the Global Plan. This article urges the B/C CRSP to give substantive consideration to the human components of the farming systems, especially in regard to the unique and multiple roles played by women, men and children.

The B/C CRSP seems to have managed extremely well its WID activities. Consideration of gender issues appear to have been taken into account in all of the program's relevant components. The inclusion of gender as an important issue has been carried in a manner which serves to support the programmatic research efforts of the biological scientists, rather than intruding on them. The program does not evidence any of the strains which often develop when biological scientists are mandated to confront the pertinent WID issues of their research programs.

The success of the WID component in the B/C CRSP is partly due to the fact that women do play a crucial role in the production of beans and cowpeas in Africa and in their harvesting and processing in Latin America. However, the WID staff has done an excellent job in parlaying these social realities into an integrated research effort.

The WID activities are treated as a support component for the various projects; their purpose is to support the needs of the projects rather than to carry out basic research. This strategy has served to strengthen the individual research projects and to focus them on the appropriate socioeconomic objectives. The WID staff has been very effective in making PIs understand the social parameters of their biological research and, in some cases, making them re-direct their efforts towards more practical ends.

The WID staff implements its mission by performing five functions:

- a. Institutionalizing gender concerns in the individual research projects.
- b. Voicing concerns and providing suggestions about gender issues at the TC meetings.
- c. Disseminating information about gender issues between the various projects.
- d. Providing inputs about gender issues at CRSP workshops and encouraging the participation of women as PIs, researchers, and students.
- e. Representing the B/C CRSP at professional meetings and highlighting its WID component.

In general, the WID staff has been able to influence the design of new projects and has successfully re-oriented, in some cases, the research agendas of existing projects. It has also been successful in recruiting women as CRSP research staff members and in identifying both U.S. and HC personnel with expertise or interest in gender issues within international agricultural development.

Gender disaggregation is best documented in the program's training activities. Of the 153 long-term trainees who had completed their graduate programs by 30 September 1990, 41.1 percent were females; of these, 60.3 percent were from HCs or from other LDCs. By the same date, another 57 trainees were still pursuing their studies; of these, 45.6 percent were females. These summarizing statistics mask significant differences in the trainee gender ratio of specific projects; in some, there have not been any female trainees. However, the training data is disaggregated and individual differences can be easily identified. Similarly disaggregated data is available for short-term trainees. It is evident, that the B/C CRSP has made a significant effort to train HC female scientists.

The disaggregation of data by gender in the other activities of the CRSP is less easily available but in a few cases can be deduced; such as the number of U.S. and H.C. female researchers working in the various projects. Other types of disaggregated data probably exist but are not readily available; for example, the number or proportion of collaborating female farmers in the CRSP's various on-farm programs.

The importance of these limitations in the available data is not very great. In some cases, disaggregation by gender is either meaningless or useless, in other cases, it is extremely useful. Perhaps the most serious limitation in the available data is the absence of readily available statistics concerning the gender ratios of the various HC research personnels. It is within the mandate of the CRSP to encourage and implement, whenever possible, the inclusion of women scientists in the research organizations of the HCs. It is difficult to determine how well this has been accomplished, in the absence of the appropriate statistical information.

The B/C CRSP has done a good job in including and emphasizing its concern with WID issues in most of its publications and other informational materials. The critical role of women as producers of beans and cowpeas, especially in Africa, is repeatedly stressed.

However, at the individual project level, gender issues are sometimes reported in an anecdotal or superficial manner, without much supporting quantitative or detailed evidence. There are some notable exceptions, such as the Malawi project, but by and large, the program does not seem to have developed a general quantitative corpus of data which documents gender considerations; or, if it

has, it has not processed this data into effective supportive evidence.

It is not at all clear, however, whether the development of such supportive quantitative evidence is within the scope or capability of the program. Given the supportive task of the WID component and the very limited size of its staff, the collection or processing of such data may be ill-advised or unreasonable.

When the B/C CRSP stresses the global importance of women in the production, storage, processing and marketing of beans and cowpeas, it should be able to marshall more compelling evidence to support this assertion than it seems to have done so far. If this evidence is available, then it should be more visible and accessible.

Most of the projects do have well incorporated WID components. What is most impressive is not the proportion of projects which have included gender concerns within their research concerns, but rather the seemingly productive manner in which this has been achieved. The present strategy of concentrating the WID staff's assistance efforts on two or three projects each year appears to be very sound and effective.

Although a WID component has not been incorporated into all of the existing projects, this does not necessarily represent a deficiency. In a few of the projects, the nature of the research or its stage of implementation preclude the meaningful incorporation of WID issues.

The WID staff is to be commended for its success in helping the U.S. physical and biological scientists associated with the B/C CRSP to develop an awareness, and an apparent genuine interest, in the reciprocal implications between their work and issues of gender. This is a very difficult and significant achievement and one which should serve as an example and model for the other CRSP programs.

It is tempting to reward such a success and to enhance its scope by recommending that the WID staff be increased in size. However, enlarging the WID component will not necessarily increase its achievements or improve its performance. The personal and professional skills of the present incumbent appear to be one of the principal reasons for the success of the WID component; enlarging the WID staff might dilute the effectiveness of the incumbent. The panel is pleased that additional support is provided to the WID component in the five year extension.

H. Socioeconomics

In the words of the EEP, "the WID component has acted as the social conscience of the B/C CRSP". It has managed to perform this task admirably but it can no longer be effective given the increased scope of activity of the program and the considerable progress made in its individual research projects. The addition of the new economics component is therefore greatly justified.

Some of its individual research projects should have had the benefit of socioeconomic analysis prior to reaching their present stage; evaluation of their progress toward meeting certain objectives would have been greatly facilitated. The physical and biological scientists do not appear to have acquired the same degree of appreciation for economic factors as they have for gender issues. This is an important deficiency in a project which is focused on research whose ultimate objective is to help small and low resource farmers in LDCs.

Some of the program's research projects urgently require economic analyses of the technologies that are being developed, before they proceed further. For example, the cost-effectiveness of the plastic solar heaters developed by PU in Cameroon should be determined precisely to assure that the researchers' efforts are directed towards producing a technology which lies within the economic possibilities of the target audience. Several other projects can probably benefit from similar analyses.

We strongly recommend that the proposed Economics component operate under the same strategy as the WID component; that is to say, that it primarily provide technical support to the various research projects rather than engaging in basic research. In this vein, the CRSP would be perhaps best served if the Economics component not engage in long-term data-collecting activities, such as developing baseline data.

Given the current advanced state of many of the individual projects, it would not appear to be very useful to try to develop baseline data retroactively. In the case of new projects, baseline data collection might be useful in some cases. Where it is useful, it should be carried out rapidly and without a disproportionate effort in relation to the other projects.

Another option is to determine if baseline data has already been collected by another entity and if it is available. Many institutions, such as the World Bank and the IARCs (especially ISNAR), have large collections of baseline data available.

The team supports the decision to locate the Economics component within the ME. This will facilitate the effective provision of economic support services to all of the research projects and will provide the MO with a capability to assess the general and

individual economic impacts of the B/C CRSP. The team is also pleased that the economist will serve as an ex-officio member of the TC, in the same manner as the WID specialist. This allows both members direct access to the key decision-making process.

RECOMMENDATIONS

Management Organization

- The team observed an MO staffed with extremely talented persons operating effectively and efficiently. However, the team is concerned that the recent activities brought about by (1) CRSP Council activities; (2) the pursuit of potential buy-ins; and (3) involvement in the design and implementation of cross-CRSP projects, are overloading the office to the extent that traditional services may suffer. Perhaps this is a temporary situation in 1991, but careful monitoring by the BOD may be necessary. Restructuring of the MO or adding staff may be necessary to meet such tasks.
- Consideration should be given to inviting an administrator from each of the collaborating IARCs (CIAT and IITA) to the BOD meeting in January where representatives from all participating U.S. institutions are present. This should foster understanding and increased collaborative interactions. The purpose of the joint meeting should be to explore means of further expanding collaborative and cooperative programs between the CRSP and IARCs.
- The team is aware of attempts by other commodity CRSPs to facilitate or improve regionalization focus and/or impact by: (1) having prime sites rather than a single HC in a region, or by (2) having a zonal committee made up of PIs in addition to a TC. The B/C CRSP is functioning effectively under their concept of multiple sites. However, the UW Virus Project is expanding to include several Caribbean research institutions; this be a model that should be monitored closely by the MO, TC, BOD and EEP. In addition, the team recommends that a special external team consisting of international development scientists be formed by A.I.D. to make a detailed study of the experiences and effectiveness of the different CRSPs in regionalization efforts (prime site modes, etc.) and provide recommendations to A.I.D. as to the relative merits of prime and multiple sites.
- The B/C EEP presently has a minimum number of disciplines represented, so the team recommends that appropriate consultants continue to be used, either in the EEP or to aid the MO, in difficult planning or evaluation chores. The team assumes that the TC maintains a broad disciplinary expertise by staggered three year rotations of the U.S. PI members, but it encourages the BOD and MO

to consider the disciplinary balance of the TC when new members are appointed.

- The team recommends that the MO and A.I.D./Washington fill the vacancy on the EEP with an individual from outside of the U.S. and with significant LDC experience.
- With the CRSP program is now being extended another five years, this team recommends that management reviews occur the fourth year in a five year extension rather than every third year.
- The team recommends that the TC be occasionally invited to meet with the EEP in order to improve communications between the two groups and to establish a mutual understanding of the different criteria used for evaluating projects and determining their relative funding priority.

Research

- The global nature and accomplishments of the CRSP should be emphasized more in the annual project reports, work plans, and summaries. Research results are now sometimes interpreted too narrowly.
- The team agrees with the concerns of the EEP regarding the movement to HCs of genetic materials developed through biotechnology research in the U.S. The B/C CRSP must comply with all U.S. and HC government regulations in the movement of genetically engineered materials.
- Collaboration with private industry was noted favorably in two of the projects. Alternate management models for such collaborations and working arrangements need to be developed by the BOD and ME/MO.

Although expensive, the team recommends that the B/C CRSP continues to give priority to funding international conferences as a cost-effective means of information exchange and dissemination of research results.

Training

- All annual CRSP work plans should include a section which deals specifically with the training component in terms of funding, program objectives, number of trainees and training categories.
- The MO needs to ensure that the results of the training studies/reports which the CRSP carries out are

incorporated, as appropriate, into program policy guidelines involving the training component.

- The MO is encouraged, where funding permits, to promote more exchanges among all U.S. and HC organizations of post-doctoral scientists and graduate students.
- U.S. and HC PIs are encouraged to visit each other's research sites twice annually.

Financial

- The CRSP should organize a training session for the accounting and business staffs of the participating U.S. universities. Such a meeting could result in the simplification of forms, records and procedures, in the increased standardization of accounts and reports, and in the exchange of more useful and efficient software.
- Although it would be prudent and desirable to conduct a general audit of the CRSP, the team feels that this is unrealistic and therefore recommends that spot audits be carried out by the ME/MO.

Buy-ins

- A.I.D. should review its contracting document governing the use of buy-ins to determine if there are ways to streamline and improve the buy-in process.
- The team recommends that the existing CRSP Grant Agreement with MSU be modified to include a buy-in component which would contain, as a minimum, funding to carry out follow-up activities for buy-in requests.
- PIs are encouraged to transmit or refer to the MO any information or inquiries regarding buy-ins.

Sustainability

- The team recommends that the institutional needs of the HC organizations be taken more into account in the selection of trainees.
- The team encourages the PIs to prepare brief concise statements regarding the institutional requirements for sustainability for their HC counterpart institutions and develop strategic plans for helping to implement them within the mandates of the CRSP.
- In countries where the CRSP has terminated research activities, close collaboration with the former HC PIs

and with their organizations is encouraged in order to promote the sustainability of the organizations. For example, funding might be offered to ex-PIs to attend B/C CRSP meetings or workshops.

- The HC scientists and their institutions should be encouraged and helped to develop linkages with the private sector, especially those programs working in food technology and seed production.

Socioeconomics

- The team strongly recommends that the proposed Economics component operate under the same strategy as the WID component; that is to say, that it primarily provide technical support to the various research projects rather than engaging in basic research. In this vein, the CRSP would be perhaps best served if the Economics component not engage in long-term data-collecting activities, such as developing baseline data, but rather focus on identifying the economic impacts of the technologies developed by the CRSP.

Women in Development

- The team believes that the WID component has been very effective and that A.I.D. should utilize it as a very useful model for the implementation of WID activities in other CRSPs.

APPENDIX A

PRINCIPAL REFERENCES CONSULTED

Unless otherwise noted, all references are published by the Bean/Cowpea CRSP Management Entity at Michigan State University.

Bean/Cowpea Budget Process (1989)

Outlines the budgeting processes to be used by the U.S. sub-grant institutions.

Bibliography, Bean/Cowpea CRSP (1991)

Lists publications, proceedings, presentations and workshops of the B/C CRSP from 1980 to 1990.

Foundation for the Future (1991)

Documents CRSP history, global plans, management and review operational policies, and the accomplishments in research and training from 1980 to 1990.

FY90 Annual Report (1991)

Documents research and training achievements for each project, both in the U.S. and in the HC; includes PI observations on the overall status of their project.

Guidelines for the Collaborative Research Support Programs. BIFAD/AID (1985)

Documents the rules and regulations to be followed by CRSP programs.

Peer Recognition and Outstanding Achievement Awards - Bean/Cowpea CRSP 1980-1990 (1991)

Lists the awards and recognitions received by the scientists and staff of the B/C CRSP.

Proceedings of the Researchers' Meeting (1990)

Reports progress made, by project, by country, and by region, between 1980 and 1990. Identifies the crucial research needed in the coming decade.

Report of the External Evaluation Panel of the B/C CRSP for FY 1989 (1990)

Reports the findings and recommendations of the EEP.

Report of the External Evaluation Panel for the B/C CRSP for FY 1990 (1991)

Reports the findings and recommendations of the EEP.

Report of the Administrative Management Review of the Bean/Cowpea CRSP (1988)

Documents the findings and recommendations of the review team.

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Training Report 1980-1990 (1991)

Documents the training activities and results of the program between 1890 and 1990.

Women in Development (1989)

Documents the role of women in bean and cowpea production, storage and utilization and the manner in which the B/C CRSP seeks to help.

APPENDIX B

STATUS OF BEAN/COWPEA CRSP PROJECTS

PROJECTS CONTINUING

Beans

Caribbean Basin/UWI/Maxwell
Dominican Republic/UNL/Coyne
Ecuador/UMN/Graham
Honduras/UPR/Beaver
Malawi/UCD/Gepts
Mexico/MSU/Kelly
Tanzania/WSU/Butler

Cowpeas

Cameroon/Purdue/Murdock
Senegal/UCR/Hall

PROJECTS PHASING OUT

Beans

Guatemala/Cornell/Wallace
INCAP/WSU/Swanson

Cowpeas

Brazil/BTI/Roberts
Nigeria/UGA/McWatters

PROJECTS BEING INITIATED

Beans

Costa Rica/MSU/Hosfield

Cowpeas

Ghana/UGA/Phillips
IPM Project--Mali/Auburn or
Ghana/Clemson
CRSP Regional Socioeconomics
Research

5

APPENDIX C

TECHNICAL EVALUATION CRITERIA FOR THE SELECTION
OF NEW BEAN/COWPEA CRSP PROJECTS

A. Responsiveness of the Proposal and Technical Approach		
1. Appropriateness of research objectives	20	
2. Appropriateness of research technologies/ methodologies	15	
3. Appropriateness of budget and match	5	
Total:		40
B. Qualifications of U.S. and HC Contractor Personnel		
1. Scientific expertise available necessary for this project	20	
2. Evidence of past and present international activities; commitment to international collaboration	15	
Total:		35
C. Qualifications of the U.S. and HC Institutions		
1. Capacity to support and backstop research and training programs	15	
2. Demonstrated commitment to bean or cowpea research	5	
3. Importance of beans or cowpeas to their national/state goals	5	
Total:		<u>25</u>
GRAND <u>TOTAL:</u>		100

67

APPENDIX D

NEW ACTIVITIES IN EXISTING UNITS

Purdue/Cameroon (Murdock)

An economic study will be initiated to document cowpea storage losses from insects in Cameroon. With new storage technology from this project now ready for extension, this new study will provide baseline data important for later evaluations and will put in place a monitoring function. Biotechnology studies will expand to find useful insect resistance genes. U.S. and Host Country scientists will begin working to establish guidelines for genetically altered plants. A small portion of the funds will be used to allow the Purdue post-doc to remain in Cameroon for three more months as needed for the research.

Nebraska/Dominican Republic (Coyne)

New biotechnology, important for this plant disease project, can now be fully exploited through the integration of cell and tissue culture work with conventional genetic and breeding methods. New *in vitro* protocols of shoot morphogenesis and plant regeneration will be refined and expanded so they can be used routinely to enhance the project research progress.

Wisconsin/Dominican Republic (Maxwell)

With the new transgenic beans developed by this project with the private firm, Agracetus, Inc., the scientists report they are now in a position to move more rapidly toward virus-derived strategies for BGMV resistance. Mutants in the replicative protein are created by molecular biological techniques so that the catalytic function of this protein is destroyed. It should still retain its viral DNA binding capacity so, when present with wild-type replicative protein, it interferes with normal replication. The funds will move the research ahead 6-9 months so that transgenic beans with constructions to test for the trans-acting dominant interference scheme should be available in 1992 instead of 1993.

Minnesota/Ecuador (Graham)

Soils work on micro-nutrient problems affecting bean production will be accelerated, especially in relation to cultivar variation. Addressed only in a limited way in other projects of this CRSP, it is a research need long overdue. The new funds will support soil fertility work in expanded areas and will encourage the participation of institutions in the poorer areas of Ecuador. Thus, the research accomplishments will have greater applicability for the small-scale farmers in those regions.

Puerto Rico/Honduras (Beaver)

Socio-economic studies will be initiated in locations where the project is planning on-farm trials to generate information on the socio-economic factors affecting acceptability of bean lines and other technologies evolving from the research. The study will also investigate the economic importance of diseases transmitted by farmer-grown bean seed.

California, Davis/Malawi (Gepts)

The initiation of the study of reproductive isolation between the two genetic bean pools that co-exist in Malawi, the Mesoamerican and Andean bean pools, will be moved up. Mapping of chromosome regions subject to segregation distortion of the two groups will be carried out. The sooner this work is completed the more rapidly it will provide useful information for other bean breeding programs desiring to cross these pools for their stress resistance characteristics.

Michigan State/Mexico (Kelly)

Carbon isotope discrimination analysis will be utilized in screening beans for water-use efficiency. The polymerase chain reaction will be evaluated for its potential use in marker-assisted selection for drought resistance.

Lack of attention to root rot in Mexico now will be addressed as root rot pathogens confound the drought reaction, a problem identified by the EEP.

California, Riverside/Senegal (Hall)

Socio-economic studies will be expanded with increased WID and on-farm agronomic research. The cowpea breeding program will be expanded to include carbon isotope discrimination as a selection criterion in screening for drought resistance in cowpeas, a promising but heretofore too expensive field technique for selecting genotypes with greater water-use efficiency. This technology has potential for many other crops.

Washington State/Tanzania (Silbernagel)

Development of more bean common mosaic virus monoclonal antibodies will be accelerated for breeders in resistance research. Important summer training programs for current Host Country students in the U.S. will be aided.

WID Program (Ferguson)

Funds are needed to expand the work on farmer-participatory research as a tool for CRSP researchers. An annotated bibliography will be produced from a literature search on the subject and a report will be developed on how the CRSP can use participatory research to enhance its programs.

Management Office

With the encouragement of the External Evaluation Panel and the Board of Directors, the MO has added a secretary half-time on core funds (half on buy-in funds). The increased work load on the MO has made CRSP management by the previous 3.65 FTE unworkable with only one secretary. The MO also will invest in limited updating of its computer and communications systems.

NEW CRSP-WIDE INITIATIVES

Program Economist

A half-time economist will be added to work across the total program. The position will emulate the WID position in structure and operations. The program economist will provide support to the projects to: (1) stimulate on-going economics studies from a CRSP-wide perspective, (2) establish benchmark data from secondary sources for project distribution, (3) identify appropriate ex post impact studies to be initiated, and (4) work closely with the WID specialist to provide other project support as needed.

Workshop on Transgenic Materials

The success of the CRSP in being the first to develop transgenic beans brings with it the need to work with Host Countries in establishing policies on handling such materials. Most are not ready. U.S. and Host Country administrators and PIs will be invited to talk through the problems and explore strategies and recommendations for dealing with this situation. Country-specific timetables for action will be developed with those in attendance encouraged to assume associated responsibilities. To facilitate the attendance of Host Country officials, it may be most appropriate to hold this workshop outside of the U.S. Previous meetings conducted by the CRSP in Costa Rica and in Senegal were most successful in that regard.

APPENDIX E

Attachment 2B
SCOPE OF WORK FOR CORE BUDGET INCREASE

Supplemental Program Description

In response to notification of a budget increase communicated to the Bean/Cowpea CRSP in early January, 1991, project Principal Investigators were contacted in a January 10 memo. They were informed that this was not to be an across-the-board increase but one awarded on a project-by-project basis. In order to be considered, they were to submit a one-page proposal by January 21, including (1) a scope of work indicating the specific use of the new funds being requested and (2) from the new expenditures, short/long-term benefits anticipated but not possible (or not possible as quickly) without them. The memo indicated that of high priority were:

1. Inclusion of agricultural economics as a focused, integral part of project research including, but not limited to, ex-post impact studies,
2. Greater intra-CRSP collaboration especially as would broaden the project's multidisciplinary perspective and/or support #3 below,
3. Greater regionalization in project Host Country locations especially in ways that may eventually generate new buy-ins from Missions (both current Host Country Missions and those not now participating).
4. New links with the private sector especially NGOs/PVOs which might expand the outreach potential of the technology evolving from the project.
5. New efforts within the project's mandate which would strengthen the contribution of the project, and the CRSP, to sustainable agriculture.

The proposals were received, reviewed by the MO and recommendations to the Technical Committee formulated. The packet of requests plus the MO recommendations were faxed to the TC on January 22, 1991. The members of the TC discussed their ideas with the MO by phone on January 23, and the adjusted joint MO/TC recommendations were faxed to the Board that evening in time for the pre-scheduled Board conference call the following day. The project initiatives were discussed and approved by the Board at that time.

This Scope of Work is presented in two sections. The first section presents the new approved activities of the existing CRSP units. Among the projects, four propose to use the funds to add socio-economic activities, seven propose to step-up the use of efficiency-producing, but expensive, new biotechnology which with the budgets held flat for the last four years the researchers had not been able to afford, and three propose to expand/move-up other planned research significantly slowed by previous budget constraints. The second section presents other new initiatives which will address from a program-wide perspective the issues raised in reviews of this CRSP and advance the opportunity for impact.

3. New project: Economic and Family Nutrition Implication of Increased Cowpea Production in West Africa

CRSP achievements in West Africa suggest that questions about the disposal of increased production need to be asked before the issue is a problem. The literature indicates that increased production does not necessarily mean increased nutrition in the producer's family and the role of micro and macro economics may be the critical determinant. Because of Nigeria's traditional role as a major cowpea sink in the region, the question has not previously been asked. However, we need to begin asking the questions now--How much cowpea can the region absorb? At what point does increased supply in the region bring negative returns? What is the optimal range of production costs? How does price elasticity affect grower consumption? What is the contribution of value-added products (e.g., cowpea flour) for the rural as well as the urban population. Within the region, what are the relative country differences in response to these questions? Although discussed briefly with the Board, this project has not been presented to the TC and Board and approved in final form.

APPENDIX F

Ernst & Young

200 Renaissance Center, Suite 2300
Detroit, Michigan 48243
Telephone: (313) 259-9600

Board of Trustees
Michigan State University
East Lansing, Michigan 48824

We have audited the financial statements of Michigan State University as of and for the years ended June 30, 1990 and 1989 and have issued our reports thereon dated August 28, 1990 and September 1, 1989.

We conducted our audit in accordance with generally accepted auditing standards and Government Auditing Standards, 1988 revision, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

In planning and performing our audits of the financial statements of Michigan State University for the years ended June 30, 1990 and 1989, we considered its internal control structure in order to determine our auditing procedures for the purpose of expressing our opinion on the financial statements and not to provide assurance on the internal control structure. For this purpose we also considered the relevant criteria established by the Office of Management and Budget (OMB) as set forth in Attachment F of OMB Circular A-110.

The administration of Michigan State University is responsible for establishing and maintaining an internal control structure. In fulfilling this responsibility, estimates and judgments by the administration are required to assess the expected benefits and related costs of internal control structure policies and procedures. The objectives of an internal control structure are to provide the administration with reasonable, but not absolute, assurance that assets are safeguarded against loss from unauthorized use or disposition, and that transactions are executed in accordance with the administration's authorization and recorded properly to permit the preparation of financial statements in accordance with generally accepted accounting principles. Because of inherent limitations in any internal control structure, errors or irregularities may nevertheless occur and not be detected. Also, projection of any evaluation of the structure to future periods is subject to the risk that procedures may become inadequate because of changes in conditions or that the effectiveness of the design and operation of policies and procedures may deteriorate.

For the purpose of this report, we have classified the significant internal control structure policies and procedures in the following categories:

Revenue/Receipts
Purchases/Disbursements
Payroll
Budget/Cost Estimation
Financial Aid
Reporting to Agencies of the U.S. Government

For all of the internal control structure categories listed above, we obtained an understanding of the design of relevant policies and procedures and whether they have been placed in operation, and we assessed control risk.

Our consideration of the internal control structure would not necessarily disclose all matters in the internal control structure that might be material weaknesses under standards established by the American Institute of Certified Public Accountants. A material weakness is a reportable condition in which the design or operation of one or more of the specific internal control structure elements does not reduce to a relatively low level the risk that errors or irregularities in amounts that would be material in relation to the financial statements being audited may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions. We noted no matters involving the internal control structure and its operation that we consider to be material weaknesses as defined above.

However, we noted matters involving the internal control structure and its operation that we have reported to the administration of Michigan State University in a separate letter dated September 28, 1990. These matters commented on the findings of the University's internal auditors, which indicated instances of non-compliance with University policy based on their audits of various operational units of the University.

This report is intended for the information of the Board of Trustees, Administration and the Department of Health and Human Services. This restriction is not intended to limit the distribution of this report, which is a matter of public record.

Ernst + Young

September 28, 1990

APPENDIX G

PERSONS CONSULTED

Michigan State University

Pat Barnes-McConnell, CRSP Program Director, MO
Maurice Bennink, (CRSP Co-PI), Department of Food Science and
Human Nutrition
Rick Bernstein, (CRSP Economist), MO
Sue Bengy, Administrative Officer, MO
Gil Chin-Lin, International Studies and Programs
Barry Crossweller, Secretary, MO
Anne Ferguson, (CRSP WID Specialist), MO
Eunice Foster, Department of Crop and Soil Sciences
Russ Freed, CRSP Deputy Director, MO
George L. Hosfield, (CRSP PI), Department of Crop and Soil
Sciences
Dick Howe, Contracts and Grants
Don Isleib, Director, Institute of International Agriculture
Ahmed Jana, Trainee, (Somalia)
James Kelly, (CRSP PI), Department of Crop and Soil Sciences
Mmasera Manthe, Trainee, (Botswana)
Eder A. Paul, (CRSP BOD), Chair, Department of Crops and Soil
Sciences
Thomas Postem, Dean, College of Agriculture and Natural Resources
Porfirio Ramirez, CRSP Trainee, (Mexico)
David Scott, Provost
Colleen Sober, Contracts and Grants
Mark Uebersax, (CRSP Co-PI), Department of Food Science and Human
Nutrition

Purdue University

Larry Butler, (INTSORMIL PI) Department of Biochemistry
Ndiaga Cisse, CRSP Entomology Trainee (Senegal)
Colleen Garrity, Assistant Project Administrator, OCGBA
Lowell Hardin, Associate Director, IPIA
Mike Hodgson, Business Administrator, IPIA
Katy G. Ibrahim, Administrative Assistant, IPIA
Louis Jackai, Visiting Scientist, IITA
Elaine McMIndes, Account Assistant, IPIA
Larry L. Murdock, (CRSP PI, ex-Chair of CRSP TC), Department of
Entomology
Georges Ntougam, (CRSP Entomology Trainee, ex-CRSP PI) (Cameroon)
Christian Y. Oseto, Head of Department of Entomology
Richard E. Shade, Associate Professor of Entomology
Jane A. Smith, Assistant Contract Administrator, OCGBA
D. Woods Thomas, (CRSP BOD), Director, IPIA
Jane L. Wolfson, Research Ecologist, Department of Entomology

University of California, Riverside

Cherie Cooksy, Management Services Office

Ahmed Faisal, (Trainee), Sudan

Owen Gwathmey, PhD Graduate, Department of Botany and Plant
Sciences

Tony Hall, (CRSP PI), Department of Botany and Plant Sciences

Abdel Ismail, (Trainee), Sudan

Robert Leonard, Chair, Department of Botany and Plant Sciences

Larry Lund, Associate Dean, College of Natural and Agricultural
Sciences

Cristina Menendez, (Trainee), Spain

Abdalla Mubarak, (Trainee), Sudan

Prabodh Patel, (CRSP Cooperating Scientist)

Claudia Petrie, Graduate Student, Department of Botany and Plant
Sciences

Seymour Van Gundy, (ex-CRSP BOD), Dean, College of Natural and
Agricultural
Sciences

University of Wisconsin

Douglas P. Maxwell, (CRSP PI), Department of Plant Pathology

Medhat Kamal Morkos, Plant Pathology Research Associate (Egypt)

Maria del Rosario Rojas, Plant Pathology Trainee (Costa Rica)

West Virginia University

Edna McBreen, (CRSP EEP), Director of International Programs

APPENDIX H

SECTION A. CHRONOLOGY OF THE BEAN/COWPEA CRSP*

- July 1978 BIFAD authorized planning for the Bean/Cowpea CRSP.
- August 1978 Eleven experiment station representatives met in Chicago and authorized Michigan State University (MSU) to submit the planning grant proposal.
- October 1978 Planning grant awarded to MSU.
- October 1978--
June 1979 Dr. Donald Wallace, on leave from Cornell, worked with Dr. Wayne Adams of MSU in the planning effort.
- October 1978 Letter to Title XII institutions requesting indications of manifest interest. Forty-three responded.
- October 1978 Drs. Wallace and Adams made orientation trips to University of Missouri and A.I.D.-Washington. LDC questionnaires subsequently developed and disseminated.
- December 1978 Dr. Wallace attended the Western Regional Project #150 Participants Meeting in Berkeley, CA, to present a report on the objectives and expected planning procedures of the Bean/Cowpea CRSP.
- January--
February 1979 Drs. Wallace and Adams visited CIAT, Guatemala, Panama, Costa Rica, Colombia, and Chile. They collected information on constraints and met potential collaborators.
- February 1979 Dr. Adams visited the Dominican Republic and attended an FAO meeting there. Dr. Wallace visited IITA. They collected information on constraints and met potential collaborators.
- February 1979 Dr. Wallace attended the Southern Region Meeting of the American Society of Horticultural Science in New Orleans to acquaint cowpea workers of the southern and southeastern U.S. with the goals and procedures of the Bean/Cowpea CRSP.
- March 1979 Dr. Adams attended PCCMCA meeting in Honduras, collected information on constraints, and met potential collaborators.
- April--
May 1979 Fact-finding visits to South America, the Caribbean, Mexico, and West and East Africa by teams from various Title XII institutions. They collected information on constraints and met potential collaborators.
- May 1979 Bean/cowpea proposals received from 77 persons representing 25 institutions in response to the RFP.
- May 1979 Dr. Pat Barnes-McConnell joined the Planning Office.
- June 1979 Drs. Wallace, Adams and Barnes-McConnell presented Interim Report to JRC, Iowa.

*Section A pertains to the CRSP as a whole. See Section B for a chronology of individual CRSP projects

- June 1979 Dr. Barnes-McConnell attended Grain Legume Workshop, University of the West Indies, Trinidad. She collected information on constraints and met potential collaborators.
- June 1979 International Peer Review Panel Meeting to evaluate proposals received. Sixteen panel experts represented CIAT, IITA, IICA, and U.S. senior legume scientists.
- July 1979 Progress report to JRC, Virginia.
- August 1979 Drs. Adams and Barnes-McConnell attended Grain Legume Workshop at the University of Nairobi. They collected information on constraints and met potential collaborators.
- September 1979 Dr. Barnes-McConnell visited Tanzania, the University of Dar es Salaam, College of Agriculture. She collected information on constraints and met potential collaborators.
- October 1979 Developing Country Advisory Group Meeting, MSU. Reviewed and prioritized constraints relative to country needs. Subsequently matched country needs with U.S.-evaluated proposal topics.
- November 1979 Meeting with JRC for approval of recommended Title XII institutions and meetings with collaborating research scientists abroad.
- December 1979 Meeting of the representatives of U.S. institutions approved for involvement in further planning. Information disseminated; constraints by geographic areas reviewed; and potential U.S. research teams designed. Proposal writers from institutions not approved for further involvement notified. Planning extension proposal submitted to Washington. Country constraint research response sheets sent to potential developing country collaborators (scientists and institutional representatives).
- January 1980 JRC meeting—approval of Bean/Cowpea CRSP grant extension and funds for overseas trips by U.S. representatives of potential research teams.
- March 1980 Drs. Adams and Barnes-McConnell attended East African Bean Conference, Malawi. Confirmation of constraints chosen for research in Africa. General research discussions with country representatives.
- March 1980 Dr. Adams attended PCCMCA meeting, Guatemala. Confirmation of constraints chosen for research in Latin America. General research discussions with country representatives.
- March—
April 1980 Meetings on-site of potential collaborators from developing countries and the U.S.:
- (a) familiarizing U.S. collaborators with the specific resources, problems, and culture of the country in which work is to be conducted; and

- (b) providing an opportunity for individual scientists of the U.S and the LDCs to get to know each others' interests, capabilities, and approaches to problem solving, as a sound preparation for:
- (c) developing specific research designs and budgets to address the problems identified.

April 1980 JRC meeting—approval of institutions to be involved in the Bean/Cowpea CRSP.

April 1980 Bean/Cowpea CRSP Development Meeting, Chicago O'Hare, with the ten institutions approved for Bean/Cowpea CRSP involvement. Brief report of the collaborators' meetings, review of the draft Global Plan, decisions on the Bean/Cowpea CRSP Management Entity and the initial five institutions to be members of the Bean/Cowpea Board of Directors.

May 1980 Review and comment on draft Global Plan received from participating U.S. institutions. Global Plan finalized for presentation to Washington.

June 1980 Presentation of Bean/Cowpea Global Plan to JRC.

September 1980 Bean/Cowpea CRSP initiated (five-year grant).

March 1982 Bean/Cowpea CRSP reviewed by Drs. Glen Eeck and Fred Mann.

October 1985 Seven-month extension of the grant without additional funding.

August 1985 Bean/Cowpea CRSP reviewed by Drs. Raymond J. Miller, Jean Ruley Kearns, and Harve Carlson.

May 1986 Three-year grant extension approved.

September 1986 Bean/Cowpea CRSP reviewed by Drs. Edward B. Hogan, Ken Rachie and Jack Robins.

August 1987 Dr. Clarence Gray conducts a study and writes report, "The Impact of the Budget Cuts on the Collaborative Research Support Programs."

June 1988 Bean/Cowpea CRSP reviewed by Dr. Anson Bertrand, Dr. Cornelia Flora, Dr. Richard Sines, and Mr. Fred Johnson.

May 1989 Three-year grant extension approved.

October 1989 Basic Ordering Agreement signed.

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SECTION B. CHRONOLOGY OF BEAN/COWPEA CRSP PROJECTS
August 26, 1991

PROJECT	DATE INITIATED	DATE COMPLETED
Botswana/CSU/de Mooy	June 21, 1982	September 30, 1988
Brazil/BTI/Roberts	September 1, 1981	To be completed March 25, 1992
Brazil/UWI/Bliss	November 1, 1981	May 6, 1989
Brazil/UWI/Maxwell	May 1, 1982	Combined with Brazil/UWI/Bliss May 7, 1989
Cameroon/Purdue/Murdock	March 1, 1987	
Cameroon/UGA/Chalfant	July 1, 1981	September 30, 1987
Costa Rica/MSU/Hosfield	To be initiated April 28, 1992	
Dominican Republic/UNL/Coyne	June 1, 1981	
Dominican Republic/UPR/Beaver	June 1, 1981	Consolidated with DR/UNL/Coyne May 7, 1989
Dominican Republic/UWI/Maxwell	May 7, 1989	To become Caribbean Basin/UWI/Maxwell
Ecuador/Cornell/Wallace	September 1, 1981	September 30, 1986
Ecuador/UMN/Graham	May 7, 1989	
Guatemala/Cornell/Wallace	August 15, 1981	To be completed March 25, 1992
Honduras/UPR/Beaver	March 1, 1982	
INCAP/WSU/Swanson	June 1, 1981	To be completed March 25, 1992
IPM/Auburn/Mack <u>or</u> IPM/Clemson/Shepard	To be initiated April 28, 1992	
Kenya/U of CA/Webster-Wainess	August 15, 1981	June 30, 1987
Malawi/MSU/Isleib	March 1, 1982	September 30, 1990
Malawi/UCD/Gepts	September 15, 1990	
Mexico/MSU/Kelly	June 1, 1982	
Nigeria/MSU/Markakis	September 1, 1981	September 30, 1987
Nigeria/UGA/McWatters	May 1, 1981	To be completed March 25, 1992
Senegal/UCR/Hall	August 1, 1981	
Socioeconomics/MSU/ Bernsten-Ferguson	To be initiated April 28, 1992	
Tanzania/WSU/Butler	June 1, 1981	
Uganda/UCR/Buddenhagen	October 1, 1985	April 30, 1986 (planning grant only)

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APPENDIX I

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ITINERARY

SUNDAY, 8 SEPTEMBER

2000 Review team arrives in East Lansing to meet with
 the B/C CRSP staff at Michigan State University

MONDAY, 9 SEPTEMBER

 Meetings with the B/C CRSP staff at Michigan State
 University

TUESDAY, 10 SEPTEMBER

 Meetings with the B/C CRSP staff at Michigan State
 University

WEDNESDAY, 11 SEPTEMBER

0630 Review team leaves East Lansing
1200 Review team arrives in West Lafayette to meet with
 the B/C CRSP staff at Purdue University

THURSDAY, 12 SEPTEMBER

 Meetings with the B/C CRSP staff at Purdue
 University
1600 Review team leaves West Lafayette
2130 Review team arrives in Riverside to meet with the
 B/C CRSP staff at the University of California,
 Riverside

FRIDAY, 13 SEPTEMBER

 Meetings with the B/C CRSP staff at the University
 of California, Riverside
1800 Part of review team leaves Riverside

SATURDAY, 14 SEPTEMBER

0530 Rest of review team leaves Riverside

SUNDAY, 15 SEPTEMBER

 Day off

MONDAY, 16 SEPTEMBER

1400 Review team re-assembles in Washington to prepare
report

WEDNESDAY, 25 SEPTEMBER

Review team presents its report

APPENDIX J

ADMINISTRATIVE MANAGEMENT REVIEW
SCOPE OF WORK FOR BEAN/COWPEA
COLLABORATIVE RESEARCH SUPPORT PROGRAM (B/C CRSP)

Project Title: Bean/Cowpea CRSP

Project Number: 931-1310

Name of Grantee: Michigan State University

Grant Number: DAN-1310-G-SS-6008-00

Lead Scientist/Contact: Dr. Pat Barnes McConnell
B/C CRSP Program
Director

Review Dates: A. Sept. 9 & 10 - Michigan
State University
East Lansing, MI
B. Sept. 11 - Lincoln, NE
C. Sept. 12 & 13 - Riverside, CA

Type of Review: Administrative Management Review

TEAM COMPOSITION:

1. Agriculture Project Design/Evaluation Specialist:

Education: A minimum of a Master's Degree or equivalent, preferably in research administration, public administration, economics, law, finance or the social sciences, is required.

Experience: Ten years or more of research administrative experience in government or private enterprise at executive or managerial levels with emphasis on developmental work in LDCs.

Knowledge and Ability: Requirements include: (1) full understanding of project appraisal techniques; (2) broad understanding of economic development and project administration; (3) thorough understanding of research methodology and technology implementation; (4) the ability to deal effectively with officials at all levels of government and the private sector; (5) ability to analyze issues.

2. Institutional Specialist:

Education: Minimum of a Master's Degree or equivalent degree in training/social sciences area.

Experience: A minimum of ten years practicing experience in training/sociology and managerial levels in developed and LDCs.

Knowledge and Ability: Requirements include: full understanding of institutional building, training methods, impact of training and application of sociological techniques to the identification and implementation of research and research technologies.

3. A.I.D. Regional Bureau/Mission Representative:

4. BIFADEC Representative:

5. Project Officer/Team Coordinator:

Dr. Harvey J. Hortik, Chief, Agricultural Production Division
Office of Agriculture
Bureau for Science and Technology

It is important that at least one member of the team be trained and/or experienced in economics to assist the team in assessing economic impacts and cost benefit analyses.

I. PURPOSE AND RATIONALE FOR THE A.I.D. ADMINISTRATIVE MANAGEMENT REVIEW

The CRSP Guidelines recommend that A.I.D. conduct administrative management review of the CRSPs every third year of their program and when possible these reviews be coordinated with normal activities of the External Evaluation Panel (EEP).

This procedure was suggested as a way to conserve the time of host country collaborators, allow for observations on the modus operandi of the EEP and provide a convenient method for interactions between the A.I.D. grant, subgrant and institutional representatives (U.S. and host country collaborators).

The EEP for the Bean/Cowpea CRSP (B/C CRSP) completed its special evaluation in January 1991 for a five year extension of the B/C CRSP.

II. PROJECT HISTORY

The B/C CRSP will begin its 12th year of project activities in October 1991. It was initiated under the Title XII Support Act and the Grant Agreement was accepted and signed by Michigan State University in September 1980.

The long range purpose of the B/C CRSP is to organize and mobilize financial and human resources necessary for maintaining a major multi-institutional U.S./LDC collaborative effort of research and training in bean and cowpea related areas. Eleven U.S. institutions are responsible for providing leadership to the projects and are actually subgrantees of the B/C CRSP.

At present, there are 9 LDCs, one Graduate Country and 2 IARCs collaborating on the research projects. Each host country, has an established agricultural institution, staffed by scientists, trained personnel and students with whom the B/C CRSP scientists are able to collaborate. These institutions provide the extension links for the practical adaption of bean and cowpea research developed under the project to the LDC country and regional LDCs. The sites are representative of the various bean and cowpea production areas encountered in the tropics and subtropics.

IV. STATEMENT OF WORK

The following specific items should be considered by the team.

A. Organizational:

1. Has monitoring by A.I.D. and the Management Entity (ME) of the CRSP project in the U.S. and host countries been adequate?
2. Several groups, such as the Technical Committee (TC), Board of Directors (BOD), EEP, ME, Mission and A.I.D. are involved in various aspects of this function. Have these groups performed as outlined in the CRSP Guidelines?
3. Have prompt and decisive actions been taken on recommendations made by the EEP regarding problem projects and institutions?
4. Are there marginal or redundant organizational activities that should be deleted from the CRSP? If so, identify them.
5. Have progress reports been submitted by the B/C CRSP in accordance with the grant document?
6. What specific topics should the progress report cover?
7. What changes have been made in the B/C CRSP to improve organizational efficiency and effectiveness during the past three years?
8. Are the administrative costs competitive with other modes of administering research programs?
9. Has the ME been able to move the projects into active collaborative research with appropriate documentation and budgetary support?
10. Has the ME provided the necessary liaison between host countries, PIs, Missions and A.I.D. for travel, procurement, training, reports and budgets?
11. Has a meaningful global plan been developed and implemented?
12. What Memoranda of Understanding (MOU) have been negotiated between the host country and the ME.
13. Are the MOU's and the annual work plans complete, concise and comprehensive enough to cover the situations for each agreement?
14. What program is followed for timely review and updating of the MOUs?

B. Training/Institution Development:

1. What has been the progress in training of students and/or techniques both overseas and in the U.S.?
2. Which, if any, areas of speciality need more focus?
3. Considering the current and past budget resources, has training been adequately addressed in relation to other CRSP priorities?
4. Have the B/C CRSP projects strengthened host country capabilities? If so, give examples.
5. Are strong linkages being established between U.S. institutions and their overseas collaborators in related fields of experiences? If so, give examples.
6. Has the B/C CRSP had an impact in host country and U.S. institutional research activity priorities and government policies? If so, cite specific examples.
7. Have host country and U.S. institutional collaborators become involved at the project worksites?

C. Research Program:

1. Have the projects been directed towards their objectives and are they reaching their goals as established in their work plans and progress reports?
2. Have directions shifted and have changes been made? If so, cite specific examples.
3. Were the reasons valid for these program changes?
4. With budgetary changes, have modifications to project goals and work plans been considered and developed.
5. Are projects linked together and activities integrated so that developed technologies can be transferred to similar agroecological sites?
6. Should the B/C CRSP take on additional outside grants/contracts?
7. What are the benefits and/or detriments to additional "buy-ins" through Basic Ordering Agreements and/or grants?
8. Has the B/C CRSP supported mission projects? What has been the consequence of this support?
9. What are the chances for more Mission, Host Country and IARC buy-ins?

10. Should the B/C CRSP become more involved in technical assistance and service to the missions?
11. What is the working relationship between the B/C CRSP and the IARCs?
12. Is there too much co-mingling or should there be more?
13. What is the chance of attaining project goals and objectives in the time horizon programmed?
14. Is there a plan for information and technology dissemination and implementation to users? What are the project's mechanisms for dissemination: Has there been an effect attributable to dissemination?
15. What technical results have been published in referred journals?
16. Does the B/C CRSP have a peer review plan? If so, describe the plan.
17. Have peer review mechanisms met, in substance the Bureau and Agency objective set forth in the CRSP Guidelines?
18. Are concise summary reports issued for users in the LDCs? If so, define how the summary reports have been utilized by users.
19. Are plans being made by the B/C CRSP to summarize findings for future reference?
20. Are their specific interdisciplinary research areas where cooperative efforts by two or more CRSPs could increase the efficiency and effectiveness of the CRSPs? If so, give specific example.
21. What impact has the B/C CRSP had on U.S. agriculture?
22. What evidence is there that the Host Country programs are naturally evolving and developing so that the CRSP can move to new LDC sites with the assurance that existing programs will be carried forward by the Host Country?
23. What is the developmental relevancy of the B/C CRSP program on a global basis and for the specific host countries?

D. Financial:

1. Have standardized guidelines for financial reporting by subgrantees and the ME been developed?
2. Are expenditures of funds reported on a timely basis by the subgrantees and the ME?

3. Has the ME and the collaborating institutions complied with OMB circulars A-110 and/or A-113? Has the ME resolved any audit issues identified in the A-110/A-133 audit(s)?
 4. Have A.I.D. financial management guidelines been implemented?
 5. How cost effective has the B/C CRSP been?
 6. Can a cost benefit ratio be calculated?
 7. What success stories are there to support the cost effectiveness?
 8. Have the cost matching requirements of the CRSPs been met by the B/C CRSP?
 9. What has been the effect of the matching requirements of this CRSP?
 10. Is the present ME structure the most cost effective and efficient management structure?
 11. Should administrative funds be increased or decreased? If so, give examples of modifications that would improve the performance of the CRSP.
 12. Is there sufficient oversight by Michigan State University administrators?
 13. Have the Host Countries increased funding for the Host Country programs so that the Host Country scientists can conduct effective research programs which will be sustainable in the future without U.S. funding? Give examples.
- E. Buy-ins:
1. How effective and successful is the buy-in component under the project?
 2. Describe the process for tracking activities financed through the buy-ins?
 3. Are there mechanisms in place to measure the substantive effects of buy-ins?
 4. Have the buy-ins made a positive contribution to the project? Describe benefits.
 5. Have the buy-ins complemented the S&T-funded portion of the project and enhanced the overall effect of the project?
 6. Has the project changed its focus as a result of the buy-ins? If so, describe.
 7. Have project objectives changed to incorporate the buy-ins? If so, describe changes.

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8. Is achievement of the projects original objectives dependent or independent of the buy-ins? In what way?
9. What are the attributes of buy-in experiences which have worked well, e.g., attributes of success? Similarly, what has not worked well?

F. Sustainability.

1. Institutionalization of S&T-supported interventions is critical to longer-term sustainability. How is sustainability addressed by this project? Is sustainability addressed directly in project design? Is capacity building a part of the project? Is there verifiable progress on institutionalization from project efforts to date?
2. Does the project take into account the financial and institutional requirements to continue operation of the project activities after A.I.D. funding is terminated?
3. Can we assess the extent to which the project target audience is motivated to ensure long-term sustainability?

G. Women in Development.

1. Gender considerations are implicit in most A.I.D. projects. Agency policy is to emphasize and support the active participation and substantive contributions of women in the development process. Are gender issues taken into account during project implementation?
2. Can project impact be disaggregated by gender?
3. Do project data reflect gender considerations?
4. Has a WID component been incorporated into all appropriate projects?

V. BACKGROUND MATERIAL FOR TEAM

The team will receive reports and briefing materials for use prior to and during its reviews. Documents available prior to review are as follows:

1. Grant document
2. Project descriptions - annual workplans and annual reports (Available at B/C CRSP Management Office)
3. Budget for each participating institution and each project (available at the B/C Management office)
4. External Evaluation Panel Report - 1988, 1989 & 1990
5. Sample trip reports
6. Global Plan and Progress Report - B/C CRSP
7. Agency and Bureau Peer Review Guidance

VI. FINAL REPORT

The Review Team's final written report which addresses the specific items in Section IV should be completed and submitted to A.I.D. by October 1, 1991. Ten copies of the final report and a copy of the report on a Word Perfect formatted diskette should be submitted to the Chief of the Agricultural Production Division in the Office of Agriculture, Bureau for Science & Technology, Agency for International Development.

wd 7892f
7/29/91