OCM - July 7-8, 1970, AIRLIE HOUSE
Consultative Group Warrenton, Va.

July 21, 1970

INFORMATION MEMORANDUM FOR THE ADMINISTRATOR

THRU: EXSEC

FROM: AA/TA, Joel Bernstein JB

SUBJECT: Meeting July 7 - 8, 1970, Consultive Group for the Office of Agriculture and Fisheries

The Consultive Group for the Office of Agriculture and Fisheries met at Airlie House, Warrenton, Virginia, July 7 8, 1970, to consider how best to organize and use U.S. talent in solving key agricultural problems. Because this was the first meeting of the Group, and in most ways was an orientation and organizational meeting, only an introductory effort could be made. However, procedures were laid out for using the services of the Consultive Group to assist the Office of Agriculture and Fisheries in the future. The Regional Bureaus were well represented and participated extensively in the discussions. Much of the discussion was on linkages between the Bureau for Technical Assistance, Regional Bureaus, the external analytic work and competency, field missions and country problems.

The first day was occupied with a review of the responsibilities of the Bureau for Technical Assistance and the mechanisms and linkages used by AID (TAB and other Bureaus) to relate talent to problems. The techniques used by the Regional Bureaus to utilize U.S. competence on field problems were described by the chiefs of the technical offices of each Bureau. Following questions and general discussion, Rockefeller and Ford reported on Foundations and International Research Center involvement in food production, institution building, and training. Dr. Woods Thomas, Purdue University, then summarized the Cornell Workshop on emerging food production issues, and the seminar on a worldwide research network held at Urbana. Dr. Bernstein summarized and evaluated the first day's discussion in using U.S. knowledge and talent on agricultural problem identification and problem solving.

The work group sessions and reports that followed were the crux of the workshop. One work group examined suggestions on how to "organize and utilize U.S. talent"; the second

work group considered the "place and role of A.I.D. in a world research and technical assistance network." Work Group I decided that A.I.D. needed to: (a) develop better ways of working with countries to identify key priority problems, (b) improve its methods for identifying what kinds of talent are needed and how to use it effectively, and (c) develop improved means of linking the use of this talent with what is going on in the field. (A draft summary report of Work Groups I and II has been distributed for comments.) Work Group II started with the premise that the U.S. has capabilities--applicable worldwide--to train people, to build institutions, and to do research, but that the U.S. is better along some lines than others. The U.S. is particularly solid on agricultural science and technology.

Given this, and the fact that time, money and talent are limited, A.I.D. should:

- integrate its efforts carefully with the other international assistance programs, based on a rational division of labor;
- strengthen its systems for mobilizing the best U.S. talent to work cooperatively within this multi-organizational context;
- focus heavily on research, human resources and rural and institutional development, with a problem solving orientation.

Thus, in research, the focus should be on helping to weld a worldwide network of research programs and institutions--involving collaboration among U.S. and other developed country institutions, international centers, and LDC institutions in patterns of complementary activities. No component of the network will constitute a panacea. None need be or should become competitive with the systematic development of other components. The payoff from the research effort will depend on the ability of indigenous institutions to use the network's knowledge and expertise to solve problems having a high degree of location specificity. The whole system should be geared to development of this capability.

There is tremendous need for the U.S. to involve its scientific capabilities more deeply and directly in the network, pursuing solutions for problems of developing nations. The challenge is to find and articulate an appropriate set of mechanisms which will permit and assure

such involvement. Finally, each developing nation must create, through time, a research and scientific training capacity of its own that is adequate to its continued growth and development.

This first round of Advisory Committee conclusions is not particularly new or startling. However, it reflected strong interest in what we are plunging into, and a desire to contribute. There was genuine group participation and welding of conclusions. It was a good start for this particular effort to mobilize outside brainpower. Most of the future work will be in smaller panels focused on selected key problems.

Attachments:
1. Agenda
2. List of Attendees

TA/AGF:OJKelley/DDCaton:meh:7/17/70
AA/TA:JBernstein:ahr:7/21/70

Attachment 1

AIRLIE HOUSE CONFERENCE
Airlie, Virginia

July 6, 7, & 8, 1970

CONSULTATIVE GROUP FOR THE
OFFICE OF AGRICULTURE AND FISHERIES

AGENDA

Session Chairman: Omer J. Kelley

July 6, 1970

7:00 p.m. Check in.

8:30 p.m. Informal gathering in the Garden Room.

July 7,1970

8:00 - 9:00 a.m. Breakfast

9:00 Session Begins

9:00 - 9:20 Introductory Remarks --- Dr. Omer Kelley

9:20 - 9:40 Topic: "Responsibilities and Mission of the Technical Assistance Bureau"
Speaker: Dr. Joel Bernstein

9:40 - 10:00 Topic: "Mechanisms used by AGF to Involve U.S. Talent on Key Agriculture Problems: How Research and Technical Assistance Projects are Originated, Approved, and Implemented: Committees, Contracts, Consultants, and Grant Agreements"

10:00 - 10:30 Open Discussion

10:30 - 11:00 Coffee Break

11:00 - 11:45 Topic: "Mechanisms Used by Regional Bureaus to Involve U.S. Talent on Key Problems"

Speakers: a. Robert Johnson: SEADAG and East-West Center
b. James Blume: University Contracts
c. Marjorie S. Belcher: Regional Institutions
d. Lawerence Doran: USDA PASAs

11:45 - 12:30 Questions and Answers

12:30 - 1:30 Lunch (See revised schedule)

1:30 - 2:00 Topic: "Foundation Work and Involvement with A.I.D.
Speakers: Dr. Sterling Wortman, The Rockefeller Foundation
Dr. Nathan Koffsky, the Ford Foundation

2:00 - 2:15 Discussion

2:15 - 2:30 Topic: "Utilization of World Knowledge and Talent on Key Problems Identification and Problem-Solving Procedure"
Speaker: Dr. Joel Bernstein

2:30 - 2:45 Discussion

2:45 - 3:00 Topic: Summary of Discussion and recommendations of 1) Cornell Workshop on Emerging Issues Accompanying Recent Break Through in Food Production. 3/30/70;
2) A World Wide Research Network at Urbana, Illinois. 6/15/70.
Speaker: Dr. Woods Thomas

3:00 - 4:00 Break

4:00 - 4:30 Summarization: Dr. Joel Bernstein

4:30 - 5:30 Break into work groups. Establish Group Goals for second day.

6:00 - 6:30 Social Gathering - Garden Room

6:30 - 7:30 Steak Cookout

July 8, 1970

8:00 - 9:00 a.m. Breakfast

9:00 - Session Begins. Session Chairman: Dr. Nyle C. Brady

9:00 - 10:45 Work Groups Meet*

Work Group I

Topic: "Procedure for Organizing and Utilizing U.S. Talent by A.I.D. on Key Problems"

a. Sub-Topic: "Talent Determination and Availability"

b. Sub-Topic: "Mechanisms to Utilize"

1) Committees
2) Contracts
3) Teams
4) Consultants
5) Grant Agreements

c. Sub-Topic: "Place, Functions, and Utility of an AGF Consultive Group"

Work Group II

Topic: "Place and Role of A.I.D. in a World Research and Technical Assistance Network, Including Universities, Foundations, Governments, International Agencies, and Other Donors"

10:45 - 11:00 Coffee Break

11:00 - 12:30 Continuation of Work Groups

12:30 - 2:30 Lunch

2:30 - 3:00 Work Groups Report Recommendations to Total Group

3:00 - 4:30 Open Discussion on Recommendations

4:30 - 4:45 Coffee Break

4:45 - 5:15 Final Summary: Dr. Omer J. Kelley

*Assignments to work groups will be made at meeting.

REVISED SCHEDULE for 7/

AFTERNOON AGENDA

JULY 7, 1970

12:30 - 1:30	Lunch	
1:30 - 1:55	Topic:	Summary of Discussion and recommendations of 1) Cornell Workshop on Emerging Issues Accompanying Recent Break Through in Food Production. 3/30/70; 2) A World Wide Research Network at Urbana, Illinois. 6/15/70.
	Speaker:	Dr. Woods Thomas
1:55 - 2:15	Discussion	
2:15 - 2:45	Topic:	"Foundation Work and Involvement with A.I.D."
	Speakers:	Dr. Sterling Wortman, Rockefeller Foundation Dr. Nathan Koffsky, Ford Foundation
2:45 - 3:00	Discussion	
3:00 - 4:00	Break	
4:00 - 4:30	Summarization:	Dr. Joel Bernstein
4:30 - 5:30	Break into work groups. Establish Group Goals for second day.	
6:00 - 6:30	Social Gathering - Lodge	
6:30 - 7:30	Steak Cookout	

Work Group I

Topic: "Procedure for Organizing and Utilizing U.S. Talent by A.I.D. on Key Problems"

a. Sub-Topic: "Talent Determination and Availability"

b. Sub-Topic: "Mechanisms to Utilize

1) Committees
2) Contracts
3) Teams
4) Consultants
5) Grant Agreements

c. Sub-Topic: "Place, Functions, and Utility of an AGF Consultive Group"

Names -

Dr. Vernon W. Ruttan -- Chairman
Dr. D. Woods Thomas -- Rapporteur
Dr. George F. Sprague
Dr. O. G. Bentley
Dr. B. D. Mayberry
Dr. Quentin M. West

Work Group II

Topic: "Place and Role of A.I.D. in a World Research and Technical Assistance Network, Including Universities, Foundations, Governments, International Agencies, and Other Donors"

Names -

Dr. M. L. Peterson -- Chairman
Dr. Sterling Wortman -- Rapporteur
Dr. Kyle C. Brady
Dr. J. N. Efferson
Dr. Max Milner
Dr. Nathan Koffsky, Ford Foundation

DRAFT: July 9, 1970

PROCEDURES FOR ORGANIZING AND UTILIZING U.S. TALENT BY A.I.D. ON KEY PROBLEMS

Report of Work Group I

I. Charge to Work Group

a) Talent identification, availability and utilization.

b) Mechanisms to utilize talent.

c) Place, function and ability of AGF Consultive Group.

II. The Report

a) Several papers prepared.

b) Report consists of major items brought out in discussion.

c) Findings reported here incomplete and tentative

d) Each requires additional thought, analyses and discussions.

Sub-topic a)

Talent Identification, Availability and Utilization

I. General

Successful discharge of the responsibilities of the Technical Assistance Bureau will necessitate the identification, attraction and retention of a sizeable cadre of highly competent professionals. Some fraction of this cadre will constitute the permanent career staff of the Bureau; others will participate in the Bureau's program on a sustained, if not continuous, full time basis; still others will need to make full professional commitment to the attainment of the Bureau's objectives, even though participating as career staff of cooperating institutions.

Obtaining services of a sufficient number of qualified professionals has been and continues to be a major bottleneck to effective, efficient conduct of the Bureau's affairs. It is not likely that administrative changes in organization and structure will change this situation greatly. At least, it will not be automatic. It seems imperative that the Bureau examine objectively and critically the reasons for this dilemma and take such actions as are necessary for its solution.

This examination must encompass all relevant factors. Some of the more obvious realities that must be taken into consideration are:

1. The effective supply (pool) of U.S. professionals with the particular set of talents and experiences demanded by the Bureau is neither wide nor deep. In the aggregate, the U.S. possesses huge numbers of highly trained professionals across the spectrum of disciplines. Unfortunately, it appears that only a small fraction of this manpower pool is characterized by an appropriate combination of:

a) requisite professional capabilities

b) understanding of and orientation to the development issues of the LDCs

c) personal and professional interest in the set of problems constituting the primary mission of the Bureau

d) willingness to make a lasting commitment to those endeavors.

It is quite conceivable that the effective supply of professional manpower most useful to the Bureau will be even more restricted in the future. This follows from the shifting nature of professional trainin g and orientation in response to the primary manpower demands of a highly sophisticated society.

These appear to be factors of life which the Bureau must face realistically.

2. The effective supply of professionals is a small but highly competent cadre of professionals. This manpower pool seems to consist of two factions.

a) The committed - well identified and known. These are the aggressive types who have found a satisfactory way to participate professionally, directly or indirectly, in the mission of concern to the Bureau.

b) The uncommitted - not as well known nor completely identified. with systematic identification, careful nurturing and an appropriate set of incentives, many would make their services available to the Bureau. It appears that the contributions of many in this group would have greater value in activities associated with the Bureau's missions than in their present employment.

3. Competition for the services of the particular talent needed most by the Bureau is extremely keen. It is generated from two sources: (a) other organizations having international development missions and (b) entities with domestic missions requiring similar kinds of people.

This says that if the Bureau is to be successful in filling its professional manpower requirements, it must create an environment which offers a better set of professional opportunities and rewards than its competitors.

4. It seems doubtful that the Bureau, other elements of A.I.D. and cooperating institutions will be able to attract and retain, from the current effective manpower pool, adequate numbers of the right kind of people. The situation in the longer run may be even more grim.

A.I.D., the Foundations and other involved institutions must take specific, positive action to encourage and promote the systematic expansion of the supply of professionals having the technical skills, understanding and knowledge requisite to effective, efficient performance in international development activities. For the most part, this will mean working with those young professionals who are or will be in the graduate education machinery of the U.S. educational system.

5. Much of the talent required for the effective discharge of the missions of the Bureau does not exist in unattached form. Rather, it is attached, usually in some rather firm way, to institutions. These institutions may or may not be characterized by a doctrine which makes their primary missions coincide with those of the Bureau.

*Mobilizing such talent will be dependent, in one important way, upon the degree to which these institutions can be involved as integral and active partners in the Bureau's work. This will require

II. Specific

a) Current methods employed by A.I.D. in identifying talent are not as good as they might be. (Fred to examine alternatives.)

Recommendations

1) That TAB implement immediately the professional personnel roster proposal developed jointly by AID/NAS/ARI.

2) That A.I.D. examine carefully and restructure appropriately its methods of identifying professional personnel needs in the field and in central operatives.

3) Consider publication of brochure on manpower needs and opportunities.

b) A.I.D. needs to take leadership and play active part in expanding supply of young professionals.

Recommendations

1) That TAB (or A.I.D.) make specific plans to include junior professional internships and graduate research associates in both its direct and indirect operations.

Sub-topic b)
Mechanisms

I. General Conclusions

a) Mos appropriate mechanism a function of the particular type of professional service needed and the nature of the situation in which service to be performed.

Recommendations

1. That TAB systematically explore and experiment with new, imaginative arrangements and mechanisms directed toward the eventual creation of an institutional framework - knowing the capacity to supply these needs in a rational manner.

2. That TAB explore the possibility of utilizing 211(d)-type grants more effectively in:

a) Making U.S. institutional capacity highly relevant to developing country problems.

b) Promoting continuing professional and institutional relationship among U.S. institutions and those in both under graduate and graduate A.I.D. countries.

3. That TAB take leadership in:

a) Involving mechanisms and institutional arrangements which will assure effective, relevant interaction among concerned professionals in the LDCs and the MDCs.

b) Encouraging and nurturing the development of national and international professional societies and organizations.

4. That TAB make a sustained effort to evolve effective mechanisms for increased participation of indigenous professionals (LDC) in the conceptualization and creation of development strategies and programs.

b) Specifically with respect to the research function of the TAB, the following evolved from the group's deliberations:

Recommendations

1) That the TAB develop a detailed inventory of the research and educational capabilities in (a) the LDCs, (b) the U.S., and (c) regional configurations.

2) Develop methods and programs for systematically and rapidly assemblying, interpreting, storing and disseminating findings of relevant research endeavors. Resources required to do this should be made available.

3) Establish effective means of involving mission staffs in Research and Institutional Grants programs. This is essential for utilization of results and improved relevance of program.

4) Recognize and take into account in its programs the significant phenomenon of increased professional competence, sophistication and sensitivity among professionals in the LDCs.

Final General Panel:

a) At point where TAB needs to decide how to make assembled talent and knowledge useful in the field.

b) If country missions are to be reduced, TAB ought to make concerted effort to assure that what is left is competent enough to assure effective utilization of the products and services generated by and available through the TAB. (Will vary with size of development and sophistication of the LDC.)

Sub-topic c)

Place, Function, Utility of AGF Consultive Group

General

1) Evaluation of policy, doctrine and perspective on role of technical assistance in the 1970's.

2) Defining the environment conducive to high level professional performance.

3) Evaluation of program content

a) Sorting out Areas and assigning weights to agricultural development issues that must be of continuing concern.

b) Institutional development U.S. and above

4) As a forman for idea and concept generation, ventilation, analysis, etc.

Specific

1) Advise and assist in mobilizing talent.

2) Prepare and advise on worldwide research and technical assistance projects and needs.

3) Members serve, as appropriate, on program planning at mission levels.

4) Contribute to conceptualization, planning and reviewing of ~~xxxxxx~~ sectoral analyses.

5) Members involved in key problem panels and other advisory committees.

Finally

To improve usefulness of the Consultive Group, it is recommended that:

a) Adequate preparatory work be assigned and conducted by group members prior to each formal session.

b) Means be found by which the group might have rather continuous contact with the AGF staff, programs and events.

PANEL II

Dr. M. L. Peterson

At no time in history has the need been greater for U. S. technical assistance in the promotion of economic development and population stabilization of the less developed countries. Generally, these many nations are agrarian, with two thirds or more of their people subsisting on the meager output of impoverished soils. Typically, most of the landholdings are small and many are remote from urban centers. Yields of crops are low and relatively static as they have been for centuries. Diets are grossly inadequate either in quantity or quality, or both. Attendant diseases are prevalent; yet, populations continue to increase relentlessly, with most of the numbers being added in the rural areas. Generally, much of the crop produce is consumed on or near the farms where it is harvested. There is little cash income with which families could purchase more diverse and adequate foods, or provide for improvements in other living conditions. Wealth is not being generated with which to finance urgently needed but expensive public programs of education, health, transportation. There is little cash for purchase of products of urban-based industry, and little demand for services of either rural or urban trade centers. With some exceptions in some regions of a few nations, particularly those which have benefitted from recent dramatic improvements in spring-type wheats and flooded rice, economies remain stagnant. Yet there is now an increasing awareness among peoples abroad andbby those agencies and institutions

which could assist them, that substantial improvements can be effected much more quickly than was thought possible only five years ago.

The experience with wheat and rice,in Asia, and in isolated instances with corn in Kenya and Latin America, have demonstrated that even poorly educated farmers will quickly adopt new farming systems if such systems are clearly more productive and profitable, if farmers are shown how to useenew techniques and materials, if necessary inputs are abailable at reasonable cost when and where needed, and if there is a reliable market. Governments have revealed an unexpected willingness and ability, given necessary technical assistance, to mount effective production programs.

There is now new hope that progress can be spread to benefit most people in most countries, but that hope can only be realized if needed assistance continues to flow from those with relevant expertise, especially the people and institutions of the United States. And,it is now understood that it clearly is in the U.S. interest as well as that of recipient nations to so promote prosperity through the expansion of world markets.for a wide range of consumer and industrial goods.

It is now recognized that intensification of agriculture requires the combined efforts of science, private industry, government, and farm producers. Science must provide the needed technology, tailored for the diverse combinations of soils, climate, and human preference peculiar to each region of each nation. Private industry must supply agricultural inputs, assist in processing and marketing, and in supply of increasing arrays of consumer goods. Government must set necessary policy, and

establish and strengthen the variety of institutions critical to success Technical assistance is needed in all these areas. Most regions of most developing nations are in the tropics or sub-tropics. Improved crop and animal production systems must be specially devised for such situations. Such systems should involve use to the fullest existing applicable information and materials plus other components derived through research which can only be carried out in tropical settings. Especially needed is work on systems involving biological components. And, institutions and programs of many types must be created or improved by developing nations to meet their own needs, to sustain their own progress with their own leadership and resources as early as practicable.

The Critical Role of A.I.D.

The United States possesses a large proportion of the expertise needed to solve the problems, to train the people, to build the institutions and initiate the programs crucial to economic and social progress abroad. But, if these capabilities are to be harnessed, there must be a federal institution, such as AID, to make necessary arrangements and to guide U.S. involvement. No international agency, or any other organization, has the capability to do either task.

On the other hand, increasingly large amounts of financial support for developmental efforts abroad are being supplied by the international agencies. Increasingly new technical knowledge will be generated by such activities. Development efforts will create new opportunities for marketing of U.S. or other products or involvement of business in other ways. The U.S. can ill afford not to have its own national capability to monitor such activites for the benefit of its own people, even as it

correctly promotes multilateral involvement in both technical and capital assistance.

The U. S. should continue to provide technical assistance on a bilateral basis, seeking complementarity of U.S. efforts with those of other nations, of UNDP and FAO, and of the international banks.

The Agency should consider concentrating its efforts in agriculture in the next decade on the elaboration, in concert with all other assistance agencies, of an international network of technical programs and institutions which through voluntary cooperation enable problems wherever they occur to receive attention of specialists wherever they exist. And, such arrangements should permit new advances made anywhere to be put to use without undue delay wherever they can benefit mankind.

Increase of income of rural dwellers in the tropics, as well as greater output, should be a central goal of the Agency. Therefore, the Agency should be concerned with production of all agricultural commodities (and with all related activities) which are important to the livelihood of large numbers of people. Particular attention ~~should~~ should be given to the long neglected crops and animal species grown on individual farms, rather than to estate crops (sugar, pineapple, bananas) for which considerable applicable expertise exists in the private sector. Such crops include the cereal grains (wheat, rice, corn, sorghum, millets, others), the food legumes, the root crops (potatoes, yams, sweet potatoes, cassava), some oil crops, and tropical fruits and vegetables. Animal work should cover beef, dairy, poultry, and swine production.

The Agency should arrange for establishment of priorities for work on these many commodities, and related problem areas: perhaps enlisting the assistance of U.S. and other specialists through the National Academy of Sciences, as was done for the current review of needs in the field of tropical soils.

The Agency should actively promote the rapid acceleration of interdisciplinary work on important commodities and cropping systems at strategic locations in the tropics and subtropics, using a combination of at least three techniques:

1) partial support of key national action programs in the less developed nations (as it is doing with rice in India). Leadership or other expertise can be provided through assignment of its own staff, by arrangement with USDA, by contracting with international centers for such work, and to a much greater degree than at present. By building such research and development components into appropriate contracts with U.S. universities which are working with universities abroad.

2) support in cooperation with others of strategically located international centers for the purpose of solution of problems which can only be accomplished effectively at such locations, for the training of personnel for national programs, and to create international communities of efforts on common problems

3) strengthen, on a much more comprehensive scale, interdisciplinary work on important commodities and problems at US institutions, particularly the universities and USDA. (Current examples are support of specialization in economics of regions at the Universities of Minnesota, Michigan State, Cornell, Iowa State, of tropical soils at Cornell, North Carolina State, Puerto Rico and Hawaii, of tropical veterinary mdeicine at Texas A & M, of weed control at Oregon State.) Elaboration of a master plan for additional support should be considered. Support of such activities should lead to creation of additional 4's institutional capabilities for cooperation with institutions abroad, and to emergence of more U. S. authorities in important areas. Support should permit necessary international travel and enable the institutions to take useful initiatives in cooperation with others.

The Agency should now seriously address itself to techniques for organization of the wide variety of activities which speed the application of scientific and other advances at the farm level, particularly in situations where large numbers of more remote, small landholdings are involved. Examples of such activity are the AID supported successful campaign in Porto Alegre in Brazil in which the University of Wisconsin has cooperated with Brazilian institutions and the Puebla Project of CIMMYT. Such techniques must be elaborated for other agricultural situations in various regions of the world.

The world's most important food legume is the field bean (Phaseolus vulgaris). Major expertise lies in several U. S. institutions, and in national programs in Latin America. The need for closer cooperation among all these programs should be examined, particularly regarding possibilites for improving coverage of technical problems, acceleration of application of results in an increasing number of nations, and intensification of training of bean specialists.

AID should follow closely current analysis of needs for work on other food legumes (chickpea, pigeon pea, cowpeas, peanut, lentils) and at a later date in the year determine specific means by which AID should arrange for involvement of U. S. personnel and institutions in work on these crops.

Water supply and management is of central importance to the acceleration of agricultural progress throughout the world. The Agency should promote (a) the strengthening of interdisciplinary work at key U. S. institutions which could become more significantly involved in international activities, (b) the establishment of an international institute, perhaps less centralized than IRRI, which can assist in making irrigation schemes effective through research and training and which can serve as a mechanism for facilitating cooperation among the world's centers of specialization, and (c) strengthening of national capabilities of less developed nations.

Water Research will provide an indirect approach to the study of tropical soils which should continue to receive research attention by AID. Specific attention to tropical soils can be best handled through

coordinated efforts of a consortium of universities and the USDA. Alternately, an international institute comprised of a series of decentralized units should be considered in cooperation with foundations and with other national and international agencies.

Increased efficiency of production in the developing countries will likely mean significant changes in land use which should receive research attention . Since these circumstances under which this occurs will likely not be general throughout wide areas, loud utilization research can be handled through contractural arrangements with universities or through PASAs with the USDA.

Human Resources

Maximum development of human resources is essential to progress in the developing countries. In agriculture, this involves formal education in the physical, biological, and social sciences related to rural life, the application of this knowledge to the solution of specific problems, and the development of widespread on-the-job educational programs so that all available knowledge related to the improvement of rural life can be disseminated and utilized as efficiently and rapidly as possible..

Formal education is essentially an in-country function. Donor agencies can assist in developing key institutions within these countries and in training key individuals to staff them. A.I.D. along with some other agencies is uniquely qualified to identify these key institutions and to evaluate the types of improvement needed. Then through direct help in terms of needed capital items and indirect help through contract programs involving educational institutions from the more developed nations, the needed assistance can be applied. A.I.D. has made substantial contributions along these lines in the past. These efforts should be continued and expanded.

Many of the developing nations even with reasonable good formal education resources have failed to efficiently utilize these resources in the solution of their major problems. Here again direct-hire and contract programs have been utilized by A.I.D. to demonstrate the applied-science approach. In this area the utilization of regional applied-research institutes as broad training centers has proven to be an unusually effective tool. Increased use of this approach by A.I.D. appears desirable, both in assisting in the development of these

institutes and in expanding and improving the training programs associated with them.

In the broad often mis-used and mis-understood area of on-the-job educational and training efforts in rural areas at the final user level, the farm family, A.I.D. can also help more effectively than most other agencies. Loosely termed "extension" programs, these efforts in each developing country must be based on the tradition, culture, and goals of each country and cannot be identical to the approach used in other areas. With the broad base of knowledge and experience available to A.I.D. in the area of rural education and training, the agency is qualified to evaluate the needs, consider alternative approaches, and to advise and assist individual countries in developing approaches best suited to their needs. Based on prior experience, this assistance can be tailored to the local needs and objectives.

On an overall basis in order of priority, the development of human resources should be given greater emphasis in the next few years in the programs of A.I.D.

The Agency should review its U.S. university contracts for assistance to insstitutions of higher agricultural education with the express purpose of provision for establishment of functioning experiment stations with research programs focussed on specific problems which are important both to the economy of the region served and in the worldwide scheme for coverage of research needs on critical commodities or problems. Such research and development programs should involve close collaboration with the nation's action agencies to

assure maximum impact at the farm level. Such research efforts should (a) permit local and expatriate staff capabilities, which understandably are concentrated at such educational institutions, to be harnessed for high priority national development needs, (b) enable students to develop practical expertise in management of crops and animals for high productivity and profitability and (c) accelerate generation of information relevant to local needs for inclusion in course work and (d) enable the local institution to participate effectively in, and take advantage of, national, regional, or international efforts to advance agricultural progress. The hallmark of every AID-supported university development effort should be a well organized, well-staffed, highly useful, experiment station to complement improved teaching and administration.

Policy and National Priorities

The consequences of the Green Revolution emphasize the need to adapt national strategies for agricultural development to new conditions. The single minded pursuit of the high yielding varieties of rice and wheat have pushed back the threat of imminent famine. Some countries which were large importers of these commodities in recent years are approaching self sufficiency and face export markets already overburdened in supply.

Although the spread of the new technology for rice and wheat must continue to be pursued vigorously, it is also clear that developing countries are facing shifts in development of resources. To accomplish this efficiently to meet internal demands and exploit such export opportunities as might be developed, there needs to be a more integrated and finer-tuned approach to the planning process. For example, incentives which may well be necessary to generate technological

change could, if continued too long, create distortions in price relationships damaging to development of other sectors and also become an increasing burden on the public treasury.

At the same time, the uneven thrust of development has brought expression of the concern to shape public policies and program s more in the direction of providing employment and income opportunities more widely shared than heretofore. These constraints must be accommodated in the planning process.

These issues and the consequences of the key policy issues involved surface in the agricultural sector studies sponsored by USAID and the host governments which have been accomplished in some countries. These studies provide host governments with the means to come to grip with their major problems impeding development and to determine national priorities. At the same time, they also enable USAID to plan its program of country support more effectively. We strongly urge that USAID continue to support sector studies and the improvement of data and policy oriented research which they entail as a program of high priority. That mandate should include support for institutions or centers engaged in those activities. It is recognized that sector studies must be a fully cooperative effort with the host government and there exists a willingness on the part of the host country to use the studies as basic documents for planning and implemenation of plans. It may well be that some countries are sensitive to U.S. assistance in the planning and policy decision process. This should not deter USAID support for international centers which would be prepared to help and which would be acceptable to the host government.

There are a number of research and method of funding combinations available to A.I.D. to forge linkages into international research networks. These include the following:

1. International Research Institutes (Such as IRRI, CYMMIT, etc.)

The international research institutes operated with primary support from the Ford and Rockefeller Foundations exemplify one type of institute the partial support for which A.I.D. might consider. Typically commodity oriented, these institutes have a major control physical facility with a number of associated satellite stations. While basically research oriented each should have associated with it a training component either through the institute itself or an associated university. This type of international institute would be most applicable to commodity oriented programs as for example upland crops, edible legumes and perhaps animal disease.

A second type of institute made up of a series of decentralized units should be considered for subject areas which tend to be location specific. For example, research networks concerned with water management and tropical soils lend themselves to this type of approach. The institute would implement a coordinated research approach which would be carried out at a series of locations rather than at a primary location with a series of satellite sites.

A.I.D. should be involved in planning and in setting up and supporting the international institutes. Their involvement should be in coordination with foundations, federal and international agencies as well as universities.

2. Consortia of Universities or Universities with others

The practice A.I.D. has followed in recent years of involving groups of universities in seeking solutions to development problems should be continued and expanded. The consortia or informal arrangements might well include in addition to U.S. universities foreign universities from both developed and developing countries, the USDA and other federal agencies and foundations could be included in formal and or informal arrangements to focus on a given problem. Examples of subject areas which might be covered with this type of arrangement are: edible legumes, some soil and water management, weed control and fish production.

3. Federal Government PASAs

The past practice of using the expertise of USDA and other federal agencies to carry out specific research programs through PASA should be continued and encouraged. Examples of subjects in which the USDA could provide leadership through PASAs are: utilization research, soil and water conservation, forestry, specific commodity programs such as edible legumes, animal diseases, germ plasm collection and preservation, agricultural statistics and agricultural sector studies.

4. Single Institution Arrangements (U.S.)

This method has been the basic procedure by which A.I.D. has funded its central research program. The use of contracts with single institutions such as universities and research institutes for specific research projects should be continued. However, the trend which A.I.D. has followed of identifying problems which should be researched and then seeking contractors to carry out the research should be encouraged. While ad hoc research requests should continue

to be entertained and appropriate ones funded, a high proportion of research support should be aimed at solving problems which A.I.D on consultation with other organizations concerned with international agricultural developments has identified as high priority.

5. In-house Capability

The need for professional competence on the AID/Washington staff cannot be overemphasized. Whereas ad hoc groups and committees can provide guidelines, help set overall priorities and evaluate specific projects, competent research managers and evaluators should be available on a direct-hire basis. The extramural assistance will supplement in depth the A.I.D. staff.

There are some continuing problems particularly in developing countries where there is need for some competence within A.I.D. to carry out research in specific cases. It is expected that in Missions this capability will be sought in relation to specific needs. Examples wherein this research capabiliity would be helpful are specific economic studies and evaluations.

6. National Centers in Developing Countries

The presence in developing countries of research institutes, centers and universities with reasonable degree of competence is recognized. Through country programs or even with central research ~~fxxxxxxxx~~ funding these institutions might well be used to carry out certain research projects. In most cases funding of these special projects will support technical assistance within the country in which they are found. In a few instances, this expertise of the overseas institutions can be used on problems of regional or worldwide value. In such instances funds specific for research might be used.

Nutrition

One of the primary objectives of improved agricultural productivity is the provision of sufficient food to a country is population. However, international considerations must govern agricultural policy planning since it is now evident that unbalanced or inadequate diets which are characteristic of many developing countries may have serious consequences to the productivity and vigor of populations, thus seriously retarding progress in economic and social development. For example, the physical and growth of infants and young children and their resistance to disease may be seriously compromised by inadequate dietary protein.

In the few years since A.I.D. intiated research and programming in nutrition and food science, significant progress has been achieved in identification of nutrition-related problems in developing countries. These activities, which call increasingly on the capabilities of US nutritionists and food scientists, have already attacked major problems and have identified additional needs for research and programming necessary to resolve them. The following major problem areas are indicative of the need for increased A.I.D. research and programming effort.

1. Economic Consequences of Malnutrition

Studies are needed of data and methods available to ~~evaluate~~ estimate costs of malnutrition to society, and benefits to be achieved from national food and nutrition programs. Search must be pressed for improved methodology including techniques of system analysis and means for defining cost/benefit of alternative approaches.

2. ImprovingDietary Patterns

Studies are needed of anthropological, sociological and

psychological factors producing entrenched deleterious food patterns, and of possible means to change such habits, particularly as regards increeasing protein intake. Techniques must be identified to improve food and nutrition education as well as better marketing and promotion methods to stimulate the purchase and consumption of nutritious processed foods.

3. Public Health Implications

Better definition is needed of protein requirements of various population groups and the effects thereon of work, stress and infection as well as inadequate caloric intake. Improved method for better clinical and biochemical indicators of malnutrition are needed. More clarification of the link between infant malnutrition and mental development is necessary, as well as of the role of maternal nutrition on faetal development.

4. Improving Protein Nutrition

Efforts must be expanded to breed cereals, legumes roots and starchy fruits having quantities and quality of protein, but without impairment of processing characteristics or consumer acceptance preferences.

A major challenge rests in breeding legumes not only for greater yield bu also with lower levels of intrinsic toxic factors and deleterious flavor or acceptance characteristics.

Animal breeding and production should consider a variety of possibilities such as increased efficiency of feed conversion, use of ammonia, urea or other synthetics and increased efforts to control zoonoses.

Improved techniques are needed for fish farming, fish processing and better methods for production of fish protein concentrates.

In the production of single cell (microbiological) protein, neucleic acids and toxic factors must be eliminated. Engineering studies should define the economics of scale of production.

Major research and development are still required to upgrade oilseed protein concentrates and isolates (soy, cottonseed, peanut, coconut,etc.) for food use and to identify better means for their acceptance by consumers when to staple foods (cereal products, etc.) and beverages (increasing milk supplies).

Wider efforts are needed to stimulate the use of synthetic amino acids (lysine, methionine, treonine, tyrosine) to upgrade the protein nutritive value of staple cereal foods and to identify and test other food channels for introducing such nutrients (as well as needed and minerals) into the diet.

Means for controlling or eliminating food waste and spoilage caused by rodents, insects and fungi, applicable in tropical environments, need major attention. Methods to control mycotoxins in tropical foods are a very serious need.

In terms of approaches utilizing U.S. resources which A.I.D. can mobilize to carry out these objectives, those listed and discussed in (Section on Approaches) can be utilized most effectively. For example, established national and regional centers by A.I.D. involvement, including secondment of U.S. professionals to act as coworkers with scientists in such centers, to undertake the research necessary to better establish the economic consequente of malnutrition. In cooperation with U.S. specialists in the social sciences, such institutions could also undertake the serious challenge of improving dietary patterns and

and food habits. Institutions already exist, such as INCAP in Guatemala, which, with A.I.D. inputs could mount a more effective attack on the public health implications of nutrition.

In the area of improving protein nutrition, most of the problems are technological in nature which can be handled by U.S. scientists and institutions which are already world leaders in these areas. This is true of genetics technology, single cell protein research and development and upgrading oilseed proteins for food. The U.S. was one of the first industrial countries to demonstrate the immense value of national food enrichment programs. U.S. expertise is now available to deal with residual problems in food enrichment such as that by amino acids and unconventional proteins, as is urgently needed in several developing countries. These nutrition-oriented challenges can best be met by enlightened leadership in A.I.D. acting in cooperation with the rich scientific, technological and professional resources of the U.S.

SUMMARY INFORMATION

RESEARCH PROJECTS

CENTRALLY FUNDED

JUNE, 1970

OFFICE OF AGRICULTURE AND FISHERIES

TECHNICAL ASSISTANCE BUREAU

AGENCY FOR INTERNATIONAL DEVELOPMENT

1. Inheritance and Improvement of Protein Quality and Content in Sorghum
AID/csd-1175

Contractor: Purdue Research Foundation

This project screens world collegtion of sorghum for genetic traits controlling protein content and quality, and uses such traits to produce promising hybrids. It tests these cooperatively with countries throughout the tropics. Results support thesis that high yielding sorghums with markedly improved protein nutritive values are feasible. Identification of desirable hybrids requires additional country cooperative testing for at least two more seasons. Approximately 20 countries are now cooperating, through assistance of Missions.

2. Improvement of the Nutritional Quality of Wheat Through Increased Protein Content and Improved Essential Amino Acid Balance AID/csd-1208

Contractor: University of Nebraska

Cooperating Sponsors: Agriculture Research Service, U.S. Department of Agriculture; CIMMYT, and approximately 25 wheat growing countries.

The objective of the project is to breed wheat for improved total protein, and protein quality in terms of essential amino acid content. It is exploiting the discovery of genes in a variety - Atlas 66- that markedly increases protein content and quality. The entire world wheat collection is being screened to find other genes controlling protein. Rapid progress is being made in combining protein genes with other desirable traits, to produce new strains for worldwide testing. In 1968-1969, improved winter wheat types were evaluated in 16 countries at 23 locations. CIMMYT has accepted responsibility for comparable studies with spring-type wheats. From three to five years' additional research is projected to achieve delivery of improved protein wheats for commercial growth in many nations. This project is expected to have a major impact on world protein needs.

3. Improved Grain Legume (Pulses) production in Near East South Asia, East Asia and African Regions--PASA--RA-3-00

Contractor: Agricultural Research Service, U.S. Department of Agriculture

Cooperators: Government of Iran, Government of India

This project aims at the improvement of major food grain legumes, as a means of contributing to food protein supply in critically deficient countries. Work is centered in India (primarily Mung beans and pigeon peas) and in Iran (primarily chickpeas and lentils). Extensive collections have been made of varieties, types, and mixtures of 10 pulse species. There have been preliminary screening to identify promising material; identification of pests and possible types of plant resistance; and evaluation of cultural practices that improve yields. Seed samples and assembled information are given to other countries. Certain plant selections were made by India and Iran for distribution to farmers, but more research is needed prior to wide dissemination. In FY 1970, the India program was transferred to the A.I.D. Mission and the Government of India. The Iran Center is to be strengthened to serve NESA over-all. For 1971, the prospect is for a worldwide plan(coordinated with foundations, USDA, universities, etc.) with five research centers having responsibility for individual species allocated as follows: Iran: chickpeas and lentils; Far East: Mung beans and pigeon peas; Africa: cowpeas and broad beans. Draft plan for expanded projectwent to the Regional Bureaus for comment and discussions with Foundations and USDA are underway. Renewal is under negotiation.

4. Major Cereals Project in Africa and Far East -- PASA RA(AJ) 4-00

Contractor: Agricultural Research Service, U.S. Department of Agriculture

This project undertakes the breeding of maize, sorghum, and millets for improved varieties and yields. It develops "packages" of cultural practices, and institutes effective pest control measures. Maize results are now strongly influencing commercial production in Kenya, Uganda and Tanzania, with maize and sorghum results entering field demonstration stages in 10 cooperating countries. The early fruition of this research (started in 1964) is due to the technological management of highly competent scientists and the prospect is for further accomplishments. 1970 program includes breeding for higher protein content and quality.

African aspects were transferred in FY 70 to the Regional Bureau. Extension of program to Far East is planned.

5. Inheritance and Improvement of Protein Quality and Content in Maize

Contractor: Purdue University

This new project on maize research will evaluate promising germplasm from the world collection for other genetic systems, in order to achieve additional breakthroughs in protein quality and quantity. The project also will assist in the creation of a worldwide system for maize improvement and in the rapid dissemination of research findings to cooperators.

6. Research in Farm and Equipment Power Requirements for Production of Rice - AID/csd-834

Contractor: International Rice Research Institute

Power requirements are critical for efficient rice culture and harvest, particularly for paddy rice where two or more crops per year are planned. The project includes critical evaluation of power requirements, design and adaptation of improved types of equipment and use of power sources, that are particularly suited to LDCs. Significant progress made with tilling machines, weeders, fertilizar applicators, and threshers; and these are being field tested. Further research is underway on other improved machines for harvesting, drying and milling rice, as well as with weeders. This research is stimulating commercial production of acceptable machines.

7. Preparation of a Plan for the Orientation of Research on Cassava --AID/csd-2497

Contractor: University of Georgia

The objective of this project (signed June, 1966) is to inventory existing knowledge and identify priority areas for research on the important food crop, cassava. The ultimate aim is to explore the possibilities of improving the quality of cassava by increasing the protein content through selection and breeding. The survey is co-ordinated with the programs of the Ford and Rockefeller Foundations in Colombia and Nigeria.

8. Analysis of Data on the Nutrient Status of Soils--AID/csd-287

Contractor: North Carolina State University

This project provides guidance to 13 Latin American countries on procedures for operating soil testing laboratories to analyze farmer field samples and determine fertilizer requirements. Under this project, capacity of country laboratories increased from 30,000 analyses in 1965 to 167,000 in 1968. Technicians have been trained in the U.S., and Manuals prepared and distributed in Spanish, Portuguese and English. These manuals cover evaluation methods, economic analysis data for reliable and economically efficient fertilizer recommendations, and serve as guides to country fertilizer recommendations, procurement and application. The project is used extensively by A.I.D. Missions. Technical assistance component was funded by LA Bureau as of January 1, 1970. The research element is being continued and expanded under a new contract.

9. Agronomic-Economic Research on Tropical Soils

Contractor: North Carolina State University

Under this new project, North Carolina State University will develop a methodology for an economically sound system of fertilizer recommendations as derived from soil analysis and crop response data. While the project is based primarily in Latin America, the results will apply to all developing countries and tropical regions.

10. Soil Fertility Requirements to Attain Efficient Productivity on the Extensive, and Well-drained Upland Soils of the Humid Tropics--AID/csd-2490

Contractor: Cornell University

Cooperating Sponsors: University of Hawaii and University of Puerto Rico

The contract for this project was signed in June, 1969. Work has been started in Puerto Rico and based on results there, it is being extended to Latin America.

11. Determination of Research Needs of Soils of the Tropics--AID/csd-2505

Contractor: Agricultural Board, National Academy of Sciences

There are over two billion acres of potentially arable land in the tropics which are essentially uncultivated. The objective of this contract is to carry out a definitive study of high priority research needs relating to soils of the tropics and their management. This is being done by a committee of 12 experts, six of whom are Europeans experienced in tropical development. The results of this study will provide guidelines for a coordinated attack on problems of tropical soils by local and worldwide research organizations. The study will also serve as a guide to A.I.D. in the types of programs which are suitable for Agency support.

12. Tailoring of Fertilizers for Rice - PASA RA(AJ)5-69

Contractor: Tennessee Valley Authority

The objective is to develop efficient, slow-release fertilizer materials, especially nitrogenous, to meet the needs of rice plants grown under flooded conditions. An International Advisory Committee, including representatives of CIAT, IRRI, Japan, Thailand, Ceylon, University of California and Louisiana State University has met and developed designs for field experiments based on preliminary work at TVA. Field trials are underway in the Philippines, Thailand, India and Ceylon. They involve comparisons of different nitrogen and phosphate fertilizers developed and tested by TVA. These are compared with standard fertilizers. The results of the current field trials were reviewed by the Advisory Committee in the spring of 1970. Reports indicate that under field conditions, crop response to various phosphate rocks bears out predictions based upon mineralogical studies at TVA. It also appears that sulphur-coating of urea is effective in slowing the release of nitrogen under flooded conditions.

13. Water Management Research in Arid and Sub-Humid Lands of LDCs AID/csd-2162

Contractor: Colorado State University

Cooperating Sponsors: USAID/Pakistan, and various Pakistani Institutions

Research is directed to water development and water management principles that are applicable to irrigated agriculture in Pakistan, with the expectation that results can be readily adapted to similar regions in other LDCs. Research is designed to attack the problems identified in surveys of Pakistan conditions. The objective is improvement of water management practices, so as to achieve maximum economic returns from limited water resources when applied to improved crops and farming practices. A conference was held in Denver in January, 1970, to plan for continuation of the research in 1970 and 1971.

14. Water Management Research in Arid and Sub-Humid Lands of LDCs AID/csd-2167

Contractor: Utah State University

Cooperating Sponsors: LA Bureau, CIDIAT/OAS, USAID Missions, and Ministries in Brazil, Colombia, Chile, Venezuela.

A field survey has been made in El Salvador, Honduras, Colombia, Peru, Chile, and Brazil. Initial operations will proceed in Brazil, and extend to El Salvador. The objective is improvement of water management practices, so as to achieve maximum economic returns from limited water resources when applied to improved crops and farming practices. The conference, held in Denver in January, 1970, planned for continuation of the research needed to provide a sound basis for irrigation development projects in the regions of limited moisture supply.

15. Control of Weeds in LDCs AID/csd-1442

Contractor: Oregon State University

Cooperating Sponsors: Governments of Colombia, Ecuador, El Salvador, USAID Missions; University of Hawaii; private industry (both domestic and foreign)

This project provides assistance from the International Plant Protection Institute at Oregon State for the development of simple, effective methods for weed control. New materials are evaluated in Hawaii, at Oregon State, and in the cooperating countries. Governments are aided in training technicians, and in developing indigenous weed research capability. Research and assistance to date have increased crop productivity, and reduced weed control costs. Private enterprise has been stimulated to enter into weed control activities on farm lands, to contribute expertise and to provide free-of-cost supplies of herbicides and weed control equipment for evaluation. Several manuals have been published.

The program is operating in Central and Latin America and expansion into East Asia is being explored.

16. Control of Vertebrate Pests (Rats, Bats and Noxious Birds)— PASA RA(ID)-1

Contractor: Bureau of Sport Fisheries and Wildlife, Department of Interior

Cooperating Sponsors: Government of Mexico, Government of the Philippines, Government of Colombia; CIAT

The aim is to reduce crop and animal losses from these pests by developing effective and economical control measures.

Basic research involves (1) work on chemicals to serve as attractants, repellants and sterilants, and (2) work on remote control devices to monitor movement of these vertebrates. It is going on at the BSFW laboratories in Denver. Research and training programs on control of rodents have been initiated with USAID/Manila and the Government of the Philippines with a regional rodent control center established in the Philippines. In conjunction with the Government of Mexico, a project on vampire bats is operating at Palo Alto, Mexico. UNDP/FAO scientists are cooperating on the study of vampire bat ecology and predation. Negotiations are underway to establish a regional bird damage control program at CIAT in Colombia.

Several surveys have been completed to identify the nature and magnitude of damages and to identify the important causative species.

17. Research on Sterility Method of Tsetse Fly Control PASA RA(AJ)1-00

Contractor: Agricultural Research Service, U.S. Department of Agriculture

Cooperating Sponsors: University of Rhodesia; UNDP/FAO and Government of Zambia (under negotiation).

Tsetse fly transmits fatal blood parasites to man and animal and limits the productive use of over 4 million square miles of Africa. Control of tsetse fly by the sterile fly technique offers a potentially practical technique. Systems for raising large populations of flies have been greatly improved. Experiments on small islands show the method is possible. Negotiations are underway with UNDP/FAO and Government of Zambia for a field trial of about 1,000 square miles.

The research site is being shifted from Rhodesia to Zambia for reasons external to the project operation.

18. Research on Hemoprotozoal Diseases of Livestock AID/csd-1947

Contractor: Texas A&M University

Cooperating Sponsors: Rockefeller Foundation, CIAT, Ford and Kellogg Foundations, and government agencies in Colombia

An epidemiological and geographic survey has been completed for anaplasmosis, theileriosis, and babesiosis diseases. Intensive research is being conducted at the CIAT Center at Palmira. The Colombian Government has made available a large tract of land near the research center, and coordination has been established at three tropical sites. A conference at the research center was held in February, 1970, with participation by the U.S.A.I.D Mission and the cooperators..

Control of these diseases is important in improving meat production in Colombia, and in augmenting animal protein supplies to deal with dietary deficiencies. The result will have worldwide applicability.

19. Laboratory and Field Testing of Foot and Mouth Disease Vaccine
AID/csd-2273

Contractor: National Academy of Sciences/National Research Council

The project provides for laboratory and field testing of a newly-developed foot and mouth disease vaccine that promises to provide immunity for one full year instead of the three or four months provided by current vaccines. It was initiated in 1969 in Argentina and Brazil. Results cannot be assessed as yet. If they are favorable, however, the Inter-American Development Bank plans to loan seven million dollars to Latin American governments for foot and mouth disease control.

20. Development of Conservation Processes for Fish Products

Contractor: Agrarian University, LaMolina, Peru

The purpose of this project is to develop new methods of preserving fish that will be suitable to Peruvian conditions and meet Peruvian needs. It is anticipated that these new methods will permit wider distribution of fish, particularly in the protein-deficient Altiplano. Research conducted under this project will have widespread applicability in many other countries.

21. Survey and Analysis of the Problem of Animal Protein Production in the Wet/Dry Tropics AID/csd-2498

Contractor: University of Florida

The project calls for the University of Florida, in cooperation with CIAT in Colombia, the Institute for Nutrition for Central America and Panama, and the Inter-American Institute for Tropical Agriculture at Turrialba, Costa Rica, to assemble and analyze the available data on cattle feeds and on research conducted to date. The project started in April, 1969 and it is too soon to assess results. It is directed towards overcoming serious nutritional deficiencies in cattle in Latin America. Overall goal is to improve human nutrition through more efficient livestock production and increased consumption of animal products.

22. Analysis of Capital Formation and Utilization in LDCs AID/csd-1937

Contractor: Ohio State University Research Foundation

Under this project, credit studies were made in Latin America; capital formation using credit was analyzed; and guides established for effective credit institutions and processes. Information was obtained in the formulation of policies and essential institutions to stimulate capital formation in support of food production. The project was superseded in FY 1969 by another capital formation and technological innovation at the farm level in LDCs.

23. Analysis of Capital Formation and Technological Innovation at the Farm Level in LDCs AID/csd-2501

Contractor: Ohio State University Research Foundation

As this project was started in the latter half of 1969, no results are available as yet. Primary target of the project is on the development of general analytical methods for measuring the effect of capital formation and technological changes on the developmental process. Brazil is one of the principal sites.

24. Factor Analysis for Accelerating Agricultural Productivity in LDCs (Mexico) AID/csd-1467

Contractor: International Marketing Institute

This project was initiated in October, 1966 and was completed in December, 1969. It was carried out in Guadalajara, Mexico, and was aimed at investigating the economic, social and political factors inhibiting the adaptation of proven agricultural practices in traditional agricultural societies. The final report will assist USAID Missions in pilot projects for building overseas institutions that utilize technology and encourage investments from the indigenous private sector.

25. Rural Development Analysis: Agriculture Sector Planning Models
AID/csd-1557

Contractor: Michigan State University

This project is designed to analyze the agricultural activities of a region or country to identify situations or conditions that act as constraints on efficient functioning and development. It will serve as a guide to remedial actions that should be involved. Thus, the Nigerian beef industry is being evaluated to form the basis for delineating effective methodology, with the objective of expanding such methodology to include the bulk of the Nigerian agricultural economy. Conference to review and evaluate results obtained to date, held in January, 1970.

26. Analysis of Factors Associated with Differences and Changes in Agricultural Production in Selected Countries PASA RA)AJ)2-00

Contractor: Economic Research Service, U.S. Department of Agriculture

Twenty-six LDC countries have been studied extensively and eight countries intensively in an effort to indentify factors associated with higher rates of agricultural production, and general agricultural development. Comparisons are made with countries that have achieved higher productivity--Taiwan, Japan, Israel, Mexico, and Korea, to provide criteria applicable to short-range and long-term planning in LDCs. The final report has been prepared, and it is being distributed to the USAID Missions.

27. Agricultural Prices in Economic Development: Their Role, Function, and Operation AID/csd-1437

Contractor: Cornell University

Cooperating Sponsors: India, Pakistan, Nepal, Thailand, Taiwan

This project conducted studies within the above countries to determine relation of prices to the agricultural production process. For 1970, emphasis was on the influence of pricing on the consumer and on income and capital transfers. Resultant information has been made immediately available to cooperating countries for their use. Guidance also is being provided to other countries.

28. The Impact of New Technology on Rural Employment and Income

Contractor: Cornell University

The objectives of this new project (the second phase of the Prices project above) are: (1) To determine how new technology affects the employment opportunities and income of rural people and (2) from this analysis, to assist and accelerate technological changes and productive growth.

29. Analysis of Demand Prospects for Agricultural Exports from LDCs
PASA RA(AJ)2-66

Contractor: Economic Research Service, U.S. Department of Agriculture

The project ascertains future commodity demand prospects for agricultural products to be produced by LDCs for export. It concentrates on 26 commodities that presently enter international trade. The information is desired in order to guide LDCs in their efforts to earn foreign exchange by marketing agricultural products. A world trade and demand model for making projections to 1980 was designed with the result that country governments, with Mission counsel, can measure trade opportunities against country potential for production.

30. Farm Marketing Facilities and Practices in Tropical Africa

Contractor: Stanford Research Institute

Sub-Contractor: Michigan State University

Contract No. AID/csd-801

This project sought more efficient ways of marketing agriculture produce in sub-Sahara Africa. The research was needed to delineate marketing practices characteristic of the region with the aim of designing feasible remedies or selecting among those at hand. Teams investigated marketing functions in the cooperating countries, Kenya, Sierra Leone and Nigeria, and prepared reports on Marketing of Staple Foods in Western Nigeria; and Eastern Nigeria; in Kenya and in tropical Africa overall. The result of this project is an improved basis for A.I.D. policy decisions related to marketing systems.

31. Analytical Study of AID/University Programs in Agricultural Education and Research in the LDCs – AID/csd-840

Contractor: Purdue Research Foundation

The specific purposes of this project were (1) to derive, from the systematic analysis of experience, significant principles with applicability broad enough to serve as guidelines for program planning and operations; (2) to assess what has been accomplished by the programs for developing agricultural education and research institutions abroad, and the cost of such development under varying circumstances; (3) to establish criteria of progress in institutional development to serve as guidelines for A.I.D., the U.S. university community, and the cooperating countries; and (4) to indicate, to the extent that experience-based data permit, other types of rural development assistance.

32. Diffusion of Innovations in Rural Societies AID/csd-735

Contractor: Michigan State University

This project was carried out by MSU between December, 1964, and December, 1968, and was aimed at developing effective means of communicating information on new technology to farmers. Research took place in Brazil, India and Nigeria. The project included three phases and resulted in the publication of 12 reports. The final report (to be used as a manual for field workers responsible for introducing new technology to farmers) has not been completed.

33. Research and Training in Land Tenure Reform in Latin America
REPAS 3

Contractor: Land Tenure Center, University of Wisconsin

Three components characterized this project: (1) research on land tenure systems in Latin America and the effects on agricultural development; (2) training of foreign nationals and Americans to improve their teaching research on administration of land reform programs and (3) consultative services to Latin American governments. While the project focused on one region, its results are having wide application in all countries with land reform programs underway or contemplated.

RESEARCH PROJECTS--OFFICE OF AGRICULTURE AND FISHERIES

TITLE OF PROJECT	CONTRACTOR/PARTICIPATING AGENCY	STATUS
I. Crop and Seed Improvement		
1. Inheritance and Improvement of Protein Quality and Content in Sorghum	Purdue Univ. csd-1175	Contract extended 1 year
2. Improvement of Nutritional Quality in Wheat	Univ. of Nebraska csd-1208	" "
3. Improved Grain Legume Production in NESA and FE	USDA/ARS RA-3-00	Renewal of contract being negotiated
4. Major Cereals Project in Africa and Far East	USDA/ARS RA(AJ) 4-00	
5. Improvement of Protein Quality and Content of Maize	Purdue University	New contract
6. Farm and Equipment Power Requirements for Rice in Asia	IRRI csd-834	Contract extended 1 year
7. Cassava Literature Review	Univ. of Georgia csd-2497	Project terminating
II. Soils and Fertilizers		
8. Analysis of Data on the Nutrient Status of Soils	North Carolina State csd-287	Contract extended for 6 months to complete reports
9. Agronomic-Economic Research on Tropical Soils	North Carolina State	
10. Soil Fertility Requirements to Attain Efficient Productivity on the Extensive, Acid, Well-drained Upland Soils of the Humid Tropics	Cornell University csd-2490	Ongoing 2-year contrac To include Univ of Hawaii and Puerto Rico

TITLE OF PROJECT	CONTRACTOR/PARTICIPATING AGENCY	STATUS
11. Determination of Research Needs of Soils of the Tropics	NAS csd-2505	
12. Tailoring of Fertilizers for Rice	TVA RA(AJ)5-69	Ongoing contract amended to deobligate $20,000
II. Water Management		
13. Water Management Research in Arid and Sub-humid Lands of the LDCs (NESA)	Colorado State Univ. csd-2162	Contract extended 1 year
14. Water Management Research in Arid and Sub-humid Lands of LDCs (LA)	Utah State Univ. csd-2167	" "
IV. Pest/Disease Control		
15. Control of Weeds in the LDCs	Oregon State Univ. csd-1442	" "
16. Control of Vertebrate Pests - Rats, Bats, and Noxious Birds	BSFW, Dept. of Interior PASA RA(ID)1-67	" "
17. Research on Sterility Method of Tsetse Fly Control	USDA/ARS PASA RA(AJ)1-00	" "
18. Hemoprotozoal Diseases of Food Producing Livestock	Texas A&M csd-1947	" "
19. Laboratory and Field Testing of Foot and Mouth Disease Vaccine	NAS csd-2273	
V. Fisheries		
20. Development of Conservation Processes for Fish Products	Agrarian Univ., LaMolina, Peru	Continuing this year; further funding under consideration

TITLE OF PROJECT	CONTRACTOR/PARTICIPATING AGENCY	STATUS
VI. Animal Protein Production		
21. Survey and Analysis of the Problem of Animal Protein Production in the Wet/Dry Tropics	Univ. of Florida csd-2498	Contract extended 1 year
VII. Agricultural Financing		
22. Analysis of Capital Formation and Utilization in LDCs	Ohio State Univ. Research Found. csd-1937	
23. An Analysis of Capital Formation and Technological Innovation at the Farm Level in LDCs	Ohio State Univ. Research Found. csd-2501	Contract extended 1 year
VIII. Factor Analysis - Planning		
24. Factor Analysis for Accelerating Agricultural Productivity in LDCs (Mexico)	International Marketing Inst. csd-1467	
25. Rural Development Analysis: Agriculture Sector Planning Models	Michigan St. Univ. csd-1557	Contract extended 9 months
26. Analysis of Factors Associated with Differences and Changes in Agricultural Production in Selected Countries	USDA/ERS RA(AJ)2-00	Being completed this year
IX. Agricultural Pricing		
27. Agricultural Prices in Economic Development: Their Rold, Function, and Operation	Cornell University csd-1437	
28. The Impact of New Technology on Rural Employment and Income	Cornell University	

TITLE OF PROJECT	CONTRACTOR/PARTICIPATING AGENCY	STATUS
X. Marketing		
29. Demand Prospects for Agricultural Exports of LDCs	USDA/ERS RA(AJ)2-66	Being completed
30. Farm Marketing Facilities and Practices in Tropical Africa	Stanford Research Institute Michigan State University AID/csd-801	Completed
XI. AID-University Programs in Agricultural Education		
31. Agricultural Education and Research Projects under AID/University Contracts	Purdue University AID/csd-840	Completed
XII. General Assistance to Agriculture		
32. Diffusion of Innovations in Rural Societies	Michigan State Univ., csd-735	"
33. Research and Training in Land Tenure Reform in Latin America	Michigan State Univ., REPAS 3	"

ANNUAL MEETING

ASSOCIATION OF U.S. UNIVERSITY DIRECTORS
OF INTERNATIONAL AGRICULTURAL PROGRAMS

URBANA, ILLINOIS

JUNE 14-16, 1970

Summary of Panel* Discussion on Development of International Network of Agricultural Science

The panel concluded that the development of a worldwide network of relevant agricultural research is imperative to the solution of problems facing the developing nations. The network will utilize and strengthen the research and educational capacity developed through time in the LDC's by the several institution building programs sponsored by AID, the private foundations and the universities.

The basic components of the network will be U.S. universities, USDA and private firms; the research institutions indigenous to the developing nations; and the international research centers. The most productive role for each of these institutions to play, effective organization of the network, and management for the most efficient use of scarce human and financial resources constitute major issues which must be resolved.

It was concluded that the educational and research institutions of the United States must play a major substantive role and act as a catalyst in the development of the network. It was suggested that an appropriate model for developing research priorities, programs of work and institutional linkages might be a variant of the regional agricultural research programs of the United States.

The worldwide network must seek complementarity among component research programs and institutions. U.S. universities should strive for closer and more scientific collaboration with other components of the network. The international centers should not duplicate the capabilities of U.S. universities or indigenous institutions. Rather, they should complement, supplement and facilitate the development of relevant cooperative research endeavors.

No component of the network will constitute a panacea. None need be or should become competitive with the systematic development of other

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* Panel members: D. Woods Thomas, Purdue University - Chairman; Omer J. Kelley, AID; Elmer R. Kiehl, University of Missouri; Erven J. Long, AID; J. Kenneth McDermott, AID; Will M. Myers, The Rockefeller Foundation; G. Edward Schuh, Purdue University.

components. The payoff from the research effort will depend on the ability of indigenous institutions to use the network's knowledge and expertise to solve problems having a high degree of location specificity.

It appears that a major component of future AID programs will involve institution building activities, both at home and abroad, essential to the creation of a highly useful worldwide network of research. There is tremendous need for the U.S. university research community to involve its scientific capabilities in more profound and direct ways in the network and to the solution of problems of developing nations. The challenge is to find and articulate an appropriate set of mechanisms which will permit and assure such involvement. Finally, each developing nation must create, through time, a research and scientific training capacity adequate to its continued growth and development. The network must contribute to this end.

DWT:mlh
7/6/70

N.Y. - Cornell - workshop on Emerging Issues etc.

Preface

Dramatic increases in the production of basic food crops, especially cereals -- rice, wheat, and corn -- in several developing countries of the world have provided one of the exciting events of the past decade. Popularly known as the "Green Revolution," this process of modernization of agriculture has begun in many countries.

These efforts to increase food production to meet the needs of rapidly growing populations must be continued and expanded, but production in itself is not enough. An increasing number of second-generation problems have been emerging and must be solved. The large harvests of grains in some countries have strained marketing systems, with inadequate facilities for drying, storage, and transportation. Problems of demand, including domestic, interregional, and world needs are becoming intensified. Small farmers need credit to take advantage of new, high-yielding varieties and other new agricultural technologies. Temporary excesses in local areas may seriously affect prices and discourage production.

Because of the dramatic breakthroughs in wheat and rice production and these emerging problems, the New York State College of Agriculture at Cornell University, as a part of its Program in International Agricultural Development, organized a workshop-conference titled "Some Emerging Issues Accompanying Recent Breakthroughs in Food Production." The background of crop production successes, case

histories, concepts, issues, problems, and possible solutions discussed and examined in the workshop provide the content of this book. We hope that the proceedings of this workshop -- available to planners, advisors, legislators, administrators, teachers and investigators -- will help to activate programs aimed at solving world food problems.

An advisory committee of the Office of International Agricultural Development, assisted by other interested faculty members, planned the conference. Further assistance and suggestions were obtained from representatives of the United States Agency for International Development, United States Department of Agriculture, International Bank for Reconstruction and Development, Inter-American Development Bank, The Agricultural Development Council, The Rockefeller Foundation, and The Ford Foundation. Each of these organizations provided capable participants, and in addition the Ford Foundation generously contributed funds toward meeting the expense of bringing together more than a score of scientists, scholars, and administrators from eleven countries in Asia, Africa, and Latin America.

The principal purposes of the workshop were to:

1. Focus attention on major problems and emerging issues resulting from increased food production in developing countries.

2. Explore and analyze in depth present knowledge of some of the most important of the second-generation problems accompanying new technologies, and stimulate greater consideration of the problems to bring about more rapid progress in rural and economic development.

3. Focus attention on research needs and priorities for development of improved marketing systems and for solutions of other problems involved in processing and distribution.

4. Provide a means of stimulating action programs to solve the problems through the international participants and their associates.

As Dean Charles E. Palm points out in his introduction to the workshop, "the success of increased production brings sharply into focus the need for equal consideration of processing, transportation, and distribution - the marketing phase of modern agriculture that takes food to the consumer. It is an exciting chain of events that brings the private enterprise system into full cooperation with government and the consumer. The sweep of modern agriculture carries forward from the marshalling of the inputs, through production, transportation, processing, and distribution of food to consumers."

This book is a compilation of the papers dealing with this chain of events that relate to food and people of the developing world. They were prepared by a distinguished and diversified group of participants, each with a depth of knowledge and experience in his particular discipline.

Part I provides the setting: crop production successes and emerging problems in developing countries. Recent food production increases in some developing countries are spectacular, but abundance of food for the masses is still a promise, not a reality. The green revolution that has begun to sweep some of the developing countries has gained breathing time to wage the battle against hunger more systematically while the rate of population growth may be slowed.

Part II summarizes some of the second-generation problems related to food production. Following a series of case histories

reporting on significant breakthroughs, such as maize in Kenya, specialty crops in Taiwan, wheat and maize in Mexico, and rice and wheat in India, the reader will be interested in the crisp presentation that pinpoints the implications and emerging issues for new agricultural technologies.

Demands for food, both domestic and export, are treated in considerable depth in Part III. These papers emphasize that the green revolution is meaningless to the masses if the process does not provide them access to more and better food at lower prices. If a developing nation has the technical capacity to increase food production at decreasing costs per unit of output, using labor-intensive methods, it should be possible to: (a) increase employment in the private sector and through rural public works, (b) expand domestic demand for food relatively rapidly because of the high income elasticity of demand for food among low-income people, and (c) expand domestic non-food consumer goods industries.

The workshop participants clearly believe that output of both feed grains and food grains can be expected to increase in total much more rapidly than will effective export demand for these crops, and that domestic demand within most countries must absorb increased output. Export possibilities for wheat, rice, and feed grains exist for individual developing countries if they have competitive advantage as compared to other world exporters. But competition for world markets will continue strong. National agricultural policies may well

prevent lowest-cost exporters from gaining appropriate shares of cash world markets.

The focus of Part IV is the role of marketing systems in economic development, with emphasis on the implications of new production technologies. Marketing is placed in its perspective of contributing to more specialized, and hence more efficient, production systems. Studies cited in India and Colombia show that traditional marketing systems operate reasonably competitively, given suitable conditions, but that improved transportation facilities and market information could add substantially to market efficiency. There is evidence in some areas that traditional marketing systems could expand rapidly, with little or no increase in costs, since increased production places greater demands on the system. In other areas, however, major improvements in the system are needed.

Storage, processing, and transportation are integral parts of marketing systems. Although much useful information is available on storage of food grains, storage technology from temperate zones and highly developed countries often is not easily adaptable in underdeveloped countries. Participants in the workshop emphasized lack of information and specific need for increased research on the many factors affecting the storage of grain in hot, humid, tropical areas. Needs also are pointed up for clear-cut priorities to train people from the developing countries in food-grain-processing methods from both the private and the public sector. Transportation is an essential link in the chain of factors influencing food production in

developing countries. Planners must recognize the value of a good system of farm-access roads and its importance in agricultural development.

Consideration is given in Part V to some of the major factors that keep production going - continuing breakthroughs in food production. Continued technological research is essential to provide higher yielding varieties with more resistance to diseases and insects. More judicious use of fertilizers, better water utilization and management, and more effective use of pecticides and other inputs are essential to greater production efficiency.

The final session of the workshop, Part VI, dealt with research priorities needed for continuing modernization of agriculture. Stimulating discussions are presented on new horizons in food production, technology of marketing, national policy issues, and developing of domestic demand.

And finally, Part VII takes a look ahead in agricultural development. Here the reader will be interested in the changing role of American technical assistance and the relationships between agricultural development and alleviation of poverty.

The interest in the workshop and the willingness of the participants to be a part of such an effort are an encouraging indication of the importance of world food and population problems and of the progress and understanding existing in the developing nations. Dramatic results with new, high-yielding varieties of crops have had a dynamic effect in changing the attitudes of many people. They are

realizing for the first time that there is some hope of balancing food supplies and population growth in the foreseeable future.

The New York State College of Agriculture at Cornell University is proud to have a part in this worldwide effort and appreciates the opportunity to have been host to a rewarding conference. The long-run goals can be met with well-trained, able persons at all levels, continuing research, careful planning, and much hard work in agricultural development and family planning.

Ithaca, New York
May, 1970

K. L. Turk

SUMMARY INFORMATION

TECHNICAL ASSISTANCE PROJECTS

CENTRALLY FUNDED

JUNE 1970

OFFICE OF AGRICULTURE AND FISHERIES

TECHNICAL ASSISTANCE BUREAU

AGENCY FOR INTERNATIONAL DEVELOPMENT

1. Project Title: Seed Processing and Testing

Contractor: Mississippi State University

Contract No.: AID/W-607

Project No: 931-11-130-203

Starting Date: 1969

This project provides technical assistance in seed improvement, including seed technology, multiplication, processing, certification, storage and utilization. In addition, training courses are held and handbooks, designed for use in the courses, are written. An outstanding one for use in overseas programs is the Seed Processing and Handling Handbook. Under this project, technical advice and engineering plans for plant layout and operation have been supplied to over thirty countries.

2. Project Title: Grain Drying and Storage

Contractor: Kansas State University

Contract No: AID/csd-1588

Project No: 931-11-150-786

Starting Date: 1967

Through this project, Kansas State University marshalls resources available in the U.S. to assist LDCs in reducing losses of food grains and food grain quality during post-harvest drying, storage, handling and transport. KSU staff employees and consultants provide assistance on the development, review and evaluation of projects. Teams have gone to over eight countries and reports have been submitted on their problems.

Recent breakthroughs in increased cereal production are causing increased activity under this project.

3. Project Title: Plant and Seed Materials for the Development of Potential Crops in LDCs

Contractor: Agriculture Research Service, U.S. Department of Agriculture

Contract No: PASA WOH(AF) 2-69

Project No: 931-11-130-828

Starting Date: 1955

This project provides LDCs with technical advisory services relative to crop varietal improvement programs. It also furnishes experimental quantities of improved seeds and plant propagating materials from the USDA seed bank, private stocks and from experimental research. Varieties of vegetable field crops and fruits introduced under this project have performed well in the LDCs, and long costly breeding programs have been avoided. A continuous reporting system is being set up on this material to keep AID/W and the Missions informed on the response of these varieties in the several ecological areas.

4. Project Title: International Maize and Wheat Improvement Center Mexico (CIMMYT)

Contractor: CIMMYT

Project No: 931-15-110-840

Starting Date: February, 1969

CIMMYT was founded by the Rockefeller Foundation and the Mexican Government to conduct research, development and training programs for increased production of corn and wheat. Its success attracted other countries in Latin America, and in 1968 the Ford Foundation became a co-sponsor of the Center. Through bilateral and regional arrangements, CIMMYT now has programs with about fifty countries throughout the world. A.I.D. cooperates in the expanded activities of CIMMYT through a Grant monitored by TA/AGF.

The Center assists nations in: (a) the solution of technical problems, especially those of an international nature requiring in-depth interdisciplinary research efforts; (b) the training of scientific personnel; (c) the initiation and elaboration of international cooperation research; (d) the collection and dissemination of biological materials and technical information; (e) the development of research, extension and production programs in participating countries.

5. Project Title: Support to International Rice Research Institute

Contractor: International Rice Research Institute

Contract No: AID/csd 2176

Project No: 931-11

Starting Date: 1968

The intent of the project is to increase IRRI's capacity for research, training and technical assistance by adding facilities for up to five senior scientists (in entomology, plant pathology, agronomy, economics and rice production training). The rapid spread of high yielding rice varieties by the Institute has led to more requests than can be met with existing facilities. Thus, A.I.D needs in the rice producing countries of the Far East and South Asia could not be filled. In FY 1970, the project was transferred to the East Asia Regional Bureau.

6. Project Title: Fertilizers, Technical Assistance (Surveys, Training and Consultation)

Contractor: Tennessee Valley Authority

Contract No: WOH (QA) 6-69

Project No: 931-11-190-832

Starting Date: 11/16/65

This project is addressed to fertilizer needs in the LDCs. The A.I.D. fertilizer policy, developed in combination with TVA, authorized TVA to establish an International Fertilizer Development staff. This staff meets A.I.D.'s requirements for technical assistance, research and training. [illegible]vity is characterized by a flexibility that encourages industry, USDA, land-grant universities and financial institutions to respond to fertilizer needs in the LDCs. Increased fertilizer plant capacities, new and improved marketing and distribution systems, new fertilizer intermediates, new and higher analysis materials, and improved introduction practices are the results. These factors, coupled with new and improved seed varieties, have increased food crop production in the LDCs.

7. ; Project Title: Preparation of ; Manuals on the Control of Plant and Animal Pests

Contractor: National Academy of Sciences

Cooperating Sponsors: U.S. Department of Agriculture, U.S. Department of Interior (Bureau of Sport Fisheries and Wildlife) Rockefeller Foundation, National Agricultural Chemicals Association

Contract Ho: AID/csd-760

Project No: 931-11-130-736

Starting Date: March, 1965

Under ;this project, six manuals on the principles of controlling pests and diseases of plants and animals have been prepared. They are follows:

Volume 1 . nt-Disease Development and Control

Volume 2 . d Control

Volume 3 . ect-Pest Management and Control

Volume 4 - ntrol of Plant-Parasitic Nematodes

Volume 5 . Vertebrates That Are Pests: Problems and Control

Volume 6 . ects of Pesticides on Fruit and Vegetable siology

All except Volu have been published and distributed to the USAIDs and the h countries, universities and institutions. Volume 5 is sche ed for publication next month.

Many USAII ssions, in response to ;circular airgrams, have indicated that t anuals constitute important reference works for the developing c tries.

8. Project Title: Textbook on Neotropical Phytopathology

Contractor: North Carolina State University

Contract No.: AID/csd-1149

Project No.: 931-11-130-760

Starting Date: 1966

Under this project, Dr. F. L. Wellman is summarizing all available phytopathology literature and combining it with his own extensive research findings, which stem from 28 years in the tropics and sub-tropics. The manuscript contains the geography and potential of regions, comparisons of zones and historical background. Dr. Wellman is working now on the final three chapters on pest control. Upon A.I.D.'s approval of the manuscript, it is to be published commercially by Scarecrow Press. The resulting textbook is expected to play an important part in crop improvement specialization for A.I.D., USDA and the universities.

9. Project Title: Fish Culture in the LDCs

Contractor: Auburn University

Contract No: AID, csd-1581

Project No: 931-11-180-787

Starting Date: 1968

The project attempts to meet the world need for a cheap source of protein by improved fish culture. Auburn, a world center for inland fish culture, is planning regional centers on training, research and demonstration. Initially, the project has sought to improve existing pond and brackish water fisheries in the Philippines and to survey developments in other countries. Nine surveys have been completed and recommendations made to the participating countries. New feeding and disease control methods are being developed and new methods of fish rearing are being studied. Several additional countries now have requested assistance and Auburn is prepared to comply under Mission Task Orders. It is anticipated that the level of activity will rise as the potentiality of the project for improving nutritional quality of diets is recognized.

10. Project Title: Purchase and Testing of Fish Protein Concentrate

Contractor: Alpine Marine Protein Industries, Inc., Bureau of Commercial Fisheries, and University of California

Contract No: AID/csd-913; WOH(IE) 11-68; csd-2274

Project No: 931-11-590-805; 931-11-590-845

Starting Date: 1968

The purpose of the project is to test the acceptability of Fish Protein Concentrate (FPC) as a nutritive additive, as well as to test its storage life and packaging requirements under various climatic and other conditions.

Alpine Marine supplies the FPC, and the Bureau of Commercial Fisheries has responsibility for inspecting the plant, as well as for analysis of the final product to assure conformity with contract specifications. Continuation of the project depends on experience with initial deliveries and demand generated by use of FPC.

11. Project Title: Fish Protein Concentrate Feasibility Studies (Chile and Korea)

Contractor: General Oceanology, Cambridge, Massachusetts

Cooperating Sponsor: CORFO and Ministry of Health, Government of Chile

Contract No: AID/csd-2158

Project No: 931-11-590-816

Starting Date: 1968

Under the project, two countries (Chile and Korea) were selected for FPC feasibility studies. The purpose was to determine the feasibility for establishing FPC industries there. The contractor has focused upon three principal areas: (a) supply and cost analysis; (b) market analysis; and (c) product development and testing. Due to lack of raw material, the Korean study was discontinued and the report covers only the market and supply analysis phases. The Chilean study moved forward on all three phases and demonstrated the feasibility of establishing an FPC plant in that country. If the plant actually is established, it will be the first one of commercial size undertaken in the developing world and will go a long way to putting FPC in diets as a significant source of protein.

12. Project Title: Fish Protein Concentrate Feasibility Study (Morocco)

Contractor:

Contract No:

Project No:

Starting Date: 1970?

TA/AGF is planning a study to determine the economic feasibility of Fish Protein Concentrate production in Morocco. This project has not been implemented as yet.

13. Project Title: Technical Assistance for Food Marketing

Contractor: U.S. Department of Agriculture, Foreigh Economic Development Service

Contract No: To be negotiated

Project No:

Starting Date: FY 1971

The project will provide technical services to A.I.D. Regional Bureaus, USAID Missions and host governments in analyzing agricultural problems and developing plans for marketing agricultural commodities. All phases will be covered including legislation, transportation, storage, grading, packaging and prices, as a means of increasing food production and consumption, and augmenting farmers' income.

14. Project Title: AID/CIC Workshop and Seminar

Contractor: Purdue Research Foundation

Contract No: AID/csd-2458

Project No: 931-11-110-855

Starting Date: July-August, 1969

The Workshop and Seminar brought together a select group of institutional development theoreticians to examine conceptual and empirical knowledge in institution building overseas. The Workshop expanded understanding of the role of the agricultural college and evaluated alternative solutions to problems encountered at various stages of institutional activity. A major thrust of national programs has been directed toward bringing about essential changes in educational research institutions. The Workshop and Seminar helped provide more specific guidelines on institution building.

15. Project Title: Asian Agricultural College and University Seminar

Contractor: North Carolina State University

Contract No: Being Negotiated

Project No:

Starting Date: 1970

Under this project, a travelling seminar is to be conducted for agricultural college and university leaders, as well as for Government officials from fourteen Asian countries. It will seek to improve management, training and research functions and to initiate a full exchange of experiences between the Asian agricultural colleges and universities.

An outgrowth of the AID-CIC Rural Development Research Project, the three-week seminar will include visits to about eight universities in Thailand, India and Pakistan. Consideration will be given, it is anticipated, to establishing an organization of Asian agricultural universities.

16. Project Title: Vanguard Program

Cooperating Sponsor: Government of the Republic of China

Project No: 484-11-190-601

Vanguard (the International Technical Assistance Program of the Government of the Republic of China) was started in 1960. When, by 1967, requests for assistance exceeded GRC financial resources, the U.S. agreed to support it through PL-480 proceeds. Under the program, GRC has provided over 800 technicians to more than 23 countries. While the main thrust is on increased rice production, other commodities, such as vegetables, are included. Through the introduction of improved varieties, GRC technicians helped the Vietnamese to increase rice yields on demonstration farms, organized farmers' associations in the Philippines, and helped the Ivory Coast increase rice production.

This fiscal year TA/AGF transferred the project to the East Asia Bureau.

17. Project Title: Technical and Economic Evaluation of Processing Fresh Coconuts for Production of Protein Foods

Contractor: Texas A&M University

Contract No.: AID/ea/84

Project No.: 931-11-190-864

The purpose of this project was to provide preliminary information leading to a research project on the development of the high analysis coconut protein flour. Coconuts are cultivated throughout the tropics, but are under-utilized as a source of protein foods because of inadequate knowledge on processing. Under this project, a food scientist and an engineer were assigned to assess the state of technological development and to study the physical characteristics of coconuts. The ultimate aim is a sound and economically viable approach to the commercial processing of fresh coconuts.

This fiscal year the project has been transferred within the Technical Assistance Bureau from the Office of Agriculture and Fisheries to the Office of Nutrition.

18. Project Title: Support to Centro Internacional de Agriculture Tropical (CIAT)

Contractor: CIAT

Project No.: 931-11-190-865

Starting Date: June, 1969

Through this project, A.I.D. supplements the contributions of the Ford, Rockefeller and Kellogg Foundations for the establishment of a new International Center for Tropical Research in Colombia. This funding is permitting the Center to broaden the scope of its planned activities, and to serve certain objectives of importance to A.I.D. It is planned to transfer this project to the Latin American Regional Bureau.

19. Project Title: Agricultural Statistics--Agricultural Census Training Program

Contractor: Census Bureau, Department of Commerce

Cooperating Sponsors: FAO and U.S. Department of Agriculture

Contract No: PASA-WOH(CA) 4-69

Starting Date: FY 1967

This program has the objective of training personnel to plan and conduct agricultural censuses in the LDCs. The Training Center is a joint effort of the Census Bureau, USDA and A.I.D. FAO assumes responsibility for its participants and the USAID Missions defray costs of those sponsored by A.I.D. TA/AGF funds are used for backstopping costs, including the salaries of three technicians. In FY 1970, it was determined that A.I.D. should continue to support the program but that it should revert to the A.I.D.'s Office of International Training.

Future courses will concentrate more on current agricultural surveys and on processing and utilizing census data.

20. Project Title: Agricultural Technical Support

Contractor: Various (U.S. Department of Agriculture, University of Florida, National Adademy of Sciences, Volunteers for International Technical Assistance, Inc. and others)

Project No: 931-11-190-901

Starting Date: Renewed Each Fiscal Year

This project serves a complex of technical information activities. It enhances the technical inquiries services to the USAID Missions by procuring required information. It provides the USAID Missions systematically with copies of current significant books on agricultural development and technology. It sponsors the writing of manuscripts and the developing of new publications specifically for the A.I.D. program overseas. Such publications include the Handbook of Tropical and Sub-Tropical Horticulture, The Sprinkler Irrigation Guidebook and the Village Technology Handbook (now being published in revised form). In preparation, under a contract with the University of Florida, is a manuscript on Natural Vegetable Fibers.

21. Project Title: Agricultural Economics Seminars

Contractor: Agricultural Development Council

Project No: 931-11-140-887

Starting Date: June, 1970

The purpose of the project is to improve the conceptual and informational basis for agricultural policy determination through a series of seminars and workshops. The series will bring together leaders from government, private, academic and international institutions to share ideas and experiences related to the economic organizational and administrative problems in agricultural development.

The results, it is hoped, will contribute to a more efficient production in the agricultural sector with a higher standard of living for the people in the developing countries.

TECHNICAL ASSISTANCE PROJECTS OF
OFFICE OF AGRICULTURE AND FISHERIES
TECHNICAL ASSISTANCE BUREAU
AGENCY FOR INTERNATIONAL DEVELOPMENT

TITLE OF PROJECT	CONTRACTOR/PARTICIPATING AGENCY	STATUS
I. Crop and Seed Improvement		
1. Seed Processing and Testing	Miss. State Univ. AID/W - 607	Contract extended 1 year
2. Grain Drying and Storage	Kansas State Univ. AID/csd - 1588	" " "
3. Plant and Seed Materials for the Development of Potential Crops in LDCs	USDA/ARS PASA-WOH(AJ 2-69)	" " "
4. International Maize and Wheat Improvement Center	CIMMYT, Mexico	" " "
5. Support to the International Rice Research Institute	IRRI AID/csd 2176	" " "
II. Soils and Fertilizers		
6. Fertilizers, Technical Assistance (Surveys, training & consultation)	TVA PASA-WOH(QA) 6-69	Ongoing contract amended to deobligate $20,000
III. Water Management		
No Technical Assistance Projects		

TITLE OF PROJECT	CONTRACTOR/PARTICIPATING AGENCY	STATUS
IV. Pest/Disease Control		
7. Preparation of Manuals on the Control of Plant and Animal Pests	National Academy of Sciences AID/csd-760	Final volume to be published
8. Textbook on Neotropical Phytopathology	North Carolina State Univ. AID/csd-1149	To be completed this year
V. Fisheries		
9. Fish Culture in the LDCs	Auburn University AID/csd-1581	Contract extended 1 year. 211(d) grant under consideration
10. Purchase and Testing of Fish Protein Concentrate	Alpine Marine Protein Industries, Inc., Bureau of Commercial Fisheries, University of California (1) AID/csd-913; (2) WOH(IE) 11-68; (3) csd-2274	Being completed
11. Fish Protein Concentrate Feasibility Studies (Chile & Korea)	General Oceanology AID/csd-2158	" "
12. Fish Protein Concentrate Feasibility Study (Morocco)		
VI. Animal Protein Production		
No technical assistance projects		

	TITLE OF PROJECT	CONTRACTOR/PARTICIPATING AGENCY	STATUS
VII.	Agricultural Financing		
	No technical assistance projects		
VIII.	Factor Analysis - Planning		
	No technical assistance projects		
IX.	Agricultural Pricing		
	No technical assistance projects		
X.	Marketing		
	13. Technical Assistance for Food Marketing	USDA/FEDS	New project. Contract to be negotiated
XI.	AID-University Programs in Agricultural Education		
	14. AID/CIC Workshop and Seminar	Purdue Research Foundation AID/csd-2458	Final report being completed
	15. Asian Agricultural College and University Seminar	North Carolina State University	New contract - 1 year
XII.	General Assistance to Agriculture		
	16. Vanguard Program	Government of the Republic of China	
	17. Technical and Economic Evaluation of Processing Fresh Coconuts for Production of Protein Foods	Texas A&M University AID/ea/84	

TITLE OF PROJECT	CONTRACTOR/PARTICIPATING AGENCY	STATUS
18. Support to Centro Internacional de Agriculture Tropical (CIAT)	CIAT	
19. Agricultural Statistics - Agricultural Census Training Program	Census Bureau, Dept. of Commerce PASA-WOH(CA) 4-69	Contract being renewed
20. Agricultural Technical Support	Various (USDA & others)	Being continued
21. Agricultural Economics Seminars	Agricultural Development Council	