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REPORT TO THE CONGRESS

ON

TITLE XII - FAMINE PREVENTION AND
FREEDOM FROM HUNGER

OF THE

FOREIGN ASSISTANCE ACT OF 1961

AS AMENDED

Submitted by the

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY

HIGHLIGHTS

This is a transitional year. Last year's Annual Report looked at the experience to date with Title XII. The report next year will reflect any new directions, changed funding levels, or organizational changes brought by the new Administration. Hence this report, the fifth Report to the Congress on Title XII, merely supplements and updates that transmitted last year. For the same reason, it does not include projections for programs and activities for the five years ahead.

The past year has witnessed progress and change:

- The concept of Title XII is generally accepted. The emphasis now is on how well the programs are being carried out, and how A.I.D. and the universities can work together to improve performance;*
- Title XII programs comprise about half of Section 103 ("Agriculture, Rural Development and Nutrition") activities, as well as an important share of activities financed by other appropriation accounts. Country projects--about five-sixths of total Title XII activities--show many significant results;*
- BIFAD's involvement in review of A.I.D. Missions' Annual Budget Submissions resulted in recommendations on the apportionment of funds, importantly helping to translate Title XII concepts into more balanced A.I.D. programs;*
- Increasing use of the Collaborative Assistance Method of involving universities in long term A.I.D. country assistance projects, and exploration of a program for Technical Support to Missions, through which universities assist missions plan and design projects, exemplify the continuing search for innovative and flexible ways to involve U.S. universities more effectively in A.I.D. programs;*
- An Internal Staff Work Group on A.I.D.-University Relations involving A.I.D. and BIFAD staff members and building on BIFAD Staff efforts and ideas from a variety of A.I.D. and university representatives is developing specific, promising approaches for overcoming obstacles to more effective university performance in A.I.D. programs;*
- The pace of the Collaborative Research Support Program activity quickened. A.I.D. made a new Program Grant for research in beans and cowpeas; Planning Grants for research in peanuts, soils management, and integrated crop protection; and added funding to the Program Grants for research in small ruminants, and grain sorghum and pearl millet;*
- A.I.D. joined in funding the establishment of a new international agricultural research center, the International Service for National Agricultural Research, to assist national research programs;*

- *Strengthening Grants helped improve universities' curricula and instructional programs, research, and foreign language capabilities; and thereby enhanced A.I.D.'s ability to use university expertise in overseas activities;*
- *BIFAD made major progress in upgrading its Registry of Institutional Resources, so as to enable A.I.D. to achieve a better fit between the requirements of its country programs, and the resources of U.S. universities;*
- *Both A.I.D. and the universities made a real effort to involve women in Title XII activities.*

Whatever changes our new leadership will bring, it is clear that A.I.D. and the universities have developed a momentum for the Title XII legislative mandate that will support the very best that we can do together.

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I. COUNTRY PROGRAMS: SPOTLIGHT ON IMPLEMENTATION

The General Authority of Title XII is provided in Section 297 of the Title. Section 297(a)(2) authorizes the President to provide assistance "... to build and strengthen the institutional capacity and human resource skills of agriculturally developing countries so that those countries may participate more fully in the international development problem-solving effort and to introduce and adapt new solutions to local circumstances."

This authority is implemented primarily, though not entirely, through A.I.D.'s country mission-funded and regional programs.

Last year's Annual Report to Congress reported a sharp rise, since the initiation of Title XII, in emphasis on this kind of program by the A.I.D. missions as evidenced by their program requests. In FY 1976, before Title XII was initiated, about 11.3% of the requests for food and nutrition (Sec. 103) funds were for projects of the type authorized in Sec. 297 (a)(2), quoted above. By FY 1981 this had nearly quadrupled, to 41.4%.

A. Project Progress

Last year's Annual Report to the Congress also reported progress in:

- development and review of program requests;
- contractor selection for approved projects;
- development of new instruments for involving universities in country programs; and
- the rate of project implementation.

That progress has continued. In Fiscal Year 1982 it is expected that Title XII programs will comprise about half of Section 103 activities, as well as an important share of activities financed by other appropriation accounts.

In short, the concept of Title XII is now generally accepted. The emphasis of A.I.D.--and university--concern has shifted: How well are Title XII programs being carried out? and how can A.I.D. and the universities work together to improve performance?

Later portions of this section discuss some of the innovative ways being explored for increasingly effective A.I.D./university cooperation--as well as some of the problems which still need to be addressed. About five-sixths of Title XII activities are country projects. (Appendix I presents an illustrative set of country activities.)

Some of the ways that Title XII activities are helping to increase the rate of agricultural development and thereby improve the quality of life of the poorer developing countries include:

- In Peru, with the assistance of the University of Illinois, about 600 technicians have been trained in production techniques and extension methods; the estimated 1980 production of improved seeds was 400 metric tons of soybeans and 1000 tons of corn;
- In Tunisia, faculty consultants from the Midamerica International Agricultural Consortium (MIAC) are helping to strengthen capabilities of Tunisian research institutions, and developing technology adapted to needs of small farmers. MIAC institutions are also providing advanced university training;
- In Lesotho, Washington State University is helping the Ministry of Agriculture to develop field-tested combinations of crop and livestock farm enterprises, and a receptivity among small farmers to apply relevant research results;
- In Bolivia, the Consortium for International Development has arranged for training of over 200 Ministry of Agriculture and Agricultural University personnel, over 100 farmer short courses, 70 extension publications, and 400 research studies and demonstrations in potatoes, rice, corn and peanuts;
- In Nepal, the Southeast Consortium for International Development is participating in a multi-donor project to identify, test, and implement ways to reduce environmental degradation in hill and mountain areas.

B. New Approaches toward Better Utilization of Universities in Country Programs

This past year has featured substantial progress toward improving the framework within which universities participate in implementation of country programs in agriculture, rural development and nutrition. Perhaps as much as the increases in quantity of such Title XII activity, these improvements in methods and approaches promise increased total impact by improving the quality of technical assistance provided to the developing countries. Substantial progress has been made this past year on five interrelated activities, all participated in or done on the recommendation of BIFAD, its support staff and its subordinate joint committees.

(1) Technical Support to Missions

The program of Technical Support to Missions, to provide U.S. university expertise to assist missions carry out such functions as analyzing country needs, developing, designing and evaluating projects, constitutes one promising approach toward achieving more relevant university inputs in A.I.D. country programs. Following favorable A.I.D. and BIFAD consideration, then Administrator Bennet solicited Mission reactions to a proposal for:

"... establishment of a mechanism for effective long-term Mission-University relationships to provide technical support to Missions (TSM) in the discharge of the Mission's program responsibilities."

Among the TSM characteristics which he described were these:

- A three- to five-year renewable agreement between a Mission and a university would embrace a guaranteed annual level of funding;
- service orders would be placed and managed directly by the Mission with the university; and
- institutions would be selected which could provide experienced staff in areas where Missions anticipate development needs. (In fact, the hiring and scheduling of university personnel will be managed so that a Mission request can be filled in a timely manner, and by an individual thoroughly familiar with the country and the specific Mission needs.)

From a number of Missions evincing considerable interest in the TSM concept, two have been selected for early starts: Costa Rica and the Dominican Republic. Interested universities have been contacted about participation in TSM programs in these countries, and the universities to be selected should begin work soon. The A.I.D. Costa Rica Mission's request for assistance in preparing target group profiles, social soundness analyses, project feasibility studies, and technical assessment of ongoing loan programs, illustrates the kinds of services which TSM can provide to Missions.

(2) Baseline Studies

Last year's Annual Report noted that country baseline studies:

"were designed to provide relatively comprehensive, country-specific information on the current state of and future requirements for assistance in the strengthening or development of research, education and extension programs. They would also provide a basis for identification of opportunities for Title XII programs".

Tuskegee Institute has embarked on the most recent baseline study in Guyana. In addition, the South-East Consortium for International Development (SECID) is assessing the studies already completed, through discussions with both contractors and end users of those studies, to determine whether the existing Baseline Studies Field Manual needs to be revised. If so, SECID will prepare a revised--shorter, simpler--manual, which hopefully will enable the user in the assisted country or the A.I.D. Mission more easily to (a) fit research, education, and extension with the other parts of rural development as part of an integrated country sector strategy; and (b) yield the basic data on which to base more meaningful technical assistance programs.

(3) Collaborative Assistance Method of University Contracting

Last year's Annual Report described the Collaborative Assistance Method of university contracting of Title XII projects. As noted therein, this method provides for university participation in shaping project design and work plans flexibility in working out the timing and mix of inputs with host institutions, and a long-term commitment of professional resources. It also involves much more discretionary decision making by the U.S. university in concert with the host country institution. It features project management primarily through annual results evaluation of progress by A.I.D. and the host country, rather than by A.I.D. approval of day-by-day input decisions by the U.S. university.

With increasing use of the Collaborative Assistance Method has come a growing understanding of the need to define relationships among all the parties as well as of the circumstances where it is most likely to work well. It has become established as an effective technique for utilizing university talents in A.I.D. country programs and, as some of the procedural problems are being resolved, is becoming a much more frequently used system for university implementation of A.I.D. contracts.

(4) Task Force on A.I.D.-University Relations

Efforts to improve A.I.D.-University relations have a long history. They go back at least to the landmark report by John Gardner, A.I.D. and the Universities in April, 1964--early in A.I.D.'s history-- and to the Proceedings of the Conference on International Rural Development (in which A.I.D., the Department of Agriculture, and the universities participated) in July of that year. The major thrust of these efforts has always been to identify, and pursue, the changes in A.I.D.'s and the universities' ways of doing those things required to yield increasingly more effective university involvement in A.I.D. programs.

Last year's Annual Report presented the full text of a "Statement of Principles for Effective Participation of Colleges and Universities in International Development Activities," adopted by the Executive Committees of the National Association of State Universities and Land Grant Colleges (NASULGC). The subject was considered further at the November 1979 meeting of NASULGC, regional Title XII Seminars with a wide participation from universities in January 1980, and a conference of the Midwest Universities Consortium for International Activities (MUCIA) in May 1980.

The ideas generated by these various efforts--as well as by representatives of various A.I.D. bureaus and offices, individual universities, and other public and private agencies and organizations--all contributed to the thinking embodied in a BIFAD staff report issued in October 1980. Entitled "Toward More Effective Involvement of Title XII Universities in International Agricultural Development," its principal argument was that:

"... greater, long-term commitment on the part of the universities, and more secure and sustained funding from A.I.D. will both be required if U.S. agricultural universities are to achieve their full potential in marshalling the human and institutional resources required to help staff and support a major component of the U.S. foreign development assistance program--food and nutrition."

As evidence of a widening gap in the supply of university resources for international development, the staff report cited:

- delays in initial staffing, and replacement of staff;
- utilization of non-university staff for a significant share of long-term positions;
- limited numbers of agricultural scientists with requisite language and cultural skills;
- limited university interest in more "difficult" A.I.D. programs;
- a general pattern of not utilizing young faculty with tenure track appointments on long-term assignments; and
- an empty "pipeline" of international agriculturists.

The staff report then proceeded to consider the factors explaining this supply gap. Within U.S. agricultural universities, it identified these limiting factors;

- appointment, promotion, and tenure policy;
- priority on traditional funding for state and regional programs;
- deficient language and cross-cultural skills among faculty;
- salary policy; and
- organizational structure.

With respect to A.I.D., the report listed the following limiting factors:

- uncertainty about the duration of the A.I.D. program;
- A.I.D. policy for adjusting university salaries, and income tax laws relating to overseas employment;
- overly narrow interpretation of the "new directions" mandate;
- high propensity for modification of A.I.D. program design;
- volatility of foreign relations;
- limited university involvement in program design and modification; and
- host country contracting and personnel approval.

Finally, the staff report made a number of recommendations for action by A.I.D., individual universities, and national associations of universities. On June 26, 1980, BIFAD met with IDCA and A.I.D. to consider and discuss the ideas and recommendations contained in an earlier version of the staff report. One result of that meeting was the appointment of an internal A.I.D.-BIFAD Work Group to consider what action should be taken on the recommendations in the staff report.

Thus an Internal Staff Work Group on A.I.D.-University Relations presented its report to the BIFAD meeting with A.I.D. on December 5, 1980. The Work Group endorsed the staff report's recommendations on:

- creation of a university task force to examine university involvement in international programs;
- modification of university appointment, promotion, and tenure policies in order to consider professional efforts in international agriculture; and
- universities' cultivation of local support for international activities.

The Work Group also (among other things):

- concurred in development of reciprocal agreements for a long-term partnership between A.I.D. and the universities;
- considered that the recommendations in the staff report for lengthening the periods of authorization, contracting, and funding for Title XII programs and projects required further study;

- recommended that A.I.D. and each Title XII University enter into a Memorandum of Agreement which would provide broad guidance and direction to all agreements between A.I.D. and the university; and
- recommended that an independent study be made of incentives (and disincentives) for university service overseas.

With BIFAD's blessing, work is continuing. As of this writing, A.I.D. had developed the scope of work to be done under a contract for the incentives study. The contractor will be asked to identify and evaluate incentives and disincentives--both financial and nonfinancial--and to develop options for incentives necessary to stimulate more and better university involvement in A.I.D. overseas programs in agriculture. A.I.D. had also prepared a draft "Memorandum of Understanding". Progress on these important steps suggests that A.I.D. and the universities are serious about building relationships based on an understanding of their respective responsibilities--and a shared determination to work together productively in the cause of international development.

(5) Dual Path Employment Agreements

A.I.D. has invited universities' views on a proposal, endorsed by BIFAD and its Joint Committee on Agricultural Development, for "Dual Path Employment Agreements". According to this proposal, A.I.D. and a particular university would agree on arrangements whereby a limited number of faculty members would alternate between periods of teaching, extension, or research at the university and period of service with A.I.D.--hence the "dual path".

Faculty members would retain their university appointments while serving in A.I.D. for two years at a time. Upon returning to the university, they would receive their normal salary, including increments that would have been due them during the years they were serving in A.I.D. The individual's first tour with A.I.D. normally would be served overseas, following orientation in Washington. (S)he would be appointed as a Foreign Service Reserve Limited employee under the Intergovernmental Personnel Act. Upon returning to the university, his or her next assignment would be determined as soon as possible, so that (s)he could make the necessary advance preparations (especially language training).

Dual Path Employment Agreements would presuppose a commitment in principle to long-term sharing of particular professional personnel in the agricultural sciences and related fields. The rationale of this proposal is that it would provide A.I.D. with access, over a long period of time, to additional experts in touch with the latest developments in their specialities while strengthening universities' international development programs through providing staff with practical experience in an A.I.D. Mission. The concept furnishes one more example of A.I.D.'s search for innovative ways to strengthen both relationships with U.S. universities and their capacities to contribute to Title XII programs.

II. RESEARCH: AN INTEGRATED APPROACH; AN EVOLVING AGENDA

Three of the five general authorities in Title XII are concerned with research. This is an appropriate and wise emphasis. Achievement of the long term goals of Title XII--Famine Prevention and Freedom from Hunger--requires massive improvements in the efficiency and productivity of technologies actually practiced on the farms of the developing countries; the kind of improvement that has doubled food production in just over three decades in the U.S., and increased food grain production about 2-1/2 times in the last 20 years in India. This requires that Title XII be concerned with improving the level of knowledge and technology available and applicable to developing countries as well as with the institutional processes of getting those technologies adapted for and adopted in those countries.

A. Research as Part of A.I.D. Country Mission-Funded Programs.

In addition to these three specific authorities, which are implemented under centrally funded programs (described below), research is also conducted under the authority cited on page 1. Under the broadest definitions of research, the greatest share of A.I.D.-funded research is undertaken as components of individual country programs discussed earlier. The objective of all these country assistance programs is, of course, to help the individual country solve its problems. In some cases, a research project is carried out on a specific problem in such a way that its results are useful in other developing countries. A project in Niger to develop improved varieties of millet, sorghum and cowpeas--and to develop improved production practices for these crops--is an illustration. A project in Guatemala to develop farm organizational and management systems of diversified farming, to achieve much greater total productivity at lower per unit costs from small farms, is another example. While directed at solving local problems, projects of this type will undoubtedly also have broad applicability to other countries.

The great bulk of support to research under country programs, however, is as elements in projects with broader objectives. Most commonly this is in the form of assistance to developing countries to strengthen their own institutional and trained human resource capabilities for research and related functions (for example to build a Land Grant type university)--or as part of a specific development project in the individual country (for example, to improve soil conservation practices).

Through country projects of this type, A.I.D. supports research in various ways:

- research institutions, preferably integrated with extension and teaching, are created or strengthened;
- developing country agriculturists are provided research training: either locally, in the United States, or in a third country;
- U.S. scientists are engaged with local scientists in joint local research undertakings;
- national research systems for the country are developed or improved.

A.I.D. does not maintain separate data on the amount of research undertaken as a part of our country programs. In part, this is a matter of definition as to what constitutes research. More especially, one of the most severe problems in many developing countries is the historic separation of research from extension and other services to farmers. A principal objective of Title XII is to integrate these functions. Delineation of research as a self enclosed entity would be counterproductive to that objective.

In brief, development of institutional capability and scientifically trained agriculturists is absolutely essential if the developing countries are to make use of the technological and scientific advances taking place in the more developed countries. Although a great deal of research related activity takes place within country mission-funded programs as a part of building that capability, it is directed at objectives other than advancing knowledge and technology useful in other countries.

We estimate that, under broadest definitions, about \$65 million was spent last year (FY 1980) in support of research capabilities through our country mission funded programs. Different definitions would yield different estimates.

B. Centrally Funded Research

In brief, the three authorities in Section 297 of Title XII concerned with research (in addition to that carried out in country programs) are (listed in reverse order for convenience in exposition):

- to provide program support to the International Agricultural research centers;
- to involve (U.S.) universities more fully in the international networks of agricultural science, including the international research centers, the international agencies and the institutions of agriculturally developing countries;
- to provide support for long-term collaborative university research on food production, distribution, storage, marketing and consumption (a new authority).

In principle, A.I.D. and BIFAD would like to see each country evolve scientific self sufficiency for its own agricultural growth. In reality, however, the physical plant and trained manpower resources required for effective research are enormous. Few developing countries can afford more than a minor fraction of the resources required. The United States has, of course, a very large agricultural research establishment constantly developing new knowledge and technology for American agriculture, which we try to help developing countries use and adapt for their purposes.

Most U.S. based knowledge and technology, however, does not directly fit into developing countries, and cannot be transplanted without substantial additional research. To attempt to do this additional research entirely country-by-country would be overwhelmingly expensive. It would, in simple fact, condemn the poorer countries to a future of constantly worsening food supplies. It is to this problem that the Title XII authorities on research are primarily addressed--to finance research directly aimed at developing knowledge and technologies specifically applicable to conditions characteristic of developing countries generally, thereby reducing greatly the amount of country-by-country adaptation required.

(1) Support to International Agricultural Research Centers

The international agricultural research centers link with the national programs of less developed countries in a global research network to supply the technology needed to expand food production. The Consultative Group on International Agricultural Research (CGIAR), an organization of donors, coordinates funding and provides program guidance to the centers under its aegis.

A.I.D. helped establish CGIAR, and has provided about 25% of its required total annual funding. (A.I.D. grants to the international centers totaled \$29.6 million in Fiscal Year 1980, and are estimated at about \$36.5 million in Fiscal Year 1981). In 1979, the CGIAR members agreed to try to provide financing based on 3% real growth for the older centers, completion of currently developing centers, and initiating additional high priority activities. But inflation has halved the hoped-for growth rate; and the many proposals for new undertakings has exacerbated the task of setting priorities. A new review of CGIAR programs and policies is underway.

The centers serve the less developed countries in four major ways:

- (1) by doing research to provide technology to solve agricultural problems;
- (2) by providing practical training to developing country research and extension personnel (also some degree training in cooperation with developed country universities);
- (3) by forming the nucleus for research networks that facilitate exchange of scientific information and materials among developing and developed nations; and
- (4) by assisting individual countries in national commodity production programs.

A.I.D. and other CGIAR members have encouraged the centers to focus on the problems of small farmers and poor consumers. The centers are now giving greater emphasis to the less favored production areas in the less developed countries.

The past year saw the establishment of a new center, International Service for National Agricultural Research (headquartered in The Hague). It will provide technical assistance on request from less developed countries in analyses, strategies, and planning of national research programs. The older centers continued useful work in many fields. For example:

- the International Rice Research Institute (Philippines) started collaborative work with the People's Republic of China on hybrid rice, which holds promise of higher yields for varieties useful in many developing countries;
- the International Maize and Wheat Improvement Center (Mexico) estimated that more than 86.5 million acres of wheat were planted in 1980 to improve wheat varieties incorporating germ plasm developed by the Center; and

- the International Institute for Tropical Africa (Nigeria) released three new cassava and three new sweet potato varieties, which have yields twice or three times as high as local varieties, and possess good resistance to major diseases and pests.

BIFAD, and its Joint Research Committee, have maintained their interest in the Centers through visits by members and staff. Possibilities for the use of U.S. university staff on short-term research projects of mutual interest are being explored.

The international research centers fill a special role in bridging the research gap between the more advanced country agricultural technology and the needs of the developing countries and they do it well. But this is a very finite role as each of these centers must be established and maintained for that purpose alone--and there are very limited resources for that purpose. The American universities and the U.S. Department of Agriculture, and to a lesser extent other public and private research entities, together constitute an infinitely larger resource of research personnel and activity. Our centrally funded contract research and the new collaborative research program are designed to put those already existing U.S. research resources to work on solving developing country problems.

(2) Contract Research

A small but important part of A.I.D.'s agricultural research activities (about \$6 million a year) is carried out through central contracts. U.S. universities are contributing to the success of this effort. For example:

- the University of Illinois is implementing soybean testing programs with 40 countries, and the University of Puerto Rico has successfully tested germ plasm for beans and cowpeas in the Caribbean area;
- North Carolina State University is setting up a global research and evaluation program for the control of rootknot nematodes (threadlike worms which cause heavy crop losses);
- the Universities of Florida and Hawaii are exploring the use of biological nitrogen fixation in tropical agriculture, in an effort to reduce dependence on chemical fertilizer by 20%; and
- Oregon State University, which devised and tested innovative weed systems for small farmers in Brazil, Central America, and the Philippines, is making this knowledge widely available to other less developed countries.

(3) Collaborative Research Support Programs

Title XII provided the new authority for the Collaborative Research Support Programs (CRSPs). The "collaborative" aspect of a CRSP suggests its basic thrust: to link the expertise and resources of U.S. land grant colleges and universities, the U.S. Department of Agriculture, and the institutions of the less developed countries in a joint research effort to increase food production or improve nutrition. The CRSP procedures require each participating U.S. university to contribute at least 25%--in fact it has been substantially more--of the total program from non-federal funds.

Appendix II shows the obligations to date for each CRSP, as well as current projections for obligations through Fiscal Year 1982. Normally, a Planning Grant is made to design a CRSP; and this is followed by a Program Grant to carry it out. Typically, several institutions cooperate in both the planning and implementation phases, with one of them acting for the group as the Planning Entity or Management Entity, respectively. The projections in Appendix II reflect the expectation of a steady increase in the number of CRSPs to reach the implementation phase--signifying both the maturing of CRSP concept and its acceptance by all parties to the "collaboration" which it embodies.

The \$7.6 million that A.I.D. obligated for CRSPs in Fiscal Year 1980 was used for:

- the second year of a Program Grant to provide the knowledge base sufficient to alleviate the principal constraints to improved production, marketing and utilization of grain sorghum and pearl millet in less developed countries. A successful outcome can improve the well-being of the poor subsistence farmers, living in areas of low rainfall and poor soils, who produce most of these grains. Eight universities are participating, with the University of Nebraska as the Management Entity.
- the third year of a Program Grant to increase the production of meat, fiber, and milk from small ruminant animals. Projects are underway, with site coordinators and U.S. technicians on board, in Brazil, Peru, Kenya, and Indonesia. The University of California serves as the Management Entity.
- a Planning Grant and the first year of a Program Grant for research on production, distribution, storage, marketing, and consumption of beans and cowpeas. As a major source of protein, these crops are staples in the diets of most of the people of Eastern and Western Africa, Latin America, and the Caribbean. Scientists from the U.S. and less developed countries, as well as A.I.D. and BIFAD, participated in development of the program at workshops in the United States, Africa and Latin America. The Program Grant was made to Michigan State as Management Entity, in September 1980.

- a Planning Grant for research, in pond dynamics. Aquaculture literature search is underway, and several research institutions overseas have been visited to determine their suitability to work as collaborators. Oregon State University is the Planning Entity.
- a Planning Grant for research on production, storage, marketing, and consumption of peanuts. A.I.D. Missions had reported a strong interest among peanut producing countries in such research. The University of Georgia is the Planning Entity.
- completion of a Planning Grant to determine how to achieve sustained crop yields and better incomes for farmers, while protecting the soil from erosion, plant nutrient depletion, and physical deterioration. Field work is planned in: the humid tropics (Indonesia and Peru); acid savannas (Brazil and Colombia); semi-arid tropics (Niger and Upper Volta); and steplands (Dominican Republic). North Carolina State University, which has been the Planning Entity, will be the Management Entity of the Program Grant.
- a Planning Grant to identify major economic pests which are significantly decreasing crop yields worldwide, and to ascertain which less developed countries have both the commitment and the institutional capabilities to undertake integrated crop protection research. The Joint Research Committee has been reviewing the information developed to date by the Planning Entity, Purdue University, prior to determining next steps.

A.I.D. and the universities concerned, in undertaking these various efforts (as well as the nutrition CRSP which received no additional funding in Fiscal Year 1980), have sought to take into account the related research of the international centers, as well as research carried out through A.I.D. country programs and the centrally-funded contracts in both planning and implementation.

The BIFAD and its subordinate Joint Research Committee (JRC) have been the essential instruments through which the collaborative research program has been developed. The BIFAD and JRC have participated actively also in every aspect of the actions through which research done under mission programs, through the International Centers, through the contract program and through the new collaborative research program are integrated into an effective and efficient system of research investments.

III. UNIVERSITY STRENGTHENING PROGRAM

Title XII, Section 297(a)(1), provides a new authority:

- "... to strengthen the capabilities of (U.S.) universities in teaching, research and extension work to enable them to implement (the other Title XII general authorities discussed above in the Report)."

This is the first General Authority listed under the Title.

Upon the strong recommendation of BIFAD, A.I.D. with BIFAD participation developed a special program of "Strengthening" grants to implement the above authority.

Strengthening Grants enhance the capabilities of U.S. universities for participating more effectively in Title XII programs overseas. Except for a special program for minority universities, all Strengthening Grants are financed according to a matching formula whereby A.I.D.'s share of direct costs cannot exceed that of the university in any year. In fact, many universities contribute more than A.I.D. does to direct costs--plus financing all of the indirect costs. The total university contribution therefore is about twice that of A.I.D. To expand participation of minority institutions in Title XII activities, A.I.D. also awards grants which do not require matching, to bring these institutions to the point where they can participate with financial as well as human resources. In this special program, the universities, however, do contribute all the indirect costs.

During Fiscal Year 1980, A.I.D. obligated \$5 million for Strengthening Grants. Most of these funds were used to finance existing grants; however, A.I.D. made four new grants (two matching and two non-matching). To date, fifty Strengthening Grants have been made (forty-four matching and six non-matching). Appendix III provides a list of these strengthening programs.

Proposals for Strengthening Grants undergo a rigorous review process, including reviews by both A.I.D. and a BIFAD working group of university peers. The results of this process have been as follows:

- of the 77 universities now qualified to apply for the Matching Formula Strengthening Program, only 45 have been judged ready to be awarded grants (44 have been awarded, after reworking in all cases, and one is in process); and
- of the 18 universities qualified to apply for the Minority Institution Strengthening Program, only 10 have been judged ready to be awarded (six have been awarded, after reworking in all cases, and four are in process).

Strengthening Grants have helped improve universities' curricula and institutional programs, research, and foreign language capabilities. The following data are based on the first-year reports of 36 grantees (33 Matching and 3 Minority) which involved \$3,518,871 of A.I.D. funds, \$4,077,914 of university funds for direct costs and approximately \$2,500,000 of university funds for overhead costs (or approximately \$2.00 of non-federal funds for every dollar of A.I.D. funds within the Matching Formula program):

- 133 new courses on Title XII subjects were developed;
- 232 existing courses were substantially modified to be directly relevant to Title XII problems;
- 3,580 students enrolled this year in one or more of these new or modified courses;
- 89 new language courses were developed--46 in Spanish, 39 in French, 2 in Arabic, one in Portuguese and one in Indonesian; total enrollment in these language courses was 1,009 from Title XII fields;
- 139 graduate students are doing Title XII-related work, 99 of whom are doing their theses research in developing countries this year;
- 149 faculty have done 3,400 person-days research in LDCs; another 132 have done 4,000 person-days of on-campus research on Title XII problems; and
- 51 workshops on the role of U.S. and LDC women in development were held with a total attendance of 1,500 persons.

Strengthening Programs have been undertaken for the sole purpose of enabling U.S. universities to do a better job of helping A.I.D. to carry out Title XII programs. That will continue to be the case. And yet, the program has already demonstrated a set of secondary consequences of perhaps even greater long-term significance. The data outlined above demonstrate that already the reorientation of the attitudes, policies, and programs of the enormous agricultural research and higher education system in the United States promises to be massive and deep so that these will be much more relevant to problems of less developed countries. This transformation, catalyzed by the Title XII Strengthening Grants, is being built into the living tissue of the universities: institutionalized and made legitimate by the imperative of the universities' openly declaring, and defending, their own matching contributions. Changing U.S. institutions can help A.I.D. to build, and strengthen, effective development institutions abroad.

IV. OTHER NOTEWORTHY BIFAD ACTIVITIES

The most distinctive feature, and the genuine genius, of Title XII is its provision in Section 298 for the establishment by the President of a Board for International Food and Agricultural Development (BIFAD) "To assist in the administration of the programs authorized by this Title ..."

Section 298(b) states that "The Board's general areas of responsibility shall include, but not be limited to:

"(1) participating in the planning, development and implementation of,
"(2) initiating recommendations for, and
"(3) monitoring of,
the activities described in Section 297 of this Title."

The BIFAD, supported by its subordinate Joint Committees (the Joint Committee on Agricultural Development-JCAD-and the Joint Research Committee-JRC-) and staff, has participated as full partners with A.I.D. in shaping and carrying out all of the authorities in Section 297, discussed above in this Report.

In addition to, and in elaboration of, these responsibilities, Section 298 (c), states that "The Board's duties shall include, but not be limited to (a list of seven specific duties)."

As we have seen from earlier portions of this Report, BIFAD has discharged its duties in an active rather than a merely reactive way, as demonstrated by the way it has taken leadership in improving the systems of relationships and transaction documents to foster a true partnership of universities with A.I.D. in carrying out Title XII programs. In addition to activities already discussed, other illustrations are given below.

A. Recommendation on Apportionment of Funds

A specific duty of the Board, stated in Section 298(6) is "recommending to the administrator on the apportionment of funds under Section 297 of this title."

To provide a basis for discharging this responsibility, BIFAD has in the past mobilized an impressive array of university resources to analyze the Country Development Strategy Statements (CDSS) formulated by A.I.D. Missions. (See last year's Annual Report.)

Recently BIFAD has felt that it could more usefully analyze, and impact on, proposed activities at a later stage of the program process. Increasingly, A.I.D. has determined that it is necessary only to update, rather than reformulate, the average CDSS. Hence, BIFAD has shifted its attention to the specific projects proposed for carrying out approved country strategies; and it is in the Annual Budget Submission (ABS) that an A.I.D. mission or central office articulates the discrete projects which it hopes will fill that purpose. (The relationship between strategy and proposed programs is not always clear, a point productive of comment in the occasional ABS review!)

In 1980, BIFAD staff reviewed each ABS to determine whether Missions and offices had presented balanced programs reflecting the legislative Title XII mandate. Based on their reviews, the BIFAD staff participated selectively in Bureau reviews of country and office ABS's, and later in bureau-wide reviews conducted by the Bureau of Program and Policy Coordination (PPC) (in consultation with the Office of Financial Management). The BIFAD staff then submitted issues papers to PPC for informal staff review, and memoranda to bureau assistant administrators setting forth budget issues. Finally, the staff incorporated its major recommendations on A.I.D.'s Fiscal Year 1982 budget in a report considered by the Director of IDCA in a joint meeting with A.I.D. and BIFAD on August 27, 1980. These recommendations included (among others):

- increasing budget support for centrally-funded bilateral research;
- studying the feasibility of modifying the cost-sharing formula approach for determining U.S. contributions to international agricultural research centers;
- reassessing overall priorities for agricultural research, including strengthening linkages among U.S. international, and less developed country research systems;
- reallocating funds from fertilizer and other major commodity programs to institution-building programs in research, education, and extension to achieve better balance in country programs;
- increasing the level of funds for participant training;
- providing for increased levels of support to selected A.I.D. programs in Africa and Latin America;
- providing increased opportunities within A.I.D. for promotion of agriculturists to senior grades and management levels.

It will take time for some of these recommendations to have their full impact; and the changing budgetary outlook concomitant to a new administration will affect the consideration of some of them. But BIFAD's involvement in the ABS review process has provided one more reminder of its - and A.I.D.'s - interest in translating Title XII concepts into more balanced programs.

B. Developing a Roster of University Resources.

Section 298(c)(1) of Title XII requires BIFAD to maintain a current roster of universities having the interest, capacity, and experience to collaborate with agricultural institutions and scientists of less developed countries to increase food production.

This roster is encompassed within BIFAD's Registry of Institutional Resources (RIR), a central depository of information. A major upgrading of that Registry was undertaken this past year.

Four types of information are included in the RIR:

- general information on the overall nature of the university, its staff, and its international linkages;
- detailed information on subject areas in which universities aspire to participate through international projects or programs which enhance developing country indigenous capacity;
- information on individual university staff members who want their names and experiences on file for possible international activities; and
- information on previous U.S. university assistance efforts in developing countries.

Recently, the BIFAD staff sent questionnaires to Title XII universities, asking them to provide current information in these four categories, to assist in improving and updating the RIR. Designing the questionnaire required months of staff time, and extensive consultations with A.I.D. and the universities. In the Title XII regional seminars and otherwise, BIFAD staff have stressed the criticality of high-quality responses to the questionnaire.

In the process of identifying university resources available to meet the needs for expertise in proposed A.I.D. country projects, A.I.D. can turn to the RIR to locate potential university contractors for longer term projects as well as individual university specialists for short-term consulting or evaluation work overseas. A.I.D. indicates the types of subject areas and experience required to accomplish project activities. BIFAD enters the identified subject areas and qualifications into the RIR computer. The computer locates universities with resources in those areas and provides printouts of their staffing profiles and experience overseas.

A contractor will develop a computer program to access the data yielded by the university responses to the questionnaires. A library of university catalogues and other materials documenting university capacities, now being developed by BIFAD, will supplement these data. BIFAD also plans to set up computer files, so that each participating university can assess information on specialists on its own campus (and sister institutions of a recognized consortium, if BIFAD has received prior consent from all consortium members).

In short, the improved RIR promises to facilitate achievement of a better "fit" between A.I.D. Mission requirements and university resources. The end result: increased effectiveness of U.S. expertise in Title XII programs of assistance to developing countries.

C Regional Title XII Seminars

Information is one of the keys to more effective university involvement in Title XII programs. The Registry of Institutional Resources, discussed earlier, provides information on A.I.D. needs and university resources with respect to specific requests. Seminars and symposia provide more general information on development requirements of poorer countries, A.I.D. priorities, and Title XII programs and processes.

Last year's Annual Report described regional seminars held on Title XII activities in January 1980. In January and February 1981, three additional regional seminars were held.

In each case, the first session was devoted to a consideration of "Directions in A.I.D.'s Agricultural Development Program", a discussion of a presentation made by A.I.D.'s internal Technical Program Committee on Agriculture on "A Strategy for Focusing A.I.D.'s Anti-Hunger Effort", and an exploration of "BIFAD's Perspectives on Future Directions".

The second session, on "More Effective University Participation" centered on recommendations emerging from the BIFAD staff paper and the "Task Force on A.I.D.-University Relations" (discussed earlier in the Report). The group then explored "The Role of Consortia in Title XII".

The theme of the final session was "Matching University Resources with A.I.D.'s Program Needs". Topics discussed included the Registry of Institutional Resources and "Issues and Problems Related to the Strengthening Grant" (also discussed earlier in this Report).

The seminars were well attended, as shown by the following breakdown:

	Individuals		Institutions Represented (Excluding AID/BIFAD)	
	<u>Participants</u>	<u>AID/BIFAD and Staff</u>	<u>Title XII</u>	<u>Other</u>
Nashville	57	12	22	2
College Park	83	17	33	9
Pomona	48	7	23	3
Total	188	22*	75*	14

* Totals are not sums of columns because the same staff or institutions attended more than one seminar.

D. World Hunger Symposia

As of this writing, several universities had hosted and others were planning to convene symposia on the world hunger problem. These institutions included: New Mexico State University, Utah State University, Oregon State University, Michigan State University, the University of Nebraska, the University of Arizona, Purdue University, and North Carolina State University.

Sponsored by BIFAD and NASULGC, each symposium provided an opportunity for the university community--as well as state and local leaders--to become better informed about the nature of the world food problem. The Report of the Presidential Commission on World Hunger provided the centerpiece for the meetings, with members of the Commission contributing to an exploration of the recommendations in that report.

A distinctive feature of the symposia was the involvement of the broader community. Universities invited members of Congress and representatives of farm, business, and civic associations to attend. In some cases, the participation of representatives of Cooperative Extension Services allowed for follow-up at the country level where desired.

The first step in solving a problem is to understand its complexity. The World Hunger Symposia contributed by encouraging a broad community of concerned citizens to take that first step.

E. Furthering Involvement of Women in Economic and Social Development

In continuation of its interest in this subject, BIFAD devoted one full meeting almost entirely to the subject of Women in Development. Ms. Kathleen Cloud summarized reports from 36 universities on "integration of women into Title XII activities". Among many other encouraging developments, she noted that:

- over half of the universities surveyed have women on their Title XII committee:
- twenty-one universities have a "Women in Development" committee;
- twenty-one universities were developing a roster of women with expertise and interest in development work; and
- twenty-three universities were building a library resource collection of "Women in Development" documents.

At the same meeting, five experts shared with BIFAD, IDCA, and A.I.D. papers which they had presented to a Title XII Workshop earlier in the week. Ms. Arvonne Fraser, the A.I.D.'s coordinator of Women in Development, described changes still needed in attitudes, policies, operations, and research. Following the meeting, BIFAD Chairman Clifton R. Wharton, Jr., communicated with all campus Title XII Representatives, in order to "reaffirm the BIFAD's interest in the involvement of women in the development process, both as professional participants in and beneficiaries of USAID programs".

At a subsequent meeting, Ms. Fraser noted that many recommendations discussed at the preceding meeting were already being carried out. For example, "Women in Development Committees" of three university consortia had been funded, and experienced women on Title XII campuses were involved in CRSPs. It is important now to institutionalize the knowledge base. Thus:

- a systematic information collection system is needed;
- a research agenda needs to be developed, working with the JRC and others; and
- linking of knowledge to the field work is a problem that should be addressed.

In addition, Ms. Fraser asserted that:

- more women are needed on BIFAD's Joint Committees; and
- universities should increasingly assume responsibility for "Women in Development" research, with Strengthening Grants used to encourage such research.

Earlier in the year, BIFAD and A.I.D. participated in the Northeastern Title XII Women in Development Workshop at the University of Maine, financed under the strengthening programs of six of the universities in the region, but attended by representatives of sixteen universities. The Workshop considered A.I.D. policies, organization, and procedures; and Title XII and the BIFAD structure. Small group discussions, with participation by women from less developed countries as well as the United States, focused on how women could penetrate the power structure in order to become more involved in development assistance programs.

Too often programs emphasizing the involvement of women project an esoteric image. But this need not be the case. A pilot project using appropriate technology in rural community development in Bolivia and Ecuador shows why. The project encouraged the participation of women; soon men became interested -- and involved. But the A.I.D. project manager believes that the reverse would not have occurred. Had not the project explicitly encouraged female participation, men but not women would have been involved. A.I.D.'s special concern for the involvement of women -- along with men -- in A.I.D.-financed programs has a basic development rationale. Whether it is gauging the incidence of benefits in a project for increasing agricultural production, or assessing participation in the development decisions involved, one simply cannot ignore half the population.

V. SEPARATE STATEMENT OF THE BOARD FOR INTERNATIONAL FOOD AND AGRICULTURAL DEVELOPMENT (BIFAD)

The report by A.I.D. to the Congress on Title XII aptly notes that this is a transitional year. A change in our national leadership provides the natural occasion for a few reflections on the recent past, to keep in mind as we move ahead. We should like to stress the following points:

1. A.I.D. and the universities have made notable headway in carrying out the Title XII Congressional mandate; but initially a basic misunderstanding complicated their task. There was a perception in some quarters of a conflict between the purposes of Title XII, and those of the "New Directions" legislation of 1973. Those holding this view perceived the Title XII emphasis on institution-building and on the role of science in international development to be too long-term in nature--and incompatible with a "growth with equity" strategy focused on poor people in poor countries. Significant university involvement and input, they seemed to say, were passe. Today it is more generally accepted that the Title XII and "New Directions" mandates are not competitive but complementary. Thus the question for the future--and it is already being addressed--is not whether U.S. universities can help improve the quality of life of the "poor majority", but how they can do so more effectively.

2. We are encouraged by the continuing search for innovative techniques for linking more effectively the less developed country users and the U.S. university providers of technical expertise. Collaborative Research Support Programs and Strengthening Programs exemplified the innovative character of the Title XII legislation. Experience with the Collaborative Assistance Method of university contracting, and exploration of new approaches to cooperative efforts--such as Technical Support to Missions and Dual Path Employment Agreements--show that A.I.D. and the universities have shown imagination and flexibility in their joint search for ways to work together better.

3. These innovative approaches have not been fully understood by A.I.D. Missions overseas. We believe that A.I.D. should take the necessary steps to communicate more effectively to its Missions the basic thrust of the Title XII legislation, its rationale and the program techniques for implementing it. For example, the Missions need more information on, and understanding of:

- the Collaborative Assistance Method as an opportunity for tapping university expertise as early in the program process as project design, for shortening the procurement process, and in general for providing Missions with another tool in the Agency's array of assistance techniques for developing and implementing institution building projects;

- The CRSP as a truly collaborative approach. It provides the interlocks between scientists and institutions of the less developed countries and those of the United States, for finding answers through research to practical--and pressing--development problems. Funding is shared, with involved U.S. Universities contributing close to 40% of the costs, and LDC institutions also participating financially; and
- Strengthening Programs as a method for upgrading the reservoirs of expertise in U.S. universities available to Missions in carrying out overseas programs. U.S. universities more than match A.I.D. financial contributions to the Strengthening Programs.

4. We find continued reluctance in A.I.D. to accord the necessary emphasis to building its professional resources for international agricultural development. Unless there is a basic change in the degree of seriousness with which this task is addressed, the possibilities for enduring improvements in A.I.D. rural development programs will be reduced significantly. We note with concern:

- the small percentage of agriculturalists in A.I.D.'s professional work force;
- the large vacancy rate (20%) in positions in agriculture;
- the limited opportunities for in-service training of agriculturalists; and
- the lack of opportunities within A.I.D. for promotion of agriculturalists to senior positions in Washington or overseas.

5. The program advice and formulation processes developed by BIFAD and A.I.D. for Title XII involve them, and the agricultural university community, in a joint effort. We have cited the substantial contributions by Title XII universities from their own non-federal resources in support of A.I.D. programs. More fundamentally, we note that mutual understanding between A.I.D. and the universities continues to improve; and the collaborative style in project design and implementation has been used increasingly. We expect that this joint nature of the BIFAD process will continue.

6. We concur generally with A.I.D.'s report. It amply documents the most impressive point: Title XII is making its mark. Together we have, indeed, made a good beginning--and we shall persevere.

Project Title: Agricultural Research Phase II

Project Number: 388-0051

Principal Contractor: Being selected

Project Purpose: To strengthen and increase the effectiveness of agricultural research necessary for development of appropriate agricultural technologies to Bangladeshi farmers by facilitating on-farm research and building a strong and responsive core of disciplined research programs to develop the new technologies which can address on-farm problems.

Background and Progress to Date: The two major institutions for agricultural research in Bangladesh are BARC (Bangladesh Agricultural Research Council) and BARI (Bangladesh Agricultural Research Institute). BARC coordinates all research activities while BARI conducts priority research which will enable farmers to increase production in non-rice crops. A Phase I project focused on: (1) strengthening BARC as the national research coordinating body by financing in-country research and technical assistance including a vertebrate pest component; and (2) conducting research in non-rice crops through BARI, including construction of the BARI central station at Joydevpur and the Ishurdi regional station. Phase II will continue to strengthen the BARI capacity to provide effective coordination and direction of national agricultural research efforts. The project will focus on developing a research program that is closely tied to BDG (Government of Bangladesh) efforts in extension activities. Concurrently, research programs in soil, water, crop production, social/economic sciences and pest management (including vertebrate pests) will be strengthened within selected research institutes.

Host Country and Other Donors: The BDG will contribute the operating costs for BARC, BARI and other research institutes. The World Bank is currently implementing a \$16 million program for the development of three regional research stations, BARC headquarters, and twelve extension training centers.

Beneficiaries: Research results tested on small farmers' land and produced by the BDG research system will be disseminated through outreach programs specifically for use by other small farmers. Nationally, many families will be reached and incomes increased as results are applied in the on-farm testing. Once research results are widely disseminated, larger numbers will benefit directly.

FY 81 Program: This grant of \$3,000,000 is requested for technical assistance, training, contract research, commodities and other costs.

Major Outputs:

	<u>All Years</u>
Field trial research sites established	200
Farmers having participated in field trials	2500
Research personnel trained	82
In-country workshops/conferences/seminars conducted	215
Contract research activities implemented	10

APPENDIX I (Continued)

BOLIVIA

Project Title: Basic Foods Production and Marketing

Project Number: 511-0451

Principal Contractor: Utah State

Project Purpose: To develop improved small farm technologies and management practices for central and eastern Bolivia and extension methodologies for transferring these improved practices to small farmers.

Background and Progress to Date: Bolivia's agricultural sector is characterized by poor production, low income for small farmers, and the lack of appropriate inputs, credit and management. Various A.I.D. projects address these problems. This grant supports the implementation of A.I.D.'s Agricultural Sector II Loan -- a project designed to strengthen research and extension services, finance small farmer credit and provide improved access to inputs and markets. With these A.I.D. initiatives, the Ministry of Agriculture's planning office has been reorganized, and the Government's Five Year Agriculture Sector Plan (1976-1980) has been formalized. As the contractor, the Consortium for International Development (CID) has provided 394 person months of agricultural technical assistance and has seven CID scientists presently working in Bolivia. Training has been given to 738 Ministry and University personnel, 391 research studies and field demonstrations have been carried out on field crops; 123 farmer short courses have been held; and 70 extension publications have been printed. As a result of field experience over the last year, the project outputs have been modified to reflect project objectives and the project has been extended for one year.

Host Country and Other Donors: Estimated at \$6 million (37% of total costs), the host-country contribution to this grant and its companion loan covers salaries and the operation of research stations and extension services. Britain, Switzerland and the World Bank provide complementary assistance.

Beneficiaries: An estimated 200,000 small farm families will benefit from the project. Over 2,000 farmers and Ministry of Agriculture personnel will receive technical and professional training. Unit cost per family for the life of the project is \$34.

FY 81 Program: Agricultural scientists will continue their research in potatoes, rice, corn and peanuts. Regional on-farm trials and extension efforts will introduce research results to the small farmers.

Major Outputs (and A.I.D. Unit Cost):

	(\$ Thousands)	
	<u>All Years</u>	
	<u>Unit</u>	<u>Cost</u>
Technology Development:		
Research studies on crops	180	(11)
Studies on improved University curriculum	6	(11)
New or improved courses	20	(11)
Ministry/University personnel trained	460	(4)

BOLIVIA Cont.

Technology Extension:		
Field demonstrations	60	(4)
Courses for small farmers	210	(1)
Research and extension bulletins	362	(1)
Extension personnel trained	380	(4)
Sector Management:		
Ministry of Agriculture personnel trained	110	(4)
Manual of procedure completed	1	(22)

CAMEROON

APPENDIX I (Continued)

Project Title: National Cereals Research and Extension

Project Number: 631-0013

Principal Contractor: International Institute for Tropical Agriculture

Purpose: To develop Cameroonian institutional capacity to provide high quality research on corn, rice, millet, and sorghum; and the linkages to facilitate transmission of research results to the farmer. The cereals research will be integrated into a cropping systems approach to food production aimed at solving the problems of small farmers.

Background and Progress to Date: The Cameroonian Government (GURC) places a high priority on food crop production but there exists a severe shortage of trained researchers. The GURC requested the assistance of the International Institute for Tropical Agriculture (IITA) and A.I.D. to develop its cereals research capability and to strengthen the systems to make research results available to the farmers. A contract with IITA was executed in January 1981. Limited maize breeding experiments and selection trials are underway. Field tests and demonstrations will begin shortly.

Host Country and Other Donors: The GURC will contribute land and buildings, local personnel salaries and some operational costs valued at \$6,616,000. The project is coordinated with Canadian assistance for root and tuber crops, as well as major IBRD rural development projects in East, West and North Cameroon.

Beneficiaries: Primary beneficiaries include participant trainees, employees of research and extension organizations who receive on-the-job training, and 3,760 farmers who will be involved in the field trials. The secondary beneficiaries are more important in evaluating the success of research. By 1990, more than 500,000 families will benefit from research under this project. A.I.D.'s contribution is estimated to cost \$15 per family.

FY 81 Program: Approximately 1,500 farmers will participate in the maize, rice and sorghum field trial demonstrations. The first two M.Sc. participants will complete their training. Two long-term participants and eight short-term participants will begin training in other countries. Five participants will begin U.S. training. The first annual cropping conference will be held to analyze research results and problem areas. A project evaluation is planned.

Major Outputs:

	<u>All Years</u>
Development of Cameroonian research institution (senior staff on board)	25
Development of research programs in rice, corn, millet, and sorghum for 4 ecological zones	10
Development of extension research liaison unit (\$1,787,000)	1
Establishment of linkages with Cameroonian, West African and other research organizations	X
Development of adequate physical facilities at 4 sites (\$317,000)	4

ECUADOR

Project Title: Rural Technology Transfer System

Project Number: 518-0032

Principal Contractor: University contractor selection in process

Project Purpose: To assist the Government of Ecuador (GOE) to develop a system for improving access to rural development technologies, technical assistance, and training from U.S. land-grant universities and other institutions.

Background and Progress to Date: The GOE is developing a new integrated rural development (IRD) system to deal with the multiple problems of the poor. Foreign technical assistance will be necessary to assist the Government to overcome such serious technical and institutional constraints hindering rural development as: (1) an inadequate research capability to develop and test appropriate new technologies for small farmers; (2) severe institutional and technical limitations of the extension service; (3) an insufficient technical and managerial expertise to develop the proposed IRD system; and (4) a lack of qualified agricultural technicians equipped to conceive and carry out projects that are responsive to the needs of the rural population. To deal with these problems adequately, Ecuador must improve its access to foreign sources of technology, technical assistance and training while developing a system for better directing these resources to high priority rural development and agricultural productivity problems. This project will: (1) define technological and institutional problems; (2) direct foreign technical resources to appropriate Ecuadorean agencies; (3) facilitate the acquisition of specific research, institution-building and training information; and (4) evaluate the results. Assistance will also be provided for the establishment of a campesino training institute. This project, which builds on the information developed by a Title XII baseline study, will develop long-term linkages between Ecuadorean agricultural agencies and U.S. land-grant universities and other institutions, thereby furthering the objectives of Title XII.

Host Country and Other Donors: The GOE will provide the administrative support, including office space and professional staff, necessary for this project amounting to approximately \$250,000. The UN Development Program and the Food and Agricultural Organization will provide some technical advisors. The World Bank recently signed a loan for \$18 million for an integrated rural development project in Tungurahua Province. The Inter-American Development Bank is financing integrated rural development projects in the Oriente Region and Guayas River Basin. The activities financed by A.I.D. will complement these programs by strengthening Ecuadorean Government implementation institutions.

ECUADOR (Continued)

Beneficiaries: The project will benefit some 600,000 rural families at a cost to A.I.D. of \$6.66 per family.

FY 81 Program: A project management system will be established within the IRD Coordinating Board, and a Campesino Training Institute will be made operational. Foreign advisory services will be provided, and short and long-term training initiated.

Major Outputs (and A.I.D. Unit Cost):

(\$ thousands)
All Years

	<u>Unit</u>	<u>Cost</u>
Local adaptive research projects	40	(50)
Campesino Training Institute made operational	1	(800)
Short courses for campesino leaders and technicians	30	(10)
Participants trained	25	(34)

APPENDIX I (Continued)

EGYPT

APPENDIX I (Continued)

Project Title: Major Cereals (Field Crops)

Project Number: 263-0070

Principal Contractor: Consortium for International Development, University of New Mexico (lead university)

Project Purpose: To provide new knowledge and information to support a 25% increase in cereal, oilseed, fodder and grain-legume production.

Background and Progress to Date: Approximately 70% of Egypt's farmland is planted to field crops. These include the food and feed grains, legumes for fodder and human consumption, oilseeds and grasses. The small farmer grows proportionately more of these crops and is dependent on them to a greater degree to feed his family and work animals. Despite increasing demands for these crops due to population growth, yields have stagnated or even declined. Declines have been greatest in the critical food grains. Production of the non-cereal field crops suffers from poor production practices, marketing constraints, insufficient applied research, and a weak extension network. There are important interactions between cereal and non-cereal production requiring an integrated approach to research, extension and training.

The project, together with a separate rice project, will establish an institutional capacity to identify yield-increasing technologies and extend them to the farmer. Initial emphasis of this project was placed on cereal crops. In 1981, the scope of the activity will be expanded to include all of the major field crops, including oilseed crops. Technical assistance will be provided by a consortium of Title XII universities.

Host Country and Other Donors: The Government of Egypt (GOE) will provide land, staff and other resources to support the major cereals program, including the resources of 8 national research centers. Other donor activities in major cereals include a United Nations Food and Agriculture Organization program in corn and wheat. There are no other donors in oilseeds, grain-legumes, or fodder crops.

Beneficiaries: Most of Egypt's 3 million small farmers will directly benefit from the project through increased output of food and fodder, resulting in increased incomes. The urban and rural poor who are dependent on these crops as their major source of protein and calories will directly benefit from increased output.

FY 1981 Program: Continue the work in major cereals begun in FY 1979 and initiate programs in oilseeds, grain-legumes and fodder management. During FY 1981, construction of the major cereals institute will be completed and demonstration activities will begin in the 8 governorates included in the project.

Major Outputs:

	<u>All Years</u>
1. Trained staff	200
2. Research, testing, demonstration or training facilities planned and constructed	3
3. Breeding program, social/economic studies	Various

LESOTHO

APPENDIX I (Continued)

Project Title: Farming Systems Research

Project Number: 632-0065

Principal Contractor: Washington State University

Project Purpose: To create more productive agricultural enterprise mixes which are acceptable to farmers, sensitive to farmers' management ability, appropriate to the resources available, and protective of the land base.

Background and Progress to Date:

An overriding problem confronting Lesotho's agricultural development is the absence of integrated farming systems adapted to the needs of small farmers for higher output and improved soil protection. Government personnel shortages and financial limitations now inhibit adequate analysis and design of appropriate farming systems. In agricultural research, some work has started on irrigation, variety trials and management practices, but numerous gaps remain. A.I.D. and the Government of Lesotho (GOL) are collaborating closely in this applied research project to develop optimum field-tested combinations of crop and livestock farm enterprises which can improve the productivity and incomes of small farmers. The project is designed to develop within the Ministry of Agriculture (MOA) an ability to carry on necessary research, and among small farmers, a receptiveness toward applying relevant research results. Field activities commenced in 1979 with the arrival of a nine-member U.S. institutional contract team. The team has selected prototype areas for farming systems research, completed construction of a laboratory/office building, and purchased vehicles, and other commodities. Four participants are completing long-term training in the U.S. The university contractor is responsible for providing all necessary technical assistance.

Host Country and Other Donors: The GOL is providing \$832,000 for technicians, general services, training, and commodities.

Beneficiaries: The agricultural sector consists of approximately 190,000 families. The benefits of this project will accrue to small farmers whose income will be increased through adoption of more productive farm enterprise mixes. While it is hoped that nearly all of these will benefit from this project ultimately, the direct beneficiaries during the life of the project are conservatively estimated at 10%, or 19,000 families at a cost per family of \$435. Eventually, a larger proportion of Basotho families should benefit from the results of this project.

FY 81 Program: During FY 81, the team will continue to conduct research, publish and disseminate the results, and to develop alternative strategies for MOA/farmer communications and education. The team and the GOL will introduce selected strategies to innovative farmers in the prototype areas.

Major Outputs:

	<u>All Years</u>
Farming Systems developed and tested	3
Alternative strategies for reaching farmers	3
Trained Basotho personnel	26
Research and information data base	1
Agriculture research library constructed (\$1,000,000)	1

LIBERIA

Project Title: Agriculture Research & Extension

Project Number: 669-0135

Principal Contractor: Louisiana State University

Project Purpose: To develop the capacity within the Ministry of Agriculture (MOA) to conduct adaptive crop, soils and livestock research, and to establish an extension system responsive to the needs of subsistence farmers.

Background and Progress to Date: Liberia is neither able to meet its domestic food needs nor its potential for cash crop production. In both cases the problem is hurting the country's foreign exchange position. The obvious solution is the development of improved cash and food crop production techniques. With A.I.D. assistance the country will begin to strengthen its agricultural research and extension system. In June 1979 the Ministry underwent the most complete reorganization in recent times. A.I.D. recommendations pertaining to research were adopted and incorporated in the overall MOA plan.

This institution-building project involves three facets: (1) the development of the major technical components of the Agricultural Research Institute, (2) the strengthening of the management and administration of the institution and (3) improvement of the research extension system's capacity to reach the small and subsistence farmers. The project was authorized in September 1980. Contract with LSU is expected to be executed in March 1981.

FY 1981 is the first year of implementation during which the technicians for Phase I will arrive and the construction of staff housing will be completed. During the year adaptive agricultural research will be initiated and the first five participants will begin long-term academic studies in agricultural engineering, agronomy, biochemistry, and agricultural economics.

Host Country and Other Donors: The Government of Liberia provides land, facilities, research counterparts and operating budget support. Other research assistance is supplied by the UNDP/FAO in tree crops, and by the West Africa Rice Development Association in rice breeding. The European Community provides training in areas not covered by other donors. The World Bank provides loan funds for the construction of laboratories.

Beneficiaries: Approximately 152,000 farm families will have access to the technology produced by this project. The cost to A.I.D. over the life of the project is estimated at \$28 per family.

FY 81 Program: Establish variety trials, plant the first outfield plots, and field test several innovative production techniques.

APPENDIX I (Continued)

LIBERIA (Continued)

Major Outputs:

All Years

Agricultural Research System Strengthened	1
Research/Extension Linkages Expanded	1
Participants Trained in Research & Extension	
- Long-term	20
- Short-term	20
Laboratory Facilities Upgraded (\$133,000)	3

NEPAL

APPENDIX I (Continued)

Project Title: Resource Conservation & Utilization, Title XII

Project Number: 367-0132

Principal Contractor: Southeast Consortium for International Development (SECID) Duke University, Virginia Polytechnic Institute and State University and Western Carolina University share the lead.

Project Purpose: To identify, test and implement replicable environmental resource conservation approaches for representative hill and mountain areas.

Background and Progress to Date: Environmental degradation is a major problem for Nepal. The Government of Nepal (GON) will meet the challenges of increasing agriculture productivity and alternative renewable energy sources through further research in resource conservation. The scope of this project was broadened during the project design stage to better address the problems of resource conservation. Project actions include: inventorying and monitoring of ecological conditions and change in watershed areas; watershed management; forest management; exploration of renewable energy alternatives; irrigation and on-farm water management; improvement of drinking water supplies; range and pasture improvement; agronomic research and extension; horticultural nursery development and extension; fisheries development; personnel training; rural employment alternatives; identification/application of alternative cropping systems; and technical assistance for an Institute of Renewable Natural Resources. To date, the contractor has been selected, GON staff assigned, plant nursery development activities begun, and several commodity orders placed. The universities' role is the provision of technical assistance, development of long-term participant training programs and study tours, and establishment of a new Pokhara campus at Tribuvan University (Institute of Renewable Natural Resources). More generally, SECID and the Government of Nepal will have joint responsibility under the guidance of the AID Mission for the administration and implementation of the entire RCUP project. Although the project was authorized in late FY 80, the contract with SECID was not signed until February 1981. Completion of the project design occurred in FY 80. SECID was responsible for the design phase of the project with Western Carolina as the lead institution at that time.

Host Country and Other Donors: The GON will contribute \$4.2 million equivalent to the project. UNDP/FAO (\$900,000), Switzerland (\$200,000), Canada (\$5 million), Australia (\$3 million), World Bank (\$2 million), Asian Development Bank (\$5 million) and United Kingdom (\$500,000) are all involved in projects focusing on the environment (primarily watershed management and forestry development) which will complement this project.

Beneficiaries: Direct benefits will accrue to poor farm families in the four project field sites. Spread over the project sites only, the cost per family is estimated at \$175. However, ultimate beneficiaries will be small farmers and their families across Nepal.

FY 81 Program: Under the \$3.3 million grant implementation activities will be continued: small rural works designs completed; initial construction material received; contractors selected; diploma course at Institute of Renewable Natural Resources initiated; and 15 participants for advanced study abroad selected.

NEPAL (Continued)

Major Outputs:

(\$ thousands)
All Years

	Unit	Cost
- Land under conservation (sq. km.)	3,515	(.8)
- Person Years of participant training	152	(19)
- Institute established	1	(1,400)
- People trained in conservation	900,000	(.002)
- Micro-hydro, windmills, bio-gas installations	374	(8)
- Land under forest management (ha.)	101,200	(.047)
- Irrigation systems built	38	(38)
- Animals with improved health	650,000	(.003)
- Major departments strengthened	25	(321)

NIGER

Project Title: Niger Cereals Research

Project Number: 683-0225

Principal Contractor: Purdue and Alabama A&M

Project Purpose: To assist the Government of Niger (GON) identify and test cereal varieties and production techniques which will enable Nigerian small farmers to increase food production and to raise their incomes.

Background and Progress to Date: Food grain production in Niger is characterized by low yields. Use of improved seed and better production techniques can increase these yields by 75% or more. Responding to the GON's priority of increased food production, A.I.D. has supported the research program of the National Institute of Agriculture Research (INRAN) since 1976 under the Niger Cereals Project (NCP). This support included technical assistance, training, and construction of research facilities. Promising new millet and sorghum seed varieties were identified and tested for adaptability to local conditions. Under this Phase II, follow-on project, A.I.D. will continue to support these long-term efforts to develop cereal varieties with greater resistance to disease and adverse weather conditions. The project will also emphasize field testing of appropriate technology packages to ascertain their potential under actual production conditions. A much needed agriculture economics research division will be added to INRAN's institutional structure and additional research sub-stations will be constructed in areas of Niger which have distinct soil and climatic conditions. Project activities will begin late in FY 1980.

Host Country and Other Donors: The GON will provide personnel, research facilities and operating costs. The West African regional agricultural research such as the millet and sorghum improvement program; A.I.D. supported Semi-Arid Food Grain Research and Development project; and the multi-donor Sahel Food Crop Protection Project will complement the GON contributions.

Beneficiaries: Approximately 600,000 farm families will be the ultimate beneficiaries of this project at a per family cost of \$9.

NIGER (Continued)

FY 81 Program: FY 1981 funding will provide three research advisors; 10 person-years of training in U.S. and African Universities; and construction of one agricultural research sub-station and two auxiliary warehouses. Field testing of varietal research will continue in the vicinity of existing sub-stations and a farm production economics study will commence in mid-1981.

<u>Major Outputs (and A.I.D. Unit Cost):</u>	<u>All Years</u>
Millet, sorghum and cowpea varieties developed, tested and released to farmers	X
Agricultural economics research division established (\$1,000,000)	1
Program of regional and farm-level field trials established	X
Nigerian researchers trained	20
Research laboratories and sub-stations completed and equipped (\$550,000)	2

PARAGUAY

Project Title: Small Farm Technology

Project Number: 526-0109

Principal Contractor: Texas Agricultural and Mechanical University

Project Purpose: To assist the Ministry of Agriculture (MAG) to identify, develop and extend appropriate technology to small farmers.

Background and Progress to Date: Small farms in Paraguay make poor use of family labor and land resources partly because the technology available to them has remained unchanged for decades. Average productivity per farm laborer is very low, and yields per hectare have not improved noticeably since 1961. This project is designed to create and diffuse technology directly applicable to the identified needs of the small farmer. The MAG will restructure part of its present research system and its extension service to provide new emphasis on the needs of small farmers. Central to the new structure will be teams of researchers, located in small farmer areas, which will develop new practices on the farmers' own land to meet their particular needs. In turn, the extension service will focus its efforts upon transferring the new practices to groups of small farmers. Experiment station research will be reoriented toward providing the technological information required by the field teams to create locally adapted technology. Additional support will be given to the National Seed Service for assuring the availability of indicated new varieties and to the MAG Planning Office for participating in the economic analysis of research findings and of farm management programs undertaken by the extension service. The project was signed with the Paraguayan Government (GOP) in mid-1979 and began implementation in late 1979 after the initial conditions were satisfied. By the end of FY 1980, it is expected that the research teams will become operational, the mechanization unit for building and field testing prototypes will be established, training programs will be initiated, a rotating fund to finance new seed varieties will be established and various economic studies will be completed. Several dozen Paraguayan farmers have now successfully installed and used hydraulic rams introduced under the auspices of the project and manufactured in Paraguay. The university will provide long term technical assistance aimed at strengthening the administration of the Paraguayan agricultural extension service and increasing its help to small farms.

Host Country and Other Donors: Government of Paraguay will contribute \$5.3 million.

Beneficiaries: The direct beneficiaries are the approximately 50,000 small farmers in the field test areas. Indirectly, all small farmers in the country are potential beneficiaries. The cost-per-beneficiary for the life of the project is estimated to be \$8.34.

PARAGUAY Cont.

FY 81 Program: All of the work begun in FY 1980 will continue through FY 1981. Training of GOP technicians and farmers will be intensified, all eight research teams will be functioning, a series of field trials on new seed varieties will be carried out, the number of hectares producing certified seed will be increased, and various studies will be completed.

Major Outputs (and A.I.D. Unit Cost):

	(\$ thousands)	
	<u>All Years</u>	
	<u>Unit</u>	<u>Cost</u>
Field research teams formed and working	8	(20)
Technicians trained and working in field teams	80	(2)
Field trial plots	7,500	(0.6)
Number of hectares producing certified seeds	1,000	(0.4)
Number of socio-economic studies performed by the MAG	10	(20)
Person years of MAG staff training	89	(5)

PERU

Project Title: Agriculture Research, Extension and Education

Project Number: 527-0192

Principal Contractor: To be selected.

Project Purpose: To improve agriculture production by strengthening the institutions which make up Peru's agriculture research, extension and education system.

Background and Progress to Date: With its agrarian reform now in a consolidated phase, the Government of Peru sees a pressing need to improve its system for bringing new technology to the small farmer. This major loan/grant project beginning in FY 1980 focuses on the problem of small farmer technology through the development of five commodity-specific National Production Programs (NPPs) which will prepare and continually update technological packages to be extended to producers. Each NPP will deal with a commodity important to the small farmer of the sierra or the high jungle -- rice, corn, potatoes, livestock, small grains, etc. The NPPs will be focused geographically in areas of principal importance for their particular commodity. Backing up the extension-oriented NPPs will be six regional service laboratories offering soil and water analysis and six regional research centers providing research in soil management, irrigation, drainage, plant and animal protection, and farm economics. Results obtained through these research facilities will be disseminated by the NPPs, and selected Ministry of Agriculture facilities throughout the sierra and high jungle. Also, the project will strengthen the National Agrarian University which has the only graduate-level agriculture education facility in the entire country and is the source of virtually all trained research and extension personnel. Loan agreement signed August 28, 1980. In FY 1980 a list of BIFAD institutions was prepared and approved by GOP and USAID/Peru.

Host Country and Other Donors: The project will complement an Inter-American Development Bank (IDB) project assisting Peru in seed improvement and extension. Also, the IDB is assisting the National Agrarian University to expand its training capacity and to restore buildings damaged by the 1970 earthquake. The host country contribution totals \$3,740,000.

Beneficiaries: An estimated 310,000 farm families will benefit from: the technological packages generated by the NPPs, improved production technology provided by additional extensionists trained under the project, applications of fertilizer and disease control methods resulting from analyses in the Regional Service Labs, and demonstrations at various facilities in the commodity zones. Cost per family is \$36.

FY 81 Program: Five NPPs will be in operation. Six Regional Service labs will be providing analyses to producers. Six Regional Research Centers will be developing information to be incorporated in the technical packages of the NPPs. Personnel at all levels of the project will be receiving training.

PERU (Continued)

<u>Major Outputs (and A.I.D. Unit Cost):</u>	(\$ thousands)	
	<u>All Years</u>	
	<u>Unit</u>	<u>Cost</u>
National Production Programs	5	(700)
Regional Service Labs	6	(90)
Regional Research Centers	6	(500)
National Research Support Center	1	(100)
Demonstration sites at additional research facilities	5	(25)
National Agrarian University support	1	(440)
Additional extensionists trained	1,500	(2.3)

PERU

Project Title: Soybean and Corn Production on Small Farms

Project Number: 527-0149

Principal Contractor: INTSOY

Project Purpose: To increase farm income and consumption of corn and soy-fortified food products by the poor; to establish soybean production on 34,000 hectares of high jungle land in order to reduce Peru's dependence on imports; and to raise planting of improved highland corn seed to 36,000 hectares by 1980.

Background and Progress to Date: In response to increasing demand for food, the Government of Peru (GOP) has accorded high priority to increased domestic agricultural production. This project will contribute to increased rural productivity, employment and income, and improve the nutritional status of the rural and urban poor. Research leading to better production of soybeans and corn is in progress. A.I.D. has provided technical assistance, training, equipment and seeds in support of soybean production. The Ministry of Agriculture and Food, through its Cooperative Program for Corn Research, has undertaken similar activities to increase the productive capacity of native highland corn varieties. Since 1976, 22 Peruvian officials have received training in the U.S. and other countries, 226 research and extension personnel were trained in Peru, and 481 experiments dealing with genetic and agronomic improvement have been carried out. Two soybean varieties have been adapted for commercial use. Forty-six MT of commercial soybean seed and 1,014 MT of soybeans have been produced, and a total of 2,134 hectares planted. Some 8,925 hectares of improved floury corn have been planted. Estimated 1980 production of improved seeds was 400 MT of soybeans and 1,000 MT of corn. Soybean variety trials have been conducted for each of four high jungle project areas. About 600 technicians have been trained in production techniques and extension methods. Soy bread and pasta products are being developed.

Host Country and Other Donors: The host country contribution consists of counterpart personnel, vehicle maintenance, and corn seed. It is estimated at \$1.2 million over the life of the project.

Beneficiaries: Soybean production is not suited for the highlands (sierra). However, production in the high jungle will provide employment for some 11,300 families migrating seasonally or permanently into this region. The population of Peru will benefit more from the introduction, over time, of new soy products of high nutritional value. With respect to corn, some 15,000 families in the sierra -- the poorest region of Peru -- will derive immediate income benefits. Life of project cost per family will be \$240, while in FY 80 the cost is estimated to be \$59.

FY 81 Program: The number of genetic improvements, and agronomic experiments, demonstration trials and field days will be increased. The area planted with improved strains will be increased.

PERU (Continued)

APPENDIX I (Continued)

<u>Major Outputs:</u>	<u>All Years</u>
Corn research and production technicians employed	92
Soybean research and production technicians employed	63
Adapted soy varieties	4
Training (U.S. and Third Country)	44
Soy products for human consumption	3
Soybean production	34,000 MT
Floury corn production increased 15% - 30%	X

SOMALIA

Project Title: Agriculture Delivery System

Project Number: 649-0112

Principal Contractor: To be selected

Project Purpose: To develop a national extension service to deliver to farmers extension advice and training in improved agricultural techniques.

Background and Progress to Date: The potential of Somali agriculture is much greater than the realization. This is true of both small privately owned farms and large state owned farms primarily because of a lack of technical knowledge. This project will help correct the deficiency by operating a training school to furnish personnel to both the extension service and to the state farms. The project will also provide technical assistance directly to the extension service. Somali counterparts are working with U.S. technicians in designing pre-service training programs and identifying innovative farm families.

Host Country and Other Donors: The IBRD originally designed the project at a total cost of \$32.4 million and is the primary donor. They will contribute 33 percent of the overall costs concentrating on State Farms. The African Development Bank is contributing 28 percent, mainly for construction and AID's share is 24 percent to mainly finance the technical assistance component and furnish supporting commodities and equipment. The Government of the Somalia Democratic Republic (GSDR) and the European Community are also involved in financing the multi-donor project with the overall GSDR share being 11.7 percent. The contract for providing technical assistance is currently being negotiated.

Beneficiaries: The primary beneficiaries of the A.I.D. activity will be the 435 extension agents trained. These extension agents will work directly with 18,000 innovative farm families. The per family cost for A.I.D. financed outputs to reach these people is relatively high, \$385 per family. However, the other 180,000-200,000 farm families in the Bay and Northwest Regions will also be able to avail themselves of the new methods and techniques both from extension agents and the model farmers.

FY 81 Program: The project will be fully operational with U.S. technical assistance personnel working directly with the extension service and the training school. Thirty field extension agents, four district agents, and three technical specialists will enroll in pre-service training programs in basic practical agriculture at training sites. The process of selecting innovative farm families will continue, and four long-term and four short-term participants will begin training in the U.S.

Major Outputs:

	<u>All Years</u>
Extension service improved	1
Training school (\$2,000,000)	1
Extension agents trained	435

APPENDIX I (Continued)

TANZANIA

APPENDIX I (Continued)

Project Title: Farming Systems Research

Project Number: 621-0156

Principal Contractor: Consortium for International Development
Colorado State University (lead univ.)

Project Purpose: Assist the Tanzania agricultural research network to establish a multidisciplinary and coordinated capability in basic, applied, and adaptive research to serve the needs of small scale farmers.

Background and Progress to Date: Since 1973 A.I.D. has assisted Tanzania by establishing a core capability at Ilonga where breeding and agronomic research on maize, sorghum, and grain legumes was emphasized. A.I.D. proposes to assist the Tanzania Government to strengthen its capability in applied research for a farming systems approach by establishing: adaptive research teams to work in specific agro-ecological zones where farmers have common problems, resource endowments, and share common crop and live-stock practices; linkages with field operations and other ongoing A.I.D. supported projects (such as Seed Multiplication and Distribution and Small Farmer Credit); linkages between Ilonga Research Center and the Faculty of Agriculture in basic research and development of an information system for farming systems research, agro-ecological zones and other farm surveys; and linkages between Ilonga Research Center and the Center for Continuing Education in Agriculture to train farming systems specialists, agronomists, and extensionists. Project design is now complete and implementation will begin.

Host Country and Other Donors: Host Country local costs are estimated at \$5.4 million, which will include recurrent costs and capital development funds for repair and maintenance. Canada is supporting an adaptive wheat research program (\$2.1 million), the NORAD group is working on a generalized farming system project, and World Bank and A.I.D. are supporting regional integrated rural development projects with farming system components. Other donor support includes West Germany which is developing a cadre of lower-level staff personnel, the British who are conducting research in oilseeds, the Italians in cashewnuts, and FAO in soil science.

Beneficiaries: There are an estimated 2.5 million farm families cultivating about five acres each who will benefit from the project at a cost of \$8 per family.

FY 81 Program: The project will continue basic and applied research in maize, sorghum, millet, legumes, rice and root and tuber crops; establish adaptive research teams to work in specific agro-ecological zones; construct 15 houses for research personnel; purchase equipment, machinery, and laboratory equipment; and conduct surveys.

<u>Major Outputs (and A.I.D. Unit Cost):</u>	<u>All Years</u>
Participants trained to conduct research	70
Village and on-farm trials conducted	750
Local varieties upgraded	15
New and improved varieties released	20

THAILAND

Project Title: Northeast Rainfed Agricultural Development

Project Number: 493-0308

Principal Contractor: University of Kentucky

Project Purpose: To improve the agricultural productivity of low-income farm families in selected areas of Northeastern Thailand by helping them to make more effective use of existing soil, water, climatic conditions and labor resources.

Background and Progress to Date: The Northeast region of Thailand has the lowest regional per capita farmer income. It is an area of erratic rainfall patterns, low soil fertility, low soil moisture holding capacity, and limited year-round availability of water for farm and domestic use. The majority of Northeast farmers must continue to rely on rainfed agriculture. The proposed project will address the above constraints through an area development approach involving site specific agricultural research, and the introduction of packages of existing agricultural technology. Emphasis will be placed on improving the basic cropping system, while addressing soil fertility and water conservation problems, and developing supplemental water resources.

Host Country and Other Donors: The Royal Thai Government (RTG) plans to contribute 46% of the funding required to carry out the project, including recurring operational costs, and a portion of the infrastructure costs. The World Bank recently provided the RTG with a \$3.0 million IDA credit for pilot projects in rainfed agriculture to be carried out in North and Northeast Thailand. Also, the Bank is financing a project to promote decentralized multi-disciplinary research. The EEC has also offered assistance to the RTG in aspects of rainfed agriculture development related to introducing rainfed crops that might replace cassava cultivation. In FY 80 feasibility work was accomplished and project design is currently underway.

Beneficiaries: The primary beneficiaries will be 30,000 farm families (200,000 persons) living in areas inaccessible to existing large reservoirs and reliable rivers. A.I.D.'s contribution per beneficiary is estimated at \$50.

FY 81 Program: The initial year of the project will be directed at obtaining necessary technical assistance, assembling technology packages, trials of higher yield seed varieties, developing RTG and farmer project organizations, training activities, procuring key commodities, and selecting and designing improved infrastructure sub-projects. For FY 1981 A.I.D. proposes \$2.5 million in grant and \$7.0 million in loan funds.

Major Outputs (and A.I.D. unit costs):

	(\$ thousands)	
	All Years	
	Units	Cost
Target group adopts rainfed technology practice	200,000	(.0125)
Land/small water resource development and other infrastructure (sites)	200	(20)
Project staff/participants trained and operating (team)	20	(125)
New rainfed technology package developed	1	(1,000)

TUNISIA

APPENDIX I (Continued)

Project Title: Agricultural Technology Transfer

Project Number: 664-0304

Principal Contractor: Midamerica International Agricultural Consortium (MIAC),
University of Missouri (lead university)

Project Purpose: To upgrade the institutional capabilities of Tunisian agricultural institutions within the Ministry of Agriculture, and enable them to better serve and support small and medium-sized farms.

Background and Progress to Date: The Tunisian Government has identified several key constraints to the development of the agricultural sector. These include insufficient skilled manpower and other resources in the areas of extension, research, field and horticultural crops, soils, insects and diseases, economics and rural development, livestock, forestry, and food technology. A collaborative assistance Title XII project was developed by the Government of Tunisia and the Midamerica International Agricultural Consortium (MIAC) to achieve the following: (1.) train up to 63 long term participants at U.S. institutions of higher learning in selected fields of study and provide 40 person months in special short term training; (2.) strengthen Tunisian agricultural research institutions by expanding the basic and applied research capabilities; (3.) develop extension methodologies for economic rural development; and (4.) develop technology adapted to the needs of small and medium-sized farms. A contract between Tunisia and the university consortium was signed in April 1979 and by October 1979 eleven long-term participants (Ph.D and M.S. levels) were enrolled in advanced consortium institutions. MIAC representatives were in Tunisia preparing a second group of participants to start training for the second semester of 1979-80.

Host Country and Other Donors: The Government of Tunisia will provide \$1.6 million in in-kind contributions, thesis research materials and facilities, and participant salaries. The European Economic Community will also provide scientific research equipment.

Beneficiaries: Some 600,000 small and medium-sized farms will ultimately receive direct benefits from the research and extension training being developed by subject matter specialists upon completion of their training. The cost per beneficiary family is estimated at \$8.

FY 1981 Program: A.I.D. will continue to support Ph.D., M.S. and short term training. In addition, MIAC faculty consultants will provide advisory services as required, in areas such as agricultural research, training and extension.

<u>Major Outputs:</u>	<u>All Years</u>
Agricultural specialists trained to Ph.D and M.S. level (\$55,000)	63
Technicians given short-term technical training in the United States or in international seminars and workshops (\$10,000)	40
Reports and Studies (\$17,000)	8
Improved research library and soils testing laboratory equipped and operating (\$25,020)	1

YEMEN

Project Title: Agriculture Development Support

Project Number: 279-0052

Principal Contractor: Consortium for International Development (Oregon State-lead university)

Project Purpose: To establish a broad-based, nationally coordinated program of integrated agricultural development that properly manages and conserves Yemen's scarce soil and water resources.

Background and Progress to Date: Agriculture is the largest sector of the domestic economy and the only significant base for real economic growth. If Yemen is to develop its agriculture potential, a broad range of severe constraints must be overcome. Among them are included; an almost complete absence of modern agricultural technology except for the introduction of poorly utilized farm tractors; few trained agriculturalists and weak or non-existent institutions in agricultural education, research and extension; a continually eroding land base; and limited water resources which are now being used faster than they can be replenished.

This project is designed to address these constraints by initiating a long-term commitment (under Title XII) to Yemen's agricultural development efforts, and fostering continuing relationships between Yemeni institutions and U.S. land grant universities.

The project began in FY 1979 with initiation of a baseline study and of a sub-project which is supporting the development of Yemen's first agricultural high school in the agricultural town of Ibb. A sub-project which is directed at improving the government's agriculture planning and management capacity as well as supporting the design and implementation of other sub-projects began in FY 1980. Three new sub-projects will be initiated in FY 1981. A sub-project which builds on previous efforts in subsistence crop research will begin a program to modernize subsistence agriculture through coordinated work on small farms in on-farm water management, production management and applied research. A water resources sub-project is a reflection of the YARG's highest priority in the agriculture sector: rationalization of national, regional and watershed policy formulation and implementation. The water resources sub-project will provide: technical assistance to assist the YARG in development of water resource use policy and legislation; resources to develop the necessary information base to implement the policy; and some watershed management activities in specific watersheds. Although implementation of the first sub-project, the Ibb school, has gone extremely well in the Yemen government's view, A.I.D. is somewhat concerned about the government's ability to fully absorb the technical assistance being provided and prepare for independent operation of the school. However, it is expected that arrival of the planning and management assistance team will overcome some of these initial difficulties. The extent of A.I.D. assistance to a second agricultural high school will be dependent upon resolution of existing problems with the Ibb School project.

YEMEN (Continued)

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APPENDIX I (Continued)

Host Country and Other Donors: The YARG will provide counterparts and trainees and will contribute personnel and material support to sub-project activities. Sub-projects will be coordinated closely with other donor activities in the agriculture sector, particularly those of the World Bank, which is financing construction of agricultural education and research facilities.

Beneficiaries: The ultimate beneficiaries of increased and improved capacity in agricultural education, research, extension and production will be all Yemenis in occupations related to agriculture. A major focus of project research will be on techniques for increasing the productivity of women, who are increasingly involved in agriculture in Yemen. With a farm population of some 4,200,000 persons, the A.I.D. cost per person for the first four sub-projects will be about \$9.

FY 81 Program: Development of agricultural planning and management capabilities and the Ibb Agricultural Training Center will continue. Activities in subsistence crop research and poultry extension will begin. A natural resource management and conservation program and the development of a second training institution in a different ecological zone will have been designed and ready for implementation in early FY 1982.

Major Outputs:All Years

Established and functioning:	
Agriculture planning and management capacity (\$21,400,000)	1
Uplands training institution (Ibb) (\$11,200,000)	1
Poultry extension service (\$1,000,000)	1
Sorghum and millet research stations (\$2,200,000)	2

ZAMBIA

Project Title: Agricultural Development Research and Extension

Project Number: 611-0201

Principal Contractor: To be selected

Project Purpose: To help the Government of Zambia (GRZ) strengthen agricultural research and increase the effectiveness of the extension service to better serve small farmers.

Background and Progress to Date: The Zambia agricultural sector is characterized by two distinct structures. At one extreme are the large farms run by a diminishing number of commercial farmers (presently estimated at about 400, mostly expatriates or white Zambians). At the other extreme are about 600,000 smallholder subsistence farmers and about 70,000 better equipped "emergent farmers." With copper dominating the Zambian economy since independence, the agricultural sector has not performed well.

The Third National Development Plan (TNDP), published in 1979, calls for a determined effort by the GRZ to improve agricultural production and rural development. The Plan envisages a diversification of the economy from almost complete reliance on copper to greater concentration on agricultural production.

This project will help build institutions of the Ministry of Agriculture and Water Development, such as the Mount Makulu and Magoye research stations, which will direct research toward the needs of small farmers. The results of research will be incorporated into extension programs for small farmers to improve agricultural production.

Host Country and Other Donors: The GRZ is contributing about \$4.2 million in support of U.S. technicians, salaries for local personnel and participants in training, and operational recurrent costs. United Kingdom, West Germany, Canada, Sweden, Norway and the World Bank are also contributing through complementary projects in the agricultural and rural sectors.

Beneficiaries: The beneficiaries will be the 600,000 subsistence farmers and 70,000 "emergent farmers."

FY 81 Program: A team of seven long-term U.S. technicians will work with Zambian counterparts at various research centers and with the extension services. Additional participants will begin U.S. and in-country training. Construction of project-related facilities will be initiated during this period.

Major Outputs:

Expanded and improved GRZ institutions involved in agricultural research and extension	
Trained Zambians to continue support to the agricultural sector when the A.I.D. assistance terminates	X
Food self-sufficiency and improved living conditions for the rural population	X

All Years

X
X
X

FY 1977 - FY 1982

	FY 77	FY 78	FY 79	FY 80	FY 81	FY 82
Total CRSP - Planning	498	403	400	1,177	50	350
Total CRSP - Program	-	4,652	7,700	6,415	5,258	9,650
Total - Office of Agriculture	498	5,055	8,100	7,592	5,308	10,000
<u>Nutrition</u>						
Functional Implications of Malnutrition						
CRSP - Planning	-	220	-	-	-	-
CRSP - Program	-	-	-	-	750	1,000
Grand Total - Food and Nutrition	498	5,275	8,100	7,592	6,058	11,000
Note: FY 1982 project levels are only illustrative at this time. Firm project levels will be determined after the DSB, JRC and BIFAD discussions to be held in 1981. Projects beyond FY 1982 will be based on the FY 1982 levels and the availability of funds in future years.						
<u>Soils Management</u>						
Soils - CRSP Planning	-	-	250	150	-	-
Soils - CRSP Program	-	-	-	-	750	2,100
Total Soils	-	-	250	150	750	2,100
<u>Livestock Production</u>						
Small Ruminants - CRSP Planning	119	30	-	-	-	-
Small Ruminants - CRSP Program	-	4,652	2,700	3,200	650	2,400
Animal Health - CRSP Planning	-	-	-	-	-	-
Animal Health - CRSP Program	-	-	-	-	-	-
Total Livestock Production	119	4,682	2,700	3,200	650	2,400

	FY 77	FY 78	FY 79	FY 80	FY 81	FY 82
<u>Pest Management</u>						
Basic Crops - ICP Planning	-	-	150	94	50	-
Basic Crops - ICP Program	-	-	-	-	-	650
Total Pest Management	-	-	150	94	50	650
<u>Cereal Grain</u>						
Sorghum/Millet - CRSP Planning	102	117	-	-	-	-
Sorghum/Millet - CRSP Program	-	-	5,000	2,500	1,858	2,000
Total - Cereal Grains	102	117	5,000	2,500	1,858	2,000
<u>Fisheries and Aquaculture</u>						
Fisheries & Aquaculture - CRSP Planning	277	6	-	-	-	-
Aquaculture Pond Dynamics-CRSP Planning	-	-	-	420	-	-
Aquaculture Pond Dynamics-CRSP Program	-	-	-	-	-	500
Stock Assessment - CRSP Planning	-	-	-	-	-	350
Stock Assessment - CRSP Program	-	-	-	-	-	-
Post Harvest - CRSP Planning	-	-	-	-	-	-
Post Harvest - CRSP Program	-	-	-	-	-	-
Total - Fisheries and Aquaculture	277	6	-	420	-	850
<u>Grain Legumes</u>						
Beans and Cowpeas - CRSP Planning	-	250	-	146	-	-
Beans and Cowpeas - CRSP Program	-	-	-	715	2,000	2,000
Peanuts - CRSP Planning	-	-	-	367	-	-
Peanuts - CRSP Program	-	-	-	-	-	-
Total Grain Legumes	-	250	-	1,228	2,000	2,000

SECOND YEAR OF STRENGTHENING PROGRAM

MATCHING FORMULA

UNIVERSITY	Budget Contributions AID	UNIVERSITY*
U. of Arizona	\$100,000	\$100,000
Auburn U.	\$100,000	\$108,000
Cal. St. U. (Fresno)	\$ 90,355	\$ 90,355
Cal. St. U. (Pomona)	\$ 92,950	\$110,018
Colorado State U.	\$126,242	\$129,962
Cornell U.	\$100,000	\$131,000
U. of Delaware	\$100,000	\$130,000
U. of Florida	\$100,000	\$102,000
U. of Hawaii	\$100,000	\$170,000
U. of Idaho **	\$100,000	\$183,065
U. of Illinois	\$112,000	\$165,000
Iowa State U.	\$100,000	\$118,617
Kansas State U.	\$137,000	\$181,605
U. of Kentucky	\$100,000	\$121,095
Louisiana State U.	\$100,000	\$113,453
U. of Maine (Orono)	\$100,000	\$106,500
U. of Maryland	\$100,000	\$150,000
Michigan State U.	\$300,000	\$375,000
U. of Minnesota	\$100,000	\$100,000
U. of Mo. (Columbia)	\$100,000	\$150,000
Montana State U.	\$100,000	\$126,916
U. of Nebraska (Lincoln)	\$100,000	\$130,000
New Mexico State U.	\$100,000	\$105,363
No. Carolina State U.	\$100,000	\$100,000
Ohio State U.	\$100,000	\$125,000
Oklahoma State U.	\$100,000	\$107,000
U. of Puerto Rico	\$100,000	\$192,723
Purdue U.	\$158,566	\$158,566
U. of Rhode Island	\$ 99,375	\$126,175
Rutgers University	\$100,000	\$202,460
Sam Houston State U.	\$100,000	\$125,000
South Dakota State U.	\$100,000	\$140,000
So. Ill. U. (Carbondale)	\$100,000	\$140,000
U. of Tennessee	\$100,000	\$105,000
Texas A & M U.	\$208,028	\$235,090
Texas Tech. U.	\$100,000	\$160,000
Tuskegee Institute	\$ 31,405	\$ 31,735

MATCHING FORMULA (Continued)

UNIVERSITY	Budget Contributions AID	UNIVERSITY
Utah State U.	\$164,495	\$165,507
U. of Vermont	\$ 99,503	\$115,000
Va. Poly. Inst. & State U.	\$100,000	\$110,000
Virginia State U.	\$ 53,335	\$ 53,335
Washington State U.	\$100,000	\$100,000
U. of Wisconsin (Madison)**	\$145,000	\$200,762
U. of Wisconsin (River Falls)	\$ 99,875	\$ 99,970
TOTAL	\$4,818,129	\$5,991,272

MINORITY INSTITUTIONS
(Non-Matching)

UNIVERSITY	AID GRANT
Alabama A&M U.	\$125,000
Florida A&M U.**	\$126,000
Lincoln U.	\$120,289
U. of Maryland (Eastern Shore)**	\$ 95,536
No. Carolina A&T State U.	\$131,112
Virginia State U.	\$135,000
TOTAL	\$732,937
GRAND TOTAL	\$5,551,066***

*/ In addition to this direct cost contribution, universities contributed all overhead or indirect costs for both the A.I.D. and University funded direct cost components. This overhead plus direct cost contribution, constituted an aggregate university contribution about double that of A.I.D.

**/New Grantees in FY 1980.

***/ Only \$5 million was obligated in FY 1980; the remainder was unexpended carryover from FY 1979.