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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
AGENCY FOR INTERNATIONAL DEVELOPMENT

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON

MAR 31 1977

THE ADMINISTRATOR

Honorable Walter F. Mondale
President of the Senate
United States Senate
Washington, D. C. 20510

Dear Mr. President:

It is my honor to transmit to you a report regarding activities carried out under Title XII of the Foreign Assistance Act of 1961, as amended, on Famine Prevention and Freedom from Hunger. This report is the first to be submitted to the Congress in compliance with the provisions of Section 300 of the Act. It thus represents our initial summary of progress in implementing legislation that will have a profound impact on the shape of the A.I.D. program to combat malnutrition and end the world food crisis. I am confident that significant future achievements will grow from the beginnings herein described.

Sincerely,


John J. Gilligan

TABLE OF CONTENTS

	<u>PAGE</u>
I. INTRODUCTION	1
II. ESTABLISHMENT OF TITLE XII MECHANISMS AND PROCEDURES	3
III. TITLE XII ACTIVITIES OF THE REPORTING PERIOD	7
A. Introduction	7
B. Title XII Impact Upon A.I.D. Programs and Activities	8
IV. FISCAL YEAR 1976, 1977 AND 1978 CONGRESSIONAL PRESENTATION ESTIMATES AND FIVE-YEAR PROJECTIONS	21
V. SUBSTANTIVE BOARD/A.I.D. ACTIONS TAKEN OR IN PROCESS	25
A. Establishment of Subordinate Joint Committees	25
B. Determination of Eligibility of Universities	26
C. Progress Toward the Establishment of a Roster of Universities	27
D. Progress Toward Defining and Optimizing Board Participation in A.I.D.'s Programming Process	27
E. Strengthening U.S. University Capacities	28
F. Board Endorsement of the Expanded Program for Agricultural Economic Analysis and the Farmer-to-Farmer Program	29
VI. BOARD CONTRIBUTIONS TO THIS REPORT	30

I. INTRODUCTION

The enactment of Title XII of the International Development and Food Assistance Act of 1975 instructed the Agency for International Development to undertake significant new initiatives toward achieving the goal of Famine Prevention and Freedom from Hunger. The Title places specific emphasis on the increased involvement of U.S. Land Grant, Sea Grant and other qualified universities in the planning and execution of food, nutrition and agricultural development programs. This is the initial report detailing the activities carried out pursuant to Title XII. It is submitted in response to Section 300 of the Title. The Title singles out for special attention long-term programs of research, strengthening the institutional and human resource capabilities of the developing countries, and greater integration of efforts by the relevant agricultural institutions wherever located.

The core concept of Title XII is the fuller and more effective involvement of the Land Grant, Sea Grant and other qualified U.S. universities and of the technical resources of the U.S. Department of Agriculture and other Federal Agencies having relevant capabilities.

The Title implies a spirit of partnership between A.I.D. and the Universities, each having complementary skills, resources and mutually compatible goals. This partnership mobilizes the resources not only of individual universities but of a total ongoing system of agricultural research and educational activities funded from federal and state sources to meet domestic needs. It builds upon the policy, planning and coordinating processes evolved for this purpose. An example of one coordinating instrument is the Agricultural Research Policy Advisory Committee (ARPAC), established jointly by the Secretary of Agriculture and the National Association of State Universities, which involves representatives of food producers, processors and consumers and the general public, as well as university and government personnel, in assessing research needs and recommending on national agricultural research priorities.

Title XII mechanisms are designed to take full advantage of this system to encourage more productive integration of planning and implementation of U.S. domestic and international agricultural development programs.

Title XII provides for the creation of a Board for International Food and Agricultural Development (hereafter "Board"), with subordinate committees and staff, charged to participate actively in formulating policy, defining problems, and carrying out the planning, design, implementation and evaluation of activities coming within the scope of Title XII. The Board will also participate in establishing policies and procedures for involving university resources more effectively in these activities.

This Report outlines the steps taken by the Agency to redirect its programs to conform to Title XII, and the role of the Board in this process.

The Basemark for Title XII: The Current World Food and Nutrition Situation

Section 103 of the Foreign Assistance Act authorizes A.I.D. development assistance programs in food and nutrition. Title XII is a key to implementing better Section 103, and broadening U.S. response to the interrelated global problems of population growth, food supply and poverty.

According to estimates prepared by FAO for the World Food Conference of 1974, some 460 million of the world's people are malnourished to the extent that their health is affected. Other estimates suggest that serious malnutrition affects 15 to 25 percent of the populations of Asia and Africa, and that malnutrition is the chief cause of child mortality in developing countries.

The elimination of hunger and malnutrition requires sustained and coordinated efforts on a wide front. Accelerating increases in food production are necessary merely to keep step with population growth. The world's population grew from 3 to 4 billion between 1960 and 1975, and four-fifths of this growth took place in less developed countries. If present fertility rates are not significantly reduced, the world's population will reach some 7.2 billion by the year 2000. Fortunately, fertility rates in developing countries appear on average to have begun declining in recent years. If this trend continues and can be accelerated by complementary efforts to expand health, education, nutrition and family planning services, the magnitude of the world food problem will be proportionately reduced.

There is a substantial time lag, however, between declines in fertility and significant reductions in population growth. In the meantime the world faces a serious current and medium-term food production and nutrition problem. The FAO estimates that if present trends continue, there will be an annual grain deficit in developing market economies of 85 million metric tons by 1985, a five-fold increase over the 16 million ton deficit for the 1969/1971 base period. Given similar assumptions, studies by the U.S. Department of Agriculture and the International Food Policy Research Institute show roughly comparable results. Recent improvement in grain supplies would not affect these projections significantly as they appear not to derive from any significant long-term upward shift in growth rates of grain production in developing countries. The FAO estimated that the rate of growth of developing country grain production would have to increase from 2.6 percent per year currently to 3.6 percent in 1985 in order to eliminate the projected food gap. However, this provides for no increase in current consumption levels. Significant reduction of malnutrition requires average annual growth rates in developing country grain production of about 4.0 percent.

Overcoming malnutrition requires not only that more grain and other foodstuffs be produced in the developing countries, but that food be available to the poor and the hungry. Few if any governments of developing countries can afford to distribute free or subsidized food on the scale required. The only long-term solution in primarily agrarian societies is to increase food production by the poor themselves (which entails increasing the production and incomes of small farmers), while simultaneously increasing the incomes and purchasing power of other poor and malnourished people. The central role of increased small farmer production in alleviating hunger and malnutrition is emphasized in the Food and Nutrition section (Section 103) of the Foreign Assistance Act, which calls for the creation and strengthening of systems to provide "services and supplies needed by farmers, such as extension, research, training, fertilizer, water, and improved seed in ways which assure access to them by small farmers." Title XII, as a contributing component of the food and nutrition program, is similarly mandated.

II. ESTABLISHMENT OF TITLE XII MECHANISMS AND PROCEDURES

A.I.D.'s response to Title XII began immediately with its passage at the midpoint of FY 1976. Because it takes time to design programs and meet Congressional presentation requirements,

the impact on FY 1976 and 1977 programs was necessarily modest. The proposed FY 1978 programs are the first to be developed in response to A.I.D. guidance and instructions regarding Title XII.

As the Board was not commissioned until October 1976, after most of the planning for FY 1977 had been completed, it had no impact on content of the FY 1977 programs. Also, because of lead time necessary for country program development, it had no opportunity to influence FY 1978 program proposals. However, it will influence how many of the FY 1978 proposals are implemented. The Board's full involvement in both program development and implementation will begin from the FY 1979 program. The subordinate joint committees and Board staff will add substantial resources, which will accelerate and deepen the participation of the Board in program development and in influencing implementation of programs already proposed or underway.

On August 2, 1976, after considering numerous names suggested from the universities, private foundations, and agribusiness, the President appointed six persons as members of the Board for International Food and Agricultural Development. They were sworn in on October 18, 1976. (A seventh member withdrew at the last minute for personal reasons; a replacement was subsequently appointed and sworn in on February 14, 1977.) The Board members are as follows:

Chairman

Dr. Clifton R. Wharton, Jr. (3 years)
President, Michigan State University

Board Members

Dr. Orville G. Bentley (3 years)
Dean, College of Agriculture
University of Illinois

Dr. Anson R. Bertrand (2 years)
Dean, College of Agriculture
Texas Tech University

Mr. Charles Krause (2 years)
Krause Milling Company
Milwaukee, Wisconsin

Board Members (continued)

Mr. M. Peter McPherson (3 years)
Vorys, Sater, Seymour and Pease
Washington, D. C.

Mr. J. J. O'Connor (1 year)
Consultant
Houston, Texas

Dr. Gerald W. Thomas (3 years)
President, New Mexico State University

The Board decided to hold monthly meetings, at least through June. Meetings were held on October 19-20, November 22, December 22, January 10-11, February 14-15 and March 14. Federal officials designated to attend Board meetings include the Administrator and other members of the Executive Staff of A.I.D., and representatives of the Department of Agriculture and the National Oceanic and Atmospheric Administration of the Department of Commerce. Dr. Erven J. Long, Associate Assistant Administrator of A.I.D., is the Federal Officer for the Board, pursuant to the Advisory Committee Act. A.I.D. and the Board agree on the critical importance of Title XII activities and have therefore established the principle that the Administrator or Deputy Administrator should be present for discussions involving major policy decisions.

During its early meetings, the Board reviewed and revised its Charter, which has been filed with the appropriate committees of the Congress and furnished to the Library of Congress. It has created subordinate Committees: a Joint Research Committee and a Joint Committee on Agricultural Development. Structure and function of these two Committees have been agreed upon. Members have been selected and announced. Their first meetings are anticipated for early April 1977. The Board has also decided on the organization and operation of staff required by the Board and its subordinate committees. The Office of Executive Director has been established and staff is being recruited. During the period covered by this report, the staff function was performed by A.I.D. personnel and individuals serving as consultants.

Scope and Role of Board

As provided in Section 298, the Board has significant responsibilities in the implementation of Title XII. Its members are appointed and commissioned by the President and it reports directly

to the Administrator of A.I.D. Although the Board operates under the Advisory Committee Act—the Administrator has final responsibility for decisions and accountability for funds—it is the clear intent of Title XII that the Board participate in policy formulation, program planning, budget development, implementation and evaluation.

The Board and A.I.D. have agreed to take a broad view of the Board's role and to extend major participation of the Board in the full range of Agency policy formulation and implementation related to food and nutrition.

This approach requires Board participation in development assistance issues broader than those specifically involving university activities and broader than Title XII itself. The core of Title XII falls within Food and Nutrition programs funded by Section 103. The Board will concentrate on this core, but will concern itself also with the remainder of Section 103 programs, and with other activities such as those funded from the Education and Human Resources Development appropriation where such programs affect issues in Food and Nutrition. Those Supporting Assistance activities which are comparable to Title XII or other Food and Nutrition activities also will be within the Board's purview. Finally, the Board will be involved through A.I.D. in agricultural development issues which arise in connection with food aid administered under PL 480.

The Board could have restricted its attention to Title XII core activities. But this narrow focus would have greatly lessened its impact and effectiveness. The agreed broader approach permits the Board to make its recommendations on the apportionment of funds to Title XII activities in the context of other requirements of the developing countries and to seek optimum complementary relationships between Title XII and other activities.

A.I.D. warmly welcomes, and will work energetically to facilitate, this broad involvement of the Board in Agency activities related to food and nutrition from whatever source financed.

University Community Activity

The U.S. university community has expressed strong interest and has been actively preparing for its role in Title XII. Ad hoc university work groups participated extensively in the

development of the initial terms of reference for the joint committees. Many universities have undertaken internal studies to examine their interests, resources and their capacities to participate in Title XII programs. Annual meetings of several professional associations have included sessions on Title XII. On September 27-29, 1976, the Virginia Polytechnic Institute and State University held a conference on Title XII; and the University of Minnesota is holding a follow-on conference May 5-7 of this year. University associations and their sub-structures have been instrumental in organizing the strong commitment of individual universities to the goals of Title XII and related programs. Universities have been active and generous in making highly qualified faculty and administrators available for service on joint committees, panels and other support groups.

III. TITLE XII ACTIVITIES OF THE REPORTING PERIOD

A. Introduction

A first task of A.I.D. and the Board was to determine which of its ongoing and proposed activities came within the scope of Title XII. A definition has been agreed upon by A.I.D. and the Board in extended discussion. The four categories which follow form the basis for the projections of this report. The first two are interregional programs under the Technical Assistance Bureau and the others fall within the programs in particular developing countries or regional programs managed by the geographic bureaus. The categories will undoubtedly be modified through time as new program approaches evolve:

1. Research, which includes: (a) support to International Agricultural Research Centers and similar organizations; (b) food and nutrition components of A.I.D.'s centrally-funded contract research program; (c) a new Collaborative Research Support Program. (Budget estimates include associated capital costs.)

2. The balance of the centrally-funded technical assistance program, concerned with the adaptation and application of agricultural and nutrition technology. (Budget estimates include associated capital costs.)

3. Strengthening developing country institutions in research, teaching, extension and other institutional capabilities essential to agricultural development. (Budget estimates include associated capital costs.)

4. Advisory services to developing country governments and private sectors on such food and nutritional development activities as agricultural production and marketing, credit, irrigation and water management, general nutrition projects, and technical assistance for rural development, in which developing or strengthening of research, educational or extension capabilities, though often an important by-product, is not the central purpose. (Budget estimates for this category are limited to technical assistance, training and related activities and do not include capital costs.)

B. Title XII Impact Upon A.I.D. Programs and Activities

i. Development of Strategy Statements

For each functional area of A.I.D. involvement the Agency prepares a statement describing overall program strategy. At present A.I.D. is working on several strategy exercises directed at reorienting programs in line with legislative changes including Title XII. Some of these statements are new, while others replace earlier, outmoded documents. Chief among those directly relevant to Title XII are statements for agriculture, for nutrition, and for fisheries and aquaculture.

Through its review of the proposed strategies the Board will directly and powerfully influence the policies that determine the specific content and design of agricultural development programs. Board involvement at all stages of such strategy formation represents the earliest, and probably most important, means of influencing future foreign assistance programs and activities. It sets the stage for the involvement of the Board and the U.S. universities in the definition and design of programs which come within the scope of Title XII.

The draft agriculture sector strategy statement sets the twin objectives of increased food production and improved equity and participation. The Board has discussed an early draft of this strategy statement, and will review a revised draft that incorporates its suggestions. As reactions are received from A.I.D. field Missions, the Board, its subordinate Joint Committees and staff, will assist in analyzing responses and in refining the strategy.

A document proposing changes in strategy for nutrition is on the Board agenda for April.

Responsive to the clear intent of Title XII that more emphasis be placed upon fisheries and aquaculture, A.I.D. completed in July 1976 a draft strategy statement as a basis for an expanded program. Its focus is on the simultaneous achievement of increased production, improved nutrition and improved employment opportunities, especially among the underemployed rural poor. This strategy statement will also be submitted to the Board for review and for assistance in implementation.

2. Guidance to Overseas Missions

Specific guidance and instructions to the overseas Missions concerning Title XII began even before final enactment. The first such A.I.D. guidance to the field, in June 1975, alerted A.I.D. Bureaus and overseas Missions to the Congressional and Executive initiatives of that time which ultimately were merged to form Title XII as enacted. The Missions were encouraged to consider opportunities for assisting host countries to expand their agricultural research, educational and extension capabilities. They were advised that one of the greatest opportunities for the developing countries to enhance the application of improved technology to increase their food production is through strengthening their national research systems, effectively linking them to international sources of relevant technology and, through appropriate local institutions, to the individual farmers. The Missions were encouraged to increase assistance for agricultural research and related institutional capacities in their host countries and, if sound proposals were ready, to submit them for funding in FY 1977.

Guidance relating Title XII to country programs was transmitted to the Missions in March of 1976 as a part of the instructions for the preparation of the Annual Budget Submissions for FY 1978. This guidance requested that the Missions thoroughly examine their programs and appraise the opportunities for U.S. university involvement in ongoing and future Section 103 activities in context of Title XII legislative instructions.

In addition to their traditional role of implementing development projects, the guidance suggested that the universities be brought in earlier to take part in:

— Host country analysis and planning in a sector or subsector. The university role would be to help develop local institutional capacities, as well as assist in the diagnosis of development problems in the sector, and the formulation, analysis and selection of policies, approaches and goals.

— Identification and design of projects, where the university role would include suggesting means of linking local activities to international research networks, and ways of strengthening institutional capabilities in research, extension and training.

The following examples of new project proposals illustrate the response.

Afghanistan: The Mission proposed a project to increase small farmer income through improved wheat productivity and development of alternative crops. It proposed a joint effort by the Ministry of Agriculture, Kabul University Faculty of Agriculture, and a U.S. agricultural university to develop a package of farm production practices and technologies to help the small farmer increase production on his farm. The project would establish a set of services to small farmers, supported by improved research and extension. The life of project cost of this proposal is estimated at \$8.7 million.

Egypt: The plan is to improve the flow of techniques, information and services to the farm level, and to reduce the managerial, agricultural organizational, and other major institutional constraints to agricultural development. A U.S. agricultural university would provide technical assistance in policy development, agricultural planning, project selection and program management. Over five years, the estimated project cost to A.I.D. is \$8.28 million.

Honduras: The Honduran agricultural development program depends on agricultural research beyond the present capability of the Research Services of the Ministry of Natural Resources. The proposed project will provide technical assistance and training to strengthen the Research Service's ability to carry out research activities, to adapt research from other countries, and to package results so that small farmers can benefit from improved agronomic and other technical information. The project includes an action program designed to respond to the immediate problems of small farmers. A joint venture between the Ministry of Natural Resources and a U.S. university to implement the project is being explored. A.I.D.'s support will total approximately \$1.9 million over three years.

Liberia: The Mission has proposed to develop a local agricultural research capability for identifying and extending improved farming systems to small farmers. The

proposed A.I.D. response would be a joint effort of the Ministry of Agriculture, the International Institute of Tropical Agriculture (IITA of Ibadan, Nigeria), and a U.S. agricultural university to analyze agronomic problems and possibilities (soil management, crop substitution, improved farming systems) and to disseminate these research results to the subsistence farmers. The estimated five-year cost of this project is \$3.4 million.

Philippines: The Mission has proposed an integrated agricultural production and marketing project. Its goals are to increase the productivity of small farmers and to improve efficiency of the marketing system for their products. This requires (1) strengthened government capability to develop national policies for food systems; (2) establishment of institutional capacity to develop integrated packages of production/processing/marketing technology; and (3) systematic extension of new technological packages to small farmers and other small entrepreneurs. The estimated cost for this proposal is \$12.78 million.

Sierra Leone: The Mission proposed a project to establish an institutional capability for formulating and coordinating policy and plans and for carrying out analysis and evaluation, relevant to rural development. It would be carried out in cooperation with the Ministry of Agriculture, the Ministry of Development and Economic Planning and one or more U.S. agricultural universities. It is expected to result in a central rural development planning and coordination unit capable of achieving improved collaboration among the various ministries and agencies involved with rural development planning and policy. The estimated five-year life of the project cost is \$3.2 million.

3. Development Assistance Program (DAP)

The Development Assistance Program (DAP) which was established in 1973 is A.I.D.'s primary analysis and planning document and is prepared for each country and regional program. The DAP is planned to be valid from three to five years, subject to changes in the country situation. It analyzes the development situation in a particular country or region. Flowing from this analysis is a determination of the appropriate priority groups within the poor majority of the particular country, and the medium-term goals for A.I.D. assistance in the fields where major programs are planned.

Guidance transmitted to the Missions in May 1976 instructed them to take Title XII into account in preparing and revising DAP's, particularly in calculating total resource requirements, and to identify programs which might be implemented under Title XII. Thus, those DAP's recently completed, revised or currently being prepared will reflect guidance on Title XII.

As the DAP is the primary, multi-year programming exercise at the country or regional program level, establishing the basis from which specific activities will be defined and designed, it has considerable influence on future assistance programs. Therefore, A.I.D. has discussed with the Board means and mechanisms for proper participation by the Board, its subordinate Committees and staff in the DAP exercise as it relates to Title XII and, especially, in establishing a framework for university participation at the country level in preparation and modification of DAP's.

4. Interregional Programs

The several types of centrally funded food and nutrition programs in research and technical assistance, because they are primarily focused on problems or subject matter of world-wide importance rather than on the unique circumstances of individual countries, generally require less modification to incorporate Title XII concepts than do the country assistance programs.

a. Support to International Agricultural Research Centers

Continued support to International Agricultural Research Centers and similar organizations was directly authorized by the legislation. This support is being carried forward in accordance with decisions arrived at through U.S. participation in the Consultative Group for International Agricultural Research (CGIAR). Several steps have been taken to facilitate closer integration of the activities of these Centers with other Title XII activities. These include informal discussions with Directors of several of the Centers and with the Technical Advisory Committee that provides technical guidance to the CGIAR. Key university leaders who have participated in shaping Title XII concepts have met with Center Directors. A representative of the International Center program will serve on the Joint Research Committee, and this Committee will, as part of its responsibilities, review U.S. support to these Centers and submit its analyses and conclusions

to the Board. Center Directors have participated in various professional and university association meetings specifically to discuss their interrelationships with University research and country assistance programs. The Board plans to review International Research Center activities at an early meeting.

The International Agricultural Research Centers represent widely varying geographic characteristics and primary research emphases as the brief descriptions listed below indicate.

(1) IRRI (International Rice Research Institute - The Philippines), concentrates on rice, and on farming systems involving rice as the major crop of the monsoon season. Estimates for the 1974/75 cropping year show that high-yielding rice varieties emanating from IRRI were grown on about 53.3 million hectares in Asia and the Near East.

(2) CIMMYT (International Center for Maize and Wheat Improvement - Mexico), has international responsibility, among the Centers, for research on corn, wheat, and triticale. It is estimated that short-strawed, high-yielding wheats resulting from the work at CIMMYT were grown on about 47.7 million hectares in 1974/75 (in Asia and the Near East).

(3) CIAT (International Center for Tropical Agriculture - Colombia), has major research programs on beans, cassava and beef production systems, with work on corn and rice closely related to CIMMYT and IRRI, respectively. Rice varieties developed by CIAT in cooperation with Colombian scientists resulted in a dramatic increase in national production of that food grain in Colombia.

(4) IITA (International Institute for Tropical Agriculture - Nigeria), is designed to serve the hot, humid tropics of Africa and concentrates on food legumes (cowpeas), cereals (corn and rice with strong CIMMYT and IRRI links), root and tuber crops (sweet potatoes, cassava and yams), and farming systems. IITA scientists assisted Zaire in successfully combatting a serious disease that threatened the national production of cassava—a basic food crop in that country.

(5) ICRISAT (International Crop Research Institute for the Semi-Arid Tropics - India), addresses agriculture in the semi-arid tropics with emphasis on farming systems (particular attention to water management), food legumes (chick peas, pigeon peas, and peanuts), and cereals (sorghum and pearl millet).

A major outreach program is under development in the Sahel of West Africa.

(6) CIP (International Potato Center - Peru), limits its focus to the white potato. Remarkable progress has been made in development of a potato adapted to the hot, humid tropics.

(7) ILCA (International Livestock Center for Africa - Ethiopia), is concerned with the major livestock systems in Africa. Cooperative programs have been established with Ethiopia, Kenya and Mali.

(8) ILRAD (International Laboratory for Research on Animal Diseases - Kenya), focuses on two of the major livestock diseases in Africa: trypanosomiasis and East Coast fever. A breakthrough has been made in culturing the trypanosome in vitro which promises to hasten development of a successful vaccine.

(9) ICARDA (International Center for Agricultural Research in the Dry Areas - Syria and Iran), addresses some of the major research need of arid land agriculture (farming systems, wheat, barley, food legumes and livestock husbandry).

(10) AVRDC (Asian Vegetable Research and Development Center - Taiwan), supported outside the CGIAR framework, concentrates on six vegetables important in the diet of developing countries—especially those of Asia. Commendable progress has been made in developing varieties of tomatoes and Chinese cabbage with tolerance to hot weather.

(11) IFDC (International Fertilizer Development Center - U.S.A.), is dedicated to research, development and technical assistance to provide more effective fertilizers for developing countries. Whenever possible raw materials available in the developing countries are being used. Technology is being sought which fits the industrial base of these countries and is scaled to their demand for fertilizer.

b. The Central Research Program

The central research program, begun in 1963, is problem-solving in orientation, directed at finding solutions applicable, with proper local adaptation, to key problems common to many or all developing countries. It operates through discrete research projects under A.I.D. contracts.

Illustrations of some successful projects include:

(1) Control of Vertebrate Pests: A.I.D.-funded research on the Vampire Bat by the Denver Wildlife Research Center, Department of Interior, has resulted in an effective control system which in Nicaragua alone has eliminated vampire bat-transmitted rabies. It is estimated that extension of this control throughout Latin America will result in savings to the livestock industry of \$200,000,000 annually, and inestimable benefit from rabies reduction of infection of humans. Rat control research from the same project has indicated possible reduction in rice crop losses from 50-70 percent to less than 1.5 percent throughout Asia.

(2) Research on Hemoprotozoal Diseases: Research carried out by Texas A&M University, CIAT and the Colombian Government is providing means of protecting livestock against these blood parasite diseases. Research indicates a possible fourfold increase in production of susceptible high quality cattle.

(3) Tropical Soils Research: There are 800 million hectares of weathered tropical soils suitable for farming, nearly five times the cropland farmed in the U.S., which are farmed little if at all because of lack of scientific knowledge of their characteristics. A.I.D.-sponsored research by North Carolina State University, Cornell and the University of Puerto Rico has provided means of bringing these soils into profitable production by removing such constraints as aluminum and manganese toxicity, and through other improved soil management methods.

(4) Cereal Quality Improvement: A broad effort to increase production and nutritional quality of sorghums—a staple food of some three hundred million of the world's poorest people—has been carried out by four U.S. universities, ICRISAT in India and some fifteen cooperating developing countries. Focusing on the nutritional quality of sorghum as its part of the effort, Purdue University has developed breeding lines with radically improved protein content and, hence, nutritional value. Similarly, as part of a multi-university collaborative effort with CIMMYT in Mexico and several developing countries, the University of Nebraska has developed nutritionally improved breeding lines of wheat—which is exceeded only by rice as the world's largest source of protein.

(5) Wheat Soy Flour: Kansas State University has developed a baking flour for developing country uses which combines 12 percent soy flour with 88 percent wheat flour and proper dough conditioners to produce a 50 percent increase in utilizable protein in bread. This has had excellent acceptance in developing country consumer field trials and is on its way toward successful commercialization in several countries.

The food and nutrition component of this central research program, specifically included in Title XII, has been implemented through close cooperation with the entire public sector involved in agricultural research. The land grant and other agricultural universities, the U.S. Department of Agriculture, other branches of the Federal Government and other public and private institutions having expertise in agricultural research have provided counsel, assistance, and other resources in ways that closely parallel the concepts being developed under Title XII. A Research Advisory Committee of outstanding scientists, drawn largely from the University community, reviews each central research project, in all A.I.D. activity fields, for technical and methodological competence. Direct consultation between A.I.D. managers and U.S. Department of Agriculture research administrators has provided detailed linkage at the Federal level.

This central research program will come under Board purview. Provision is made for at least one overlapping member of the Research Advisory Committee and the Joint Research Committee of the Board; and the A.I.D. Federal Officer of the Board serves also as Federal Officer to the Research Advisory Committee.*

*A brochure providing advance notification of general areas in which research proposals are desired and guidelines for preparing proposals, Contract Program in Centrally Funded Research, January 1977, is available from the Agency for International Development, Washington, D. C. 20523

A catalogue by subject, by author, and by contract number, of all publications resulting from this centrally funded research program, Research Literature for Development: Vol. I, Food Production and Nutrition, December 1976, is similarly available.

c. The Collaborative Research Support Program

The new collaborative research support program authorized under Section 297(a)(3) of Title XII has not yet been initiated. However, there has been substantial preparatory work by A.I.D. and university representatives. Concepts and guidelines have been agreed upon by A.I.D. and the Board. The Joint Research Committee has been charged with the exploration of this new program as its first priority assignment. Three million dollars have been set aside for this program for FY 1977, and \$6 million proposed for FY 1978.

This program features research to be developed and mutually supported by A.I.D. and collaborating institutions reflecting mutuality of benefit. It draws upon the long experience of joint federal and state support to research activities based on the complementarities of benefit to U.S. government and individual state objectives. In this case, however, the mutual benefit is shared between United States domestic and developing country research needs.

The solution of many food and nutritional problems in both the United States and developing countries requires new research-based knowledge and technology with much overlap of subject matter. This provides opportunities for substantial mutual benefit from joint research efforts which cut across national boundaries and different levels of agricultural development. Most commercial crops and animals produced in the United States have their origins in the developing countries; and most of the world's food is from crops and animals which are common to both the more and the less developed countries.

Toward the solution of its own food and nutrition problems, the United States is engaged, through the U.S. Department of Agriculture, the agricultural universities and other institutions, in major research efforts. But these efforts would greatly

benefit from opportunities to work in cooperation with developing country scientists on such production-limiting factors as plant and animal diseases and temperature and soil constraints which are best studied under the situations of maximum stress characteristic of the developing countries. Developing countries would, of course, benefit directly from this effort. Most importantly, however, solution of specific, major technical problems often requires critical masses of scientific talent and institutional resources not usually available to a single country.

Therefore, the collaborative research support program is designed to create arrangements for providing A.I.D. support to organized research efforts on specific problems, involving collaboration among selected U.S. universities, the U.S. Department of Agriculture, International Agricultural Research Centers and developing country universities or other research institutions. The selection of collaborating entities in a specific case would be determined by their capability to contribute to the solution of the problem and by the extent of the benefits they derive.

d. General Technical Services

General technical services activities are concerned with the adaptation and transfer of knowledge and technology to the developing countries, primarily by developing and demonstrating new technologies on a pilot basis or by directly involving experts with A.I.D. Missions and developing country officials who are designing country programs. General technical service activities are financed and managed by the Technical Assistance Bureau in Washington. For example, a new technology produced by A.I.D.-financed research can be transferred to the developing countries through general technical services projects. In the Technical Assistance Bureau portfolio of agriculture activities, about one-third of the projects adapt and apply new technology or provide the services of experts to our Missions.

U.S. universities have typically taken responsibility for adapting and applying new technologies. For example, Oregon State University is promoting better methods of weed control in the developing countries, Texas A&M is concerned with the control of hema- protozoal diseases, Kansas State University has

been introducing methods to improve the nutritive value of wheat foods and the University of North Carolina is investigating better ways to promote soy bean consumption by humans. Some university experts have made themselves available for short-term assistance on important problems common to most of the developing countries. For example, Mississippi State University's experience with seed multiplication and distribution has been used extensively by A.I.D. Missions working with governments to develop seed programs. Kansas State University has performed a similar role in helping A.I.D. Missions design programs for food grain drying, storage and processing.

The objective of all these activities is to increase the use of new technologies by careful adaptation to developing country circumstances. Through careful adaptation, well-selected demonstrations and the interaction of U.S. researchers with developing country program implementors, we hope to reduce the time interval between discovery of new solutions and the application to developing country problems. Carefully tying these efforts to development of country programs can provide resources and opportunities to accelerate and expand the transfer process. A.I.D. and universities involved in research efforts are increasingly concerned with identifying, from the outset of any research and development effort, ways and means of transferring new technologies. Without application, new knowledge provides no benefit for poor people in developing countries.

5. Improved Procedures and Mechanisms for University Involvement

The Agency has been experimenting with a jointly-developed A.I.D./University model agreement now called the Collaborative Assistance Method. After five years of trial experience, this approach was incorporated into Agency procurement regulations in February 1976. The major improvement is its provision for earlier involvement of university resources, including collaboration with the host country and A.I.D. in project design. This partnership notion is carried into the implementation phase, permitting greater flexibility on the part of the contractor and host country jointly to make decisions on specific inputs required, with the Agency exercising its responsibilities primarily through determination of the intended outputs or accomplishment. This approach necessarily features careful

joint pre-planning and continuous, objective evaluation. It has the strong endorsement of the university community and appears to be working effectively in the relatively few instances where it has been tried.

Another contracting mechanism that has potential for use for Title XII activities was developed for a centrally funded agricultural program for mobilizing economists.* This program was developed by A.I.D. because it has been unable to attract an adequate number of agricultural economists. A new contracting and funding mechanism developed to reflect the collaborative characteristics of the activity was approved in December of 1975. The procedure starts with the selection of a university or agency with capacities identified by A.I.D. as required for the program. The institution selected signs a Basic Memorandum of Agreement to indicate interest in working with A.I.D. No funds are involved at this point.

Once an area of work has been designated, a second document defines the scope of work, describes the relationships between parties involved and provides the A.I.D. funds. This is the Cooperative Agreement and is negotiated with an institution which had previously entered into a Basic Memorandum of Agreement. Each of the parties involved in the Cooperative Agreement shares some part of the cost of the activity as well as administrative and implementation responsibilities.

Six Basic Memorandums of Agreement have been concluded with U.S. universities. This mechanism, presently confined to agricultural economics, may be appropriate for some other Title XII activities involving U.S. universities focusing on a particular problem area under which many specific activities would develop as the problem is addressed.

The Board did not participate in developing these improved procedures and mechanisms for university involvement. However, A.I.D. and university experience with them will provide rich sources of information for Board evaluation, and for participation in their improvement. The Board did examine the

* For additional discussion of this program see page 29.

new set of arrangements for mobilizing agricultural economists, and approved it as an experiment worth careful future evaluation, for possible modification and/or adaptation to other selected uses. Continued efforts will be made by A.I.D. working with the Board to create improved procedures and mechanisms necessary for the mobilization and long-term commitment of university resources to foreign assistance activities.

IV. FISCAL YEAR 1976, 1977 AND 1978 CONGRESSIONAL PRESENTATION ESTIMATES AND FIVE YEAR PROJECTIONS

Estimated magnitudes of Title XII activities within the Food and Nutrition program proposed for fiscal years 1976 and anticipated for 1977 and 1978 are given in Table I below. (For purposes of comparability, Congressional Presentation figures are used for fiscal years 1976 and 1977, rather than actual (1976) and estimated (1977) program levels which were substantially lower: \$407 million and \$493 million respectively).

These estimates are based on the definitions of Title XII activity categories (described in Part III) jointly established by the Board and A.I.D. They are estimates only of orders of magnitude and should not be considered as firm numbers for these categories. The Board is still in the process of analyzing the proposed activities for FY 1978 and may further refine the definitions of Title XII categories. Many projects incorporate elements of more than one category so that the way they are counted depends largely on definitions and details of project design. As the definitions are altered, and project design influenced by Board/A.I.D. interaction, the magnitudes of the categories may change. The more effective involvement of university resources in program development and implementation will also modify program design and content.

TABLE I

ESTIMATED TITLE XII LEVELS FOR FY 1976 THROUGH FY 1978
AS SUBMITTED BY THE PRESIDENT TO THE CONGRESS
(IN MILLIONS)

<u>CATEGORY</u>	<u>FY 1976</u>		<u>FY 1977</u>		<u>FY 1978</u>	
	<u>\$</u>	<u>%</u>	<u>\$</u>	<u>%</u>	<u>\$</u>	<u>%</u>
Title XII	100	17	118	21	195	33
Research*	(30)		(40)		(43)	
Adaptation and Appli- cation of Technology*	(4)		(10)		(23)	
Strengthening Developing Country Institutional Research, Teaching and Extension*	(28)		(18)		(42)	
Advisory Services to Developing Countries**	(38)		(50)		(87)	
Residual***	<u>482</u>	<u>83</u>	<u>422</u>	<u>79</u>	<u>391</u>	<u>67</u>
Total Food and Nutrition (Section 103 AID Request)	582	100	540	100	586	100

* Includes related capital costs.

** Does not include related capital costs.

*** Includes all non-Title XII Section 103 activities (e.g., rural road construction, fertilizer production or procurement, etc.). Includes also activities closely related to Title XII such as support to build capacity at U.S. agricultural universities under Section 211 (d), capital costs of advisory services to developing countries, and activities of voluntary agencies.

Table I portrays a substantial positive trend in Title XII activities from FY 1976 through FY 1978.

In FY 1976, 17 percent of the proposed \$582 million for Section 103 (food and nutrition) would classify as Title XII. The FY 1976 program was prepared prior to the enactment of Title XII. In preparing the FY 1977 program the field Missions had some anticipatory information regarding Agency and Congressional interests in Title XII type activities. Proposed FY 1977 Title XII activities increased about \$18 million over FY 1976 in a reduced Food and Nutrition program total.

Although the Board had no opportunity to participate, A.I.D. had informed the Missions about Title XII legislation and provided preliminary program guidance for preparation of their FY 1978 programs. In consequence, for FY 1978, \$195 million or 33 percent of the \$586 million proposed Food and Nutrition program are planned for Title XII activities. This represents both an absolute and relative increase of 95 percent from two years' earlier, clearly reflecting Agency response to the Title XII legislative guidance.

There is a relatively modest increment in Regional and Country funded activities of "Strengthening of Developing Country Institutions in Research, Teaching and Extension." In classifying projects, this "strengthening" category was deliberately defined narrowly to include assistance to specified developing country research, academic or technical institutions only where the primary intent was to develop and/or strengthen local institutional capacity.

Although this category, of strengthening developing country institutional capacity, has been historically the characteristic type of U.S. university involvement, it is clearly not the only or the major category of opportunity. Many of the projects in the FY 1978 program classified as Advisory Services are of an integrated type, which include elements such as agricultural policy development, extension services, agricultural manpower development, adaptive research on local food crops, and livestock range management: activities in which universities are actively involved in the United States and can be expected to assist developing countries effectively.

The Residual category is composed of those Section 103 activities not classified as Title XII. They are "residual" only in this special sense. They are mandated under Section 103,

as are Title XII activities, and constitute essential parts of the A.I.D. program in Food and Nutrition. The Board has a significant but somewhat less direct interest in an involvement with these than with Title XII activities. Examples of this residual would be capital costs for construction of rural roads, electrification and fertilizer procurement or factories. Also included are capital costs, as distinct from technical assistance costs, for projects in the Advisory Services category in fields such as agricultural credit. The total in the Residual category for FY 1978 is \$401 million or about 69 percent of the total Food and Nutrition program as compared with 83 percent in FY 1976.

An accurate assessment of the role for universities in the growing Title XII core is not yet possible. Many of the individual projects planned for funding in FY 1978 are appropriate for university involvement, including in some cases universities working closely with U.S. private sector business firms and organizations. The Board, the Joint Committees and the staff will soon begin examining the projects and developing improved policies and procedures for proper matching of university resources to these and other yet-to-be-identified developing country needs.

The A.I.D. program for FY 1978 includes about \$50 million in activities comparable to those in the Title XII core, but funded outside of Section 103. These are therefore in addition to the totals given in Table I. They offer similar opportunities for U.S. university involvement, and fall within the agreed purview of the Board. They are funded under Education and Human Resources Development, the special program for the eight African nations of the Sahel, and Security Supporting Assistance which covers economic assistance justified primarily on political or security grounds.

Long Term Projections

Data given above on FY 1976-1978 Food and Nutrition programs indicate rapid growth in the Title XII component, both in absolute and relative terms. Particularly for FY 1978 there is a substantial potential for increased U.S. university involvement.

Because the Executive Branch is presently considering the future scope and magnitude of the U.S. foreign assistance program, specific projections as to the size of the Food and

Nutrition program, or of the Title XII component, in the four years following FY 1978 are not now possible. However, as was indicated to the Board during the review of a draft A.I.D. agricultural strategy paper, it is clear that A.I.D. Food and Nutrition programs need to be increased several fold to have adequate impact on the critical world food production problems, and to begin to meet the needs of the rural poor. Increased funding for the Food and Nutrition functional account will, of course, result in increases in Title XII activities.

V. SUBSTANTIVE BOARD/A.I.D. ACTIONS TAKEN OR IN PROCESS

A. Establishment of Subordinate Joint Committees

The Title XII Amendment to the Foreign Assistance Act of 1961 indicates that the President may authorize the Board for International Food and Agricultural Development to create subordinate units necessary to the performance of its duties. Under this authority the following committees have been established:

- A Joint Research Committee (JRC)
- A Joint Committee on Agricultural Development (JCAD)

The members of both committees are appointed jointly by the A.I.D. Administrator and the Chairman of the Board.

In addition, the Board will utilize as consultants a selected group of professionals to assist in its planned active participation in A.I.D.'s programming and budgetary processes associated with food, nutrition and agricultural development.

The Joint Research Committee will be concerned with all Title XII activities directed toward the discovery of new knowledge and development of technology useful to the developing countries. The committee will consist of members from A.I.D., U.S. universities, U.S. Department of Agriculture (USDA), National Oceanic and Atmospheric Administration (NOAA), the International Agricultural Research Centers, and the private agricultural sector.

The Joint Committee on Agricultural Development will be concerned with the expansion of institutional capacity in the developing countries to adapt such knowledge and technology to local conditions and to assure its delivery to producers,

processors, distributors and consumers. This committee will have major responsibility for improving country level educational, extension and research capabilities, for integrating these effectively at local levels, for tying them in effectively with multi-country, problem-oriented research efforts, and for other country agricultural development efforts. The committee will consist of members from A.I.D., U.S. universities, USDA, NOAA, private agricultural sector, and voluntary organizations.

Selection of the membership of both committees has been completed. It is anticipated that they will be fully operational by April 1977.*

B. Determination of Eligibility of Universities

At paragraph 296(d) Title XII defines the term universities as used in the Title to mean the land and sea grant universities and others possessing comparable capacities. Yet it is clear from the context that institutions other than those made eligible by the definition also have a role in Title XII.

The Board has addressed the practical operational differences between eligible institutions and other institutions in their relationship to Title XII activities. It is understood that the required minimum of four university Board members must come from eligible universities; that the authority in Section 297(a)(1) to strengthen U.S. universities is limited to eligible universities; that the authority in Section 297(a)(3) to provide program support for long-term collaborative research is limited to eligible universities as grantees; and that the authority in Section 297(a)(4) to involve universities more fully in the international network of agricultural science is clearly directed to the greater involvement of eligible institutions. However, this does not preclude any institution, eligible or otherwise, from participating in these networks as a contractor, or in any Title XII activity as a sub-contractor of an eligible university, or as a contractor or sub-contractor of an international agricultural research center.

It is clear also that the Title XII authority does not preempt any other existing authorities to conduct food and nutrition activities.

* Names of chairpersons and members are attached to this report.

The Board is developing criteria for determining eligibility for those institutions not specifically included among categories made eligible by definition in Section 296(d), but which may be eligible by virtue of having "demonstrable capacity in teaching, research and extension activities in the agricultural sciences and can contribute effectively to the attainment of the objectives of this title," as provided for in that Section.

C. Progress Toward the Establishment of a Roster of Universities

The Board's duties include, under Section 298(c)(2), developing and keeping current a roster of universities that are eligible and interested in participating in Title XII programs.

Information that will assist in establishing university eligibility, interests and capabilities for contributing to solving the problems addressed by Title XII is being provided by the universities.

D. Progress Toward Defining and Optimizing Board Participation in A.I.D.'s Programming Process

The Board and A.I.D. have together identified three A.I.D. processes most appropriate for participation by the Board in discharging its legislative responsibilities. They are planning, budgeting and program development.

In the planning process, the key points will be: the preparation of Agriculture, Nutrition and other sector or sub-sector strategies to provide broad guidance for the development of program and projects; the preparation of the multi-year country strategy embodied in selective A.I.D. Mission's Development Assistance Program; and the preparation of annual program guidance to Field Missions and central offices on priorities, policies and procedures.

In the budget process, several means of participation by the Board and its subordinate units are possible. Its staff may wish, on a selective basis, to participate in the budget reviews conducted by A.I.D. The Board itself may wish to concentrate on review and analysis of the total economic assistance funding request including Food and Nutrition and the core of Title XII activities and, as appropriate, other development sectors, PL 480, and security supporting assistance. For FY 1979, A.I.D. might arrange a review of the Agency-wide Food and Nutrition programs at which the Board could provide its recommendations to the Administrator. (It should be noted that advance release of budgetary information is subject to certain established procedures and restrictions.)

In the project development process, it has not yet been determined how the Board and its mechanisms will be involved in details of all of the several hundred individual projects. The Board is currently reviewing the project development system. Through its committees, the Board may wish to review and monitor the progress of relevant individual project activities, and of the participation of universities therein.

Development of feasible procedures which optimize the contribution of the Board and its instruments to the above three processes is a high priority task.

E. Strengthening U.S. University Capacities

The Board recognizes that in order for the U.S. universities to be more effectively involved in Title XII, some measures have to be taken to strengthen their capabilities. The Board is working on how best to bring this about. It discussed the distinction between the two legislative authorities to strengthen U.S. institutions for international development work--Section 297(a)(1) of Title XII and Section 211(d) elsewhere in the Foreign Assistance Act. It concluded that the constraints attached to the exercise of these two authorities, and the objectives they are designed to serve, are sufficiently different to be complementary rather than competitive.

The Section 211(d) authority is aimed at the more general and longer-term strengthening of specific U.S. institutional competencies essential to assist international development, but not available in the United States. Title XII makes clear, and the Congressional Report on the Act elaborates, that the Title XII authority for strengthening U.S. university capacities is directly related to overseas development assistance activities.*

* "The committee intends that the assistance to U.S. universities to strengthen their capabilities for helping to increase agricultural production in developing countries will relate only to their overseas development responsibility, and will be limited to instances where university capacity is clearly lacking and is clearly required for the purpose of this title. Title XII aid to universities is not deemed as an end in itself. Foreign assistance funds are too limited to promote a large-scale effort to build U.S. university capabilities which are only indirectly related to the objectives of the 'New Directions' program." Report of the Committee on International Relations Together with Additional and Supplemental Views on H.R. 9005 (Report No. 94-442), August 1, 1975.

However, much can be done through better planning and other means to involve U.S. universities in such ways as will significantly strengthen their capabilities for carrying out such assistance efforts.

The Board staff is preparing, for early Board and A.I.D. review, an analysis of needs and approaches for achieving needed strengthening of U.S. capabilities. The development of a strong U.S. technical, professional and institutional capacity to provide effective assistance to developing countries on their food and nutrition problems is of mutual concern to A.I.D. and the universities. This will be a subject for substantial future joint A.I.D. and Board analysis and attention. One aspect meriting early attention will be means of strengthening the participation of the predominantly black 1890 land grant institutions in Title XII activities; another is means of expanding the role of women in development.

F. Board Endorsement of the Expanded Program for Agricultural Economic Analysis and the Farmer-to-Farmer Program

The Board has reviewed and endorsed two programs just getting underway that come within the scope of Title XII: the centrally funded expanded program of economic analysis and the farmer-to-farmer program. The expanded program of economic analysis (carried out under the Cooperative Agreement mechanism discussed on page 20) has as its purpose enhancing the capability of developing country planning personnel to identify and analyze the consequences of alternative policies, programs, and projects for agricultural and rural development in terms of their multiple economic and social goals. The result will be an improved information and analytical base for host country decision making on agricultural and rural development strategies, interventions and investments. It will also result in better information for planning U.S. assistance efforts, including those under Title XII. Presently six U.S. universities and consortia and the U.S. Department of Agriculture, are collaborating with A.I.D. in the implementation of the project.

The farmer-to-farmer program, formulated by the Agency after consultation and concurrence with the Office of Management and Budget, the U.S. Department of Agriculture and the Peace Corps, provides for implementing an experimental program for FY 1977 and FY 1978. The plan is to bring selected American farmers, who have shown special leadership capability in working as local communicators between their universities and farmers in

their communities, into developing countries as members of agricultural university teams which are already working in these countries on an A.I.D. project. The farmer-to-farmer program provides an excellent potentiality for getting new, locally adapted technical knowledge and improved farm practices and technology more rapidly and widely applied on developing country farms.

VI. BOARD CONTRIBUTIONS TO THIS REPORT

Section 298(e) of Title XII provides, among other things, that "the Board shall be consulted in the preparation of the annual report required by Section 300 of this title..."

The Board, at its February 14-15 meeting, reviewed and suggested modifications of the outline upon which this report is based. At its March 14 meeting, it reviewed in detail a draft of the report and made many suggestions, which have been incorporated into this report. The Chairman of the Board has, in accordance with Board action at that meeting, read and approved this final draft.

Section 300 stipulates that this report "may include the separate views of the Board with respect to any aspect of the programs conducted or proposed to be conducted under this title." The Board, at its March 14 meeting, advised A.I.D. that it did not wish to make any separate comments in the report. By unanimous vote it approved the following motion: "...that the Board endorse the report and compliment the A.I.D. staff on the objective approach they have taken to the report and that they incorporate as many of the suggestions as they feel feasible into the final draft for Congress."

As expressed by Chairman Wharton, this action was taken to show the sense of unity between A.I.D. and the Board and to demonstrate that the issues are being addressed in a cooperative fashion.

Attachments:

Lists of Joint Committee Members

JOINT RESEARCH COMMITTEE

Frederick E. Hutchinson, Chairman
Vice President for Research and Public Service
University of Maine

Tony J. Cunha, Dean of Agriculture
California Polytechnic Institute at Pomona

Elmer R. Kiehl, Dean of Agriculture and Director of the
Agricultural Experiment Station, University of Missouri

Jarvis E. Miller, Director, Agricultural Experiment Station,
Texas A & M

Hugh Popenoe, Director, International Programs and
Sea Grant Institute, University of Florida

William Pritchard, Dean of Veterinary Sciences and Coordinator
of International Programs, University of California System

Charlotte E. Roderuck, Professor of Nutrition and Assistant
Director of the Agricultural and Home Economics Experiment
Station, Iowa State University

Ross Whaley, Dean of Agriculture, University of Massachusetts

B. C. Webb, Dean of Agriculture, North Carolina Ag and
Technical College

Guy Baird, Associate Director for Research, Office of
Agriculture, Technical Assistance Bureau, A. I. D.

John S. Balis, Agricultural Development Officer, Latin
America Bureau, A. I. D.

Irwin Hornstein, Deputy Director, Office of Nutrition,
Technical Assistance Bureau, A. I. D.

Mary C. Kilgour, Research Evaluation Officer, Office
of Rural Development, Technical Assistance Bureau, A. I. D.

Woodrow W. Leake, Agricultural Development Officer, Africa
Bureau, A. I. D.

C. W. Carlson, Assistant Administrator, Agricultural
Research Service, U. S. Department of Agriculture

Kenneth R. Farrell, Deputy Administrator, Economic
Research Service, U. S. Department of Agriculture

Clare I. Harris, Deputy Administrator, Cooperative State
Research Service, U. S. Department of Agriculture

Lowell S. Hardin, Program Officer
International Division, Ford Foundation

N. Osterso, Director, Office of Sea Grants, National
Oceanic and Atmospheric Administration

(A representative from private industry yet to be appointed.)

JOINT COMMITTEE ON AGRICULTURAL DEVELOPMENT

Sherwood O. Berg, Chairman
President, South Dakota State University

Richard Merritt, Director of Resident Instruction,
Rutgers University

John T. Murdock, Executive Director of Midwest Universities
Consortium for International Activities and Director of
International Programs in Agriculture, University of Wisconsin.

Linda Nelson, Chairman, Department of Family Ecology,
Michigan State University.

Jackson A. Rigney, Dean, International Programs, North
Carolina State University at Raleigh

John S. Robins, Dean of Agriculture, Washington State
University

Harold F. Robinson, Chancellor, Western Carolina University

E. H. Watts, Director, Agricultural Extension Service,
Colorado State University

Daniel Chaij, Agricultural Development Officer,
Latin America Bureau, A.I.D.

Hollo Ehrich, Agricultural Economist, Asia Bureau, A.I.D.

Leon F. Hesser, Director, Office of Agriculture, Technical
Assistance Bureau, A.I.D.

Mariadene Johnson, Assistant Director, Office of Development
Resources, Africa Bureau, A.I.D.

Russell O. Olson, Chief, Agriculture Division, Technical
Office, Near East Bureau, A.I.D.

Ludwig Rudel, Health Development Officer, Office of Nutrition,
Technical Assistance Bureau, A.I.D.

Alfred D. White, Deputy Assistant Administrator, Near East
Bureau, A.I.D.

Joint Committee on Agricultural Development - 2

Lawrence E. McGary, Participating Agency Service Agreement
Coordinator, Extension Service, U.S. Department of Agriculture

Lyle Schertz, Deputy Administrator, Economic Research Service,
U.S. Department of Agriculture

F. M. Cregger, Assistant Director, CARE

J. D. Noel, Regional Director, Catholic Relief Services

James Storer, Special Assistant, International Affairs,
Office of Marine Resources, National Oceanic and Atmospheric
Administration

(A representative of the 1890 Land Grant Institutions yet to be
appointed.)

(A representative from private industry yet to be appointed.)