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REFLECTIONS ON THE ROLE OF A.I.D. AND THE U.S. UNIVERSITIES IN INTERNATIONAL AGRICULTURAL DEVELOPMENT

A Report By

Dr. Erven J. Long
with
Frank Campbell

Project No. 936-1406
Contract No. DPE-1406-C-00-8053

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ACKNOWLEDGEMENTS

Acknowledgement of the contribution of others to this presentation of a forty-year period of observation, participation, reflection and analysis of the role of the American universities in the U.S. foreign assistance program must necessarily be selective. Undertaking an effort such as this made us realize the debt we owe to those who influenced and contributed to our academic formation, as well as to those who helped fashion the intellectual and analytical spectacles through which we have come to look at, and form judgments about, the human condition. We are grateful to acknowledge that there are many such persons and regret that we can not cite them all.

There are also many who are directly proximate to the efforts described in the report and to the writing of the report itself. They would include people in U.S. Embassies and A.I.D. Missions from ambassadors through all echelons, who enhanced our appreciation of the intense sensitivities, and enormous potentialities for good or ill consequences of inter-nation communications and operational practices. It would include a large number of persons, again of all levels, in A.I.D. who demonstrated the great difference a truly competent individual can make on even the largest, most difficult and most enduring of worldwide human problems -- and the preciousness of well-formed individual judgments on all matters of of governmental policy and practices. It includes the writings by (and about) many of the outstanding persons who have shared, guided or contributed to the worthy objectives of this great American foreign assistance effort as a major means of furthering our country's interests in peace and prosperity.

Perhaps above all, the particular experiences fixed most firmly include people of all social and economic levels in the less developed countries, both inside and outside officialdom and educational circles, who demonstrated and communicated the desperateness of their struggle for survival and progress, the intensity and ultimate effectiveness of their soul-fires of hope and determination -- and their appreciation of well-meaning and well-executed assistance.

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— The STATISTICA Publications and Editorial staff who exerted herculean efforts in a extremely short time frame transforming the manuscript into a readable entity.

— Finally, Dickie Wyro, our word processor, who put up with delivery and pick-up of materials at her home in the evenings and on weekends; and Loretta Campbell, pressed into service to do the penultimate proofreading.

Due to the nature of this book, much of the information comes from the writers' memory tablets, reinforced by the large amounts of written materials in their personal possession which have survived the roguing and culling of the decades.

The report owes a very great deal to the contributions of all of the above-mentioned persons, the many more specifically cited in the text, and the infinitely greater number who have provided materials useful as background. But great as this debt is, all responsibility for content and interpretation is that of the writer only.

Erven J. Long

Frank R. Campbell

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PROLOGUE: Where It All Started

In early January 1949, events were occurring in the United States of America which would impact the world in subtle and largely unforeseen ways, perhaps more profoundly than any peace time action in this century. Men in high offices of government, scholars and professors in universities, and ordinary citizens working in the cities and countryside were worried. The election was over. The country could go back to work, and that was a relief.

But a deeper, subliminal ache of worry, made stronger by each day's news, would not go away. The Cold War atmosphere was thickening. True, Soviet aggressive actions in Europe seemed to have been halted at least for the time by firm U.S. actions in Greece, by the European Recovery Program (Marshall Plan) and by the Berlin Air Lift. But no amount of hopeful bias could disguise the fact that Communist forces were clearly getting the upper hand in China. Very much on our minds were the enormous casualties inflicted upon us and our allies in the war just finished in what, before the war, had seemed just a speckle of dots on maps of the ocean off the eastern coast of China. Japan's amazing early military and naval successes against a constellation of great powers raised frightening concerns indeed about the potentialities for mischief by the vastly greater population and land mass of China. Still more disturbing; what should we expect from the millions of historically oppressed, colonized, poverty ridden people of Asia and Africa, the poor, "have-not" regions of the world?

Would these people, in spite of their diversity, once broken free from colonial control, coalesce into an effectively homogeneous force to wrest from the relatively prosperous few in the so-called "western" nations the advantages of wealth and power they had for so long held?

As a people we knew, our instincts buttressed by the little information available, that through Soviet intermediation if not indigenously, the instruments of atomic warfare would be available to these peoples -- if not soon, then later -- instruments which, like the six-shooter in our fabled West, greatly reduced the difference between the weak and the strong in shoot-outs for either gain or honor. We knew, also, that sentiments of neither morals nor compassion would stay our adversaries' hands from drawing such weapons into play. We had, after all, ourselves been the first to use them, in the last hours of Japanese resistance.[1]

Americans knew very little about these people. We knew that the old Colonial order was giving way. India and Pakistan had achieved their freedom from Britain. Ethiopia was free from Italy as a result of the war. After a bloody battle, Indonesia was about to become free from the Dutch. Rumblings were coming from the great British, French, and Belgian colonies in Africa. We believed, in simple faith, that we understood the Philippines, and Latin America we thought of (patronizingly?) as our "Good Neighbors." But we worried about these, our friends and neighbors, too, despite having recently joined with them on the founding of the Organization of American States.

Perhaps most disconcerting was our vague sense that our long held views about these people were suspect. Our images, we were coming to realize, were largely distillations of characterizations distorted by filtration through often romantic, usually English, literature -- and to a lesser degree, anecdotal reports of highly localized happenings passed to us by missionaries and travel essayists.

Which way would these countries -- or more accurately countries-to-be -- turn in the new, post-war period? Would they, nourished by pent up memories and imaginings of hurts, deprivation and humiliation at the hands of western conquerors and international cartels, and inflamed by Soviet

anti-imperialist propaganda, join under the banner of communism in a struggle to the death agains the West? Or did we yet have reason to hope?

Could the drive for national freedom by these people be rooted in positively rather thar negatively charged attitudes and aspirations? Were they primarily interested in redress and ver revenge against their previous "exploiters;" or were they interested, primarily and genuinely, ir national development and self determination? If the former, future American security would surel require some kind of massive atomic retaliatory threat, temporary though this protection must be. I the latter, then, perhaps, there was room to hope that this world of new nations and their explodin populations might find common ground with the West and, specifically, with the United States Perhaps we stood as an example. At the very least our levels of living attested to the fact that w must have something worth examining, perhaps even emulating. The possibility of vigorous pursui of nationalism by these emerging nations provided the slender thread of light to lessen the sombe outlook of that day. The outlook would have seemed darker still, could we have seen ahead just a fe more months, to the collapse of Nationalist China, to the North Korean rampage south, to the slo crumbling of French efforts either to fill the vacuum in Indochina or to extract itself gracefully fro the snarl of local political power plays created by the termination of Japanese dominion.[2]

Farmers and farm organizations had a different but, as it turned out, interdependent kind o worry, a pocketbook concern. During the war demands for American food and fiber were intense, o the home front, by our military, and by our allies. At the immediate end of the war, as price control were removed, farm product prices shot up. Food needs of war-ravaged Europe, converted int effective economic demand by the Marshall Plan, took up slack created by the termination of war tim grants of foodstuffs to Britain and the Soviet Union. But, it was felt, apparently by most farmers an farm groups, and by University professors and government administrators paid to be concerned abou such things, that these were temporary blessings. Surely the post-war boom in farm product price was about to bust - - as after World War I. A well endowed contest was established to give handsom cash awards to the best agricultural economics essays on how this price collapse should be averted o dealt with through public policy.[3] Post-war "planning conferences" were held on most agricultura college campuses. County agricultural extension agents were forced to deal with these priorit issues -- of peace and security and of the collapse of foreign markets -- and hence prices, of farm products.

A young professor at the University of Wisconsin, preparing to teach to a very large class o students his first college course, an introduction to agricultural economics, was wondering how to dea with these problems. He was determined that his students should learn how to use the economi analytic tools he had so recently himself acquired, to solve major, real world problems of Americar agriculture. But in the main, the tools did not deal very vigorously or rigorously with these prima concerns of American farm people looking out upon a new and uncertain world political and economi scene.

Fortunately, at highest levels, American political leadership was coming to grips. Presiden Truman had his Inaugural Address to give on January 20. He had a fine instinct for the concern which were uppermost among the American people. He had just turned this instinct to account i winning a hard fought election in a stunning upset, by, as became clear upon examination, a handsome margin. He knew that it was these larger questions of international relationships whic most troubled voters' souls at the time. Accordingly, he devoted his entire Inaugural Address t

foreign affairs: What U. S. News and World Report called "President Truman's Inaugural Statement of Faith", a "Program for Peace and Freedom."[4]

His speech culminated in "four major courses of action," four major points. The first three he dealt with rather briefly. They were all familiar. The first two were already in effect, and the third had been vigorously discussed and presumably accepted in the recent elections. They were in brief:

First, continued support to the United Nations Organization and related agencies.

Second, continued support to the European Recovery Program (the Marshall Plan).

Third, commitment to "strengthen freedom-loving nations against the dangers of aggression, through a North Atlantic Alliance" treaty shortly to be sent to the Senate.

These provisions left almost untouched, however, the great and vexing problems of the poor, emerging peoples - except as modestly impacted by our continued support of the U.N. Without provision for this problem, U.S. foreign policy would of necessity be restricted to only a piece of the problem. And this piece was, in fact, ever shrinking in relative importance as the rest of the world, so recently broken loose from Colonial control and economic stagnation, was expanding rapidly under the immutable circumstances of the new nations' population dynamics. The question facing the President was what to do about this issue in his Inaugural Address. The President, his advisor Clark Clifford and others involved in writing the inaugural speech "all put their heads to it."[5] What they came up with was the fourth point: embarkation upon a "bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas." The address went on to say that the "material resources we can afford to use for the assistance of other peoples is limited. but our imponderable resources in technical knowledge are constantly growing and are inexhaustible."

The rest of the address elaborated the opportunities afforded under "Point Four" to help countries produce more food, better housing and health and otherwise improve the lives of these victims of hunger, disease, and poverty. It stated succinctly that "the old imperialism -- exploitation for foreign profit -- has no place in our plans." And, he stated also, that:

"All countries, including our own, will greatly benefit....Experience shows that our commerce with other countries expands as they progress industrially and economically." He might have added, but did not, that this was particularly true of trade in American farm products. Thus were our national concerns over long term security, and our farmers' concerns over international markets, dealt with in one grand policy stroke. The young professor at Wisconsin was much impressed! He arranged to have copies of the Inaugural Address mimeographed and distributed as assigned readings to his 376 students.

Shortly after giving his address, President Truman submitted a statement to Congress elaborating actions to be taken in implementation of Point Four.[6] Dr. John A. Hannah (later to become A.I.D. Administrator), at that time President of Michigan State University and that year, President of the National Association of Land Grant Universities, pledged, in a meeting with President Truman, the strong support of that program by these associated universities (a support which they have maintained). President Truman promptly responded on February 14, saying among other things, "I appreciate fully that in these institutions is a reservoir of talent and I heartily appreciate your pledge of full cooperation." The bold new program was embarked upon. The voyage,

over much rough water, is still under way. The U.S. Land Grant Universities have been among th oarsmen all the way. It has had, as we shall see, profound impact upon many of the then poo countries, and upon our country as well. Though bitterly assailed, and often seriously drifting of course, it has been supported over the forty long years, albeit with varying degrees of vigor, by ever U.S. President, of both political parties.[7]

END NOTES

[1] The reader may wish to form his own judgment as to whether this was done, as official pronouncements had stated, for the sole purpose of shortening the war and saving American military lives or, alternatively, primarily for the purpose of demonstrating to the Soviet Union that we would, as a nation, be willing to use this "doomsday" weapon when deemed necessary. See Charles H. Mee, Jr., Meeting at Potsdam (New York, New York: M. Evans and Company, Inc., 1975), esp. pp. 235-48.

[2] Stanley Karnow, Vietnam, a History (New York, New York, The Viking Press, 1982), esp. the first three chapters.

[3] The "Chicago" school of economic thought seemed to have the best of this contest. Dr. William H. Nichols and Dr. D. Gale Johnson, both of the University of Chicago, won first and second prize respectively. The writer studied under both shortly thereafter.

[4] U. S. News and World Report (January 28, 1950), pp. 36-37.

[5] Cabell Phillips, The Truman Presidency (New York, New York: The Macmillan Company, 1966), p. 272.

[6] "Technical Assistance for the Underdeveloped Areas of the World," Message from the President of the United States (to the 81st Congress, 1st Session, June 24, 1949). Document No. 240, from which the following:

"To inaugurate the program, I recommend a first year appropriation of not to exceed $45,000,000. This includes $10,000,000 already requested in the 1950 budget for activities of this character. The sum recommended will cover both our participation in the programs of the international agencies and the assistance to be provided directly by the United States."

[7] For a very well documented and excellent account of the program and its near relatives during the formative three years, 1949-1952, as seen through the perspective of Congressional Hearings, see Joseph Kennedy and Vernon W. Ruttan, "A Re-affirmation of Professional and Popular Thought on Assistance for Economic Development. 1949-1952," The Journal of Developing Areas (April 1986), pp. 297-326.

INTRODUCTION: What the Book Is About

This book attempts an analytical description of several dimensions of the four-decade cooperative relationship between the U.S. Agency for International Development (A.I.D.)[1] and U.S. universities. The core of this relationship has been the carrying out of programs of agricultural development assistance to what have come to be called the "less developed countries" (LDCs).[2]

These experiences with agricultural development have relevance to and interact with other nation-building efforts, particularly and profoundly with the general economic development of the non-agricultural sectors of the countries. Occasional references and extrapolations are also made to U.S. assistance efforts on behalf of other dimensions of human well-being such as improvement of human health and general education.

Obviously, information covered in this book is highly selective. The selectivity here is not for the purpose of achieving any kind of statistical representativeness, but to illuminate certain aspects of this long-term A.I.D./U.S. university collaboration with developing countries which may, in the writer's view, prove most important as our country shapes policies and programs in our relationships with the developing countries as we approach and enter the twenty-first century. The book elects to use more of the "spotlight" than the "floodlight" approach to illuminating this vast landscape. Although it suggests several wrong trails that have been taken in the great experimental adventure of foreign assistance, the case might yet be made that, on the whole, the book is biased toward the happier experiences, the more generous interpretations. The writer proffers no denial nor regrets should this be true. There is much, of course, to be learned from failures. But there is so much more to be learned from successes. Economic and social development is an upward journey. The paths are uncharted and have many slippery spots to negotiate and seemingly insuperable obstacles to surmount or circumvent. Some illustrations of the long term effort are sketched in only lightly, others in some detail. Together, it is hoped, they may give both a sense of the effort's long-term goals and directions toward them and of the details of the opportunities, problems and solutions found along the way.

Throughout the chapters to follow we shall witness many of the special studies and advisors' reports examining this continuing A.I.D./U.S. university relationship and the several legislatively and administratively induced and attempted efforts to render it more effective. We shall witness also, through summary statistical compilations, the breadth, magnitude and reach of this four-decade joint enterprise. And, by more intimate and detailed contact with a few cases selected to be representative of the array of A.I.D./U.S. university projects, programs and special problems, we shall come to feel the purposes, the personal exertions, some of the accomplishments and some of the potentialities of the experience. We shall also sense some of the unfulfilled hopes and the frustrations arising from inadequate communication and understanding, inexperience and, especially, the inherent complexity and enormity of the problems addressed. It is hoped that the reader may feel some of the fire of excitement of the enterprise and its compelling challenge to the human spirit.

There are many levels at which the A.I.D./U.S. university relationship can be examined and appraised. We shall see exposed some of the tougher issues of A.I.D.'s and of universities' respective perceptions of their roles. We shall get a sense of the processes of program development and of program content, of the mechanics of funding, and other aspects of management and project implementation. Agreement is not always complete as between, or even within, A.I.D. and the universities as to the proper mixes of their duties and responsibilities or means of exercising them. At best, these differences of view produce a creative and productive tension; at worst, they may stultify efforts and confuse host country beneficiaries. Even in the absence of such differences, systems of American-host country collaboration require continuous reappraisal and adaptation.

Much of the formal A.I.D. dialogue with the U.S. university community, including that with the advisory board, staff and the committees created by Title XII, has been about the more mechanical

aspects of funding and other working arrangements. It is attention to such details which determines the happiness of the partnership, and hence its effectiveness.

This book embraces a considerable amount of such detail. But, taken as a whole, it strives to look at the substance as well as the detail of some of this long-term experience of A.I.D./U.S. university collaboration against a backdrop of larger issues: at how and how well it has served the ends of U.S. foreign policy with respect to the less developed countries. And, for the future: what may we expect its role to be? What should we hope its role will be?

Wisdom regarding these larger questions starts with a recognition that the game has been a large one. The stakes are very large indeed: as large as the ability of the United States to survive in a rapidly changing world order in which it comprises a continuously shrinking portion of the world's populations and economic power.

President Truman, as we have seen in the Prologue, saw this clearly when in Point Four of his Inaugural Address in January 1949 he initiated the program of assistance to the "underdeveloped countries" (which, for a host of reasons, had been largely by-passed, and failed to receive the fruits of the technological and economic development revolutions of the nineteenth and early twentieth centuries) -- just as he had appreciated the stakes involved when he initiated the Marshall Plan of assistance to the war-ravaged but relatively advanced countries of Western Europe. In both cases the ultimate goal was the same: to influence favorably to the U.S. interest in world peace and prosperity, the processes by which both the economically by-passed and the war-ravaged countries developed new economic and political institutions to replace the old orders and alignments which were being destroyed or made dysfunctional by the war and its aftermath.

The U.S. universities' four decades of participation in the U.S. foreign assistance program must therefore be adjudged in terms of its role in assisting and shaping the technological and institutional overhauls necessary to development of the LDCs. This impact has been by far the greatest in the agricultural sector, and, largely by the agricultural example, in reorientation of general LDC educational processes toward creation of the trained human resource capabilities needed for nation building.

However large or small this contribution to U.S.foreign policy may have been, assessment of the contribution requires that the relative success of that yardstick itself must first be adjudged.

In one of his more famous statements as a contemporary reporter of unfolding history, Mr. Edward R. Murrow compared the purported comments of two officers of the Enola Gay, as, over Hiroshima, they saw for the first time viewed by man, the awesome release of light in the explosion of the first atomic bomb. To one it conjured up images of the end of the earth, of the final cataclysmic disappearance of life in a ball of fire. To the other, it suggested the day of creation, when God said, "Let there be light." "Which," asked Murrow, "is it to be?" Did this mark the ending of one war, only to lead to the beginning of another, from which mankind could not survive the unleashing of forces of destruction which technological advances had created? Or had we, he asked, turned a corner: had we "come out of the darkness into the light without knowing it?"

The answer to that question was at that time totally uncertain. Upward evolution through the eons has probably created an inherent optimism in mankind. What else can explain its persistently setting goals higher than current realities? But even this inherent optimism would not have caused many at that time to expect a favorable outcome. And yet, nearly a half century later, the planet and its people survive. Few would have doubted that the chances of world survival depended essentially on the actions taken by the great powers; or that any one of the great powers could have unilaterally triggered irreversible movement toward cataclysm. The United States was obviously at the point of leadership on one side. Bad policy on its part could unquestionably have led to world destruction. Mistakes in detail it undoubtedly made. But in the only test that really counts, its foreign policy actions in their broadest dimensions can only be judged a great success. We survived!

END NOTES

[1] This has been the name of the U.S. foreign assistance agency since 1961. Throughout this document (except where another name is used for reasons made clear in context) the terms "Agency for International Development" (or A.I.D. or simply "the Agency") are used to apply to the agency administering the U.S. foreign aid program, whatever its name at the time (or names, since more than one agency has on occasion shared responsibilities now held in A.I.D.). It is hoped that this arrangement will prove useful to the reader; it clearly has to the writer.

[2] Frequently referred to here, in the lower case, as "the developing countries."

AN OVERVIEW OF THE ROLE OF A.I.D. AND THE U.S. UNIVERSITIES IN COUNTRY PROGRAM DEVELOPMENT ASSISTANCE TO AGRICULTURE[1]

American universities have been major participants in the U.S. foreign assistance progam from its inception, and there is not a development sector in which one or more universities have not made a contribution to A.I.D.'s program and to the goals and institutions of developing countries. However, there are distinguishing characteristics about the A.I.D./university relationship in agriculture that are both dominant and unique.

For one thing, both in the U.S. and especially in LDCs, agriculture comprises a distinct sector component of the economy with its own structure of technical relationships, institutional supports and constraints. Each country tends to treat it as a relatively distinct economic entity. When A.I.D. has tried to achieve its own goals in a way that ignored or by-passed the sectoral structure, it has been unable to communicate effectively, or even to find effective governmental or institutional structures with which to work. For another thing, A.I.D. has dealt in a special "collegial" way with the U.S. agricultural (especially the Land Grant) colleges in matters of policy, program definition and priority setting. This "partnership" borrowed heavily on the decades-old patterns of relationships between these colleges and the U.S. Department of Agriculture in dealing with problems of domestic agriculture and rural development. One would be hard pressed to find an instance where this happened in any other development sector for as long as it has occured in agriculture. It is significant that the word "partnership" is so often used to describe this (although "partnership" is, in this instance, more descriptive of a desirable goal and set of attitudes than of the real working relationship). For these reasons, as well as the practical aspects of time and resource limitations, this report deals essentially with A.I.D./university relationships in agricultural development. Many of the lessons from this experience are, of course, relevant or adaptable to A.I.D. relationships with universities in other sectors of LDC development.

This chapter, on the other hand, tries to show the size of the university involvement in A.I.D.'s bilateral, or country, agricultural programs and where and when it took place. Numbers and statistics are not featured in the narrative of the rest of the report but they do underlie much of the discussion and description; therefore, some explanation and samples of the background data would probably be helpful.

Data on Country Programs and the Sources

It is often said that, "A.I.D. has no institutional memory," and our own efforts to gather data bear out the statement. Information from A.I.D. and the State Department libraries on the programs of the foreign aid agencies which preceded A.I.D is scarce; the material that is available is not always consistent in the type of data given and is, therefore, difficult to compare or to make cumulative. The university project and contract information from the pre-A.I.D days is incomplete and is incorporated in A.I.D. reports only when the project was carried over into A.I.D activities in 1961. Most of the data we use come from A.I.D./U.S. University Contracts Providing Technical Assistance to Host Country Governments and Institutions, A.I.D's W-442 Report ("Blue Book").[2] That is, the contracts described are only for projects funded by A.I.D. missions for development assistance in those countries. We do

not here describe contracts for services to A.I.D. headquarters (i.e., "worldwide" technical services or research, or participant training projects[3]), or centrally-funded Collaborative Research Support Programs (CRSPs), Strengthening Grants of various types to U.S. universities, and other centrally funded activities; these are important activities and the latter two are discussed later in the report.

We have mentioned the problem of obtaining information on university country projects prior to 1960. There is sufficient informational material on those projects from A.I.D. predecessor agencies Congressional reports, and other sources (such as the universities themselves) to permit listing them in some of the tables in this chapter; unless the projects carried on into 1961 and were picked up in A.I.D. reporting, however, the data were not sufficient enough, or consistent enough, for them to be included in the data base we prepared and from which the listing of universities in Appendix E derives.

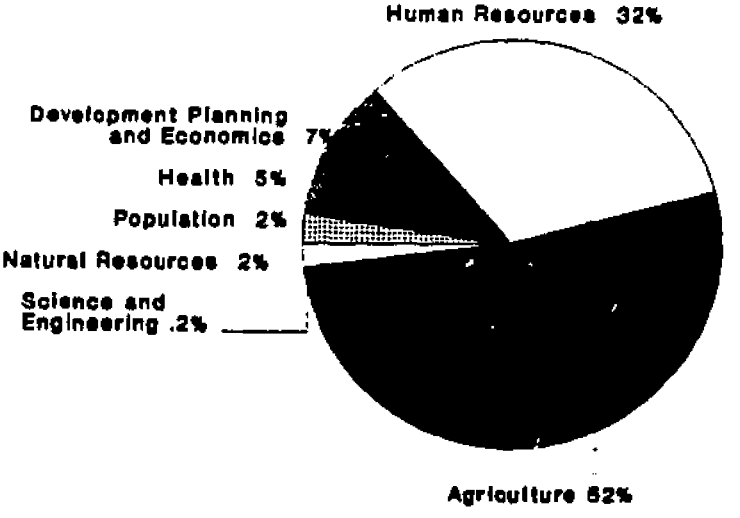
Despite these cautionary notes, the story is still a little larger than can be statistically demonstrated. A.I.D.'s bureaucrats, for whatever else may be said about them, are often innovative and resourceful. The dollar amount of the university contracts, for example, was frequently supplemented with local currencies to cover the costs of housing for contract personnel, in-country travel and local purchase of supplies, etc.; still other local currencies were used to provide support to research and institutional development programs.[4] So the effort was a little larger, and a little more costly, than the figures indicate. Another type of country project also excluded is the AID-financed host-country contract. These contracts were highly favored by A.I.D. policy for a while because it was thought that: 1) host governments "would take more seriously their responsibilities" for supporting the project, and 2) such contracts reduced A.I.D. personnel requirements for supervision and support as managment became the responsibility of the host country. The operational aspects of this will be discussed later in this chapter, but one of the consequences was that financial monitoring was also decentralized and there are no details in Washington on host-country contracting from its inception through about 1983.

In other words, what we have is an order of magnitude of the A.I.D/university collaboration rather than a precise tabulation.

University Country Programs by Development Sector

As we said earlier, the U.S. universities have made a contribution to A.I.D.'s program and to LDC goals and institutions in every development sector. The following chart gives a broad picture of the country technical assistance activities of the universities in all of the development sectors.[5]

U.S. UNIVERSITY ASSISTANCE TO COUNTRY PROGRAMS BY DEVELOPMENT SECTOR



Note on "Sector" Designations: "Agriculture" includes, for example, agricultural education, livestock, freshwater fisheries; "Human Resources" is general education and some specialized education; "Health" is public health, medicine, health education, nutrition, etc.; "Development Planning & Economics" includes economics, planning projects, business and public administration, etc.; "Natural Resources" includes mining, forestry, environment, energy; "Science & Engineering" includes education in those fields, industry, communications; finally, "Population" is generally limited to family planning activities.

It is clear that university participation in agriculture development was almost the equal of all the other sectors combined. The following table shows the participation of the universities by development sector and region.

A.I.D./UNIVERSITY PROGRAMS & PROJECTS

By Development Sector, Region & Amount
Cumulative, 1960-1988

Region	No.Projs.	No.Univs Agriculture	Total Amt.
Africa	57	34	$139,898,662
Asia	79	41	114,235,549
Latin America	71	24	89,815,845
No.Afr/N.East	25	16	58,243,986
TOTALS	232	115	$402,194,042
Development Planning & Economics			
Africa	11	10	8,450,653
Asia	11	8	14,978,914
Latin Am.	21	15	14,317,723
No.Afr/N.East	3	3	13,359,717
TOTALS	46	36	51,107,007
Health & Population			
Africa	20	12	33,682,323
Asia	16	12	12,284,076
Latin Am.	23	16	6,328,577
No.Afr/N.East	5	5	2,049,119
TOTALS	64	45	54,544,095
Human Resources			
Africa	54	29	108,088,834
Asia	40	24	61,101,544
Latin Am.	56	28	26,795,932
No.Afr/N.East	20	15	55,043,890
TOTALS	170	96	251,030,200
Natural Resources			
All	10	8	14,325,437
Science & Engineering			
All	37	22	57,860,557

Inflation, of course, was a significant factor during the last two-thirds of the years covered in the Table and tends to distort the level of effort given to Africa in recent years as compared to Asia and Latin America in earlier times. We have used an inflation factor devised by A.I.D.[6] to recalculate the agriculture portion of the foregoing Table.

Agriculture

Region	Contract Amount	Amount in 1989 Dollars	Amount in 1967 Dollars
Africa	$139,898,662	$273,146,729	$ 84,791,308
Asia	114,235,549	282,407,701	92,761,307
Latin America	89,815,845	236,717,576	73,728,325
No.Afr/N.East	58,243,986	110,077,094	35,561,536
TOTALS	$402,194,042	$902,349,100	$286,842,476

It appears that whether one prefers to look at the level of effort from today's perspective or from that of the Woodstock era, there has been a surprising evenness of effort among the regions - - taking into account, of course, differences in the size and number of nations in a region.

The Universities Overseas: The Beginnings of Country Programs

Some relationships between specific universities and developing countries may have had their origins in the days prior to a "foreign aid" program, such as during the World War II activities of the Institute for Inter-American Affairs (IIAA). (More likely, however, technical teams were recruited "from universities" rather than fielded "by the universities".) Generally, however, those activites were designed to assure supplies of needed wartime commodities, such as rubber, rather than with broader agricultural development goals or institution building. The conscious effort to involve universities in development programs began modestly in 1951, generally as a result of initiatives in the developing country (whether government, local institution, U.S. university or A.I.D. Mission) rather than through Washington suggestions or program directives. In agriculture, these early country projects were:

Early A.I.D./University Projects: 1951-1952

U.S. University	Country - - Institution	Period
U. of Arizona	Iraq - Abu Ghraib Ag. College	1951-1960
U. of Arkansas	Panama - Nat'l. Inst. of Agric.	1951-1957
Cornell	Philippines - Los Banos	1952-1960
U. of Illinois	India - Allahabad Ag. Inst.	1952-1964
Michigan State	Colombia - National University	1951-1959
Oklahoma State	Ethiopia - Gov't. Of Ethiopia	1952-1968
Purdue	Brazil - Univ. of Minas Gerais	1951-1973
Utah State	Iran - Gov't. & Karaj College	1951-1964

Each of the university projects was as different from the other in design as the country in which it was located. The foreign aid planners and managers (and the U.S. Congress) had not yet begun to insist on a standardized design format or on "quantitative performance indicators and objectives." Other than the assumption that the agricultural universities would inspire or coax host-country institutions to do what Land Grant colleges did in the U.S., there was not a lot of uniformity in the projects.

Policies and Personalities: Their Effect on the Effort

Governor Harold Stassen believed that American universities were a great resource for international development and when he became Director of the Mutual Security Agency (MSA) and Administrator of the Foreign Operations Administration (FOA) in 1953, he personally requested U.S. universities to increase their participation in the foreign aid program and encouraged greater utilization of them by the overseas missions. His encouragement did not go unheeded and the following agricultural projects were added to the previous list:

U.S. University	Country/Institution	Period
U. of California	Chile/U. of Concepcion	1954-1957
U. of Florida	Costa Rica/Ag. Servicio	1954-1960
U. of Idaho	Ecuador/Universities	1954-1957
U. of Minnesota	Korea/Seoul Univ.	1954-1962
Montana State	Jordan/Gov't of Jordan	1954-1957
U. of Nebraska	Turkey/Ataturk U.	1954-1966
State U. of N.Y.	Israel/Gov't. of Israel	1954-1958
No. Carolina St.	Peru/Gov't. - - Min.Ag.	1954-Pres.
Oregon State	Thailand/Kasetsart U.	1954-1960
Penn.State U.	Mexico/Min. Agric.	1954-1958
Texas A&M	Mexico/Escuela Superior	1954-1956
Washington State	Pakistan/Punjab Univ.	1954-1969
U. of Wyoming	Afghanistan/Kabul Univ.	1954-1973
U. of Illinois	India/Min. of Food & Ag.	1955-1969
Ohio State	India/Min. of Food & Ag.	1955-1964
Kansas State	India/Min. of Food & Ag.	1956-1972
U. of Tennessee	India/Min. of Food & Ag.	1956-1964
U. of Missouri	India/Min. of Food & Ag.	1957-1963

The Halcyon Days of the New A.I.D.

Although the first year of operations of the new A.I.D.did not auger well for university activities or for technical assistance in general, both A.I.D. and the universities made efforts to improve the situation. The interest of the White House in increasing assistance to Latin America and the emerging nations of Africa, created opportunities for university participation and they again responded as they had earlier for President Truman, as the following Table illustrates:

University Agricultural Projects under A.I.D.
1962-1971

Year	Region				Total	Ended or Completed	Ongoing Contracts
	AF	AS	LA	NE			
1962	2	-	1	1	4	2	33
1963	4	1	2	1	8	6	35
1964	2	7	4	1	14	7	42
1965	5	-	5	-	10	2	50
1966	1	4	5	-	10	3	57
1967	-	8	2	2	12	2	67
1968	-	1	1	1	3	8	62
1969	-	5	2	-	7	5	64
1970	2	3	2	1	8	13	59
1971	5	4	5	1	15	8	66
1972	-	-	6	-	6	18	54
1973	-	2	3	1	6	16	44
1974	2	2	2	-	6	16	34

The Table also shows that, after 1971, the number of university projects began to fall off quickly. There were a several factors contributing to the drop-off, most of which were exogenous to the university effort itself:

- The foreign aid program in general was being seriously questioned at some universities, partly as a "spillover" of opposition to the Vietnam involvement and accusations that universities were acting as cover for C.I.A. activities, and partly due to an imbalance of publicity on the failure of A.I.D.;

- The Congress was dissatisfied with the concentration of macro-economic development to the detriment of social development. Especially, it felt, the funds were being siphoned off to support wealthy and powerful persons -- in and outside the government -- in LDCs. The foreign aid program was voted down totally in 1972 and left for dead for a period of about a week. Subsequently, the "poorest of the poor" and "women in development" became the priorities under the banner of the "New Directions" in the foreign aid legislation;

- As the 1970s began, there was a decreasing amount of grant funds for bilateral activitie and increasing pressure to use loan funds for longer-term technical assistance. Payin for technical assistance and institutional development projects in hard currency wa difficult for LDCs to justify to themselves and when they did it, there was much mor concern over project duration and project "deliverables" (quantifiable indicators an objectives). They also chafed at paying American technicians -- now LDC governmen "employees", in a sense -- more than they paid their own, even though they recognize that the Americans also were paid more at home.

Another factor which contributed to the drop-off of university projects was the decision to tr "host-country contracting." We mentioned earlier in the chapter that, in the haste to push th responsibility for administering technical assistance contracts onto the LDC governments, A.I.D neglected to devise monitoring and reporting standards to cover its own informational needs and thos of interest to Congress. Information on the particulars of host-contry contracting is just not availabl in Washington (except possibly in retired files) and may no longer be available from A.I.D. missions But, in addition to the administrative problems which frequently resulted and the information an data gaps, the U.S. universities did not like them from the first and resisted working under them. A one time, the National Association of State Universities and Land Grant Colleges voted to recommen that all U.S. universities refuse to enter into such contracts. Their reasons were twofold: 1) th arrangements were cumbersome, difficult, and sometimes capricious, and 2) as state organization they felt it improper, in principle, to work for a foreign government. A.I.D. insisted, however, an some universities did enter into contracts (some of which were financed by A.I.D. loans which lent stronger rationale to the LDCs being the contracting party). Some host-country projects worked well Most did not, however, and A.I.D. is now much more flexible about the appropriateness of their use.

Current Country Programs

University country programs -- at least those of the traditional type -- are now at their lowes levels since 1956. A.I.D. financed host-country contracts might add a few numbers to the list, bu essentially the number of new contracts just about equals the projects that are ending, so that ongoing projects in any year number about two dozen. (See graph at end of chapter.) The impression is tha many of the current projects have more specific and more immediate goals than the broade agricultural development and institution building goals of the recent past -- certainly A.I.D.'s projec design process would tend to push them that way, and the tight budget constraints that affect all operating units of A.I.D. make long-term financial commitments extremely difficult. All is not lost fo institution building, however. The Collaborative Research Support Programs (CRSPs), though centrally funded, carry out much of the research in collaborating LDCs (and some advanced developing countries) and work with universities and other research institutions. Some A.I.D. missions, and some LDCs by themselves, are tying country agricultural projects to CRSP activities, hoping to take advantage of a possible synergism.

Institution Building

Most of this report is devoted to the use of American universities in the building of agricultural institutions -- particularly in line with the Land Grant College concept -- but it is not possible to discuss all of them in the body of the report. It also happens, for reasons mentioned at the beginning of this Chapter, that the data in the appendices do not cover some of the early relationships. It seemed therefore that it would be useful to provide a list of the longer-term university/host country relationships.

Institution-Building Activities

Country/Institution Africa	U.S. University	Period
Cameroon/Univ. of Cameroon	Southern Univ.	1970-1976
Cape Verde/Inst. of Ag. Res.	Univ. of Arizona	1983-1990
Ethiopia/Gov't. of Ethiopia	Oklahoma State Univ.	1952-1968
Kenya/Univ. of Nairobi	Colorado State Univ.	1965-1978*
Kenya/Egerton Ag. College	West Virginia U.	1962-1972
Lesotho/Gov't. of Lesotho	Washington State	1979-1986*
Malawi/Dept. of Ag. Research	Univ. of Florida	1980-1987
Nigeria/Ahmadu Bello Univ.	Kansas State	1963-1975*
Nigeria/Univ. of Ife	Univ. of Wisconsin	1964-1975*
Somalia/Min. of Agriculture	Univ. of Wyoming	1965-1971
Sudan/Gov't. of Sudan	Cons.f/Intl Dev.	1979-1985
Tanzania/Gov't. of Tanz.	Texas A&M	1974-1980
Tanzania/Morogoro Ag. Coll.	West Virginia U.	1962-1970*
Uganda/Ag. Colleges(2)	West Virginia U.	1963-1971*

* Had another or several projects in the country.

Country/Institution Asia	U.S. University	Period
Bangladesh/Univ. of Dacca	Texas A&M	1954-1971
Bangladesh/E.Pakis. Ag. Univ.	U. of Georgia	1970-1976
Burma/Gov't. of Burma	MUCIA	1982-1988
India/Min. of Agric.	Kansas State	1956-1972*
India/Min. of Agric.	Ohio State	1955-1972*
India/Maharastra Univ.	Penn State	1967-1973*
India/Allahabad Ag. Inst.	U. of Illinois	1952-1964*
India/Min. of Agric.	U. of Missouri	1957-1963*
India/Min. of Agric.	U. of Tennessee	1956-1964*
Indonesia/Univ. at Bangor	U. of Kentucky	1957-1966*
Korea/Seoul Univ.	U. of Minnesota	1954-1962
Nepal/Inst. of Agric.	MUCIA	1975-1984*
Pakistan/W. Pakis.	Washington State	1954-1963*
Philippines/Univ. at Los Banos	Cornell U.	1952-1960
Philippines/Gov't. of Philippines	Auburn U.	1971-1979
Thailand/Kasetsart Univ.	Oregon State	1954-1960
Thailand/Gov't. of Thailand	Cal. State. Poly	1967-1973
Thailand/Min. of Agric.	U. of Kentucky	1966-1976*
Vietnam/Thu Duc Ag. College	U. of Florida	1969-1975

Latin America

Argentina/Nat'l Inst. of Agric.	Texas A&M	1964-1970
Brazil/Univ. of Minas Gerais	Purdue	1951-1973
Brazil/Univ. of Ceara	U. of Arizona	1963-1973
Brazil/Univ. of Rio Gr. do Sul	U. of Wisconsin	1963-1973
Brazil/U.of Sao Paulo(ESALQ)	Ohio State	1964-1973
Brazil/Min. of Agric.	Mississippi State	1964-1974
Colombia/Nat'l. University	Michigan State	1951-1959*
Costa Rica/Gov't. Ag. Servicio	Univ. of Florida	1954-1960
Dominican Rep./Gov't. of D.R.	Texas A&M	1965-1973
Guatemala/Univ. of San Carlos	U. of Kentucky	1957-1963
Honduras/Min. of Nat. Res.	Auburn U.	1980-1988
Panama/Nat'l. Inst. of Ag.	U. of Arkansas	1951-1957
Panama/Univ. of San Carlos	Oklahoma State	1965-1971
Paraguay/Col. of Ag. & Vet. Sci.	New Mexico State	1968-1974*
Peru/Gov't. of Peru	No. Carolina State	1954-1973*
Peru/Agr. Reform Inst.	Iowa State	1962-1977*
Uruguay/Univ. of E. Uruguay	Iowa State	1960-1968

Near East/No. Africa

Afghanistan/Gov't. & Kabul Univ.	U. of Wyoming	1953-1973
Iran/Gov't. & Karaj College	Utah State	1951-1964*
Iraq/Abu Ghraib College	U. of Arizona	1951-1960
Jordan/Gov't. of Jordan	Washington State	1982-1988*
Morocco/Hassan Ag. Inst.	U. of Minnesota	1970-1976
Morocco/Gov't. of Morocco	Mid-Amer. Ag. Cons.	1980-1988*
Tunisia/Gov't. of Tunisia	Texas A&M	1962-1970
Tunisia/Gov't. of Tunisia	U. of Minnesota	1967-1978
Turkey/Gov't. of Turkey	Oregon State	1967-1975

END NOTES

[1] This Chapter, and the data search and tabulations on which it is based, is the work of the associate writer of this report, Mr. Frank Campbell.

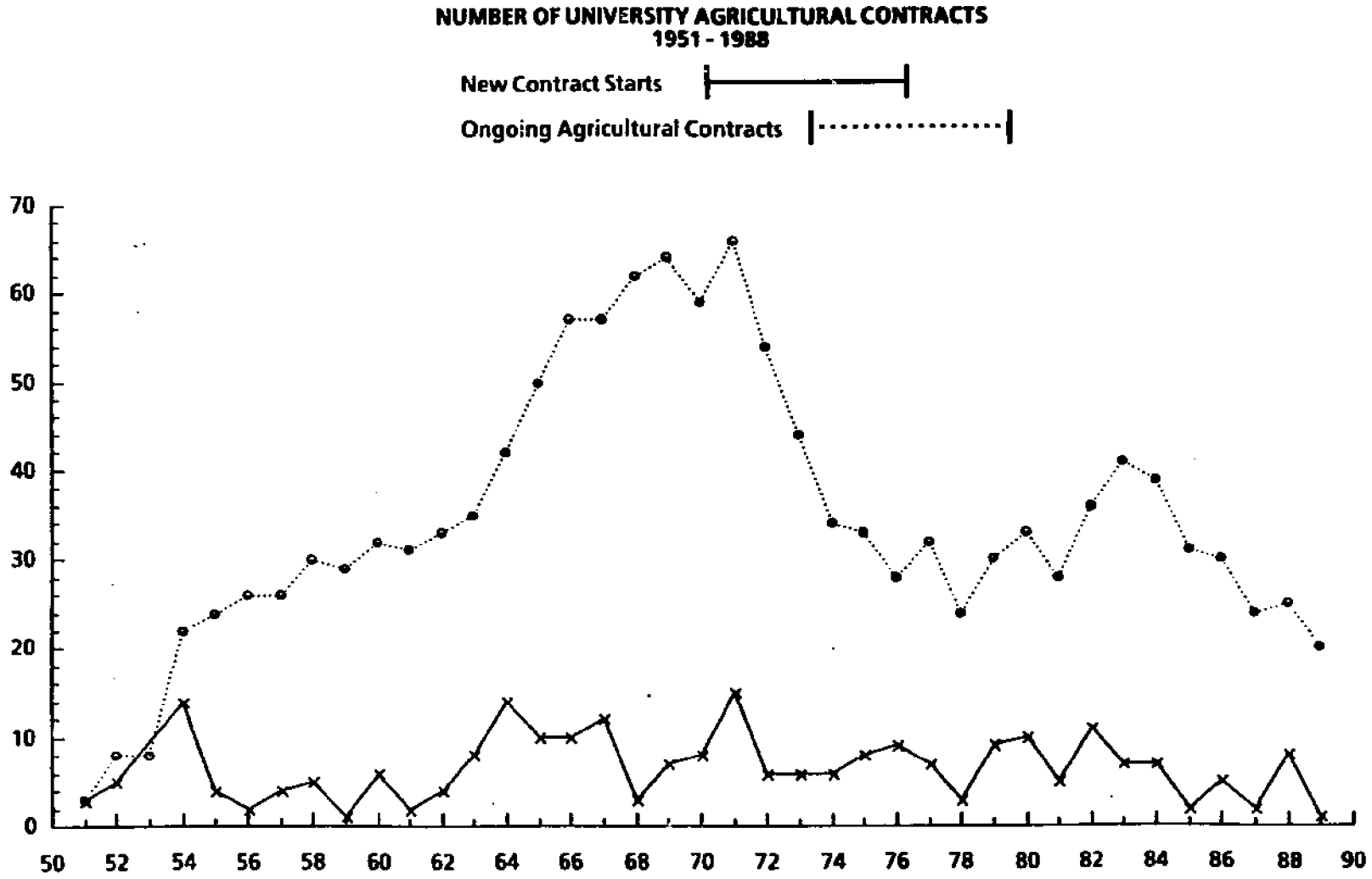
[2] Reports are available only from June 1960 onwards (but a few reports from the mid-1970s could not be located either in the A.I.D. Reference Library or Office of Procurement). A.I.D. has no computerized data base of the information and it is virtually impossible to find overall cumulative data. It was necessary to go through the Reports by hand and, as we used only the End of Fiscal Year reports, it is possible that some short-term contracts or short-term extensions were missed. (See Appendix B for list of universities and their bilateral activities.)

[3] Participant training performed under a university technical assistance contract with an A.I.D. Mission is included.

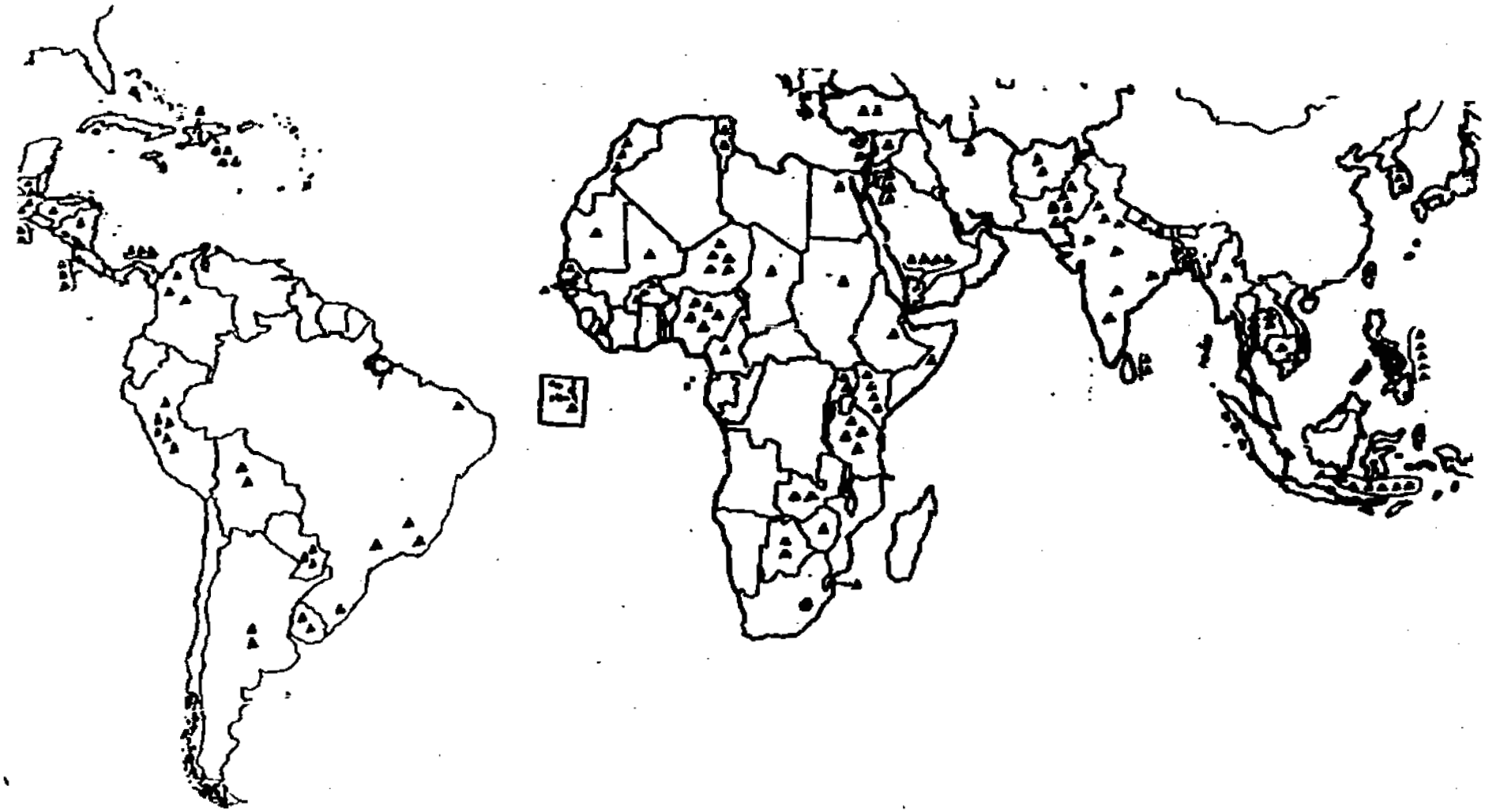
[4] In most cases, these local currencies were owned by the host country but controlled to some degree by the U.S. Government because they were derived from the proceeds of resources transferred by the U.S., e.g., PL-480 "wheat sales," program loans, or commodity import programs. The use of these funds in the university projects does not add to the bilateral program totals since only the dollars loaned or granted represent, in most cases, a real transfer of resources. Still, they allowed the dollar resources to be stretched.

[5] The Chart is derived from the data base we prepared from the A.I.D. W-442 Reports and, therefore, has the limitations we outlined earlier. It nevertheless depicts the "order of magnitude" among the sectors fairly accurately.

[6] For use in dealing with Congress on budget matters, A.I.D. has devised a "deflator" factor which allows prior year budgets to be compared with the current year. See "Request and Appropriation Trends," PPC/PB/RPA Memo (October 13, 1988). For each year covered in the Table, we have applied a corresponding "deflator" or "inflator" factor and added them for the totals shown in the 1967 or 1989 columns. The inflator/deflator factors are available only for the years 1967 through 1989, so dollars for the years prior to 1967 are regarded as constant value dollars -- not quite true but not affecting the point to be demonstrated.


NUMBER OF UNIVERSITY AGRICULTURAL CONTRACTS
1951 - 1988
New Contract Starts
Ongoing Agricultural Contracts
70
60
50
40
30
20
10
0
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90

COUNTRIES WHERE U.S. UNIVERSITY AGRICULTURAL ACTIVITIES HAVE TAKEN PLACE (1951-88)



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SECTION II

EXAMPLES OF AGRICULTURE RESEARCH AND EDUCATION INSTITUTION-BUILDING

INDIA: The Crown Jewel of Experience in Cooperation

> ....Dean Rusk remarked in a speech that, in his opinion,'the most successful piece of foreign policy ever implemented by the U.S. government in its over 200 years plus history was the establishment of the Land Grant University system in India."[1]
>
> —Dr. John Nicholiades, 1987

Background: The Need To Increase Food Production

> —American Agriculture has had an impact on Japan in the Meija Era (1868-1879) and on Mexico since 1930. From 1955 onwards, it has also influenced Indian Agriculture. Its concept of integration of teaching, research and extension was accepted in India, and has led to the development of agricultural universities.[2]

If, as was the claim in colonial days, India was the crown jewel of the British Empire, the India/U.S. university agricultural program of the late 1950s and the 1960s was certainly the crown jewel in the long history of the A.I.D./U.S. university experience.

Recurring famine had been India's lot since history began. Sometimes these famines were quite local, caused by natural disasters of drought or flood. In spite of a rather well developed railway transport system, insufficient food or people were moved from area to area to mitigate the effects of these local disasters, and therefore the effects on the lives of people in afflicted areas were often brutal. At other times, monsoon failures were very wide spread, grossly reducing food supplies country-wide. And, always, there was the "silent famine," as Mohandas Gandhi called the constant hunger and malnourishment that was the consequence of low productivity and pitifully low incomes of the impoverished rural masses.

When India came into her new found independence on August 15, 1947, memories of the devastating famines of the mid-1940s were fresh in her mind. Shortly after independence she was hit by another serious famine caused by the terrible drought of 1950-51. India's excellent foreign exchange balance of pounds sterling, earned by services to Britain in the recent world war and so important to her hopes for industrialization and economic development, were being drained for food imports. In 1951, India imported about 3,400,000 tons of food grains from the United States under a special wheat loan. Clearly something had to be done if, as Prime Minister Nehru kept reminding Indians and foreigners alike, "political independence was to be followed by economic independence" without which India's political freedom would be empty of its promise of a better life for its citizens.

This set of circumstances led the government of India to a fateful decision: one which would mark a turning point, though probably unrecognized as such at the time, toward a monumental, slowly unwinding improvement in the very foundations of her agriculture. She asked the U.S. Government for technical help, help of the kind that could get her agriculture based squarely on scientific foundations rather than upon the folkways of traditional agriculture. She would try to harness the extraordinarily successful experience of U.S. agriculture, properly adapted, to her own needs for massive improvements in agricultural productivity.

Efforts thus far to improve rural life by various rural uplift efforts, particularly community development programs and village level extension work in agriculture and home science, were withering in effectiveness for want of an expanding rural economic base to support them. And the agricultural extension work suffered from shortages of professional personnel and, especially, from lack of technical knowledge to "extend," which would have the power to dramatically increase agricultural productivity to the degree needed to have an impact on national development. Much more than mere stimulation of the farmers was needed. Agriculture had to be put on a more productive basis. Quite literally, it had to be shifted from an ancient set of folkways to a scientific, sound technological basis. Though battles raged inside government on the subject, the better informed and wiser counsel prevailed. The importance of chemical fertilizers was recognized as a key first step toward getting crop yields increased and the introduction of scientific agriculture started.

The Importance of Fertilizers

Fertilizers were both the symbol and the substance of the shift in viewpoint in those early 1950s. Because of the religious veneration of the cow, very strong social suasions operated to justify the immense numbers of cattle kept with no economic output except animal manure.[3] The justification for organic farming -- based largely on cow manure and compost pits -- was carried in the argument that non-organic manures (chemical fertilizers) would "burn out the soil." Bountiful evidence to the contrary existed in the many years' research done in the research stations of the several Indian states and of the central government. But the message was blurred in translation to policy.[4]

The wiser men prevailed however. "India's proposals for technical and economic assistance included fertilizer projects and services of an eminent fertilizer expert. Dr. Frank W. Parker, a prominent U.S. fertilizer expert, accompanied by a small group of U.S. technicians, arrived in India in December 1952 to establish the U.S. technical mission and to develop the Indo-American Program."[5]

From the very first, Parker gained the confidence of top officials in the Indian government, in his dual role as head of the U.S. mission's agricultural division and as agricultural advisor to the Ministry of Agriculture. He was more often found in his office in the Ministry than in his office in the A.I.D. mission.

The A.I.D. agricultural program covered a range of activities, but focused heavily on fertilizer production and uses. These latter pursued four general objectives: (1) to carry out a large set of experiments with fertilizer use on farmers' fields to test responses to fertilizer of several crops under various conditions, (2) to develop methods of soils testing and a set of soil testing centers around the country to provide local farmers with information on their fertilizer needs, (3) to introduce and test new fertilizers that might be superior to the low analysis fertilizers in common use and, (4) to stimulate increased fertilizer production and use by organizing a fertilizer trade organization "to the service of the public, the Government of India and the fertilizer industry."

None of these endeavors evolved perfectly or accomplished their full potential. But all of them, singly and especially in combination, established a massive shift in thinking toward recognizing the need for greatly expanded use of chemical fertilizers. The soils testing labs, and the tests on cultivators' fields, particularly, showed clearly the error of earlier assumptions that Indian soils were,

in general, adequately endowed with phosphorus. They strengthened also the understanding of the desperately low nitrogen content of almost all Indian soils. And they even demonstrated, in some areas, critical shortages in potassium, especially for such high potassium requiring crops as bananas, citrus crops and potatoes. Sharp deficiencies were detected in some of the minor elements. The resulting farmer demand for phosphate and nitrogen fertilizers, particularly, was a powerful force driving the country toward developing a virile fertilizer production industry, "now (as of 1986) ranking fourth in the world in total fertilizer production, with an installed operating capacity of 3.9 million tons of N_2 and 1.29 million tons of P_2O_5."[8]

The energetic and persistent efforts of soils expert Dr. Gilbert Muhr, first as a direct hire A.I.D. employee and later, under special arrangement, as a member of the University of Tennessee contract team, resulted in establishment of 21 soils' testing laboratories, in as many locations, across the length and breadth of India. Their purpose was to provide individual farmers fertility analyses of soil samples provided by the farmers, together with advice on types and amounts of fertilizer applications needed for the crop the farmer planned to grow on the land sampled. This service was extremely popular among the farmers; but the production rate of samples analyzed per month stubbornly remained very low. However modest the labs' service to individual farmers, they did succeed in demonstrating (contrary to prevailing view) the totally cosmopolitan shortage of available phosphorous in soils throughout India, and the critical nitrogen shortages in soils that had been assumed to have been adequately fertilized with organic manures. Perhaps even more importantly, the farmers who followed the laboratories' fertilization recommendations obtained such greatly increased yields -- and increased incomes -- that they stood as beacons steering other farmers toward more use of fertilizer and better farming methods.

The tests on thousands of cultivators' fields, primarily wheat and rice but including also onions and potatoes, showed that fertilization rates recommended by the several states were far too low -- even though much higher than practiced by all but a few farmers. These tests compared yield results from: zero application, state recommended levels of application, and 150% of state recommended levels of application (in each case using the combination of nitrogen and phosphorus deemed best by the State Agricultural Department). Returns per pound of fertilizer for the last increment averaged about 50% higher than for the first. This resulted in that phenomenon so rarely seen: increasing marginal rates of return, what the economists would call a production function "concave from above." Very few farmers applied fertilizers at anything approaching state recommended levels. The correct, immediate conclusion was that fertilizers should be concentrated much more heavily, and on less land if necessary. The far more important, long run conclusion was that vastly more fertilizer than anticipated was required for India's future agricultural development.

The complex, compound fertilizer experiments were designed to provide more accurate data on crop responses to fertilization and -- especially -- to show interrelations between the two major elements, nitrogen and phosphorus. Because of faulty analytic design (imported from standard western literature) these experiments gave the wrong answers to the latter question. They indicated a negative rather than positive interaction between nitrogen and phosphorus fertilization. That is, they showed that either nitrogen or phosphorus produced greater yield increases when applied singly rather than together. This discouraged interest in mixed fertilizers by potential fertilizer production investors. It also appeared erroneous to the writer. Upon detailed examination he found that, properly analyzed, the data actually showed a strong positive interaction. But getting this accepted as basis for fertilizer policy was a bit traumatic. Agronomists and soils experts quickly accepted the new

correct interpretations; but the statisticians who had designed the tests would not budge until they tried their own even more sophisticated new analytic techniques, which supported the finding of a positive interrelationship.

Those complex fertilization experiments also cast another false light on fertilizer requirements, as they were carried out largely on land that was already atypically high in natural fertility. Having benefited by earlier application of phosphorus, which builds up in soil, the land on which the experiments were conducted showed very much lower amounts of fertilizer requirements for maximum economic efficiency than was characteristic of the country's farms as a whole. Therefore, as is frequently the case, the simpler tests under real-life farming conditions provided data much more useful for policy making than did the seemingly sophisticated tests limited to the artificial conditions of the controlled experiments.[7]

Five U.S. Universities Undertake Major Assistance Efforts

But all these results were in the future. Responsive to India's articulated felt needs, Dr. Parker and his small group helped India decisively to break through into scientific approaches to agriculture, and to steer the country into intensification of agriculture by use of fertilizers and other inputs to achieve radical increases in yields and hence total food production.

Important to the future of Indian food production as were the breakthroughs in understanding the potentialities of increased fertilizer use, another insight of even deeper long range significance was developing among the agricultural leadership of India shortly before and early in her independence: an appreciation of need for augmentation and overhaul of her systems of agricultural research, agricultural higher education and agricultural education of the farmers.[8]

"India won independence on August 15, 1947. The importance attached by the new nation to education is reflected in the Government of India Resolution of November 4, 1948, setting up the Indian University Education Commission."[9]

The very distinguished commission appointed incident to this resolution, chaired by the then Professor of Eastern Religions and Ethics at Oxford University and later to become President of India, Dr. S. Radhakrishnan, published its three-volume report in August 1949. Obviously, it had acted quickly; but it did much to identify the serious need for reform of agricultural research and education at all levels. It called attention to the small numbers of scientists educated through the Ph.D. degree level by the Indian universities; to the deterioration in quality of scientific research and teaching throughout the country; and to the lack of interest among Indian students and scientists in agriculture as an area for advanced training and serious research. It highlighted the very bad and apparently worsening condition of agriculture in the country and the alarming upward climb of agricultural imports, which were rapidly draining the nation's financial resources and foreign currency reserves.

The commission recommended the establishment of rural universities each of which would be a ring of small, resident, undergraduate colleges with specialized faculties and university facilities at the center. The university at the heart of each ring would, presumably, after the pattern then extant, provide accreditation and other academic administrative services to the largely independent colleges. These recommendations were not very prescriptive of how to solve the fragmentation of research and educational services to agriculture which was so greatly impeding agricultural development. But the

report and discussions of it did create an awareness of the need for change and of the contrasts between the Indian agricultural educational system and the U.S. Land Grant College system which had played such a key role in the rapid advances of U.S. agriculture.

While various committees and public bodies were debating how or whether to implement the commission's report, "the Ministry of Food and Agriculture was having its own ideas on the needs of the situation. The importance of breaking new ground on the lines indicated by the commission was recognized and expressed hope that these U.S. colleges could provide assistance to India to help her achieving similar institutional arrangements in support of Indian agriculture."[10]

"Dr. Frank W. Parker came on the scene as Technical Cooperation Administration (A.I.D.) Advisor to the Ministry at New Delhi and his advice and efforts culminated in the setting up of a Joint Indo-American team. The Ministry resolution of Nov. 24, 1954 [which] made special reference to the experience of the institution in the USA, particularly the Land Grant Colleges".[11]

This Joint Indo-American team with an Indian agricultural administrator as chairman, three American and three Indian agricultural scientists as specialists and a senior member of the Indian Administrative Service as secretary, was set up. The Indians visited the U.S. universities and U.S. Department of Agriculture officials in the United States for about three months in 1955; shortly thereafter the American members visited Indian agricultural educational and research institutions and met with central and state government officials.

Before this team began its work, Dr. Parker visited all the U.S. university campuses which ultimately became involved in the program. Dr. Parker's current recollection[12] of just how he came to select the U.S. universities to visit is that various special circumstances surrounded each case. Illinois had for years had a special relationship with Allahabad University in Uttar Pradesh State. Indian leadership in the state, especially those who had been on the Illinois campus, recalled this relationship fondly. The State of Uttar Pradesh was beginning to think of establishing a large agricultural university on a very large tract of land, in the Terai, the relatively flat woods and grassland just below the Himalayan foothills. So that was a natural. The University of Tennessee, which had a very strong College of Home Economics, was carrying out an Indian countrywide assistance program in home science, which was reputedly doing well.

The president of the university, Dr. C. E. Brehm, had visited this project in India and Dr. Parker and the Indians had been impressed. For various reasons growing from his pre-Indian experience, Parker felt that the other U.S. universities (Ohio State, Kansas State and Missouri) would be well suited. So he visited these five university campuses and laid out to faculty and administrators the challenges presented by the anticipated program in India. At the University of Tennessee, several in the faculty including the writer[13] and especially the top administrators were interested. Some doubters couldn't see why the U.S. should be helping Indian farmers produce more food when the U.S. was again being threatened with post-war food surpluses. Parker did his best to point out that the starving, poverty ridden peoples of the underdeveloped nations could not buy U.S. food, nor would their governments be able to import it for them for long unless they got some economic development going, development which, in most cases, could not be expected to succeed if based on an impoverished, unproductive agriculture. Therefore, he argued, U.S. farmers (and their state universities) should indeed have a positive interest in helping improve Indian agriculture. It was an exciting proposition, also, to the other four universities which he had visited earlier.

Responses to Parker's presentations were enthusiastic. All five universities expressed interes to Parker and later became participants in the India program.

The first step in implementation of this interest was to accept the government of India's reques expressed through Dr. Parker, to send a team to visit India so that a frank determination could b made on each side as to whether such cooperation was desired and what type of an assistance prograr each might undertake. It was Parker's expressed desire, supported by the Indians, that eac university study team be comprised of the person whom the university would recommend as grou leader of its project in India and the other to be the person who would be in charge of on-campu management of the project. Only for the University of Tennessee did it work out exactly that way, bu three out of five of the first group leaders were on their university's visiting team and the other tean members, with only one exception, played important on-campus executive or administrative back-u roles for their Indian projects. That one exception provides a lesson. He was to have been grou leader. But the deal broke down over very minor considerations during negotiations in Washingtor In annoyance, he accepted a position as Dean of Agriculture in a neighboring U.S. state and the India project suffered seriously in consequence.

The Ohio State, Illinois and Missouri university teams visited India in late 1954; Kansas Stat and Tennessee in June-July 1955. Although the program proposals developed by these teams wer presumably to be within the framework laid down by the joint Indo-American team, all of them visite India before the joint team had completed its work. In fact, the first three U.S. university teams ha long since returned from India before the joint team's Indian visits were begun. The last two, Kansa State and Tennessee, crisscrossed with the joint team in their travels. For example, the Tennesse team met the joint team at a meeting with them in Bangalore just prior to concluding their respectiv visits to South India. Both the Tennessee and the joint team had left long notes for each other at eac of several crossing points in their itineraries and completed their visits with a two-day joint meeting i Bangalore with officials of South Indian governments and institutions. The other four universitie also had significant interaction with the joint team. Especially, as Dr. Parker and Mr. Nehemiah Secretary of the Joint team (or their deputies) traveled throughout the country with the U.S university teams, there was constant interplay of concepts among the visiting university teams, th A.I.D. Mission, the joint Indo-American team, the Indian state government and college executives an top level Indian government officials. Not a neat organization, perhaps, but an excellent way o getting maximum professional and executive interaction in a way that fed directly into and wa enriched and made realistic by the executive officials of both governments and the universities. I fact, the continuous and thorough interactions among all of these entities provided the means b which policy toward the program was developed by the two governments. It was a process which laid foundation of understanding and mutuality of purpose which served both sides and all parties wel during the succeeding thirty-five, often difficult, years of cooperation.

The joint team report, when it did emerge, was a masterful document. It was very strong in it statement of general principles and directions for the program, but not overloaded with detail - rightfully assuming that the program would be a learning experience for all concerned, needing grea flexibility for professional recommendations and executive determination as the program unfolded, s that the program detail could be worked out as experience illuminated its requirements. It had th other great value of being seen by both the Indian and the U.S. governments, and by both the India and American sets of institutions, as something which they had participated in. All parties saw thei own interests as being identical with those of all the other members: namely, the successful executio

of the project. How far different this is in principle from the concept of leverage by one country over another, or from the concept of hard negotiation or hard bargaining as a basis for bi-lateral agreement! To Indians and Americans alike the objectives of the program were seen as "cur" objectives. Its successes were "our" successes and its failures "our" failures. To this fact the writer attributes, more than to perhaps any other, the amazing success of this remarkable program.

The joint Indo-American team activities and the visits to India by the five U.S. university teams were the first steps in implementation of Operational Agreement #28, signed by the two governments in April 1954. For long term implementation of this program, the then twenty-six states of India were grouped into five regions, one American university to be assigned to each region. Each of the five universities concentrated its visit to the region to which it had been preassigned and of course to central government headquarters in New Delhi. Shortly after the team visits, the number of Indian states was reduced from twenty-six to sixteen and state borders were redrawn to comply more closely with linguistic boundaries (this has not proved entirely permanent; there are now 18 states). History records no evidence of discord on any side over the geographic assignment given to each U.S. university -- originally or at the time of boundary realignment. Each university accepted its area of assignment and happily identified itself with the states and institutions with which it worked.

As the realignments of state boundaries were conformed to the 16 states, the geographic regions for five U.S. agricultural universities' technical assistance programs were established.

Table

Region I	States of Uttar Pradesh and Madya Pradesh	University of Illinois.
Region II	States of Punjab, Rajasthan and Hamachel Pradesh	Ohio State University
Region III	States of Orissa, West Bengal, Assam and Bihar	University of Missouri
Region IV	States of Andhra Pradesh, Maharashtra and Gujarat (modified to include Pennsylvania State in 1967)	Kansas State University
Region V	States of Karnataka, Tamil Nadu and Kerala	University of Tennessee[14]

For about the first five years, each of the American universities had several host institutions in each of the host states, a total of 81 for the five U.S. universities. These included the several relevant departments of government in each state, such as the Department of Agriculture, the Department of Animal Husbandry, the Department of Education, the Community Development Department. Also the U.S. universities worked with special research stations and institutions (both state and central governments and, in a few instances, private). More especially they worked with the state colleges of agriculture and the (totally separate) state colleges of veterinary sciences and, in some instances, private universities -- such as Allahabad Agricultural Institute in Uttar Pradesh, Annamalai University in Tamil Nadu and the Shri Avinashalingom College of Home Sciences in Tamil Nadu. For example, in the years 1956-57, the University of Tennessee provided equipment to and/or sent participants for training in the United States from a total of sixteen different totally separate institutions in the three states with which it cooperated. The Tennessee team provided advice and casual assistance to at least an additional dozen institutions. (From the University of Tennessee's point of view, it saw its primary hosts as being the governments of the three states, especially the

Department of Agriculture and the Department of Veterinary Sciences; its secondary hosts as being the colleges of agriculture and the colleges of veterinary science in each of the states, as these institutions were under direct administrative control of the parent Departments of Agriculture and Veterinary Science, respectively, and its tertiary hosts as being the several special research stations, smaller colleges and special institutes in the region.)

As the first several years' experience unfolded, it became increasingly clear that the paramount problem facing India was the need to integrate these many administrative units into a single system of research, education and "extension" programs to farmers. Research on crops was characteristically carried out by a research cadre in one unit of the Department of Agriculture. College teaching was done in a totally unrelated, separate administrative unit of this same Department of Agriculture. Research on all aspects of management of farm animals was carried out under the Department of Animal Husbandry and Veterinary Science. College level teaching in animal sciences was done in a totally separate college with no connection whatever with the College of Agriculture and only remote connection with animal research. Teaching of home science was the responsibility of still different, unrelated private colleges, or, often, in the Ministry of Education. In addition, there were special college level schools for study of cooperatives, and for sons of the Indian freedom movement, etc.

Agricultural extension programs were, in the main, under the jurisdiction of the Community Development Program -- even though, increasingly as the food shortage problem intensified, the priorities for the community development program shifted away from improving other social amenities toward increasing food production. This arrangement gave no provision, or incentive, for research to be anchored in or driven by farmers' needs for new knowledge, or for farmers' education by the community development workers to be based upon the best available, applicable research knowledge.

Similarly, college level training was impacted only slightly by either the findings of Indian agricultural research, or by the experiences, problems and needs of Indian farmers. The administrative separation of the three functions of college teaching, research and extension made all three functionally ineffective.

Perhaps worse still was the separation of the agronomic, or the crop production, side from the animal production side of agriculture. An aspiring young dairy farmer, for example, could find no place to study, in one college, the two strategic aspects of dairy farming - - (1) care of the animals and (2) efficient, low-cost production of good feed for the cattle. For each of these he would have to go to a different college -- in the case of Tamil Nadu state, over 200 miles apart. Similarly, research on, say, grazing or crop production for animal feed could be properly done only through formal cooperative arrangements between two separate departments of government, the Departments of Agriculture and of Veterinary Sciences.[15]

Agricultural extension work with farmers posed special problems -- too complex to be elaborated here. Suffice it to say that agricultural extension work was primarily the responsibility of the multipurpose community development program, especially as concerned provision of "village level workers to carry relevant information directly to the farmers." These village level workers were not graduates of agricultural colleges. They were given short courses in farming methods in special "basic agricultural training centers," in which most of the instructors were employees of the state Department of Agriculture, some of whom might, at the time, be on assignment as teachers in the

College of Agriculture. Some of the instruction, dealing with animals, might come also from the Department of Veterinary Science or its College of Veterinary Science.

In addition to these basic agricultural short course schools, such workers attended a different short course school in what we would call extension methods. This instruction was normally carried out under the auspices of the Community Development Department.

These village level workers were backed up professionally by specialists in various aspects of agriculture, animal husbandry, forestry, health, home science, who were provided under the administrative direction of the Community Development Department. It was a grand concept in principle -- but the channels from farmer to researcher (to communicate types of research needed) and from researcher to farmer (to advise on what kind of farming practices to adopt) were far too complicated and indirect to carry much useful information either way.

In addition, in most states the Departments of Agriculture and of Animal Husbandry each had small "extension" programs of their own. These often worked considerably better than the community development programs, but were lacking for resources, in difficult relationships with the community development programs and with each other -- and often not in very close interaction with research workers in their own departments.

Given this set of circumstances, it was clear to all elements of the American effort to provide technical assistance to Indian agriculture -- and to most of the Indians -- that little progress could be made without massive reorganization and realignment of the public services assisting agriculture. (This was, indeed, characteristic of most of the less developed countries which the United States was attempting to assist.)[16]

In India the solution foreseen to an important degree from the beginning was the need to sort out the public services, and to separate regulatory and commodity and supply services on the one hand from research, college education and farmer education (extension) on the other. State government regulatory services and private sector (including cooperatives) supply and marketing should be enhanced to carry out those functions. And the research, higher education and farmer education (extension) services should be the responsibility of state universities built along the lines of the U.S. Land Grant University model -- colleges which integrated all sub-fields of agriculture and the three functions into single, public institutions.

Gradually, the various group leaders and teams of the U.S. universities began to particularize these convictions into recommendations to their hosts - especially to state government officials. Through their frequent meetings with Dr. Parker, this thesis became articulated at the national level. Almost subconsciously several of the earlier commission and team reports were interpreted to identify this thesis as their principal recommendations. It slowly emerged as Indian and U.S. assistance policy. Almost accidentally, by this informal but quite pervasive process, and by virtue of extraordinary agricultural leadership in the Indian central government and in several of the states, central and state governments came to embrace a common set of goals: that of establishing in each state an "agricultural university" along the above described lines.

By this time Dean H.W. "Hank" Hannah, group leader of the University of Illinois team, had written a pamphlet entitled "Blueprint for a Rural University", spelling out in ideal-type form what such a university would be like, drawing directly from the U.S. model. This 55-page pamphlet was

widely read and discussed in draft in central and state government circles throughout India -- as we as, of course, by all the Americans -- and had, perhaps, its greatest influence before it was publishe It unquestionably served to help galvanize action by the central government and by several states. perhaps had relatively little influence on the details since these had to be worked out state by stat but it importantly served to augment the process.[17]

These ideas were developing among the U.S. universities and the U.S. A.I.D. mission. State were struggling,each in its own way, with the problem. The logic supporting such reorganization wa unequivocal; the facts were clearly supportive, and the need was desperate. But, of course bureaucratic resistance was enormous. Traumatic realignments of authorities, jurisdictions an careers were at stake. State departments of agriculture would be called upon to surrender hug portions of their authority, resources, staff positions and budgets to the new university. Simila problems faced the departments of veterinary sciences. College principals realized their relativ positions might be reduced or they, as individuals, might be totally replaced. Small branc experiment stations and special institutes would lose their near autonomy - - and be expected t participate in programs of statewide design, rather than merely carrying out small projects of thei own design. Education ministries and accrediting "universities" felt threatened, etc., etc. In fac radical change is itself a threatening force, especially in societies where government employment c any type is felt to be a great privilege in light of the paucity of other opportunities. Even those wh might presumably benefit could not be entirely sure that it would work out that way and hence coul be expected to be gravely concerned.[18]

Concentration of the Program

Concerned with the questions of future directions for the program, Dr. Parker and the severa university group leaders (who served Parker as a kind of informal advisory council on all A.I.D agricultural matters) concluded that a second Indo-American team was needed to evaluate progress o the program to date and set directions for the future. The Government of India agreed and such a tean was duly appointed. Not surprisingly, among many other recommendations for continuing what it fel to be an outstanding program, it recommended that the program be much more concentrated - ultimately to focus on building one such Land Grant University in each of the states. In many case this would simply corroborate program adjustment processes already well under way.

Fortified by this recommendation, home campus executives, their within-India group leaders and U.S. A.I.D. representatives agreed in a three-day meeting in New Delhi in late January 1961 t intensify their recommendations, through proper channels, to concentrate assistance on those state prepared to establish bonafide, integrated agricultural universities. Through a series of discussion and actions these recommendations resulted in October 1963 in a renaming[19] of the program; and i March 1964 a new set of A.I.D. contracts was signed with the U.S. universities to reflect thi concentration on a single objective.

Ten years had, therefore, elapsed since the program was first agreed upon until this new focu was achieved. Some might well argue that it was unfortunate that the program had not started ou with the later formulation in the first place. With this the writer totally disagrees, on four majo grounds:

1. It would have been impossible to persuade the Indians to take that approach, as it would have been far too restricted to accomplish the then perceived problem of getting all of India started toward greater food production.

2. It would have limited U.S. interaction to institutions not yet in place and to personnel echelons far too low in the state power structures to have been effective - - even if mandated by central government fiat.

3. It would have made it impossible for Americans to appreciate the important resources and roles of the entire complex of state governmental and special institutional resources ultimately restructured into the state agricultural universities.

4. Most important, it would have militated toward seeing the building of universities as an end in itself rather than, as the process unfolded, as an essential means for the development of the agricultural and rural economy of the country, underpinned by a self-adapting integrated system of research, higher education and agricultural extension.

In short, in nation building as in Einsteinian physics, the shortest distance between two points is not, necessarily, the straight line.

As is the case with most A.I.D.-funded U.S. university technical assistance projects, the India project consisted of four major components: (1) provision of "advisors" to live and work in India; (2) training in the United States of selected Indians to fill specifically designated positions in India upon their return; (3) purchase of library materials and laboratory equipment in the United States to meet teaching, research and other needs of the Indian institution; (4) coordination and technical backstopping on the U.S. home campus of all aspects of the project. Finally, there is an "overhead" cost, the pro-rata share of on-campus costs for physical plant, administration, etc. These components are commonly referred to as (1) the technicians or advisors, (2) participant training, (3) commodity purchase and, (4) other costs, including campus coordination and overhead, respectively.

For the sixteen-year program as a whole the relative dollar expenditures for these functions were as follows:

1. Technical Advisors 46.2%

2. Participant Training 21.1%

3. Books and Equipment (Commodities)* 12.0%

4. Travel** 5.5%

5. Other Direct Cost, including campus backstopping and coordination ... 1.4%

6. Overhead 3.3%

*Includes only materials supplied to Indian institutions; a small amount of equipment and vehicles was supplied for the advisors' professional use and included here as part of the technical advisors' cost. Ordinarily, ownership rights to these properties were transferred to the Indian institution at the termination of the project.

**Does not include international travel by participants, which was funded by the Government of India.

The group leader was, much like a dean or department head in a U.S. university, charged with a combination of leadership and administrative functions, included here as part of the technical advisors' cost.

Roughly one-half of the dollar costs of the U.S./University Agricultural Program in India was to finance two teams of advisors -- commonly but erroneously called "technicians" -- sent from the U.S. universities to India. Certainly the quality of this group of people -- both in their technical/scientific capacity and as communicators of that capacity -- was the key factor in the success of the program.

Principles of Good On-Campus Project Management

In his choice of U.S. universities, Dr. Parker was guided primarily by his sense of the degree of interest, seriousness of purpose and depth of commitment by the relevant executives of the university and, as best he could judge, by the faculty which might become significantly involved, especially as members of the Indian field teams. He correctly understood that although the overall size, reputation and scientific capacity of the U.S. university had bearing on its potential for fielding competent long-term teams for field service, what mattered, in the final analysis, was the quality of the people who actually took the field assignments. This was very much conditioned by the degree of interest of the top executives. In those days of relatively strong executive functions in U.S. universities, attitudes of their presidents, vice presidents, agricultural deans, and experiment-station, and extension service directors were powerful suasions -- positive or negative -- on faculty members making the decision to accept the higher challenges and greater risks of taking the steeper trail rather than to hold on to their comfortable, protected, on-campus positions, work routines and ways of life.

On-campus backstopping and support is extremely important; but its limits are set by the capability of the overseas team. Attempts at management (as distinct from backstopping and supporting) of an overseas program from a home campus are destined to failure. There can be no substitute for a high quality field team and, almost especially, field team leader.[20]

Wise on-campus management of a field project consists, essentially, of:

1. Selecting an outstanding person, in whom the university has total faith to serve as field team leader;

2. Turning responsibility of the program over as fully as possible to the team leader;

3. Backing the team leader to the fullest, especially in recruiting for him from the university strong team members to serve overseas;

4. Supporting the team strongly in relationship to stresses and strains from other elements of the university;

5. Supporting the team strongly in relationship with A.I.D. -- in the field and in Washington;

6. Removing the team leader promptly after discussion with top mission officials (especially the Mission Director) and the university field team, once the university has concluded that faith has been lost in the leader's competence, integrity or dedication to the project

by any of the following: the university administration, the A.I.D.[21] Mission, or relevant host country officialdom.

The field team is a tiny knot of energy at the end of a very long chain of communications and administrative command. Exceptionally good leaders usually derive energy that commands respect and produces results out of the very process of synthesizing the crisscross of political and administrative forces playing upon them. But if, at high levels, any of the major parties to the venture loses confidence, it is best for the university to check its losses and withdraw the team leader if he is at fault, or cancel the project if either the A.I.D. mission or host government is at fault. Otherwise, give the field leadership the responsibility, because at no other level can operational decisions be made competently. All U.S. university actions of consequence must be by mutual agreement of host government and/or host institution, the A.I.D. field mission and the U.S. university. Only within country can these elements converge in a decision nexus.

Dr. Parker was correct in assessing the importance of the interest level of the top university executives. The University of Tennessee's experience was a case in point.

President C.E. Brehm had a very straightforward attitude toward the proposed project. He had just returned from India, over which he had traveled quite widely by railroad. He was sympathetic with the country's needs and aspirations, but dubious as to whether the University of Tennessee, small, though aspiring as it was, could make much of an impact. "One thing is certain," he said during a meeting with administrators and key faculty where the study team presented the results of its Indian study tour to him. "There is no use our getting involved unless we can do some real good". The writer had mentioned that the project would call for our very best people. With that, President Brehm indicated, he most strongly agreed. "So," he said, "if we undertake the project we'll have to send the best people we have. And, I don't want to hear any department head or dean saying they can't spare Dr. So and So. If that is to be our approach, say so now and we'll turn the idea down." He went on to discuss briefly that this undertaking would be of concern to groups throughout the states -- commodity interest groups, the Farm Bureau, the State Legislature, the Governor. They had all backed the university in its effort to get more money, and more staff, to deal with the state's burgeoning agricultural problems of the post-war period. But, he assured us that rural Tennesseans would feel good about their university helping poor farm people overseas -- as it had helped Tennessee farmers deal with and work their way out of the terrible depression of the 1930s. "I'll deal with these people," he told us, "that's the job of a university president. But you have to assure me that our really good people are willing to go to India and take on the job. And," -- looking at the deans and directors -- "that you will support their going. The India program will need real experts --but with more experience than just teaching or research; people who can shape up programs and take on real problems. This will require a combination of technical competence and administrative experience. The key people will be the department heads." He knew that this last would be the real test, as the College of Agriculture had expended much effort and expense over the last half-dozen years to recruit a cadre of what it thought to be outstanding persons as department heads - - to serve as the professional nucleus and central building blocks of a college-wide faculty-building program.

When the first team was shaped up, it reflected the President's attitude. It consisted of the following:

1. The Head of the Department of Agricultural Economics and Rural Sociology. Group Leader -- stationed at Bangalore.

2. The Head of the Department of Agricultural Engineering -- stationed at Coimbatore.

3. The Dean of Agriculture at the University of Tennessee at Murphreesboro (and outstanding dairy technology scientist) -- stationed at Madras.

4. Dean of the College of Agriculture , an extension expert -- stationed at Bangalore.

5. Professor of Agricultural Economics - - stationed at Bangalore.

6. Vice Dean of Resident Instruction, University of Kentucky -- stationed at Trivandrum, Kerala State.

7. Associate Director of Vocational Agriculture, State of Wisconsin -- stationed at Coimbatore.

The last two listed were recruited off-campus.[22]

These team members were in India an average of about four years each. Successive team members included similarly qualified persons. The Head of the Department of Agronomy and Soils, for example, was on his way for a five-plus year tour while the group leader was en route home from his nearly five-year assignment.

Another very important circumstance was that the Vice Dean for Resident Instruction, Dr. N.D. Peacock, who with the writer had comprised the 1954 study team, was designated Campus Coordinator and given the full-time services of a senior faculty member to assist him. This was a remarkably good arrangement. Peacock worked at the India Program assiduously. As presider over the college "curriculum committee," comprised of all the department heads, he met every week with all of the college department heads. India program business was at all times a major agenda item for this committee -- giving an excellent facility for recruitment of team members, working out study programs for individual participants including arranging for their study at another institution, designing special course offerings for participants, reviewing library book and laboratory equipment requests submitted by Indian institutions for appropriateness and economy - - in short, continuously to backstop the India team in every way!

Under a remarkably foresighted arrangement, the India A.I.D. mission each year arranged and funded an executive visit to India for two persons from each U.S. university to visit New Delhi and the host institutions and state governments of their respective regions. From Tennessee, most years, Dr. Peacock was one of those visitors; the others were from the university administration, the Board of Trustees, or prominent state agricultural leaders. Through this arrangement, Dr. Peacock was kept in close range contact with the program's activities, difficulties, needs and accomplishments. The visitation of the other dignitaries gave great impetus to university, and, indeed, state support at the highest levels. The same general requirements were made by the other universities in the program.

There can be no doubt that certain of the U.S. university's domestic responsibilities suffered in the short run. But the university was made much stronger in all its agricultural functions -- research, agricultural extension and resident instruction. As experiences of faculty were widened and deepened by overseas service on the project, the faculty understood much better the kind of world setting within

which the state's agriculture had to find its place and the university graduates would make their careers. Research gained resources of knowledge and material as it interlaced with worldwide networks, and Tennessee students had an opportunity to study under professional experts who had worked in far places on real problems of great import. The College of Agriculture -- and to a degree the university as a whole -- could make its educational program truly relevant to the students' needs, and avoid the common but unforgivable weakness of narrow provincialism. Agronomists and economists, chemists and sociologists (and on through the professions) knew that, in the end, their little fragment of expertise had to integrate with the others if it would contribute significantly to betterment of life here in the United States - - and that the parameters for improvement of human life in the United States are set by the conditions of life elsewhere.

The fact that the university understood this was well illustrated by a ceremony in Knoxville, Tennessee dedicated to the great Dean J.H. McLeod, whose last four years' service to the university had been as Extension Advisor in Bangalore, India. (His young Indian counterpart, and Tennessee participant trainee, Mr. Dwarkinath, became the third Vice Chancellor of the Karnataka State University of Agricultural Sciences.)

On the day of the ceremony, a new Dairy Science Building on the Knoxville Campus was dedicated and christened "McLeod Hall." The Governor, the Mayor of the City, the University President, the past President, and the President Designate, the leader of the state legislature, the Governor of the State, the Chairman of the Board of Trustees and other dignitaries accompanied Dr. McLeod on the stage. Even the writer, by now resigned from the university and employed by A.I.D., and his wife were honored to be present on the stage. The significant point is that in this ceremony to honor the thirty-some years of great leadership that Dean McLeod had given the university-- and, in a deep sense, of the service the university had given the state -- more than one-third of the program time was devoted to the university's India Agricultural Assistance Project. Every faculty member present was proud of this university venture. And every alumnus and every parent of every alumnus was proud that he or his children had attended such a university. At least so it felt to all of us on stage as we discussed it later. Far from sacrificing its domestic responsibilities, by doing its very best with its slender resources for the India program, the university had tasted a bit of greatness. And it knew it.[23]

The Intensive Agricultural District Program

About the time the U.S. universities and the Indians with which they were in closest contact were thinking about the need to concentrate their resources in a few tasks, another challenge was confronting them. The Government of India continued to be concerned over the slow rate of progress in agricultural production. It had over a period of years repeatedly raised the proportion of the community development effort that was supposed to be directed at food production. Nevertheless, the crop yields and total production increases continued to lag behind the earlier planned goals. Accordingly, government officials discussed with Dr. Douglas Ensminger, the Ford Foundation's representative to India, the possibility of getting some assistance on this problem. Dr. Ensminger discussed it with Dr. Parker and the leaders of the U.S. university teams. A decision was made to bring a study team of American agricultural experts, under Ford Foundation's sponsorship, to take an entirely new look at the food production problem. It was not envisioned by Ford Foundation, the Indians or anyone else that this would result in a reduced effort by the U.S. universities in helping

India build a stronger institutional base. The new effort was to focus on the immediate food production problem, to attempt to speed that up in the short range.

A team of experts under the leadership of Dr. Sherman Johnson, Senior Agricultural Economist at the U.S. Department of Agriculture, visited India, met with Indian officials and held extensive visits with A.I.D. personnel and with the U.S. university contract teams. Their report, which was at some variance with the ideas of the U.S. university leaders, recommended setting up a new program, known as the "Intensive Agricultural District Program."

The essential nature of that recommendation was to concentrate production efforts in some 16 Districts (which turned out to be about 16 percent of the total area of the country) so selected that they would have exceptionally favorable possibilities for rapid increase in agricultural production. One district per state would be selected with the participation of appropriate state governmental officials.

These districts would be made the object of very great intensification of agricultural extension and related efforts. The number of extension personnel in each district would be sharply increased, as would the number of backstop officers from state headquarters, to help them with technical problems. A backup team of U.S. experts, located in New Delhi, would work country wide. The best available farming knowledge would be passed through that system to the farmers in these districts. It was recognized from the beginning that this would represent some kind of a robbing of the poor Peters to enrich the richer Pauls, in that technical advisory manpower resources, credit to farmers, and production inputs such as insecticides and fertilizers would all be much more concentrated in those "Intensive Agricultural Districts" than in the rest of the country.

The idea held strongly by the Ford Foundation team, particularly by its revered leader Dr. Johnson, was that these better farming areas would be so much more responsive than the more average farming areas to the new technical knowledge, governmental attention and production inputs that they would experience a very rapid acceleration in food production. This rapid acceleration would serve two purposes: first, it would provide a great deal more food in and of itself, as 16 percent of the country is a very substantial area; second, these Intensive Agricultural Districts would serve as examples of the kind of intensification of effort needed in the country's other districts and would thereby serve to stimulate the expansion of better organization and intensified effort throughout the country. Dr. Johnson's assumption and hopes were that India would move incrementally from these best areas on to the second best, then the third best, and on until the entire country was caught up in the program. By this staging process, as he put it, "development would stand a good chance of taking hold."

The writer and some of the other U.S. university representatives in the country were somewhat disturbed by this approach on two grounds: first, they did not quite like the idea of concentrating all of the amenities of governmental support that heavily in the areas specifically selected as already being the best off (This bothered Dr. Johnson too, as he was extremely concerned with income distribution and other equity problems.); the more serious objection by the U.S. university officials however, was that the new program would disrupt the important efforts under way to improve the organization of the agricultural services of the individual states. The U.S. universities had attempted to pull together the agricultural and the veterinary sciences research and educational resources into single state agricultural universities, and had attempted to integrate as completely as possible the research, extension and teaching functions as best could be done by their advice and counsel to the states. Above all they were concerned that closer linkage be established between the research and extension

functions at the state level. The selection of specific districts into which the extension resources would be heavily channeled would break up the various symmetries required to move the entire state level organizational programs forward. Nonetheless, on principle, the A.I.D. Mission in New Delhi supported strongly the Ford Foundation effort and especially the additional finances it would bring, and the U.S. universities joined in the effort. Dr. Ensminger was totally in sympathy with the university building effort and lent all his weight to trying to see that the Ford Foundation inspired Intensive Agricultural District Program did not weaken but, indeed, strengthen the university building program under way. However, two very different approaches were involved and synthesis of the two into a well organized state level institution-building strategy was difficult at best -- at least in the short or intermediate term.

A kind of compromise was worked out due to the fact that the U.S. universities participated actively in advising the states to which they were accredited on the selection of the Intensive Districts and, especially, in relating the Intensive District projects at the state level as closely as possible to the local agricultural college activity in those states which had such colleges. However, there was only a partial fit and, hence, a limited solution to the inherent problem.

In addition, and more importantly, the five U.S. universities working in India at the time were asked to provide technical expertise to backstop these Intensive District projects at the state levels. So a second set of contracts was developed for the purpose of sending U.S. experts to India to help implement the Intensive Agricultural District Program. So now, each of the U.S. universities, in addition to its ongoing project of assisting development of the research and educational facilities of its region (or later, state), had a contract to supply expertise for the Intensive District Program.

As this program unfolded, an unfortunate decision was made by the new A.I.D. leadership in New Delhi to try to separate these two programs as much as possible. Understandably, the U.S. universities tried to keep them as integrated as possible. But the mission, for its reasons, wanted to keep them separated. This unfortunate decision probably was the principal reason that the Intensive Agricultural District Program was finally judged, by the administrators of the program itself, to have been essentially a failure.[24]

The Karnataka State University of Agricultural Sciences in India: A Case Illustration

> —I had a feeling that one could claim with candor and frankness, that but for the U.S.A.I.D.-Tennessee assistance program, the progress of Indian agriculture including that of agriculture in Mysore State, would have been trivial, with our agriculture continuing to be stagnant and the progress halting and uncertain.[25]

The narrowing down of the U.S. university agricultural effort from the broader, regional approach (of working with the various governmental departments, colleges, research center and special institutions) to that of helping a few states establish special agricultural universities, was a gradual, and non-uniform process. By the time this had been acknowledged as the new policy by the Government of India and A.I.D., and formalized by new A.I.D./U.S. university contracts, many, if not most, of the states had taken significant steps in the direction of reorganizing their research and educational facilities to incorporate principles inherent in the U.S. Land Grant University concept. State by state, these steps paved the way for establishing an agricultural university later, when the needed formal action was taken by state and central government.

For example, one of the first states to take some significant actions was Madras (now Tamil Nadu). It possessed the two colleges of longest standing repute in south India: The College of Veterinary Science and Animal Husbandry in Madras City and the College of Agriculture in Coimbatore. Most of the faculty and ranking governn-nt technical experts in agricultural or animal science for the four southern states of India - - and many for the central government - - were graduates of one or the other of these two institutions. But they were over 200 miles apart. And neither offered a total agricultural teaching curriculum (or research effort) in both the plant and animal sides of agriculture. The state pondered this dilemma while it was waiting to decide upon a fuller solution (whether to establish a new, full blown agricultural university and if so, where, and how to use existing facilities at the two locations?). It set up a special study team to point out nearer-term steps. Principally, the resulting actions involved concentrating on veterinary medicine at the renowned Madras Veterinary College, and expanding the minimal beginnings of animal husbandry work at the equally prestigious College of Agriculture at Coimbatore.

Among other early steps were:

- Strengthening facilities of the relatively new, private Home Science College (Shri Avanashalingam College of Home Science) in Coimbatore and working out various integrative measures between it and the Agricultural College nearby;
- Sharply reducing the number of branch agricultural experiment stations scattered throughout the state, and organizing them for research for state-wide application and use, under direction of the Coimbatore center;
- Establishing much closer ties between state agricultural extension programs and agricultural research programs;
- Training state agricultural extension workers at the Agriculture College at Coimbatore;

- Refocusing research on farmers' problems, publishing in forms useful by extension workers;

- Restructuring curricula and teaching methods toward greater direct relevance and applicability to the state's agriculture.

Tamil Nadu (previously Madras) was well on its way toward having a highly competent agricultural research and education system even in the absence of the establishment of a new agricultural university. In fact, the termination of assistance, after 1960, to the two great colleges of Tamil Nadu State in order to achieve concentration of the University of Tennessee assistance in Karnataka State undoubtedly had the unfortunate effect of reducing the rate of growth of what was by far the strongest base of agricultural sciences in south India, viz the College of Agriculture at Coimbatore.

Dr. K.N. Naik, later to become the first Vice Chancellor of the Karnataka State University of Agricultural Sciences in Bangalore, was the Principal of the Coimbatore Agricultural College when the University of Tennessee first worked there (and when the writer first met him).[26] The idea of sending him to visit agricultural universities in the United States under a University of Tennessee participantship was discussed -- but found unattractive as such a tour for high-level officials was not in high favor with the Government of India, for rather obvious and good reasons.

So the writer decided to appeal to the Rockefeller Foundation for help. Dr. Ralph Cummings had just arrived in India. He and the writer drafted a cable to Cumming's superior, Dr. A.E. Moseman, Director of the Rockefeller Foundation International Agricultural Program. It was further agreed that Mr. P.P.I. Vaidyanathan, the Madras (Tamil Nadu) State Secretary to Government for Agriculture (a powerful administrative post) should go also, to assure needed state governmental support for the university-building work Dr. Naik would undertake upon his return.

Three weeks later, Dr. Naik and Mr. Vaidyanathan were at Iowa State University, hosted by Dean Buchanan, member of the first Indo-American team. Their U.S. visitations were planned and managed by Dr. Peacock, campus coordinator of the Tennessee project. After close examination of the structure and integrated programs of research, teaching and extension in Tennessee, they visited some other agricultural colleges and the U.S. Department of Agriculture. (With private funds, they visited also mainland China and the Philippines on their way home.)

This visitation, planned by the University of Tennessee and funded by the Rockefeller Foundation, undoubtedly ranks high among the most efficient uses of funds ever spent on behalf of the world's struggle against hunger and our struggle for lasting peace. These two men have been enormously productive of development of Agriculture, and the economy generally, of India -- that "largest of all democracies." And they have been steadfast in supporting amicability and accommodation between our great nations, as each rose to higher positions of national responsibility: the one in education and the other in governmental administration. This experience serves as an example par excellence of cooperation between the U.S. government and private foundations in international diplomacy.

While in Madras and Coimbatore, officials of Tamil Nadu State were working in the studied and careful fashion characteristic of that state government; officials of the state of Karnataka in Bangalore were moving in a much looser, more unstructured, sometimes almost carefree way, toward

developing an agricultural university.[27] The Director of Agriculture, Mr. Malloraj Urs, the self-appointed personal host of the writer and his family, was passionately determined to see the establishment of an agricultural university near Bangalore. He supported this not only in words but by transferring to university jurisdiction his best and most cherished departmental research programs --especially the soils research laboratories adjacent to his office. All the personnel and program budgets were transferred, long before an agricultural university was formally established, to the College of Agriculture. The soils laboratories were gutted and equipment moved to the college. All this time, Malloraj Urs had kept the writer busy developing schemes to make the college autonomous from his own department, elevate its staff, expand its budget -- and in some way collaborate with the new Veterinary and Animal Sciences College being built next door. (In the latter he was vigorously opposed by the then Director of Animal and Veterinary Sciences who wished to have no part of a comparable diminishment of his control over his department.)

About two years before going to India, the writer had provided Mr. Malloraj Urs with office space, in his suite at the University of Tennessee, for six weeks while Mr. Urs was in Knoxville on a "community development" participant training tour in the United States. On that tour, spending most of his time out in the counties, Urs had seen what colleges of agriculture were doing for United States agricultural development - - and had developed a vision, and a sense of mission, to see the same thing done in his home state in India. Certainly, at that time neither he nor the writer ever entertained even the remote possibility that their roles as host and guest would ever be reversed, nor that the accidents of chance would place in their hands the opportunity to accomplish this very objective.

The University

During 1959 conclusions were being reached in Karnataka (then Mysore) State as to whether it would or would not establish a new university to support agricultural and related development. The Director of Agriculture (Mr. Malloraj Urs) and the writer, then Group Leader of the University of Tennessee team, had innumerable discussions on the subject. The possibility of substantial support from the central government of India was a major factor -- if, in the competition, the state should be selected. But, wisely, state officials did not wish to undertake such a venture unless it felt sure that the state would continue to finance the university even if it were not selected for central government support or if such support should be withdrawn.[28] The reasons were two-fold.

1. The state had, historically, always had a large degree of political independence in colonial India, and after Indian independence had retained a strong "states' rights" orientation (to use an American phrase). It wanted to retain primary responsibility for agricultural development matters, as was provided -- but not, it was felt, necessarily assured -- by the Indian constitution.

2. The state had just recently more than doubled in size by adding to the old -- "erstwhile" -- Mysore State, the predominately Kanarese speaking areas to the North, annexed from portions of three other states. Therefore, although the new state boundaries encompassed an area relatively homogeneous in language, it was an area of immense historical, political and administrative diversity. Politically, it was roughly balanced between south (old) Mysore state and north Mysore state. Whereas the southern portion had historically been much more independent and tightly integrated, most of the pieces of several states which constituted the northern portion had, historically, each been more

closely incorporated into the British Raj - and subsequently, by derivation, into the Indian central government apparatus. Elections results seemed to be on a course of alternating power between the southern and northern parts of the state. Small wonder that the state government wished to be careful to keep the development of agriculture - - the state's largest industry -- well in hand.

Further, the agricultural education resources were geographically divided. The old Mysore State College of Agriculture had its campus at Hebbal, a small suburb of Bangalore. It was an affiliated College of the University of Mysore, ninety miles to the southwest, in Mysore City, the historical capital city of the state. North Mysore was served by an agricultural college, of substantially greater resources of land and physical plant, in the city of Dharwar. It was an affiliate college of the nearby Karnatak University. Daily administration of teaching, research and such extension services as they provided were, for both colleges, the responsibility of a "principal" who reported to the Director of Agriculture, whose headquarters were in Bangalore. Staffing decisions were made by the Director of Agriculture, not by the college principal.

The college of Veterinary Medicine and Animal Science was new and located next door to the agricultural college near Bangalore. Neither of these colleges had any programs in home sciences; but there was a small Home Sciences college in Bangalore. Agricultural extension field work was administered from Bangalore. Much interest had been generated in fisheries and aquaculture - - which for obvious reasons could best be carried on at some sea coast location, presumably at Mangalore on the Malabar Coast, where there already was a small beginning.

Clearly, the first question was: should the state start afresh with a new university? Or should it build upon existing capabilities and, through organizational means, weave them into a functionally competent structure? Or would some kind of combination of these two approaches best serve the state?

Discussions with numerous officials in the Department of Agriculture, and with the Ministries of Agriculture and the Secretary of Government for Agriculture[20] led the writer strongly to believe that the third approach was necessary. It was clear that reorganization alone would not suffice. A single, authoritative line of responsibility had to be established by creating a new university. But this new university would itself be in grave danger of becoming nothing other than one more isolated, resource draining facility, out of touch with farmers and the sinews of developmentary action unless it, from the beginning, incorporated sufficiently encompassing resources and responsibilities. With few exceptions, government officials agreed. So at their request, the writer prepared a recommended organizational plan for the new university.

The first -- and strange as it may seem, one of the most important -- questions was that of the right name for the university.

At that time, the popular phrase was "Rural University." This name, in the writer's view however, had much too strongly the connotation of the Danish "Folk College" or vocational college, and the philosophic undergirding of the clearly failing "Community Development" program, to suit the purpose. The obvious choice would be, simply, "Agricultural University."

However, this name too, had its drawbacks. Agriculture was looked upon as a lowly profession. Agricultural colleges (as had been broadly imprinted into the literature of the time) were something of a professional school of last resort, a place for families to send students who, for reasons of scholarship,

finances or social standing, could not get into the training schools for the prestigious professions such as medicine and law. It seemed important to avoid handicapping the new university with this perception of its function.

Most important, what was clearly needed was a new approach to agricultural development; one which was built squarely on science, on the virtually unlimited potentialities of science to solve problems and create development when properly harnessed to the task.

So, to the writer, the proper name would be "University of Agricultural Sciences."

To this, however, should be added something regarding the clientele it served and which would, necessarily, be required to support it. So, the writer's recommendation was, The Mysore State University of Agricultural Sciences.

It would, as with U.S. universities, be governed by a Board of Trustees. However, as the writer believed (correctly as it turned out) that the bulk of funding would come from state government funds, he recommended that Ministers, Secretaries to Government for Agriculture, and the Directors of Agriculture, of Animal Husbandry, and of Public Education be ex officio members of the Board - - "The remaining five members shall be elected by the legislature from the public, one from each of the four divisions of the state and one from the public at large." These latter "should not be governmental employees nor persons with strong political affiliations and shall be appointed by the Governor (there a non-political appointee) and serve for five years".[30]

The Chief Executive Officer, in keeping with Indian usage, would be a Vice Chancellor. (The Chancellor is normally the Governor of the State.)

To assure proper integration of functions, the next administrative levels would be along functional lines:

- A Dean of Instruction
- A Dean of Research
- A Dean of Extension

To assure a proper scientific premise and orientation, the university would be organized into nine divisions, each of which would be under a head, who would be responsible in his subject field for resident teaching, research, and extension, and who would report to the Vice Chancellor, through the three functional deans. The existing "colleges" with their traditional restricted roles, would then disappear. This structure was designed to assure that integration of the three functions would be achieved not only at the overall level by the Vice Chancellor but at the all-important subject matter level by the division heads.[31]

The nine divisions then recommended were:[32]

1. Division of Basic Sciences
2. Division of Plant Sciences
3. Division of Soil Sciences
4. Division of Animal Sciences
5. Division of Veterinary Sciences
6. Division of Engineering Sciences
7. Division of Social Sciences[33]
8. Division of Home Sciences
9. Division of Educational Sciences.[34]

Instruction in the needed combinations of subject matter (previously taught in different colleges), was provided for by curricular design. All students would take the same courses the first year, and these would include some courses in both the crop and animal sides of agriculture. Some course selectivity was permitted the second year, and the third and fourth years would permit increasing specialization to fit individual student's major interests. Students were not permitted to major in basic sciences, to assure focus on application of science to agricultural and rural development, and to prevent the university from becoming just one more liberal arts institution of higher learning.

Similar provision was made for subject matter integration in research and extension. (Crop scientists, animal scientists, and agricultural economists, for example, were expected to develop and carry out combined projects, which would be necessary for developing the most efficient methods of dairy feeding, for example. Sadly, as in U.S. universities, such cross-discipline research is still infrequent.)

Finally, provision was made for incorporation of the Dharwar Agricultural College as a branch university campus of the University of Agricultural Sciences.

Action Gets Under Way

The State Minister of Agriculture was about to take an invitational trip to the Soviet Union to examine that country's agriculture. Aware of U.S. sensitivities, he spoke to the writer about his sincere hope that his forthcoming trip would not be misinterpreted by Americans as indicating any diminution of his appreciation of U.S. support to his state. He mentioned that he might seek permission of his government to revisit the U.S. to allay any such fears - - but that such permission might not be easy to obtain. The writer seized the opportunity to remind him of the many discussions - -- but as yet no explicit action - - regarding establishment of an agricultural university. No step the Minister could take would be a better acknowledgement of his appreciation of U.S. assistance. Agreeing, the Minister arranged to have a special committee established for this purpose. Thence came the first instrument for such action: Recommendations for Establishment of a Rural University of Mysore State University, by the writer, dated 25 July, 1960. Its opening paragraph denotes the process, in its full bureaucratese:

"Government of Mysore has constituted a committee, as per Order A.F.62 AGE 60, dated 12th of July, 1960, to recommend regarding the establishment of a Rural University of Mysore State. The Chairman of that committee, the Secretary of Government for Agriculture and Forestry, has

requested the Group Leader of the University of Tennessee, to prepare a written statement as a bas for committee discussion." That "written statement"[35] recommended that the "state of Mysore ena such legislation as is necessary for the establishment of a Rural University of such character as sha be briefly outlined hereunder." The fact that this statement was prepared and submitted only 13 da after the Government Order was issued reflects, of course, the degree of consensus reached by th extensive earlier discussions.

Shortly after this statement was submitted, the committee having duly approved it witho modification, the Secretary of Agriculture assigned an undersecretary to work with the writer to bui a budget around the listed units, and to elaborate a schedule for implementing actions required. Th schedule would be a set of funding actions, a set of staffing actions, and most difficult of all in mar ways, a set of administrative actions to incorporate into the university some of the programs, facilitie staffs and budgets from the several departments, colleges and other institutions. This was then us as a basis for requesting central government financial approval and support in accordance with th guidelines which had been issued.

The proposal was quickly approved by Cabinet and prepared for legislative actions. Howeve two events intervened. The state government changed by election. The same party remained i power, but several relevant cabinet members changed. This had few important long ter implications, but it did break the momentum toward legislation. Also, somewhat abruptly ar unexpectedly, the writer, who was then the Tennessee Group Leader, left his post to join A.I.D. Th minor event created several discontinuities in the governmental action processes under way as the had been based on his broad personal contacts throughout the structure of state government. Als quite naturally, the state government did await with substantial interest the approval and th funding actions by the central government. This was effected through a review of the sta government proposal by a central government committee chaired, interestingly, by Dr. Ralp Cummings of the Rockefeller Foundation. This committee made some recommendations, some for th better, some perhaps not so,[36] and approved it largely in its original form.

Through a long subsequent history of highly competent administration, experience and politi have worked their inevitable but not necessarily unified way into making many adjustments and few major changes.[37] One of the more desirable changes has been the establishment of a stron Fisheries and Aquacultural College on the west coast. Another, reflecting irresistible political force is the re-separation of the Dharwar facility by the recent establishment there of a separate Sta Agricultural University. This may have an advantage of keeping the research and teaching program a little closer to the farm people of that important part of the state's agriculture. It will certainly brin forth a higher level of local support from that area. But it will, almost inevitably, fan the already ove hot flames of political separation, spread state resources too thinly, and militate against the neede well organized, state-wide attacks on major agricultural problems.

Such considerations and problems, frustrations, and compromise are the tasks of an America university attempting to assist another country comprised. But, through its many modification deliberate and unintended, the University of Agricultural Sciences has remained true and constant the earliest precepts of its long gestation -- a sharp, hard focus on the problems of farmers, a firm reliance upon scientific research as basis for its teachings to both its enrolled students and its farme clients, and coordination of all the interrelated dimensions of agriculture, crop and animal productio

economic and social well being and development and, especially, close interaction among the functions of research, college teaching and educational services to farmers.

The university has had the great advantage of an important early role in carrying out an enormously successful state-wide campaign of increasing production of "ragi", a small millet which was the principal food grain of the poorer segments of the southern Karnataka people. This program, which preceded the equally successful but much larger later campaigns with wheat in north India, and rice in central and southern India, established the University of Agricultural Sciences as a central force for better in the eyes of the farm community it serves. That the university should have undergone change from its original design over the quarter century is not strange. It is the nature of the Land Grant type of university, represented by the Karnataka University of Agricultural Sciences, that it can retain relative stability only by constant adjustments of its programs and resources to meet the needs of the society or section of society it serves.[38] It does this by keeping one eye constantly on the enduring principles around which the university was built, and the other on the ever changing requirements of the society it serves - - and both on the continuously expanding powers of emerging new scientific knowledge to solve the problems of that society. Rigidity and unimaginativeness, fragmentation and disorganization are the constant enemies of effective institutional structure; no amount of money or good will can mitigate their deadly impact.

The Indian Agricultural Universities' Accomplishments: In Brief

The story of the Indian agricultural universities is, of course, still unfolding. Where they stand today, in their service to the development of this most populous of all democracies, is just a marker in the flow of time, the accumulated consequences of the natural spurts and haltings along the way. The issues of greatest importance are those which will determine their role over the decades ahead. But by any standard, their growth, their contribution, and especially their potential are remarkable.

The nearly forty years of collaboration of the U.S. foreign aid program, the U.S. universities and the central and state governments of India have marked what has been well described as the "creation of one of the largest systems of agricultural universities in the world. Although many of the state agricultural universities were created out of much older agricultural colleges, the rapidity with which these largely academic institutions were transformed into full-fledged service-oriented universities is virtually without parallel anywhere else in the world. This, without question, is one of India's greatest institutional achievements and a model for other developing nations to emulate."[39] At present there are some 26 state agricultural universities (some states have more than one). The development histories of nearly all of these have been substantially influenced by the U.S. university program in the early years, while these universities were working, on a regional division of labor principle, with all the Indian states. Eight of the Indian universities have been the subject of intense university-building assistance from the U.S. universities during the period 1960-1972. More than 1,000 Indians, the majority of whom are now on the faculty or serve as administrators of these universities, have received training to MSc. or Ph.D. levels under the U.S. university assistance program. Nearly 350 U.S. faculty members have undertaken tours of duty ranging from a few months to five or more years, working on the shaping of these universities. It has been said that these Indian universities, together with the central government research establishment, "have established the second largest agricultural scientific establishment in the world which produces a significant and

growing share of the world agricultural scientific literature, particularly in areas related to tropical agriculture."[40]

Research and teaching faculty, and even more the graduates, both undergraduate and post graduates, of these Indian agricultural universities comprise a mighty force of human resources for the many private and public activities necessary for the continuation of agricultural productivity and income growth in the country.

More important, even, than the huge expansion in numbers of these graduates is their new orientation and competence -- as their learning is acquired at the hands of men and women themselves well trained and actively involved in the many technical dimensions of technological overhaul of their state's agriculture.

But, inevitably, problems do exist. The final story is never completed; its next chapters will be determined by how well these problems will be solved. A short list would include:

1. Will the several states be able to resist the inevitable political pressure to proliferate, to create more and more institutions, each less and less well-funded and unintegrated with each other?

2. Will they be able to bring the functions of research, extension and teaching into closer interaction -- or will the lines separating these functions harden and their dysfunctional separation be reinforced?

3. Will interdisciplinary, problem-solving, teamwork research approaches expand, or will research be characterized by individualized research activities, driven by the "publish or perish" syndrome which breaks the results of research into outputs too tiny and unrelated with each other to be very useful to farmers in problem-solving or to be useful in nation-building? (Any examination of recent trends in U.S. university research is unreassuring on this point.)

4. Will effective two-way channels of action and hence communication be maintained between the universities and the societies they serve -- without which the research becomes unused (useless) and public support atrophies?

5. Will the universities be able to adjust their activities and rearrange staffing structures in all three functions to embrace effectively new problems as they arise, problems different in kind as well as degree from those which gave rise to the universities' creation? Their contribution to solution of the great problems of hunger and low agricultural productivity has helped transform India into a new great nation with unlimited future potentials. These problems will continue to be important. But new problems of equally grave import will most certainly arise. Will Indian agricultural universities competently identify them, help find their solutions, train the people needed to solve them?

6. Will the universities be given the support, financial and otherwise, to weave their endeavors into worldwide efforts of scientific creativity which will create a better physical environment, and a better human, social and political environment, for international accord and progress?

In short, will the universities continue, on an ever more creative path, to pursue the broad principles, purpose, and philosophy, which have carried them so far already? If so, they are indeed "worthy of emulation."

There continues to be an important role for U.S. universities in this -- as much for what it will do to strengthen U.S. institutions as for its usefulness to India. Starting in 1986 an effort was made to re-examine possibilities of reopening contacts. At the invitation of the Government of India, officials of the U.S. universities which had engaged in the Indian program visited India. Indian university officials visited the United States. Various ideas were discussed and the nucleus of a program idea initiated, which would have called for a very modest U.S. investment. What was sought, and what is needed, is not a re-initiation of the old institution building contracts but, capitalizing upon the long experience and mutual affection developed by this long experience, creation of a set of vehicles for continued interaction between U.S. and Indian professionals and scientists, to develop the basis for continued improvement of Indian and American scientific collaboration and to assist, in a two-way process of bringing fresh perspective, each to the other, on how best to carry on their agricultural education, research, and extension functions. It is to be hoped that both countries will have the will and the wisdom to bring this into being. Enormous stakes for mankind, and for the survival of free institutions everywhere, are involved.

This narrative has been heavily weighted toward the early, formative years. Much has been written, and it is to be hoped more will be written, descriptive of the details of later experience. This narrative, totally without apology, has dealt essentially with the process: with the formulation of concepts, the trials and travail of adapting while yet preserving, a core of basic principles learned through the long and hard experiences of two great nations. For it is probably from this that we have most to learn for later application elsewhere! As we in the United States work our way into the third century of our own formation as an independent nation, we have come to appreciate (and to examine) ever more the basic concepts, precepts, even prejudices and ignorance, of our "founding fathers": the documents they wrote, instruments they devised, the examples they set. These, in spite of their obvious transitory anchors in time, continue to shape and provide the basis for adaptation and growth of all our institutions. So, too, in their more limited but yet very important dimensions, for the founding of the institutions to serve the agricultural sector of the economy and the rural sector of the society of our sister democracy, India.

India has more than tripled food production, and more than doubled life expectancies, since the writer and his family went there to live in 1956. One depends upon the other. Greatly improved nutrition is, undoubtedly, one of the major factors contributing to increased life expectancy. And the great reduction of malaria and other causes of mortality and morbidity undoubtedly has helped increase food production. But the food production growth curve appears to be flattening out. And malaria spreading mosquitos are developing resistance to the insecticides with resulting resurgence of malaria. These are not causes for alarm, but a restatement of the inexorable law of nature, that, if mankind doesn't keep working on improving things, they will get worse. Indians, with small but extremely important inputs from Americans forged many of the institutional instruments for continued agricultural progress. With proper leadership and support these instructions can continue to unlock the country's tremendous potentials for continuous growth. It is much in the American interest to help them do this, and we will learn much of value to us from them in the process.

Status of State Agricultural Universities in India Today

We have come near the end of a long narrative on the development of the agricultural universities system in India. This report will not attempt an assessment of where the situation stands today for four reasons:

- It is totally beyond the resources available to this report.
- It would mark only one point in time; to-morrow's situation will be different from today's, just as today's is different from those during the long period of development outlined here.
- It is the process of U.S. assistance to the Indian effort which this study addresses, as it is from this that we feel most can be learned which will be useful to future U.S. efforts to assist countries.
- Finally, a thorough effort was made by A.I.D. to assess the current situation, completed in December 1988.[41]

This evaluation study produced an 87-page report (plus appendices and bibliography) which represents the work of "five interdisciplinary review teams...recruited primarily from U.S. Land Grant universities and A.I.D., to visit 10 universities in India." Each team, consisting of five to six social and agricultural scientists, was able to visit two universities for about 10 days each. They give great credit, undoubtedly correctly, to strong participation by may Indian scientists, university administrators and government officials. The Indians' most systematic impact appears to have come largely through a two-day workshop led by three extremely distinguished Indian officials all directly involved in direction of agricultural research at the national level. No attempt will be made here at a summary of that report, except of a few items central to the discussion. These may be listed briefly:

1. These State Agricultural Universities (SAUs) are still state institutions. Of the ten studied, all but one receive more than one-half its funds from the state government. Only two receive as much as 30% from the central government.[42]

2. The universities have enormously increased their capability to meet national trained agricultural manpower needs -- especially at the postgraduate (what we could call "graduate") levels. In 1948, India had 17 agricultural colleges. However, only 160 graduate students could be accommodated; by 1986 this number had risen to 2,544 from the state agricultural university system. At the undergraduate level, admission capacity exists for some 8,760 in the state agricultural colleges in various areas of agricultural study, and an additional 3,980 in other agricultural colleges in the country.[43]

3. The steady outpouring of research from the state universities, coupled with that carried out directly by the central government and by the International Agricultural Research Centers has been a key and absolutely essential component of India's remarkable progress in food production. The closer integration of research with extension activities (though not yet perfect, much better than previously) has been another key component (as has the better availability of production inputs such as fertilizer).

4. Much remains to be done. Especially:

- Problems change with the flow of time; so must the research, instruction and extension responses to these problems.

- Great gaps still exist between productivity capabilities proved under close scientific supervision and those achieved under average farm conditions, indicating need and opportunity for additional improvement through research and extension work.

- Closer collaboration is needed among Indian universities, between universities and other agricultural research and development efforts outside the country, among the functions of research, education and extension and, almost especially, among the various academic disciplines.

- Great effort is needed to stem the trend toward proliferation of agricultural universities.

5. There continues to be a useful role for U.S. universities collaboration with Indian universities and scientists.

The Report is an excellent document and merits careful review both for its significance to India and what it may contribute for use elsewhere. As it points out, India has by now established one of the premier agricultural research and educational systems in the world. It did it relatively quickly, relatively inexpensively, and with potent consequences for its national agricultural development. The system needs to remain flexible, but focused on its national developmentary role. And it merits study and emulation.

Unfortunately, the Report has some defects of perception, which mar its usefulness for the latter purpose. Too divorced from the early history of the U.S. effort, some of its comments are a caricature rather than characterization of that process. Particularly unfortunate is the totally incorrect portrayal, on pages 24 and 25, of the false image that the United States, in emphasizing the need for a Land Grant type system in India, was engaged in inflicting "an elitist theory with an explicit social engineering bias [in which] changes occur from the top down, not from the bottom up, and ....guided by persons with a measure of official authority or sanction."[44]

I'm sure that all Americans working there at the time, and their Indian counterparts, would have laughed (if not made too furious to do so) at this caricature. In fact they spent most of their time trying to create institutional machinery to make governmental institutions more responsive to and useful to the needs of the rural peasantry and to reverse the historical lines of command which had been from government down to the people. "Bottom up" is a slogan, not an insight. In this instance, centuries of neglect from the top had created at "the bottom" a nearly "bottoms up" economic and social situation, with productivity, incomes and opportunities locked in at intolerably low levels. And so it would undoubtedly have remained if left to its own devices. The cake of custom settles hard on poor, uneducated rural masses. Fortunately, strong Indian agricultural leadership emerged at the time of national independence and quickly began looking for help and advice on how to break through this "cake of custom," and well they might! Exhortations and promises, especially through the community development program, had aroused interest and titillated expectations, but provided little of the means for economic improvement of the rural people. This required much more effective and powerful instruments of service to the rural people.

Americans found, as has been pointed out throughout this book, an almost totally disarrayed system of public services to agriculture and utilized, through major adaptations, the land grant college precepts to create a workable organizational nexus. Featured in this was the need to get effective two-way liaisons between research and extension, so that local farmers could have an influence on research, so that research would be for the purpose of solving their problems, rather than for publications in western scientific journals.

Liaison between extension, research and instruction was necessary also so that college instruction would relate to Indian development needs, to Indian farming conditions, and be from Indian research publications rather than from British or American textbooks. Agricultural and animal production are intertwined on Indian farms -- and research, extension and instruction must deal with the interrelations between them -- then possible with the institutional separation between "agriculture" and "animal husbandry."

On a further point, Americans were greatly concerned about the extremely lower status of state employees (including college employees) than that of comparable central government employees when brought together in all manner of developmentary activities. So, fortunately, were the highest officials in the country's political structures. By working with the state governments and state universities, the U.S. university contractors gave weight and dignity to state-level participants in national affairs -- which has contributed greatly to the slow but all-essential solidification of that great republic.[45] The Land Grant university concepts are precisely the doctrine of the non-elitist: the instrument of those who would help build institutions in developing countries which provide specific vehicles for effective expression by the rural peasantry and for expanding their economic, social and political independence and capabilities. It is to the great good fortune of India and of the world that its early leaders so well understood this, and chose to adapt and harness this great set of institutional concepts to its own -- highly successful as it turns out -- agricultural development.[46]

Attempts at Application of India Model in Latin America and Africa

Latin America

In early 1962, then Secretary of State, Dean Rusk, was very impressed by the apparent progress of the India Land Grant college building program and its potentialities for serving that great democracy. President Kennedy had made known his keen disappointment with agricultural progress within the Alliance for Progress in Latin America. At a meeting called by Presidential Assistant Richard Goodwin, with Alliance for Progress Coordinator, Teodoro Muscosso, and attended by several others from A.I.D. and the Department of State, it was freely admitted that, with only a few noteworthy exceptions, solid loan proposals with high promise of achieving agricultural sector growth were not coming in from the countries, hence few loans were being made for that purpose. At that meeting, the relative paucity of strong, scientifically rooted colleges of agriculture in the region was identified as a major cause of the shortages of good loan proposals. Shortage of professional manpower to make the proposals and, especially, to carry them out, was one dimension of the problem. The lack of a sound and promising technological and institutional base, vibrant with exciting potentialities for

developmentary exploration, was another dimension. This message was passed promptly and directly to the President.

Secretary Rusk, in late February 1962, made known to the press in a large feature article his view that a major effort should be made to engage the U.S. Land Grant universities in helping all Latin American countries develop Land Grant type colleges of agriculture, which would integrate college teaching, research and extension functions. He acknowledged that substantial beginnings on this were already under way; but he envisioned a vastly stepped up and well organized program.

Mr. Teodoro Muscosso, Coordinator of the Alliance for Progress and Assistant A.I.D. Administrator for Latin America, gave the writer a copy of Secretary Rusk's lengthy press statement and asked him to prepare a paper for executive level discussion, outlining a rationale, an approach and a strategy for the effort. An eighteen-page paper, dated March 1, 1962 and entitled "Reorganization of Assistance to Agricultural Development under the Alliance for Progress," was the result.

This paper was sent in telegram from the Rockefeller Foundation (of which Secretary Rusk had been President when tapped by President Kennedy to be Secretary of State) to each of some fifteen people who were to meet in a very few days with Secretary Rusk. It was agreed that the group should meet first with Secretary of Agriculture, Orville L. Freeman, who was known to have a keen interest in the idea.

The preliminary meeting was held in Secretary Freeman's office, attended by Secretary Freeman, Teodoro Muscosso, Deputy A.I.D. Administrator Frank Coffin, Dr. Elmer Ellis, President Emeritus of the University of Nebraska and President Elect of the National Association of State and Land Grant Colleges (NASULGC), Dr. Russell Thackery, Executive Director of NASULGC, Dr. Albert Moseman, Director of Agriculture of the Rockefeller Foundation (and previous Secretary of the joint Indo-American team), Dr. William Myers, Science Advisor to the Coordinator of the Alliance for Progress (an on-leave agricultural scientist from the Rockefeller Foundation), the writer, and several others from the Department of State and of Agriculture.

Consensus was complete, positive and enthusiastic. It was agreed that the paper outlined the desirable approach and strategy. It was further agreed that: a) early in implementation, discussion should be undertaken with the Organization of American States to develop a suitable role for that organization in the undertaking; and b) the individual American countries would, of course, be the major actors: first, in deciding whether they wished to participate and, second, in shaping their country programs. However, it was firmly agreed that the U.S. effort should be put forward as a total Latin American-wide, organized effort on a much larger scale than anything yet under way or under discussion, to be grant financed and made available to any Latin American country desiring to participate.

That afternoon the group, minus the writer whose cold had become too severe to permit it, met with Secretary Rusk to present the document and summation of the conclusions of the morning's meeting. The Secretary was very pleased with the progress toward implementing his idea and at the strong, affirmative response by the university representatives, the Rockefeller Foundation and the U.S. Department of Agriculture and A.I.D.

This paper, which Secretary Rusk had seen in telegram form, briefly outlined as justification of the major initiative the need for the sharply increased agricultural development in Latin American

countries in order to support the needed growth in their non-farm sectors - - especially their industrial development.

Rapid agricultural growth was needed:

- to provide food and fibre at real costs low enough to support industrial development,
- to expand farm incomes sufficiently to provide the mass markets for industrial production needed to permit economies of scale in non-farm industries, and
- to serve (especially in the more agricultural countries) as a major source of capital formation for non-form investment.

The essential nature of the proposed effort is quite succinctly stated in the first paragraph of the Proposal, as quoted below.

The Proposal

> It is proposed that under the Alliance for Progress arrangements be made with approximately twenty (20) Land Grant Universities and the United States Department of Agriculture, supplemented by arrangements with the Rockefeller Foundation, to provide massive technical support to agricultural development in Latin America. The universities and USDA would, on a scale not heretofore approximated, provide technical assistance in all aspects of agricultural development within the countries, provide training both within USA and in Latin America, for large numbers of Latin American agricultural technicians and leaders, develop institutions of both formal and informal education within Latin American countries to expand rapidly and in depth the competent manpower needed to improve agricultural production, participate in fundamental and especially applied research to deepen the technological resource base for agriculture, and assist the countries to organize and improve governmental and non-governmental institutions and programs for promoting economic and social development in the rural sectors. The program envisions a very different role for the universities than have past university contracts which have limited them primarily to assistance in developing colleges and research institutions. Under the proposal, their function will be, also, to provide technical assistance to the entire agricultural sector, in all phases needed for agricultural development and in which the American universities have technical competence.

The paper acknowledged that a fair beginning had been made in a few countries. It recognized that very large countries -- notably Brazil -- would require continued assistance from several U.S. universities, much in the manner of India (which was, in fact, carried out with some success, as we shall see later in the book). For other, very small countries, some kind of group effort, organized on a division of effort principle which nonetheless featured individual national participation, would be necessary. It recognized expanding potentialities for the Rockefeller Foundation, whose work at Chapingo, Mexico, on wheat and corn breeding was beginning to have international significance -- and was to evolve into the first International Research Center (CYMMT.) Participation by the Ford Foundation was also envisioned.

Agreement seemed total, and at very high levels throughout the U.S. Government -- and had the strong support of the U.S. Land-Grant Universities which could be relied upon to rally broad public support to the effort, if such support was needed.

The writer was told that he would be transferred back to the Latin American Bureau to guide the effort. (He knew he would have no choice in the matter, as President Kennedy had announced in person to all Washington-based A.I.D officials, the policy that the Latin American Program would take precedence over all others in A.I.D. in the assignment of personnel.)

However, in spite of all the top level policy agreement and enthusiasm, bureaucratic resistance worked its will and the planned program was, through obstructive inaction, smothered out of existence. A concerted and organized U.S. push at that time, when A.I.D. had abundant funds, and enthusiasm and good will for the Alliance for Progress, would have vastly exceeded the relatively modest impact of the country-by-country efforts which took place in its absence. Secretary Rusk might well have had another great foreign policy success (in this case much more of his own making than in the case of India) of which to be proud. Who knows? One thing is certain. An approach which featured the building of indigenous technological, human resource, and institutional capabilities throughout Latin America -- with agriculture leading the way -- would have been as feasible there as it had been in India earlier, and would have worked out much better than has the massive financial transfers -- made or encouraged by the U.S. government -- and the resulting debt servicing burdens which now beggar those countries and sour their political relations with the United States.

It is now probably too late seriously to consider the Indian experience as a model for adaptation and application to Latin America, except in some specific countries. But it certainly is not too late to apply its lessons with force and vigor to Africa. A start has been made toward this end, which we shall now examine briefly.

Africa

Two long-standing advisory bodies provide advice to the A.I.D. Administrator on matters related to agricultural research and education. The older of these is the Research Advisory Committee (RAC), which has reviewed A.I.D. research projects and policies and programs affecting research since 1962. This body has always been comprised of outstanding scientists in several fields from U.S. universities and the private sector. It gives its advice formally and often directly to the Administrator. Much of its concern has always been with the need for strengthening the research capabilities of the less developed countries -- especially in agriculture and health.

Most Administrators have taken the RAC's advice very seriously -- none more so than Mr. Peter McPherson. Therefore, when Administrator McPherson requested the RAC to examine the applicability to A.I.D.'s African program of the agricultural university-building experience in India, RAC responded with alacrity. Additional experts with personal experience with the India program, and with the current African situation, were co-opted to participate in the RAC examination of this question. A vigorous discussion resulted in general consensus:

- that a major, continent-wide strategy for development of such a Land-Grant type institution should be developed.

- that some building blocks were already in place but, inasmuch as major U.S. assistance to Africa was essentially of quite recent origins, most of the task was in the future.

- that the pattern could not be uniform, as countries varied vastly in size, history and likely interest.

- that special arrangement, probably involving lead institutions in certain larger countries, would have to be worked out to provide for needs of the very small-economy countries (this was deemed to be perhaps the toughest problem of all to resolve).

- that the Africa Bureau would undertake a major effort, backed up by assistance from the Bureau of Science and Technology, to develop a strategy for the effort. It was recognized that several other donor countries might be interested in contributing to the effort, and the strategy should embrace this possibility.

In general it was concluded that although Africa presented very different problems and characteristics than had India, the basic objectives of the American effort should be the same and the basic principles underlying the Land Grant universities concept would be equally relevant and applicable.

The other major advisory body relevant to this topic is the Board for International Food and Agricultural Development (BIFAD), created under Title XII in 1975.

By coincidence, and working primarily with the Africa Bureau leadership, this Board also undertook analysis of the Indian university experience to the current African A.I.D. assistance program. These two advisory processes were, coincidentally, carried out in rapid succession. The RAC meeting, in fact, served largely to confirm and to consolidate conclusions arrived at shortly before in the meetings between the BIFAD staff and the A.I.D. Africa Bureau and in a BIFAD meeting. Therefore, the Africa Bureau and the A.I.D. Administrator felt a firm confidence that it was on a correct track. Upon the extent to which the track is followed in the future will the future of agricultural and general economic development of that continent heavily depend.

END NOTES

[1] Testimony by Dr. John Nicholiades, Director of International Agriculture and Assistant Vice Chancellor for Research, University of Illinois, testifying on behalf of the National Association of State Universities and Land Grant Colleges, to the African Subcommittee of the U.S. Senate Foreign Relations Committee, March 12, 1987. The reference was to a banquet address by former Secretary of State Rusk given in Athens, Georgia, May 1, 1985, before the Association of U.S. University Directors of International Agricultural Programs. The former Secretary of State spoke extemporaneously from notes, and apparently, no manuscript of the exact test of the speech exists. Dr. Nicholiades' testimony derives from his notes of the meeting, then coincides with recollections, of other attendees with whom the writer has discussed the address. The context of the reference to Secretary Rusk's statement was provided in Dr. Nicholiades' testimony as follows: "In the '50s and '60s, six U.S. land grant institutions sent to India outstanding and dedicated scientists and administrators with the goal of establishing a Land Grant University System in India; and they did it....working with their committed and dedicated India colleagues."

In fact they did it so well that two years ago Dean Rusk remarked in a speech that in his opinion, "The most successful piece of foreign policy ever implemented by the U.S. Government in over 200-plus year history was the establishment of the Land Grant System in India."

Unfortunately, the writer did not attend that conference and therefore did not hear Secretary Rusk's statement. However, he did hear Rusk make a similar statement of his expectations of the Indian program in February 1962, while Rusk was Secretary of State. At that time the Secretary was very desirous of developing a similar U.S. effort on behalf of all of Latin America. (See discussion of efforts at application of the "India Model" to Latin America at the conclusion of this chapter.)

[2] M.S. Randhawa, A History of Agriculture in India, Vol. IV, p. 172.

[3] Which, much as it was venerated as a fertilizer, returned less fertility to the soil than the plant materials from which it was made.

[4] This point of view prevailed for decades and is probably not entirely dead yet (similarly, in that respect, in the United States). "In the second plan period (1956-60) controversy raged in government circles that organic manures alone should be promoted, as chemical manures were harmful to the soils in the long run and were also costly"...To the special advisor to the Planning Commission on this subject, "the very mention of chemical fertilizers was like a red rag to a bull." From Randhawa, p. 282. The writer was constantly amused to hear otherwise competent Indian agriculturalists (including one soils scientist) attempt to explain away by the most tortured reasonings the obvious 400% yield increases achieved on fertilized plots. Also, in 1962, in a meeting of U.S. Secretary of Agriculture, Orville L. Freeman, with the Indian Planning Commission, the writer was compelled to rebut the commission's same soils advisor's argument that, by encouraging India to produce more fertilizer, the U.S. was, in fact, advising them toward destroying their natural soil resource base. The famous Classic trials in Rothempstead, England, now some 125 years old, have not yet turned up any evidence to support the long-run soil destruction thesis--nor have dozens of other such [illegible], including a 75-year-old set of fertilization trials in Coimbatore, Tamil Nadu State, [illegible].

[5] Randhawa, p. 274. Dr. Randhawa was an extraordinary man, having held during his long career almost all of the top agricultural positions in Indian agriculture, including the directorship of the Indian Council of Agricultural Research (under whose direction the U.S. University Agricultural Program was carried out) and the Vice Chancellorship of Punjab Agricultural University. (The Vice Chancellor is the top executive officer of an Indian university.) He was as well known for his passionate expertise on ancient Indian art, on which he published widely.

6 Following USA, USSR and China. Randhawa, p. 307.

7 Should any reader care to pursue the analytical bases for some of the writer's conclusions on fertilization research in India during this period, he is referred to the "Special Note on India Fertilizer Research," following End Note 46.

8 The term "agricultural education of farmers" is meant to be essentially synonymous with "agricultural extension." (See note on "agricultural extension" in this book.)

9 K.C. Naik; A. Sankaram, A History of Agricultural Universities (New Delhi, India: Oxford and IBH Publishing Co., 1972), p. 16.

10 Naik and Sankaram, p. 20.

11 Membership of the joint team was a follows: Indians, Mr. K.R. Damle, Mr. J.V.A. Nehemia, Dr. B.N. Uppal, Dr. L. Sahai, Dr. H. Handi; Americans, Dr. A.H. Moseman, Dr. R.E. Buchanan, Dr. E.E. Leosure.

12 Communicated to the writer by telephone December 14, 1988.

13 The young college professor from the University of Wisconsin had by now become head of the Department of Agricultural Economics and Rural Sociology at the University of Tennessee, and recalls very vividly his excitement at hearing Parker's presentation to the faculty of Agriculture and key administrators there. To an agricultural economist, the Indian phenomenon seemed to turn everything upside down. Imagine a peace time economy not concerned with overproduction! Now concepts of economic efficiency analysis so heavily stressed in the University of Chicago part of his training could have full play -- except that, on that day, he hadn't the slightest notion of ever becoming directly involved with India.

14 State names and boundaries were changed from time to time. For example, the names listed for Region IV are currently applicable. When the program began in 1956 they were known as "Mysore," "Madras," and "Travencore-Cochine," respectively.

15 It has perhaps not been made sufficiently clear that faculties of the agricultural colleges and of the colleges of veterinary science (which included animal husbandry) were regular members of the Department of Agriculture or Veterinary Science, respectively, and assigned to the college on a rotational or pass-through basis. Good performance in this college teaching assignment would most frequently contribute to promotion to some other administrative (or possibly scientific) assignment in their department -- not to promotion in the college itself.

16 This fact always posed a difficult issue for the U.S. government. We did not wish to impose our particular systems of organization of policies on the host country -- in political principle and because they usually do not function well unless enthusiastically embraced by the host government and institutions. It is tempting, therefore, to assume that organization matters are none of our business, and simply support the programs of whatever institutional structure we find. At best this is a waste of our resources, if these structures are highly ineffective -- as were those described. Often, such support is counterproductive of the host country's true interests, as it tends to reinforce and make more permanent an ineffective structure. Therefore, the technical shortcomings of institutional organization should be openly perceived from the beginning as an organic part of the problem to be explicitly addressed by the project. This puts a heavy responsibility upon the A.I.D. donor, however, to work with host officials in a scientifically investigative way in order to avoid the error of giving inappropriate or even bad advice. (See chapter on research as technique of technical assistance.)

17 However, in Tamil Nadu (then Madras) State the effect was the opposite. The writer had, through a state level study group appointed at his suggestion, steered a cabinet level process specially tailored to that state. Circumstances were very complex in that state, as India's premier veterinary college was located in Madras City, and one of India's oldest and best agricultural colleges was in Coimbatore some 200 miles away. A new Home Science college was also located near the agricultural college in Coimbatore. Some 35

agricultural research stations (including one of the country's largest) were scattered around the state. The state government was about ready to adopt a set of recommendations to organize all this into one system, when the central government sent a copy of Dean Hannah's "Blueprint" and requested a response. A fiscally dominated "Committee of High Power" recommended strongly against adopting the blueprint as too costly and redundant. Best efforts failed to get the earlier action back on track for several years -- to the great disadvantage of India as well as of Tamil Nadu State. So goes the process of technical assistance; best intentions lead oft away.

18 As the great American economist of the early 20th century, John R. Commons, wrote somewhere, "people cherish security of expectation,even, in many cases, the security of injustice and poverty."

19 From: the "Agricultural Research and Education Project" to the "Agricultural University Development Project" the new U.S. ambassador to India, Dr. John Kenneth Galbraith, endorsed and supported this evolving concept of concentration of effort as his own. See J.K. Galbraith, Ambassador's Journal (Boston, Massachusetts: Houghton Mifflin Company,1969). Comments on subject sprinkled through book, e.g., p. 206.

20 In India called "Group Leader." More commonly designated "chief of party," "party leader" or "project leader." Under any title, this person is by far the single most important (among the American group) to the implementation of the project.

21 But, be careful on this one. Be sure it is the mission at top level -- and not just the project manager -- which has lost faith in the university team leader.

22 The State of Kerala asked for assistance to build an agricultural college almost from "scratch" -- and the recruitee was ideally experienced for the position. Also, the writer (the then group leader) felt very strongly that a missing link in the Indian system was a vocational agricultural secondary school system. Madras State (now Tamil Nadu) agreed and the recruitee -- long known to the writer -- was one of the very best in the United States. In Wisconsin, the vocational agricultural program had worked for decades hand in hand with the agricultural extension service and all elements of the agricultural college. Sadly, in Tennessee they maintained a fierce rivalry and hence their experience militated against their proper handling of the job.

23 Please indulge the writer for freely admitting that experiences such as this are high among his rewards for service to the university India Contract Program. Another was the bittersweet rending of personal relationships we experienced in leaving our Bangalore home. For various reasons, chiefly the logistics problems posed by too many "farewell" parties, we decided not to announce our pending departure until the last moment, and the only to those who needed to know. Even so, word leaked out. The state declared a half-day holiday (which I suppose can be variously interpreted as to motive). Government officials and employees, faculty and students, social friends -- and every state cabinet minister in town that day, or so we were told by the Chief Minister who normally knew such things -- turned up at the airport, at what we thought would be a send-off only by the team members resident in the city. Bangalore is the production site of India's famous "tube rose" and carnation garlands. With each "goodbye" a garland or bouquet came for each of us. Proper etiquette requires their prompt removal to allow for the next in line. The pile of flowers grew and grew, beyond head high. We could take on board only one bouquet each. My wife's and my feelings as we boarded the little DC-3, and waved goodbye to our many Indian friends on the tarmac, who had warmly taken us to their hearts, were a mixture of profound happiness and sadness.

24 The intensive agricultural district program from the first had built into it an evaluation component. Dr. Dorris Brown headed an evaluation effort in the U.S. team of advisors which the Ford Foundation had sent to India for this project itself. The end-of-project evaluation found that the 16 districts moved up only a little more than the country as a whole in agriculture productivity (the writer's expectations had been that they would move forward more than that but at the cost of production in other areas), and did not as a whole compare at all favorably with the subsequent rates of progress which took place in other areas of India which had featured the new varieties and techniques developed by the international research centers for rice and wheat production and adapted at the state

levels with participation of the considerable Indian agricultural research and extensio networks, which had by that time developed.

This judgment is probably too harsh on the intensive agricultural district program because it was an excellent learning ground for Indian officials and agricultural experts and for the U.S. universities which were working on helping build a major institution in one or more of the states with which it was working. It undoubtedly helped as a learning ground for trying out a lot of ideas.

25 From speech by Dr. K.N. Naik at dedication of University of Agricultural Sciences, by Indira Gandhi, prime minister of India, July 12, 1969. Quoted in Hadley Read "Tennessee's Imprint on Mysore Agricultural University," Partners with India, Building Agricultural Universities (Urbana-Champaign, Illinois: University of Illinois Press 1974), p. 61.

26 This amazingly productive man became exceedingly supportive of the Tennessee projec immediately when exposed to it. It was to recognize his extraordinary potentialities fo leadership. In an early conversation between him and the writer, it was warmly agreed that he should, post-haste, visit the United States and some of its agricultural colleges and research institutions. This was, of course, with an eye on the role he might play a Coimbatore or in the Madras (Tamil Nadu) State government - - with no thought whatever that Mysore (Karnataka) state might some day establish an agricultural university and request him to serve as its Chief Executive Officer (Vice Chancellor).

27 In Kerala State (see Travencore-Cochin) considerable progress was being made toward strengthening its veterinary college at Trichur and Vellayani Agricultural College near Trivandrum. This state needed special attention because the agriculture in this most densely populated and most highly literate state of India is so different in so many respects from neighboring states. The 1961 decision to concentrate U.S. assistance efforts to the six states (though no doubt necessary and therefore wise) must count the retardation of development of the colleges (and their closer intercooperation) of such "abandoned" states as Kerala among its costs. The scholar may wish to see "Some Comments for Consideration in the Development of Vellayale College, Travencore-Cochin," Terminal Report, pp. 337-45. Concerned with apparent trends in thinking toward abandoning the U.S. assistance effort there, the report (which authored a plan for university development in the state) was addressed as much to the A.I.D. mission and the central government of India policy makers as to the government of Travencore-Cochin (now Kerala) State. His key concern was a bit more than hinted at in these opening paragraphs:

"The importance of developing a strong agricultural research and educational program in Travencore-Cochin may even exceed that for most of the rest of India for the following reasons:

1. The fact that much of Travencore-Cochin's agriculture is unique in India....and no adequate research basis exists from research done elsewhere in India to cover many of the agricultural problems of the state.

2. The high average educational level of the population means that the cultivators have the ability to absorb and utilize information that could be expected throughout much of India. While this should mean that the population will be able to recognize and to appreciate progress, it means also, on the other hand, that they will be able to recognize and be very impatient with the lack of progress. The high education level, in sort, intensifies both the opportunities for success and the unhappy consequences of failure to provide for rapid agricultural improvement.

3. The tremendous and constantly growing pressure of population on the land makes it imperative that sweeping changes be rapidly brought about the agriculture of the State if it is not to lose ground absolutely as well as relatively to the rest of India."

Shortly after this was written, all A.I.D. agricultural advisors, direct hire and University of Tennessee employed, were withdrawn from the State. The reader may make his own assessment of the validity of the writer's then concerns.

[28] In the late 1980s, the University of Agricultural Sciences was still supported primarily by state appropriated funds: 55% state; 31% Indian Council of Agricultural Research (Central government); 14% other sources. The 31% from the ICAR was special project support which could vary from year year to year. (Source: Lawrence Bursch, University for Development, Report of the Joint Indo-U.S. Impact Evaluation of the Indian Agricultural Universities - A.I.D., Advanced Draft Copy, Table 3).

[29] The Minister (an elected official and member of the legislature) and the Secretary to Government for Agriculture (an administrative official) had responsibility over both agriculture and animal husbandry. The Director of Agriculture had responsibility only for agriculture. The Animal Husbandry Department, as explained earlier, had a Director of parallel status to the Director of Agriculture. Forestry was at times under the Minister of Agriculture, and at times elsewhere in the government structure. The Mysore University was essentially autonomous. Its responsibility vis a vis the agricultural college was limited to essentially to proforma approval of certain narrowly pedagogic considerations. To complicate matters still further, the Food Ministry -- which controlled food movement, government granaries and certain "fair price" machinery -- was totally separate from the agricultural ministry. The same Secretary to Government often served both agricultural and food ministers and was normally a key point of governmental interface with the U.S. university team leader. It was normally at this level and through the secretariat generally that formal proposals reached government for official policy action.

[30] Quoted and other descriptions of the recommendations are from the unpublished Terminal Report of the writer's service in India on this project. Specifically, Erven J. Long's "Recommendation for Establishment of Mysore State Rural University," Terminal Report (University of Tennessee), pp. 226-42.

[31] American universities vary widely in the extent to which these functions are integrated at the subject matter level -- with profound implications for their effectiveness in serving agriculture. This and other consequences of inadequate organization had been pointed out by the writer in a memo prepared for use by the Government of Mysore, entitled "Some Lessons Learned by American Experiments with Rural Universities," Terminal Report, pp. 304-11.

[32] A Division of Fisheries Sciences was added very shortly thereafter. This was a hotly discussed jurisdictional issue at that precise moment, and deferral of its mention was deemed prudent. Fisheries and Agriculture has become an exceedingly prominent dimension of the University's program.

[33] Includes economics, specifically agricultural economics.

[34] Includes Extension Methods.

[35] Long, Terminal Report, pp. 226-40. The reader may wonder at the terminology "Rural University" in light of the writer's negative views regarding this name of the university. The first submission used the title "University of Agricultural Sciences" throughout. The Central Committee felt this might not meet the requirements of the letter of the Government Order. So the term "Rural University" was inserted throughout the document. This was soon changed back to the name under which the university was finally chartered and remains to this day: The University of Agricultural Sciences.

[36] Two of this nature were: placing the teaching year on a "trimester" (quarter) other than "semester" basis. The writer had worked and been a student under both the greatly preferred the semester system, which is now being adopted in India. The other was combining soils and plant sciences into a single division. Logic supports this. But at this university, these two departments were so large that combining them threatened organization symmetry.

[37] For the first few years of the history, the scholar may wish to see The University of Agricultural Sciences, The First Ten years, 1965-1975 (Hebbal, Bangalore, India: U.S.A. Press, 1975), p. 450.

[38] This program was initiated by the Director of Agriculture, before the university was formally established, on the recommendation of the writer by memo entitled "Increasing Food Production in Mysore State: Increasing Ragi Yields." A Tennessee team member, Dr. Vernon E. Ross, and two Tennessee trained participants (one of whom became Vice Chancellor of the university) carried out this campaign, working with village level workers, which using the materials from old and recent research on ragi production practices, almost tripled ragi production statewide in three years. Farmers called freely upon the university for help on other crops after that experience. For memorandum see Terminal Report, pp. 416-20.

[39] Lawrence Bursch, "Universities for Development (Draft)," Terminal Report (February 1988), p. 25.

[40] Bursch, Terminal Report, p. 26.

[41] Lawrence Bursch, "Universities for Development: Report of the Joint India - U.S. Impact Evaluation of the Indian Agricultural Universities," A.I.D. Impact Evaluation No. 68 (U.S. Agency for International Development, December 1988).

[42] See Table 3, p. 21 of Report listed.

[43] See Table 1, p. 13 of Report listed.

[44] See Table 1, p. 24 of Report listed.

[45] The A.I.D. Mission Director at the time of the writer's first study visit to India (in 1955) was Mr. Clifford Wilson -- who later remarked that in the long history of India, the strengthening of state government relations positions via these college contracts may well prove their most important contribution; the writer agrees. Perhaps that was at least part of what Secretary Rusk had in mind. Proper balancing of central state and local governmental and political powers has been and will continue to be vital challenge to Indian leadership. Thus far, it has done well, given the enormous complexity of the country and its society.

[46] Dr. Leo Walsh, Dean of the College of Agriculture and Life Science University of Wisconsin, and BIFAD members of the evaluation team which made the study on which the Report cited here is based, reported in a letter to the Office of Technological Assessment of the United States Congress that the concept that American Land Grant universities cannot work effectively on the problems of small LDC farms and poor rural people "is pure bunkum." He reports to the writer (by phone) that, though he participated actively in the discussion of the cited Report, he does not recall any discussion of this subject (included on pp. 24 and 24 of the Report) and is relatively certain it did not reflect any significant consensus among the group. He would apply the term "pure bunkum" with equal zeal to the notion that the Land Grant model as applied in India was in any way "elitist."

SPECIAL NOTE ON FERTILIZER RESEARCH IN INDIA

Anyone specially interested in the writer's interpellations in this book of fertilizer research in India at that time -- which so heavily influenced fertilization policy -- is referred to his unpublished terminal report of his four-plus year assignment to India. It is titled simply, Terminal Report, October 15, 1960, by Erven J. Long, Group Leader, University of Tennessee, India Agricultural Program/TCM, available through the College of Agriculture Library, University of Tennessee, Knoxville, Tennessee. See especially:

Chapter 26, "Fertilizer Experiment Designs in Relation to Soils Testing Work," pp. 420-39.

Chapter 27,"Note on the Complementarity of Nitrogen and Phosphorous Fertilizers on India Soils," pp. 439-51.

Chapter 29," Some Economic Hypothesis from Indian Fertilizer Demonstrations," pp. 470-87.

This last reference perhaps merits some elaboration. Soils experts and agronomists from many countries, including India and the USA were desirous of showing "interrelationships" between nitrogen (N) and phosphorous (P_2O_5) fertilizers in their effect on crop yields. This was essential information because the relative (as well as absolute) price and availability of the two types of "soil amendments," as they were called, varied greatly from place to place. So the question of which, and how much of each, should be applied was an economic problem of great significance. However, in early stages of the science, experimental design "experts" concluded that the way to determine this was to measure interactions in terms of "additionally" -- i.e., at some given level of application of one element (say 40 lbs. per acre of N_2) add P_2O_5. Then do the reverse by adding N to a given amount of P_2O_5 application, and compare with the control fertilized with N only. To their surprise, on Indian soils the added P_2O_5 increased yields less when added to the N amended soils than when applied, in the control plots, without N. And the same held true for N, when applied alone. Thus the conclusion that P_2O_5 and N both increased yields more when applied alone than together. This conclusion was published (and discussed) widely by soils and agronomic experts in India -- especially since these worthies simply couldn't believe it. But the data said so and the studies were numerous. Similar notes kept popping up in minor publications around the world.

The writer has always followed the proposition that when knowledgeable people of good sense don't believe results of some study (especially if statistical interpretations are involved), it is best to take a second, third and fourth look at the data. He did so in an extensive analysis of these fertilization experiments data.

In this case, the problem was not one of data (they were good) but of logic. The experiments measured not a negative interrelationship between the two elements, but the simple fact of diminishing returns to fertilizers of any kind at this rate of application. (Remember, these experiments were on relatively fertile, well tended experimental plots.) The experimenters would have found at least as much decrease per pound of fertilizer to the additional application if it had been of the same element as used in the first application. Indeed, they showed consistently the highest yield increases per pound of fertilizers, in the same publications, when both elements were applied at equal rates at the same total level as one or the other was applied in the control plots (i.e., when 20 lbs. N and 20 lbs. P_2O_5 were applied rather than 40 lbs. of N or 40 lbs. of P_2O_5).

This analysis was distributed by Dr. Frank Parker, who was then Assistant Director of the UN Food and Agricultural Organization(FAO) to all FAO fertilization experts around the world -- many of whom were having similar difficulties understanding their own findings of "negative" interactions in tests similar to the India experiment. Their grateful responses, in many languages, pleased the writer as much as it challenged his ability to find interpreters to read them for him.

Fertilization information is referred to at such length here because it is precisely the close interweaving of such technological advance with institution-building which made the India model successful.

BRAZIL: The Infinite Country[1]

Prior to the end of World War II, U.S. universities had shown little interest in Brazil. Undoubtedly, individual university professors had interest within their particular fields, but the institutions themselves had few contacts with Brazilian culture or science. The first discernible interest of an American university was the publication by the University of Florida of the book, Brazil, People, and Institutions, by Professor T. Lynn Smith, in 1946.[2] Also in 1946, Gilberto Freyre published the English version of his cultural master work, The Masters and the Slaves, which was fairly widely read and promoted some understanding of that vast country.

The Early Days of Cooperation and Assistance

The United States Government itself had begun technical cooperation programs with Brazil during World War II. The programs were begun to guarantee or increase the supply of raw materials needed for the war effort. In addition to the wartime interest in its mining and minerals, there was U.S. interest in agricultural commodities, such as rubber, and technical assistance projects were developed for such commodities. It came to be realized that other factors affected production as well, and fairly substantial projects were mounted in public health. (One of the reasons Walt Disney's cartoon characters are so fondly regarded in South American countries like Brazil, is that the Disney characters were used in film cartoons to promote public health measures and sometimes these were the only form of movies the poor and rural people got to see.) It was then, through the Institute for Inter-American Affairs (IIAA), headed by Nelson Rockefeller, that the first programs and projects in agricultural cooperation came into being. However, following the pattern of IIAA activities, there was no overall development plan or program involved, merely discrete project activities to achieve some fairly immediate objectives. The Brazilian Government had no overall national development plan for agriculture and neither did those in the U.S. government directing the assistance programs.

It was through one of the IIAA activities that Purdue University professors first became acquainted with the University of the State of Minas Gerais at Vicosa.[3] Essentially, those officials designed a project which they then took to the U.S. government for support. At that time, the U.S. government technical cooperation program in Brazil was concentrated in the fields of health, education and mineral resources surveys, with some attention to specialized agricultural problems, such as rubber development and cacao improvement. The broader U.S. interest in general agricultural development and in agricultural education came a little later, perhaps spurred on by the Purdue-Vicosa Project. The A.I.D./Purdue contract was signed in June 1951, and its major objectives were to assist Vicosa in the creation of: a) a School of Home Economics and b) the improvement extension education programs. This limited institution building effort became even more sharply focused on Home Economics as the extension education activity was deemed a failure and abandoned after two years. (Later, however, this effort was revived with happier results.) Otherwise, the project rolled along with no notable difficulties, and the first School of Home Economics in Brazil was established and institutionalized at Vicosa as a result of the university-to-university project.

By 1958 -- through the creation of the Technical Cooperation Administration (TCA) and the International Cooperation Administration (ICA) -- a more programmatic approach to U.S. assistance had been developed. In Brazil, the overall objectives of technical cooperation were to assist: 1) in providing the institutional framework necessary for the functioning of a modern society, and in

training the technicians and administrators needed to man it; 2) in improving the educational base for developing the fundamental, technical and administrative skills. At this time, much of the U.S. assistance was still channelled through servicio programs[4] in such fields as nutrition, farm management, extension, soil conservation and irrigation; thirteen Brazilian states had established extension servicio organizations. This was the background to a major revision to the Purdue-A.I.D. contract, signed in February 1959, through which Purdue was to help develop Vicosa into a pilot institution to train extension workers and professors in agricultural sciences and research. More broadly speaking, Purdue was to assist all Brazilian schools of agriculture in adopting and implementing the "Land Grant" philosophy, and the base for the effort was to be at Vicosa. This was quite a significant change in purpose for a Brazilian university which, at the outset of the project, consisted of a single school of agriculture offering a four-year degree in general agriculture with no opportunity for disciplinary specialization and no graduate programs.

The attempt to bring Vicosa and Purdue into a national effort at developing the extension service was not the first try by the government of Brazil or the A.I.D. (then ICA) mission to engage in national agricultural development. There had been previous attempts at national programs in nutrition, farm management, soil conservation, and irrigation -- most of them channeled through servicio programs. As it later came to be learned, servicio programs were useful for obtaining immediate objectives and for campaign-like activities which would be accomplished in a relatively short time. The purpose of the servicios was to take the program away from the bureaucratic ministries and government agencies where low pay and enormous paper work reduced productivity and stifled accomplishment; the servicios, with single mindedness of purpose and better pay, were able to get a lot more things done quickly. Some very good benefits were achieved through servicios in all of South America including malaria spraying campaigns, immunization and other public health campaigns, and the propagation of some new agricultural techniques; they were also the principal instrument for training Latin American personnel in practical development technologies. The problem came to be that when the foreign funding of servicio activities ended, so essentially did the servicios. Many times neither the personnel nor the programs for which the servicios were founded were ever brought back under the auspices of ministries and agencies. Brazil's extension service suffered less in this respect than some other South American countries, but it still had some problems establishing its institutional base and, of course, its funding.

There had been a growing tendency to move away from the IIAA days of specific activities for limited objectives (e.g., production of commodities for export to the U.S.) to the program approach of broader goals and objectives into which specific project activities would fit in a well defined way. This trend became even more pronounced with the creation of the Agency for International Development (A.I.D.) and continues even to this day. The fact that some project activities have to be shoe-horned into the program description and objectives does not diminish the general idea of trying to make an assistance package more effective through its coherence and concentration. However, it is much harder to design and implement a foreign assistance program if the recipient country lacks a national development plan as a basis for the assistance program, particularly if the foreign donor wants to concentrate on long-term social and economic development, including institution building. In Brazil, at this time, there was no national planning agency of any type. In fact, the first comprehensive planning agency of any type was the regional planning agency for Northeast Brazil, the Superintendency of Northeast Development (SUDENE), founded and headed by Celso Furtado in 1959.

The Alliance for Progress and Northeast Brazil

The situation in Northeast Brazil dominated much of the international concern and interest in Brazil during the late 1950s. Northeast Brazil was the country's most important agricultural region during the colonial and early days of the monarchy -- prior to the ascendancy of the State of Sao Paulo -- but was subject from time to time to periodic and devastating droughts. Droughts in 1951-52 and 1958 had caused widespread loss of crops, hunger, and dislocation of farmers and their families. The purpose of SUDENE was not so much to alleviate the drought crisis -- although it did some of that -- but more to bring new technologies to the agriculture of the region and to broaden the region's economic base. At the same time, the Peasant Leagues in the sugar cane areas of Northeast Brazil were gaining notoriety through their demands, cane field burnings, and the passion and prominence of the Leagues' leader, Fransico Juliáo. Both the economic and the political situations were given great publicity in the United States through a series of articles in The New York Times in 1960, and through an NBC special documentary, "The Troubled Land," devoted to Northeast Brazil. Indeed, it could be argued that, along with Castro's take-over in Cuba, the economic situation and political unrest in Northeast Brazil were among the more important concerns that led President Kennedy, in 1961, to create the Alliance for Progress and to refashion and increase the U.S. foreign assistance program through the Agency for International Development. Brazilian politicians sometimes talked of "two Brazils:" the Northeast, economically depressed and neglected by the government; and "the rest of Brazil," economically vibrant, broader based and more successful in getting government programs and benefits. Whether true or not in the national sense, the "two Brazils" theory certainly spilled over into the operation of the U.S. foreign assistance program in Brazil and affected, at least indirectly, the U.S. universities working in Brazil.

Because of concerns with Brazil's political leftward drift, the economic plight of Northeast Brazil, and the perception both in Brazil and in elements of U.S. society that, somehow, the U.S. government should boldly show its concern and its ability to respond, the U.S. and Brazil signed in April 1962 a special diplomatic agreement for Northeast development.

The agreement provided for the expenditure of $131 million over a period of two years in various fields of economic and social development activity. It also provided for the establishment of a special A.I.D. office in Recife in the Brazilian Northeast. The location of a major A.I.D. office in Recife gave the U.S. development effort some fairly high visibility and publicity in that development arena and, perhaps, helped to counter some of the adverse political atmosphere with regard to the U.S. in Brazil. It also placed the seat of the A.I.D. operations in the Northeast only a few blocks away from SUDENE, the Brazilian Northeast development agency. Although it was not an independent A.I.D. operation, it had enough authority to be able to deal directly with SUDENE on day-by-day action decisions, and -- perhaps predictably -- the lines of responsibility and communication were not always clear, leading to some managerial and philosophical difficulties.[5]

These diplomatic initiatives in broad development programs had no direct effect on Purdue and its operations in Vicosa, although they would come to have effect on the plans and operations of future activities.

Brazil's own development plans and goals at this time were still dominated by President Kubitschek's commitment to establishing a new national capital in Brazilia, a frontier area 600 miles northwest of Rio de Janerio. Kubitscheks's last budget was heavily skewed to infrastructure: 45% was for power, 31% for transportation, 16% for basic industry, 4% for education and 3% for food supply.

There was not much time during the short presidency of Janio Quadros, January to August 1960, nor during the early term of President Joao Goulart to make any substantial redirection of the development effort. Moreover, under Goulart the political atmosphere in some federal ministries and state governments was antipathetic, if not hostile, to any A.I.D. visibility such as technical assistance programs might bring.

Expansion of Agricultural Education Efforts

The A.I.D. mission was ready to move to broader development program goals, including the field of agricultural education, but there were few people in the national government to work with on it. The U.S. A.I.D. mission (or, "USAID" as A.I.D. missions are generally called overseas) nevertheless proposed, in 1962, to expand the contract with Purdue University and Viscosa to provide additional personnel to work with four other agricultural schools in the state of Minas Gerais and, most importantly, to contract with additional United States universities to provide similar services in the states of Sao Paulo (at Piracicaba), Rio Grande do Sul and Rio de Janerio (at kilometer 47), and to undertake more basic efforts toward university agriculture education in Northeast Brazil at the universities of Ceará and Pernambuco. Without the involvement of planning and coordination at the national level, however, it was impossible to involve the U.S. universities -- or the Brazilian universities for that matter -- in coordinated national research efforts or broad agricultural university expansion. Instead, the scope of each U.S. university contract was geared to the perceived needs of the Brazilian counterpart institution, and to some degree (particularly in the case of Purdue) to the needs of a region around the university. The U.S. Land Grant college philosophy is reflected in the A.I.D. program documents which described the proposed expansion, but the documents also recognized that the Brazilian counterpart universities' traditions and lack of resources could inhibit the application of the Land Grant idea. Nevertheless, the objectives were right in that they reflected fundamental needs for change, with the result that the limited resources being made available would help bring about broad-based modifications in agriculture education, research and extension in Brazil.

Among the traditions which impeded the progress of all Brazilian universities, not just the agricultural universities, was the preference of Brazilian students for the prestigious degrees in law, medicine and engineering, and the tradition of awarding tenured chairs (catedraticos) which, in effect, became a paid lifetime position for the holder regardless of whether he taught or not. Add to this the low salaries for professors, poor curricula, a shortage of text books and library materials, and low quality or a complete lack of laboratory facilities and equipment, and there you have a picture of most of the agricultural universities as A.I.D. prepared to expand its program in agricultural education. Because of its association with Purdue, Vicsosa was an exception to this picture and the State of Sao Paulo agricultural university at Piracicaba had well educated professors, although more oriented to the British and French style of university education. Below those two universities were the universities of Rio Grande do Sul and Ceará, and although Ceará was the weaker of the two, it was no less enthusiastic about joining the A.I.D. effort. A.I.D.'s plans for inclusion of the universities of Pernambuco, Rio de Janerio and Bahia did not result in direct contract arrangements with U.S. universities, although the U.S.A.I.D. continued to include those universities -- as well as a network of secondary agricultural schools -- as participants and beneficiaries of some of its other agricultural development programs. The A.I.D. mission's expectations for agricultural education is perhaps summed up in the following:

> In the past, progress toward general acceptance of a land grant philosophy has been slow,largely because agricultural teaching, research and extension activities were developed under different agencies and were directed independently rather than correlated. As a result of consultation and close cooperation and planning, officials, particularly at the state level, are beginning to shape their programs toward the coordination needed. Agricultural goals are now better defined and the improvement of service to rural people is emphasized. [State] Secretariats of Agriculture are undergoing reorganization for better use of resources. There is more concern for gathering information essential to planning. Teams of U.S.A.I.D./Brazil agricultural advisors have participated in planning sessions in several states.[6]

The early planning for all this activity had begun in 1961 when preliminary discussions were held with the Ministry of Education and Culture (MEC). In 1962, a bilateral committee led by Earl Butz, then Dean of the Agricultural School at Purdue (and later U.S. Secretary of Agriculture), visited Brazilian institutions to select those which might become involved. The idea behind the expanded agricultural university activity was "to develop four rural universities into competent centers of teaching, research and extension with a combined enrollment to be increased from 1,800 to 5,000 in seven years; to train eight-hundred teachers within five years; for enrollment in secondary-level agricultural schools to be increased from 10,000 to 30,000 within ten years."[7] While there was this comprehensive target and similarity of purpose, each of the university projects stood alone and there was no provision for them to interact or contribute on a national scale. The "one-on-one" relationship is illustrated by the description of objectives for the new projects from A.I.D. program documents:

The University of Rio Grande do Sul

The integration of teaching research and extension in the university will be furthered following the pattern of the U.S. Land Grant College System and will in turn provide the state of Rio Grande do Sul and the neighboring area with the benefits of strengthened research and extension. Graduate programs in agriculture and the rural social sciences leading to the equivalent of a masters degree were planned as a means of improving the qualifications of college professors, researchers and other technical personnel; to conduct economic research for the guidance of state, federal agencies, and cooperatives, private enterprises in the area; to plan and establish a 3,500 acre agricultural experimental farm as an integral part of the university.

University of Ceará

To Strengthen and expand the university's curriculum offerings and to arrange for administrative improvements in the organization; to improve the teaching and research services offered by the university to make it more responsive to both the commercial requirements of national agriculture developments and the needs of rural population.

The University of Sao Paulo (Piracicaba)

Adapt teaching research and farmer education at the university to the pattern of the United States Land Grant Colleges; to develop teaching and research in food technology, agricultural engineering, agricultural economics, animal husbandry, and plant science; establish a graduate school in agricultural sciences.

The selection of U.S. universities to work with the Brazilian institutions was done on a pragmatic case-by-case basis, but the selection criteria is lost to us now. Purdue, of course, had an ongoing relationship with Vicosa. The University of Wisconsin had engaged in a small cooperative effort with the University of Rio Grande do Sul, sponsored by A.I.D., and had been asked by A.I.D. to make suggestions for an expanded program. The University of Arizona and the University of Ceará had no prior acquaintance with each other and the fact that they were both in arid regions of their respective countries apparently determined the selection. Ohio State was in the middle of doing an outstanding job in India and was selected perhaps because the historical circumstances there were similar to those at Piracicaba; the university agricultural school of Sao Paulo at Piracicaba was, along with Vicosa, the most advanced agricultural institution in Brazil but had an orientation toward the European model of agricultural teaching and had already developed plans for research and post graduate programs.

National University Reform

The A.I.D. mission's involvement at the university level in Brazil was not confined to agricultural education nor to the use of the Land Grant colleges. A program with Michigan State University and the Getulio Vargas Foundation in business administration had started almost at the time of the Purdue/Vicosa project, and projects with the University of Houston in Chemical Engineering and the San Diego State University system in secondary education development with the Ministry of Education and Culture (MEC) began almost at the same time of the expansion of the agricultural education projects. The need for improvement in the higher education system in Brazil -- or, perhaps better said, the establishment of a system -- was clear and, perhaps for this reason, there was a growing pressure to create a more comprehensive higher education program approach. A four-man team recruited by A.I.D. Washington in early 1964 commented,

> ...the present higher education system of Brazil is in desperate straits. It has not only been a victim of the country's political and financial instability over the past several years, but has also been hamstrung by its own archaic organization and curriculum structure. In its present state, the educational system cannot produce the strong flow of high level manpower needed to trigger economic growth, to develop the country's distinctive cultural character and to build the dynamic, free society. And it cannot develop the required educational strength through minor transfusions of technical assistance. What is needed is a major transformation of the Brazilian higher education system. While this is primarily a job for Brazilians, adequate U.S.A.I.D. resources, strategically applied, can perhaps be of critical importance in getting the job started and moving in the right direction.[8]

Among the suggestions made by the team to the A.I.D. mission was that it "might provide special support for overall educational planning." There was reason for thinking that Brazil was ready to move forward in this area; in 1961, the national government enacted the National Law of Guidelines and Principles for Education which greatly decentralized and removed the rigidity of the educational curriculum in Brazilian education. This was followed in September 1962 with the National Education Plan which set forth goals for change at all levels.

Coincident with those attempts by the Brazilian government to undertake reform in education, the A.I.D. mission was already intensely engaged in general educational development. A pilot elementary education project in Belo Horizonte had developed a cadre of Brazilian and American educators who were subsequently transferred to the A.I.D. office in Northeast Brazil where they became the nucleus of a team engaged in elementary educational development with SUDENE in the Northeast states. At the same time, discussions between U.S.A.I.D. and the Ministry of Education and Culture (MEC) on university reform were taking place. These culminated in the MEC/U.S.A.I.D. education agreement and in a contract with the Midwest University Consortium for International Agriculture (MUCIA), the purpose of which was to assist MEC in formulating a university reform program. The "MEC/U.S.A.I.D. agreement" became, undeservedly, one of a prominent list of objections by students who were opposed to the military government in any case, and particularly opposed to the federal government's austerity budgets, at least insofar as those budgets resulted in the withholding of education funds and an end to subsidies of student cafeterias and restaurants. Although most of the students who denounced the MEC/U.S.A.I.D. agreement admitted they had not read it, they nonetheless opposed it as "cultural imperialism." It was a period of general unrest and dissatisfaction with the lack of progress since the 1964 revolution -- a period of discontent with the economic austerity imposed by the military government. The government seemed indecisive about the student unrest, and the leadership at MEC was particularly weak. MEC took no actions to explain nor to defend the MEC/U.S.A.I.D. agreement and in June 1968 U.S. Ambassador John Tuthill unilaterally ordered the agreement cancelled.[9] Despite the student unrest and the turmoil at the universities, the U.S. universities had very minor problems except at the University of Arizona in Ceará, where there were student efforts to have the Arizona team removed. There was a brief but very real period of tension for the Arizona team, but the faculty of the Agricultural College publicly supported the Arizona/Ceará agreement and very effectively cleared the air.

Despite this setback in university education reform, and of university agricultural education, the A.I.D. mission proposed, and got Washington approval for, an $11.9 million dollar loan for agricultural research with the Office of Research and Experiments (EPE) of the Ministry of Agriculture. The loan was to finance technical assistance, academic training and equipment in helping the Ministry of Agriculture substantially increase: 1) Its capacity to plan a research program on a national basis; 2) The research skills of its technical staff through academic training in the U.S. and the Western Hemisphere; and 3) Its resources for research and priority areas.[10] The fact that it took several years to get this loan agreement signed by the Brazilian government added to U.S.A.I.D.'s frustration in trying to get anything accomplished on a national scale and at the national level.

It was at this time that the A.I.D. mission to Brazil was at its peak; it had one of the largest A.I.D. staffs in the world, was negotiating annual program loans on the order of $75 million dollars each, had negotiated back-to-back education loans of $32 million and $50 million dollars, and could still count on annual PL-480 wheat sales agreements to help the Brazilian economy and to bolster the mission's negotiating position on various policy reforms. It was a peak, however, and on the down side

there was pressure to switch funding for technical assistance projects, such as the agricultural university activities, from grant funding to loan funding, and to reduce costs and visibility by reducing the number of A.I.D. personnel stationed in Brazil. Clearly some changes, and perhaps some belt tightening, were needed, although a major cutback was not anticipated: there were still several innovative projects being planned, e.g., a capital markets loan, the science and technology loan, the integrated health delivery systems loan, beginnings of nutrition activities, etc.. It was in this context that discussions within A.I.D. began on the possible phase-out of the U.S. university agricultural projects as they were then constructed. Another consultant team was recruited by A.I.D./Washington in 1969 to evaluate the four U.S./Brazil agricultural agreements and to consider the future for this A.I.D. activity.[11]

To quote from the summary of the report:

> While there have been noteworthy accomplishments, the feeling persists that much more could have been achieved with a different managerial arrangement -- both on the U.S. campuses and in Brazil. It is felt that there is need for a new arrangement for managing U.S. university contracts. Such an arrangement would tend to iron out differences in effectiveness and results, such as those noted in comparing the performance of the four U.S. universities.
>
> Despite deficiencies in past performance, the overall healthy impact of the contract operations was quite apparent. Large numbers of key Brazilian staff members have been or are being trained in their potential influence in reorienting and modernizing their respective departments is undeniable. Graduate training programs have been established. Research programs are being planned more carefully to coincide with critical problems. Cooperation with related research and extension agencies is improving. The advent of the university reforms in Brazil, however, introduces a new factor which will cause major changes in the structures in the institutions in question and therefore will require considerable reorientation in the nature of technical assistance to be offered in the future.
>
> Brazil stands on the threshold of great advancement, and the sector of higher agricultural education is a key element to unlock much of the future development opportunity. U.S.A.I.D./Brazil's program is sufficiently small (four universities) to be highly manageable in terms of seeking a new innovative administrative pattern. The Brazil program should be established as a pilot demonstration of how to reorganize and improve A.I.D./university contract relations and performance.
>
> The phase-out schedules for the four contracts are not considered to be realistic in that they treat all programs within essentially the same time and development frame. The minor variations and phase-out date are hardly significant in view of the substantial development gap that exists between two of the institutions (Vicosa and Piracicaba) and the third (Rio Grande do Sul) and the fourth (Ceará). On a scale of ten, their respective states of excellence and sophistication might be represented as eight, seven, five, and three. Even the advanced institutions have gaps in program, relationships with your environment, and competence in management and administration.
>
> Nevertheless, it is realistic to think in terms of reaching the end of phase I and embarking on a second phase that should be known as phase II. A fundamental element of difference should be in the form of funding, a shift from grant to loan support. A second element of difference is the university reform, coming near the close of phase I, which will when completed provide a new set of intra-relationships

during phase II, with consequent modifications in types of programs to be supported.

The idea of phasing out or changing substantially the character of the agricultural university projects was clearly in the mill. The universities were briefed -- apparently individually -- on the circumstances calling for change in bilateral U.S. technical assistance programs and on the need for parties to the projects to re-evaluate their objectives, interests and priorities. Although A.I.D. continued to meet with the universities during the next eighteen months or so, the universities did not have the advantage of meeting collectively or with the central government officials with whom A.I.D. was planning its future agriculture programs. By early 1972, it became clear that A.I.D. support to agriculture would be channeled through a focused, commodity approach to agriculture research and an inter-university program of teacher exchanges and faculty and curriculum assistance. The first of these would eventually become the agriculture research loan with EMBRAPA, and the second, after a short grant-financed project, the higher agricultural education loan with the Department of University Affairs of the Ministry of Education and Culture. These will be discussed after a look at each of the university-to-university projects.

The University-to-University Projects

All the projects had a similar goal: to develop a coordinated program of teaching, research and extension in agriculture along the lines of the U.S. Land Grant College system. The task of each project was similar in another way -- the Brazilian counterpart universities were all traditional teaching universities with limited curricula, faculties, and resources. Beyond that, each U.S. and Brazilian university relationship was different, giving each project a different style and distinctive variations in emphasis and management.

This makes comparison among the projects difficult, but that is not our purpose in any event; better to let each project stand on its own accomplishments, as it stood on its own during implementation.

Purdue - Vicosa[12]

As recounted earlier in this chapter, the Purdue-Vicosa relationship was initiated in 1951 as a project to create a School of Home Economics and to increase Vicosa's capabilities in extension education. While the emphasis and the statement of objectives changed in the course of the following 22 years, the underlying concept was that of increasing and improving the capacity in teaching, research and extension of agriculture. In such a long term, productive relationship, it is sometimes difficult to show direct linkages between the activity and some of the benefits produced, an even to recognize all of them.

Over the life of the project, 55 members of the Purdue teaching, extension and research faculties served for one or more years in Brazil for a total faculty contribution of 155 person years. An additional 40 faculty members served as short-term consultants. One visiting A.I.D. evaluation team observed in 1969 that the Purdue staff was for the most part composed of skilled scientists dedicating

their efforts to specific technical fields; that they, individually, established excellent one-on-one (or counterpart) relationships, but as a group did not focus on the bigger development picture or on Vicosa's academic and administrative structure. Purdue, on the other hand, could state, with reason, that a strategy of total integration of Purdue faculty members into their disciplinary departments at Vicosa was stressed from the beginning. Purdue faculty were accepted by their Brazilian counterparts, and as they became integrated into the total operation of the university, identified with that university. This acceptance and integration made joint planning and execution of the program possible and contributed greatly to the ability to achieve new direction in the program and organization for the university.

Although it is not possible to allocate responsibility and credit for the individual changes that occurred, the success of the Purdue project can probably be best seen through the changes that occurred at the University of Vicosa over the life of this joint activity.

In 1951, the university consisted of the School of Agriculture which offered a four-year degree in general agriculture with no opportunity for disciplinary specialization. There were 117 students enrolled in the Bachelor of Science level program at that time. In addition, there was a high school and a technical agriculturalist program. At the termination of the project, the Agricultural Sciences Programs had over 1,000 students enrolled in undergraduate programs; the curriculum consisted of a three-year common core taken by all students with five disciplinary areas of specialization to be selected by the student for the fourth year. In addition, the first school of Home Economics and the first School of Forestry in Brazil were established as a result of project activities. Also of special significance was the addition of a new department with teaching and research programs in food technology. Perhaps more striking in importance was the creation of graduate programs in the agricultural sciences. At the beginning of the project, there were no graduate training programs as perceived in a U.S. university system, although there was the possibility of pursuing a doctorate through individual research and examination by a panel of peers. At the end of the project in 1973, there were eight Master of Science programs functioning with two others in the offing; by the end of 1972, 379 students had been awarded Master of Science degrees. There were also three Ph.D. programs with courses in place and students enrolled; the first Ph.D. degree was awarded in 1975. This pioneering effort in graduate level training in agriculture has made Vicosa one of the outstanding centers of advanced agricultural training in Brazil and in all of Latin America.

The development of high quality undergraduate programs and graduate training at the Master of Science and Ph.D. levels was made possible by strengthening of the Vicosa faculty through participant training programs. A total of 92 individuals received graduate level training in the U.S. -- 35 at the M.S. level and 57 at the Ph.D. level. While not all individuals receiving advanced training under project sponsorship returned to and remained at the University, the impact of graduate training on faculty quality can be seen by comparing the faculty of 1962 with that of 1973: In 1962, the faculty total of 86 had 21 (24 percent) with advanced degrees, whereas in 1973, 135 of 240 (56 percent) were so qualified.

As mentioned before, research was not a significant activity at Vicosa as the project began, but it became truly institutionalized within the university structure and expanded rapidly during the project period. A directorate of research, similar to the agricultural experiment station organization found at a U.S. Land Grant university, was established, and increased emphasis was placed on research program planning by individual faculty members, as well as at the departmental and School

levels. Physical facilities were significantly increased and improved with the development of a research station in the Western part of Minas Gerais State and the addition of many lab facilities on the main campus. Some examples of research activities at Vicosa that produced useful technical advances are:

- Development of a local synthetic variety of high lysine corn with double the protein value per kilogram of normal corn for humans, swine and poultry;
- Development of superior varieties of soybeans, tomatoes and edible beans;
- Development of improved storage technology for edible beans which significantly reduces nutritional loss during storage;
- Animal science research and extension efforts which stimulated development of commercial broiler production in the regions surrounding Vicosa;
- An agricultural economic analysis which demonstrated the development potential of a region in the State and led to a regional development project funded by the World Bank.

Extension activities have always been part of the Purdue-Vicosa project activities; they were however, abandoned for awhile after an aborted start at the outset of the project. When A.I.D expanded its agricultural education activities in the early 1960s, extension was re-emphasized, and Vicosa was the center of the revitalized interest and activity. In Brazil, the extension service is usually separate from the universities and the universities do not normally provide extension functions off campus; instead, they train extensionists and try to develop better research results and technology to extend. At Vicosa, however, extension has been institutionalized in the university through the creation of an extension department and positions for extension specialists in the subject matter departments. The extension service is still a separate administrative entity but, contrary to most other regions of Brazil, there is a close tie between the university and the extension service.

Many of the people trained in extension at Vicosa have gone on to make significant contributions to agricultural development through a number of educational, extension, research policy and implementation agencies in Brazil. The first two presidents of EMBRAPA, the Brazilian Agricultural Research Enterprise which has transformed agricultural research in Brazil, Ireneu Cabral and Eliseu Alves, were originally extensionists out of Vicosa.

Arizona - Ceará

The University of Arizona was contracted by A.I.D. on October 25, 1963, and the first team members arrived at the university campus in Fontaleza, Ceará on March 8, 1964. The purpose given to the Arizona team was to strengthen and develop the extension, teaching and research capabilities of the College of Agriculture in accordance with the philosophy and practices of the U.S. Land Grant college system, as adapted to the needs of Northern Brazil, so that the University of Ceará would develop and contribute to the technical service needs of federal and state research, planning, extension and agricultural promotion in the states of Ceará and Piauí.

The University of Ceará was -- it is generally agreed -- the weakest of the four Brazilian universities selected to be a direct counterpart in the university agricultural education program. It reflected nearly all the traditional characteristics of the older and passing Brazilian university, i.e., its role was strictly a teaching one, limited to lectures, without laboratories and trial fields, and few texts or reference materials to speak of. Arizona, for its part, was selected primarily because of its location in an arid area of the U.S. Some of the universities in the Northeast states were politicized during this time but Ceará was not one of them, and the College of Agriculture in Ceará was anxious to have Arizona participate in the project.

In looking over some of the comments on the Arizona-Ceará project throughout the course of the activity, there were frequent negative, but somewhat vague, comments on the project. Arizona may have been the victim of some of the bureaucratic tension that occurred from time to time between the A.I.D. Northeast Office in Recife and A.I.D. Mission headquarters in Rio. Responsibility for project management of the Arizona-Ceará project was assigned to the Agriculture office in Recife, but sometimes the Agriculture office in Rio (which had management responsibility for the other three agricultural education projects) would deal directly with the Arizona project team or try to make the Recife office fall into line on something that Rio had decided all the agricultural education projects should do.

This kind of problem was not confined to the Arizona-Ceará project nor to the agriculture divisions of the Rio and the Recife offices. Sometimes the conflict would rise up to the levels of the Mission Director and the head of the Recife office before being resolved. Some tension and differences of opinion can make an organization or effort better, but often these conflicts were petty turf battles on the part of U.S.A.I.D./Rio, or defensive over-sensitivities on the part of the Recife office.

At any rate, Arizona sometimes got caught up in these conflicts. The first chief of party was not terribly responsive to either A.I.D. office for a while, evidently believing that since the contract was negotiated with A.I.D./Washington, he did not have to put up with suggestions from the underlings in the field.

These kinds of problems aside, project progress was substantial right from the start. U.S.A.I.D./Rio was also to state, in September 1966:

> 1. The University of Ceará is proceeding to make integral structural changes to conform with the University's enlarged role in the agricultural activity of the states of Ceará and Piaui. In 1965, six subject matter departments in soil and animal sciences were established, replacing the "chair" structure which previously existed. In addition to broadening the academic curriculum, the university appointed coordinators in the three principal areas of research, teaching and extension. Research and teaching laboratories have been established and detailed plans for the university research and experimental farm are well advanced. Construction for additional classrooms and laboratory activities in plant physiology and botany is over half-completed and facilities for seed processing and analysis are being commenced.
>
> 2. Undergraduate enrollment at the University has increased by 20 percent over that of 1965.
>
> 3. Three professors from the University of Ceará are currently undertaking advanced studies in the U.S. Five others have

been sent to the agricultural colleges at Piracicaba and Vicosa for Master's level training, taking advantage of the graduate programs established at these colleges under other U.S.A.I.D.-assisted programs.

4. A working relationship between the University and the State Extension Service has been developed to the point where both organizations exchange ideas and coordinate planning, project implementation, and personnel utilization. Among their joint efforts is a project to improve the teacher-training and institutional facilities for secondary vocational agriculture schools and short training courses for farmers."[13]

At the beginning of the project, Arizona elected not to teach at Ceará but to work on curriculum, research and graduate program development. This was at least a tactical error because, whatever other interaction there might be, it kept the Arizona team isolated from the student body. When student politics became heated nationwide in 1968, there were demands from the student militants at the University of Ceará for explanations of what the Arizona team was doing there, as well as demands for termination of the project agreement. Only the forthright action of the Agricultural College faculty--a pamphlet with a full and clear explanation of the Arizona team's purpose at UFC -- defused the situation.

The Arizona team must have felt isolated in other respects as well. Forteleza, where the University is located, is a nice city, but a willingness to learn and speak Portuguese is necessary to enjoy it. There were somewhat regular contacts with the Project Manager in Recife and the Chief of Agriculture Division there, but virtually no contact with the other U.S. agriculture project universities. This lack of contact was a problem for all the universities but a more intense one for Arizona because it was isolated not only geographically (as was Wisconsin) but also bureaucratically since it came under the jurisdiction of Recife and seldom got word of the results of meetings or reviews on the other projects.

The Arizona-Ceará project, like the others, suffered from the delays of budget releases by the central government, releases of local currency funds for research, infrastructure and program support by SUDENE, by departures of Brazilian professors because of low pay, and by the difficulty in getting qualified candidates for participant training. The Arizona team did have good support from the Agricultural College, however, and the University of Ceará began to be transformed. The A.I.D. Mission's final evaluation report of the Arizona-Ceará project showed that all physical project targets had been met or exceeded. Also, 82% of the agricultural faculty was on a full-time basis, and UFC was getting research funds from private and government agencies on a contract basis. It was the Mission's assessment at the time (1973) that the concepts applied in the development of the UFC school of agriculture had served as a model for application in other sectors of the university.

Wisconsin - Rio Grande do Sul

The pairing of the University of Wisconsin with the University of Rio Grande do Sul(UFRGS) seemed a natural one because of a small faculty exchange between the two universities which had predated the A.I.D. effort to expand the agricultural education program.

The objective of the project activity, briefly stated, was to assist the UFRGS to establish a viable graduate program in the agricultural sciences, to integrate the program into the overall university structure, and to stimulate state, federal and private institutions to improve agricultural production in the surrounding area along the lines of the U.S. Land Grant College idea. A.I.D. contracted with the University of Wisconsin in December 1963, and the first two U.W. staff arrived in March 1964. Thereafter, Wisconsin maintained a staff of four to ten professors in Brazil until the end of the project.

Operation Tatu

The Wisconsin-UFRGS project had many accomplishments but it became internationally recognized for an effective transfer of technology known as "Operation Tatu."[14] Although often characterized as a soils improvement project, Operation Tatu utilized most of the disciplines involved in the Wisconsin-UFRGS project as well as the combined efforts of many agricultural agencies of the state of Rio Grande do Sul. The technological heart of the program, or "operation," was that of significantly reducing the acute aluminum toxicity of the soil through the heavy application of lime; once freed from aluminum toxicity and acidity, and properly fertlized, it was believed that, the region's soils could be productive.

The Wisconsin and UFRGS staffs established a pilot community development project to demonstrate the impact of modern technology on the development of agriculture in the Planalto region, some 200 miles northwest of Porto Alegre. This region is typical of traditional subsistence farming with diminished production and increasing economic problems, yet previous studies showed that the region had good potential for agricultural development. Using the results of a series of agricultural credit studies, socio-economic surveys, and natural resource surveys, the Wisconsin-UFRGS team identified problems limiting agricultural production. Other basic steps were to:

- Explain the program to farmers through radio and the press, as well as at local meetings set up for that purpose, and to give instruction in soil sampling techniques;
- Collect soil samples at the centers and send them to the Faculties of Agronomy and Veterinary Science for analysis and recommendations;
- Obtain support of government agencies and local political leaders to get inputs, infrastructure and agriculture credit;
- Get the local populace involved in developing an agricultural modernization plan based on the studies information collected and the technologies available.

Forty farmers were involved in the first crop year (1967) and there were significant immediate increases in yields. Based on this experience and the enthusiasm generated, the program was extended to 720 farmers in the Santa Rosa region, and new programs were established in nine other regions of the State. Within the next few years, direct assistance reached an estimated 35,000 farmers; soils tests were conducted and limited recommendations made to an additional 200,000 farmers annually. Farmers using soil fertility corrections increased corn yields by 300%, soybeans

200% and wheat 200%.[15] The use of lime and fertilizer increased each year, and in 1971, they were as high as they were for the previous five years combined.[16]

It is significant to note that these were no "new" technologies involved in Operation Tatu, that is, the technologies used were not discovered as a result of project activities. Nevertheless, it was a tremendous demonstration of the land grant concept and really brought the University of Rio Grande do Sul into the lives of farmers for the first time.

Teaching Activities

There never seemed to be a question of whether or not the University of Wisconsin team would teach (albeit on a temporary and interim basis until a Brazilian teacher was trained), the only question was where best to establish their teaching programs -- at the undergraduate or graduate level. There were good arguments and clear needs either way. The Brazilian university school year begins in March, and in March 1965, the decision was to begin graduate programs in crop production, animal production and soil science, and to strengthen and offer additional graduate courses in agricultural economics and rural sociology. At the end of the project, the University of Wisconsin believed this to be the most productive decision during the contract period -- one that was directly or indirectly responsible for major program accomplishments.

The initial curriculum was limited, but it introduced new depth in specific subject matter areas. In general, the curriculum was planned on a broad interdisciplinary base providing students with problem identification and problem solving capabilities with specialization being introduced through the thesis project which the student selected. As more trained staff members became available, course offerings increased and a greater degree of specialization became possible.

The graduate courses became an integral part of the Faculty of Economics (IEPE) and the Faculty of Agronomy. The veterinary faculty did not elect to establish graduate programs at the initiation of the project, but have followed suit in establishing a graduate program in Veterinary Parasitology during the last two years of the project.

The following table illustrates the growth of the graduate program.

Students Completing Graduate Course Requirements
And All Degree Requirements And Receiving The M.S. Degree
UFRGS- 1963 To 1973[17]

	Economics		Agronomy		Veterinary		Total	
Year	Course	M.S.	Course	M.S.	Course	M.S.	Course	M.S.
1963	1	-	-	-	-	-	1	
1964	5	-	-	-	-	-	5	
1965	7	1	13	-	-	-	20	1
1966	3	1	10	-	-	-	13	1
1967	9	3	14	-	-	-	23	3
1968	15	2	13	7	-	-	28	9
1969	15	6	22	3	4	-	41	9
1970	13	12	22	13	6	-	41	25
1971	16	12	34	10	2	2	52	24
1972	21	6	29	22	10	2	60	30
1973	23	7	31	17	6	2	60	26
Total:	128	50	188	72	28	6	344	128

There has been a sort of "push-pull" effect in establishing graduate courses and programs. The Wisconsin staff actively participated in teaching and research from the outset but always on a temporary and interim basis. Their idea was always to develop a course, train a UFRGS teacher to take it over, and then go on to a new course or research project. The UFRGS met its commitments in this regard and, at the end of the project, there were 56 fill-time and 33 half-time staff in the agricultural sciences, the majority of them with M.S. degrees. This was noted as one of the accomplishments by the Brazilian Government.[18]

Research Activities

Research was almost non-existent at UFRGS and neither the community nor the university itself considered research a part of the university's responsibilities. Consequently, there were no budgetary funds nor facilities for research as the project began. The Project Agreement provided limited amounts of local currency for support to research.

Because of the limited opportunities for research, the UFRGS-Wisconsin team tried to join in with agencies which were doing research. Sometimes they were successful, sometimes not; however, the degree of success was increasing with the passage of time.

By the close of the project, research was tied clearly to the graduate programs and often to the development of theses by graduate students. As noted in the Project Completion Report,[19] the UFRGS was being sought out to provide research services to others, services such as training of field technicians, publication of research results, consulting and lecturing, contract research, and setting up meetings and conferences.

Participant Training

In order to build up the UFRGS's capability to produce professors qualified to teach at the graduate level and to carry out research, a substantial number would have to be trained outside Brazil, at least in the initial years of the project. Finding qualified candidates with English-language capability who were willing and able to spend two to five years in training has been difficult in many non-English speaking countries. UFRGS-Wisconsin sent 48 participants to the U.S. for degree training, some of whom did their theses work on Brazilian agricultural problems. It is unfortunate (but not a factor controllable by either UFRGS or Wisconsin) that only 19 participants (13 Ph.D. and 6 M.S.) had completed their academic training and returned to Brazil before the project ended; most returned to UFRGS when they completed training, but it is always better to give the returned participants a period of time to continue to work with the American university professors to help with their re-integration, and this was not possible due to the project's end and the departure of the Wisconsin professors.

According to the A.I.D./PPC/CDIE draft study,[20] UFRGS has continued to flourish in the post-Wisconsin and the post-A.I.D. period. Some of that story will be covered just a little later.

Ohio State - Sao Paulo (Piracicaba)

Ohio State University was contracted by A.I.D. on March 16, 1964, to provide assistance to the College of Agriculture of the University of Sao Paulo[21] to train more and better prepared scientists and technicians to meet the growing needs of the state and nation, and to accelerate and coordinate development of state, federal, and private agricultural agencies in the area.

This was the last of the four basic agricultural university projects contracted for. In many respects, Piracicaba was the most advanced of the agricultural universities when an A.I.D.-supported team came on the scene. The orientation of the College, however, was toward Europe and, thus, the focus at Piracicaba was on teaching and research with virtually no attention to extension work. It was, at the inception of the project, already a strong institution with competence in the plant sciences, soils, forestry, and some areas of animal sciences. Planning for graduate programs had begun well before the arrival of the Ohio State team. The constraints of an antiquated university system (including the catedratico, or tenured chair system, which still prevailed at Piracicaba), plus subject matter competence on the part of one of the better educated staffs at a Brazilian agricultural college, limited Ohio State's ability to influence change, and its presence, alone, was not enough to guarantee that OSU's guidance would be sought. Some active participation was needed.

There were complaints by U.S.A.I.D./Rio and some Piracicaba staff about the quality of some of the OSU staff, weak team leadership, and the quality of home campus support. At one time, the A.I.D. Mission was considering allowing the OSU contract to expire in 1971.[22] When word of this dissatisfaction was called to the attention of the top administrators of Ohio State, the university promptly sent the Dean of the College of Agriculture, Dr. Roy Kaufman, to Brazil. His findings there, duly discussed with the A.I.D. Mission Director, resulted in thoroughgoing remedies in staffing arrangements and, ultimately, beneficial results. Despite this need for correction, good progress was being made on almost all of the planned achievement indicators. Participant training, especially, was

a key to the success of the project through its lifetime, and Ohio State did excellent work despite some backstopping failures by A.I.D. both in the field and in Washington.

Some other accomplishments:

- Undergraduate programs were improved in Plant Pathology, Animal Nutrition, Rural Engineering, Home Economics, and Entomology. Enrollment doubled during the life of the project.

- Permanent graduate programs were developed in some 15 academic departments and the Home Economics Department was started.

- By the end of the project, the number of Piracicaba professors with advanced degrees was three times as many as had been planned at the beginning of the project. Some 75 of them were trainied in the U.S., mostly at Ohio State.

- The catedratico system was eliminated and substituted with the departmental system by the end of the project.

Ohio State also carried out some of its specialized Rural Credit project activities in Brazil and was selected to work with the Brazilian Association for Higher Education (ABEAS) on a project for expanding assistance between developed and relatively less developed agricultural colleges throughout Brazil. This latter activity was carried out under an A.I.D.-financed, host country contract, and there will be more about that in the section that follows.

Transition and Change

The year 1973 was one of significant change for the four U.S. universities and their activities in Brazil:

- A.I.D. resources, particularly grant funds, had been in short supply in recent years and there was pressure to terminate long-running projects and to cut back both on A.I.D and contract personnel. Brazil was particularly vulnerable on these counts since it was experiencing a so-called "economic miracle" at the time.

- The four U.S. university projects had been successful and the cooperating Brazilian universities had become the best of their kind in the nation. A grant technical assistance project had just started which was to establish a system of university-to-university assistance within Brazil, building on the four U.S. university projects. The U.S. technical assistance, however, was a small but crucial element of the project, and would be provided by Ohio State alone.

- The A.I.D. Mission in Brazil had been trying for years to expand agricultural university education, promote education and university reform, and develop a national agricultural research capability, and it now looked like the effort was about to pay off. An agricultural research loan had been signed which took a commodity research approach and which contracted the services of the universities of Wisconsin, Florida and Purdue. The new grant project with Ohio State would also serve as transition to the Higher

Agricultural Education Loan which had just been approved by Washington and which would provide U.S. university technical assistance to develop Masters and Ph.D. programs in the agricultural sciences.

- The State Department and A.I.D. were having trouble defending the assistance to Brazil in the face of Congressional concerns about human rights violations by the military government.

During the 1972-1973 period of working out the details of the transition with the Brazilian ministries of Agriculture, Education, and Planning, A.I.D. had kept the U.S. university teams informed of what was happening. Relations between the A.I.D. Mission and the U.S. university teams were reasonably good, particularly with the U.S.A.I.D. Agriculture and Rural Development Office (U.S.A.I.D./ARDO), but it is clear the the universities were not partners in the planning decisions about the transition period and beyond, although their comments and suggestions were taken into consideration.

The A.I.D. Mission in Brazil was criticized at times for not utilizing the universities in the planning of national agricultural development priorities, for not supporting the "council" of the universities (with or without their Brazilian counterpart institutions), and for not allowing or encouraging more short-term in-country collaboration, such as swapping of technical expertise among the Brazilian or U.S. universities. There is justification for some of the criticism. On the other hand, the universities were seen to be competitive with each other and to look at plans for change from a viewpoint of whether it enhanced or diminished their own projects; the Mission had worked for years to develop conditions where the national government was ready to set agricultural priorities and invest in them, and it did not want the universities, acting in concert, to advance their own, possibly different, agenda. The Mission was concerned also about working relations with Brazilian Government agencies; the Ministry of Planning had developed into a strong development institution and saw itself as the primary coordinator for international development assistance -- on the U.S. bilateral program, it only wanted to deal with A.I.D and not with the technical assistance teams themselves (or with pressure from the counterpart institutions). The situation in dealing with the government was quite different from that in India, but the U.S. universities were a resource that may have been better utilized in planning and development.

Whatever shortcomings there may have been in arriving at the period of transition, it appeared that conditions and resources were coming together for a period of accelerated growth in agriculture (and, coincidentally, in general university development with the help of the ground work done by the U.S. universities at the agricultural colleges). However, concern about the effect on the U.S. foreign aid appropriations of helping an advanced developing country like Brazil, with its bright economic prospects but soiled reputation for political repression, caused the U.S. National Security Council to direct that the bilateral assistance program be phased down and out over a four-year period.[23]

Phase Down

The NSC directive called for a Country Team plan for phasing the bilateral program down and out, and the Embassy and A.I.D. submitted such a plan in October 1973, which was accepted. Among its important features were: 1) An emphasis on the establishment or firming-up of "post-A.I.D."

linkages between U.S. and Brazilian institutions (including government institutions such as the Department of Agriculture/Ministry of Agriculture); and 2) the setting of fairly firm dates for the termination of projects. The A.I.D. Mission itself was scheduled to be closed in mid-1977, although this was later extended to September 30, 1978, and then to September 30, 1979.

What the phase-down-and-out directive and plan did was to lock all project operations into a time frame based on the estimates then available. The U.S. universities were involved in several projects which had only recently been approved, or had recently become operational; therefore, the termination dates in the phase-out plan were based on optimistic estimates that are always given in A.I.D. initial project planning documents. This took away some operational flexibility, and occasionally caused frustration on the part of the universities and their counterpart organizations.[24]

In a sense, "it was the best of times, it was the worst of times" for the A.I.D. Mission particularly, but to some degree for the universities and Brazil as well. An innovative development program had been carefully put together[25] but it would now have to be implemented within constraints that had nothing to do with development considerations or the objectives of each project. Fittingly, U.S. universities were key implementing agents in several of the phase-down projects -- agricultural research and higher agricultural education.

Agricultural Research -- EMBRAPA

The planning and design of this $11.9 million loan project probably began in 1967, but it was signed by the Brazilian Government only in 1971. Even then, there were three major changes of organization and responsibility of the implementing agency in the Ministry of Agriculture before EMBRAPA (The Brazilian Enterprise for Agricultural Research) was established in 1973. EMBRAPA took most of 1973 and 1974 to get organized but contracts had previously been signed with the University of Wisconsin (January 1972), Purdue (September 1972), and the University of Florida (November 1972) and team members had arrived in the country to begin work.

The purpose of the loan project was to increase Brazilian capabilities to plan national agricultural research programs through concentration on five high priority food and livestock research areas -- corn and sorghum, edible beans, rice, soybeans, and beef cattle. The loan financed: 1) technical assistance from U.S. universities for Brazilian research centers; 2) academic training programs in the U.S. and Western Hemisphere for Brazilian research center personnel; and 3) research center equipment. The contracts were of the host country type, i.e., the Brazilian government had the administrative support and financial management responsibilities for the U.S. university teams, including arranging their duty-free imports and tax-free status.

The organizational problems at the start-up of project activities also affected the research program. Although the university teams were assigned to research centers (Purdue -- Corn and Sorghum, Beans; Wisconsin -- Soybeans, Rice; Florida -- Beef Cattle), no research projects had been developed and the U.S. researchers more or less had to find their own counterparts and develop their own projects to work on.[26] EMBRAPA worked a long time on its organizational start-up and in identifying the commodity research centers. Its communications with the U.S. university teams -- and with A.I.D. for that matter -- were poor. When EMBRAPA announced the location of the research

centers and that the U.S. university teams (and Brazilian researchers as well) would have to relocate, morale was at its lowest ebb.

It was about this time that the University of Florida asked to be allowed to withdraw from the program. EMBRAPA was concerned about the effect of the request on the other university teams and on the loan project itself; it discussed -- informally -- the matter with USAID and decided it was better to acquiesce than to stick to points of contract. Florida's request was staightforward enough, and tactfully worded, but was motivated by the belief that EMBRAPA's plans called for university personnel to be "research workers" rather than "research advisors."

Once the research centers were established and the universitiy teams relocated, things began to improve. The petty but maddening administrative lapses were less frequent, reimbursements were made more promptly, and -- importantly -- there were research projects to work on and researchers assigned to work on them. But, in fact, none of the university teams nor any of the individual team members were "advisors" in the sense that they had been when working on the agricultural education projects. EMBRAPA had established multidisciplinary teams to work on research problems of the commodities under study, and the approach seemed to work well. The university personnel, however, were just "other members" of the multidisciplinary teams, no different than the Brazilian team members or other foreigners recruited individually or through international research organizations. Some of the university researchers were well known in their fields and they, of course, did have personal influence in the planning and conduct of research undertaken at some of the centers. The loan program had provided for a U.S. university "Senior Research Advisor" to the overall implementing agency, and for Research Project Team Leaders at the centers, but these ceased to have substanstative or advisory roles and became channels of communication between team members, EMBRAPA, U.S.A.I.D., and the university home campuses. However, "most of the U.S. technicians quickly adapted to their new roles and many even welcomed the relief from previous responsibilities for project planning, implementation, and evelauation activities. Others, particularly those who held leadership roles, found the adjustment more difficult."[27] And although EMBRAPA was pleased with the quality of university personnel and their work, the team members with strong identity ties to their universities were uncertain about, if not disappointed in, the diminished roles that their universities, as institutions, were playing in the EMBRAPA project.

Because of the delay in beginning implementation of loan project activities, EMBRAPA and A.I.D. found themselves, in early 1975, with only two years remaining of the authorized five-year implementation period but only 25% of the loan resources used. EMBRAPA clearly wanted to use the loan and asked for an extension of time to do so. Given the history of the loan up to that time, and because it was operating under a phase-out deadline, A.I.D. would agree to a one-year extension only if EMBRAPA would develop a two-year work plan detailing the use of the resources (including specific equipment to be imported), and to a reduction of the loan by any amount not specified in the work plan. Such a plan was drafted by EMBRAPA and approved by U.S.A.I.D.; the implementation period was extended to December 31, 1977, and the loan amount reduced by over a million dollars. The work plan proved to be very well done, as performance over the two-year period held amazingly close to the targets, except that EMBRAPA was not able to get licences to import some of the equipment it wanted and the loan amount had to be further reduced. The loan resources were used as follows:[28]

Long-Term Technical Services		1,417 person months
Short-Term Consultants (52)		68 p/m
Participants Trained:	M.S.	84
" "	Ph.D.	17
Participants in Training at Loan Termination[29]		
	M.S.	22
	Ph.D.	44
Short-Term Training Abroad		99
Equipment		$1.4 million

We mentioned that the contracts with the U.S. universities were of the host country type, i.e., the Brazilian Government had responsibility of managing the contract and providing the logistic support. Due to some lapse -- or perhaps the force of habit -- A.I.D. continued to arrange the import and export of household effects and the tax-free purchase of Brazilian automobiles for the university personnel. In connection with shifting A.I.D. administrative services to the Embassy because of the A.I.D. phase-out, this practice was discovered and ordered ended by the Ambassador. The Brazilian Government then discovered that although it had signed an international agreement to provide certain services and priveleges, its customs and tax laws did not allow it to be done for government agencies' own "contract employees." The Brazilian Government quickly initiated steps to correct the problem, but it took a while to get the procedures instituted, and there were delays, worries, and irritations until the process got smoothed out. The Brazilian agencies involved, and the American personnel affected, could never understand why the Embassy (and, of course, A.I.D.) raised the issue at such a late date in the project, and some individuals chose to believe that there was malice involved.

That sour note aside, the last two years of the project accomplished a good deal. In its final report on the loan project,[30] EMBRAPA recognized the contribution of the university technicians in helping to develop the new national agricultural research system in Brazil under difficult circumstances.

University to University Agricultural Education -- North/Northeast

This project was to establish a system of university to university assistance, using as a base the experience and expertise developed under A.I.D.'s agricultural education activities with Purdue/Vicosa, Wisconsin/Rio Grande do Sul, Arizona/Ceará, and Ohio State/Piracicaba.

The rationale for the project was that the agricultural colleges in the Brazilian North and Northeast, with one exception (the Agricultural College of the University of Ceará), were of relatively low quality; at the same time, there were several excellent agricultural colleges in the rest of Brazil. The purpose of the project was to establish a permanent, functioning administrative mechanism under the leadership of the Brazilian Association of Higher Agricultural Education (ABEAS), for planning and implementing technical assistance in education and administration among agricultural colleges in Brazil. ABEAS was a non-governmental organization endorsed by the Ministry of Education and scheduled to begin recieving partial support from the Government.

Ohio State was selected, with the Brazilian Ministry of Education, to provide the U.S. technical assistance under a host country contract which ran from September 1973 to June 30, 1975. Two U.S. technical experts were planned under the contract, one in college curriculum and research, the other in policy planning and administration. Only one technician was able to be recruited, however, and the

second position was eliminated with twelve months remaining in the project. There were some problems in administering the host country contract, but they were relatively incidental (in part because A.I.D., as we mentioned in the case of the EMBRAPA project, forgot to change its procedures as the host country contracts were initially implemented, and it continued to provide some key logistical support services until after this project terminated). The need for short-term technical assistance from Ohio State was foreseen but not detailed in planning documents, but two short-term consultants did make significant contributions.

At the time this project was approved, it was viewed as a logical culmination of the of the four U.S. university projects in agricultural education. The four Brazilian counterpart universities in those projects had acquired sufficient experience and expertise to be able to offer assistance to other Brazilian universities in the strengthening of undergraduate programs. This was essentially a pilot project for university to university assistance and focused on the upgrading of two universities in the North/Northeast which, along with the University of Ceará, would form the nucleus of a strong agricultural education network or complex in the region. It would also provide an established, operational point for the Higher Agricultural Education Loan, which was planned to follow this project, but which in fact become operational about half way through.

The project, in fact, did provide a transition that was "politically" acceptable to the U.S. universities and their counterparts, and developmentally acceptable in that it called for greater participation and responsibility by Brazilian institutions. The quantitative objectives for the project were appropriately modest for a project of some nineteen months duration, and they were substantially achieved. The project helped to establish university to university assistance and interchange as a Ministry of Education program, and helped improve communications between the universities and the Ministry.

Higher Agricultural Education Loan

This loan (512-L-090) was planned at $11 million but, because of the phase-out, A.I.D. Washington authorized only $7.6 million. The purpose of the loan was to develop and implement a system for improving the planning, management and coordination of programs in graduate education in general and expanding and improving graduate agricultural education programs in particular. This was to be accomplished through technical assistance and training for expansion and improvement of selected graduate agricultural education programs, and by the establishment of a central mechanism for the planning and coordination of graduate agricultural education.

The loan agreement was signed on January 30, 1974. Shortly thereafter, however, there was a change in Brazilian Government administrations and in the Ministry of Education and Culture (MEC) which caused delays in beginning project implementation. Michigan State University was selected to provide or coordinate the U.S. technical assistance, and a host country contract between MSU and MEC was signed November 24, 1974. By the time the Brazilian office in charge of loan implementation was established in MEC, and U.S. long-term contract personnel had arrived, there were less than three years left to achieve the loan objectives. For MEC, MSU and U.S.A.I.D./Brazil, implementation became largely a matter of managing loan-financed inputs. As the following table shows, most of the quantitative project inputs were reached.

Comparison Of Project Inputs[31]
(Loan Agreement Project Description Annex vs. Those Achieved)

Item	Loan Agreement	Achieved
Long & Short Term Tech. Ass't	672 p/m	609.5p/m
Training in U.S.: Ph.D.	90	110
Training in U.S.: M.S.	30	24
Training in U.S.: Short term	32	69
Library & Teaching Materials	$400,000	$867,361
Training in Brazil: Ph.D.	12	28
Training in Brazil: M.S.	30	198
New Staff Added to Universities	M.S.-74	Ph.D. -32 M.S. -78

Much of the loan-financed technical assistance was compacted into the last half of the loan implementation period, forcing some of it into secondary priority areas and reducing the intended long-term technical assistance to become intermediate technical assistance. Little of the long-term training in the U.S. was completed when the loan implementation period ended but the Brazilian Government, through another organ of the Ministry of Education, committed itself to financing the completion of the training of participants who started with A.I.D. loan funds.

Michigan State did a good job under difficult time constraints, but was not as influential a force as the U.S. universities had been only a few years earlier. This may have been precisely because of the influence of the U.S. universities' earlier activities in preparing people and organizations to use technical assistance and training wisely. Certainly the prompt response to, and gearing up for, the opportunities presented for training abroad showed that the personnel of the MEC Department of University Affairs had experience with foreign technical assistance and training.

Summing It Up

The phase-out of U.S. bilateral assistance to Brazil was completed in July 1979, when the last "A.I.D. mission" representative left. Some A.I.D. activities continued, however, as not all participants had yet returned from training. Some centrally-funded population programs had elements in Brazil, and the idea of having the Title XII CRSP projects in Small Ruminants and Food Legumes (Beans and Cowpeas) establish research activities in Brazil was being explored (and eventually came to pass). The CRSPs facilitated a continued U.S. university presence in Brazil until 1988. In addition, Purdue, Ohio State University and the University of Wisconsin continue to maintain informal contact with Vicosa, Piracicaba and Rio Grande do Sul, respectively.

Brazilian agriculture has, of course, become a major factor in the world food supply in the last fifteen years. Its production and export of soybeans has overshadowed the growth in cereals, meat and poultry, and domestic staples such as beans and rice. Expanded acreage accounts for a lot of the growth, but improved yields are part of the equation and one that will likely continue to grow because of the successful efforts at agricultural institution building, particularly agricultural universities.

A recent study contracted by A.I.D's Center for Development Information and Evaluation,[32] stil in draft as of this writing, found that nearly all the postgraduate programs begun with A.I.D. suppor are still in existence. Many more postgraduate programs have begun in the four schools originall supported and in the agricultural colleges supported through the A.I.D. higher agricultural educatio projects with Ohio State and Michigan State. There are now 26 institutions offering 120 Masters an 23 Ph.D. programs in agriculture. "The impetus for nearly all these programs can be found i U.S.A.I.D. support".

The success in establishing a national agricultural development planning capability in Brazil along with a national agricultural research organization, has been a mixed blessing for Braziliar universities. Their growth, prestige, and contributions to Brazilian development have been and ar significant. On the other hand, they have little money to carry out research themselves and most o the research information they disseminate is developed through graduate student theses. Also university salaries for the past several years have not kept pace with salaries offered by EMBRAPA and they are losing staff to EMBRAPA and the private sector. Largely this is because of the periodic crippling inflation which has affected Brazil since 1962; a period of economic stability may correct th salary gap, or other measures may have to be taken.

A.I.D. and the U.S. universities clearly had an instrumental role in assisting Brazil reach it present stage of agricultural development. The road taken was different than the one used in Indi where a national government decision to develop agricuture led to the necessity of university reform in Brazil, the development of some universities increased the capability of the national government t plan and implement national agricultural priorities. Other than that, the elements that made U.S university assistance successful were similar -- quality university staff and good team leadership home campus interest and support, and, an integrated academic participant training program.

END NOTES

1 William L. Shurz, Brazil: The Infinite Country (New York, 1961).

2 Interestingly enough, although the book is largely cultural and anthropological in its content, Professor Smith had served in the American Embassy in Rio as an agricultural analyst during 1945.

3 Officially named the Rural University of the state of Minas Gerais (UREMG), it later became the Federal University of Vicosa (UFV) in 1969. A.I.D. and Brazil are kindred spirits insofar as the excessive use of acronyms is concerned. In order to avoid confusion through the use of acronyms for this university and the others discussed in this chapter, we will generally refer to them by geographic names. "UREMG" will thus generally be called "Vicosa." (Incidentally, the name of the state "Minas Gerais" means "General Mines," emphasizing the importance of this area of Brazil as a world source of gem-quality semi-precious stones.

4 Servicios were special organizations -- usually operated jointly by host government and donor country technicians -- to implement special programs, e.g., malaria control campaigns. Generally, they were not part of the host government bureaucracy and the pay was often better than that of government employees'. The creation of the servicios outside of the main government ministries was deliberate and was the short-term solution for avoiding some of the public administration impediments to working on some immediate (or short-term) objectives.

5 The establishment of the Recife A.I.D. office also created problems for the State Department and the U.S. Embassy in Brazil.To maintain the position of the State Department and Recife, as the senior agency with the senior official, the consular office in Recife was elevated to a status of Consulate General and the Consul General given the personal rank of Minister -- a very high title,indeed. The U.S. presence in Brazil was therefore graced with an Ambassador and four persons with the personal rank of Minister (the Deputy Chief of Mission in Rio, the A.I.D. Mission Director in Rio,the Consul General in Sao Paulo, and the Consul General in Recife). At that time, the State Department did not care for the proliferation of high-ranking diplomatic titles as practiced by some countries, so this was a very rare circumstance.

6 Country Assistance Program Document, FY 1975 (November 21, 1963), p. III-210, paragraph 3.

7 Country Assistance Program Document, FY 1964 (December 14, 1962).

8 A.I.D. Programs in Higher Education in Brazil, p. III-20. (The report of a study team in Brazil from March 15 to April 8, 1964.) The team consisted of Rosson L. Cardwell, Raymond D. Larson, W.Nelson Peach, and Charles Wagley. The team, only one of whom spoke Portuguese and had previously been in Brazil, spent a little more than three weeks in the country as its visit was interrupted by the Revolution of 1964.

9 On April 1, 1968 in Rio, a university student, Edson Souto,was shot and killed in a student demonstration against government education policies, particularly the policy ending the student restaurant subsidy. The MEC/U.S.A.I.D. agreement was not an issue in this demonstration.

10 This was Loan 512-L-077 authorized on June 23, 1968, and finally signed on March 9, 1971. There will be more about this loan later in this chapter.

11 The team members were Lyall E. Peterson, retired A.I.D.official; Wendel G. Schaeffer, President, Government Affairs Institute; Harold R. Capner, Head of the Rural Sociology Department, Cornell University. They traveled in Brazil from June 15 to July 25, 1969 and visited the four agricultural university project sights, as well as the A.I.D. offices in

Rio and Recife. A preliminary report, A New Approach to Higher Agricultural Education in Brazil (July 25, 1969), is all that is available in the A.I.D. reference library.

[12] For much of the information in this section, we are indebted to T. Kelley White, International Programs in Agriculture, Purdue University, The Purdue-Federal University of Vicosa Experience in Institutional Development, 1977; a Draft Report, Agricultural Higher Education in Brazil (A.I.D. PPC/CDIE Office, March 1989); and, the Report, OP.C.s, A New Approach to Higher Agricultural Education in Brazil.

[13] Program Budget Submission, FY 1968 (September 1966), p. 126.

[14] "Tatu" is a Portuguese word for armadillo, an animal which burrows in the soil and is believed to aerate it and thereby make it fertile.

[15] Yield and fertilizers are from statistics of the Brazilian ASOAE (extension service) included in material furnished by the University of Wisconsin.

[16] Program Budget Submission, FY 1968 (September 1966), p. 126.

[17] Final Report: Wisconsin Project in Brazil (University of Wisconsin, Undated).

[18] Project Completion Report: Federal University of Rio Grande Do Sul (December 31, 1973).

[19] Project Completion Report: Federal University of Rio Grande Do Sul (December 31, 1973).

[20] Project Completion Report: Federal University of Rio Grande Do Sul (December 31, 1973).

[21] The official name of the College is "Escola Superior de Agricultural Luis de Queiroz - ESALQ" (the Luis de Queiroz Superior School of Agriculture). In order to avoid bogging the reader down in acronyms, we have used the geographic "Piracicaba" instead of the "ESALQ" frequently used by Americans familiar with the University.

[22] Project Appraisal Report (PAR) June 1969 to February 1971 (Undated).

[23] NSC/IG/ARA Memorandum No. 8 (April 17, 1973).

[24] A.I.D. was not the only one controlling the termination dates; when Congress started requiring human rights "report cards" on aid recipient nations, the Brazilian Foreign Ministry did not want any changes in their status as a phase-out country that might trigger a human rights report on them.

[25] In addition to the Agricultural Research and the Higher Agricultural Education Loans, U.S.A.I.D./Brazil had the first A.I.D. loans for Integrated health Delivery Systems, Science and Technology, and Capital Markets. Other activities of social consequence which were still being implemented were the N.E. Small & Medium Industry Loan, NE Agricultural Marketing Technical Assistance Loan, and the Fundamental & Secondary Education Loan.

[26] An additional research area was added in 1972 at the request of Minister of Agriculture Cirne Lima, who was concerned about the plight of small agriculturalists in Northeast Brazil. The A.I.D. Mission supported the request and the University of Wisconsin, which had overall project leadership responsibilities, undertook to set up a "problem" (vis-a-vis, a commodity) research center in the Northeast. Unfortunately, this activity had even less definition and support than the other research activities and it was abandoned after EMBRAPA defined its program activities and identified its research centers in 1975.

[27] Terminal Report, A.I.D. Loan 512-L-077 (University of Wisconsin-Madison, February 15, 1978). p. 5.

[28] The Table is based on information contained in Final Report, U.S.A.I.D./EMBRAPA Agricultural Research Project; A.I.D. Loan 512-L-077 (Brasilia, 1978). The document

has a good historical description of the project, is well organized and has quantitative data on the major elements of the loan. It is available through the A.I.D. library in Washington.

[29] Participants continued in training through funding arranged by EMBRAPA with other Brazilian agencies.

[30] U.S.A.I.D./EMBRAPA Agricultural Research Project; A.I.D. Loan 512-L-077 (Brasilia, 1978).

[31] U.S.A.I.D./Brazil; Loan Completion Review And Report (February 20, 1979).

[32] Daniel Gross, Agricultural Higher Education In Brazil, A.I.D. Project Impact Evaluation Report No. (draft) (March 1989), p. 7.

PERU

North Carolina State University in Peru

> It is much to the discredit of U.S. foreign aid policy that there is not yet, in all of the major countries of Latin America, a truly first rate Land Grant university such as (say) North Carolina State University.[1]

Dr. Theodore W. Schultz had been a member of the A.I.D. Economic Advisory Committee. Through that experience and by extensive travel to Latin American countries, personal study of their progress and failures, and participation in numerous international conferences, he had come to a deep understanding of their need for stronger agricultural research and educational institutions. He had come to know well, also, the strong leadership role that North Carolina State University had given not only to the agriculture of its own state, but to other southern U.S. Land Grant universities. At a special lecture and discussion meeting which A.I.D. had asked him to lead in Washington, D.C., he had shared the quoted observation with A.I.D. executives and staff.[2]

In point of fact, North Carolina State University was, itself, engaged energetically and very competently to help bring that desired end about in Peru.[3]

From 1954 until the present time, North Carolina State University (NCSU) has maintained a major, primarily A.I.D.-funded program of agricultural technical assistance to Peru. Although this program has assisted Peru with a host of agricultural development undertakings, NCSU's focus throughout this 35-year period has been on helping Peru develop a strong, integrated national research, education and extension institutional capability at what came soon to be named the National Agricultural University (Universidad Nacional Agraria or "UNA"), located at La Molina.

It has been a large effort. The first contract was signed between North Carolina State University and A.I.D.'s predecessor agency (U.S. Foreign Operations Agency) in November 1954. By early 1955, NCSU had seven professionals at La Molina or the sublocation at Tingo Maria. By 1963, and until 1965, there were 36 NCSU professionals in Peru. Eight of these were under the A.I.D. university-building contract. The remainder were from Ford and Rockefeller Foundations, the InterAmerican Development Bank, other donors and other A.I.D. funded projects in Peru.

The period 1954 to 1965 was a period of rapid and relatively steady growth in the development of Peru's National Agricultural University. Buildings were constructed, curricula were designed, young staff members were given science-based training in the various technical subject fields, faculty was expanded, and research was undertaken in a major way.

The North Carolina State University Peru program featured (in the manner of the India program discussed earlier) institutional development of the agricultural university within the context of harnessing it directly to the task of upgrading the country's agricultural productivity. This required integrated and research and extension functions, organized largely around specific crops and livestock enterprises.

With major funding from the Peruvian Congress, a set of national research programs (corn, rice, potatoes, pastures, forages, beans, small grains, and livestock) was jointly planned and implemented by NCSU staff members working with Peruvian professionals at seven national locations. These

national programs included joint research by scientists at these seven locations (five of which were newly established) and their colleagues at La Molina.[4]

"During this developmental period, at UNA, the (A.I.D.) contract annually provided for over thirty degree scholarships.[5] For the "1950s and 1960s we can track A.I.D./NCSU support for 200 (Peruvian) degree candidates."

But during this period of rapid growth of the agricultural research and educational institutional capabilities other problems of a political nature were brewing. The all too familiar response to political pressures was to decentralize agricultural institutional facilities and development programs to meet political criteria rather than to serve developmental requirements. Research programs became politicized, authorities decentralized, experiment stations turned over to local colleges, and arrangements for participant training wavered.

Nevertheless, much progress was made, particularly in the potato and rice research and development programs. One of the more important developments by the end of 1967 was that : "For the first time in Peru, selected regional universities were involved with the national (development) programs.[6] Rebuilding of an institutionalized structure for a strong, science-based agriculture was well under way. Then:

> Beginning in October, 1968, a second major set back was dealt to the emerging science-based agricultural growth strategy when the military took command of the Peruvian government. Throughout 1969, the new government began to dismantle research, extension and educational programs. Very early on, the critical resources required for research and education began to leave SIPA and UNA. The next ten years was an extremely dismal period for agricultural science in Peru.[7]

The report goes on to say that during this period, "land re-distribution, land expansion and worker managed cooperatives" began to displace the science-based technology strategy of agricultural development of the preceding governments on which NCSU had worked so diligently.

> By 1970, the actions of the military government had severely reduced the size and significance of national research and extension programs. Their actions on education had also begun to turn around many structural and administrative changes initiated in the 1960s at UNA (The National Agricultural University). Many Peruvian scientists and rural entrepreneurs had fled the country.

Nevertheless, in spite of the hostile political climate, NCSU continued to work in Peru. This included assistance to the in-depth commodity programs, training of Peruvian participants in the U.S., and, for a time, continuation of an academic advisor and an economics advisor to the university and a research advisor to the Ministry of Agriculture.

NCSU's special research and scientific advisory efforts generated other, long-term scientific activities in Peru of profound significance, not only to Peru but worldwide. The research on potato production sprouted a new international agricultural research center, "The International Potato Center (CIP)." From 1968 to 1970 the NCSU had, under its contract, been providing support for designing and arranging external finance for an international potato research center to be located in Peru.

In January 1971, the government of Peru signed an agreement with NCSU to assist in the development of this international center to which A.I.D. was, by that time, contributing.

Potatoes had originated in that part of the world, had migrated to North America and were carried to Europe by early Spanish explorers. They became a mainstay in the diets there, especially in Ireland from which fact the designation "Irish potato" was derived. The NCSU's role in getting this International Center established was undoubtedly definitive; it certainly was in drawing in both Peruvian and A.I.D. support in the earliest years.

During this period, also, NCSU's research played a somewhat similar seminal role in international soils research.

The writer's heavy involvement with economic interpretations of soils research in India impressed him thoroughly with the unexploited lode of generalizable information coming out of the soils testing laboratories there. He knew that soils testing laboratories (for providing prescriptive information directly to farmers on the fertilization requirements for growing specified crops, based on testing soils samples taken from their lands) had been set up by A.I.D. in several countries. He knew that the generalizable conclusions from data provided by these laboratories required the development of an analytically integrated economics and soils test measurement system. He knew also that North Carolina State University had exceptionally strong departments of soils and of agricultural economics, and much experience working in LDCs in both these subject areas. Out of these circumstances (the writer was in charge of A.I.D.'s centralized research program at the time) arose a soils research contract with NCSU.[8]

This NCSU Soils Research project with A.I.D. was followed by another and then a third, each with a quite different focus and each based on the significant findings of its preceding projects. Concurrently with this, A.I.D. had awarded a 211(d) grant on tropical soils to five U.S. universities, of which NCSU was one.[9] North Carolina State concentrated its soils research project work in Peru. And the 211(d) grant enabled it to add additional staff competence to that effort.

These four A.I.D. centrally funded NCSU projects on soils expanded substantially the NCSU presence in Peru. They served also to help establish NCSU as one of the very most outstanding centers of tropical soils research competence in the United States.[10] Therefore, when a Collaborative Research Support Program (CRSP) in tropical soils management was established by A.I.D. in 1981, NCSU was, by quick consensus, selected by all participating U.S. universities and by A.I.D. as the proper administrative leader of the program. This CRSP bids well to elevate to a totally new plateau of scientific understanding the requirements of effective and efficient soils management of many characteristic LDC and U.S. soils.

Specifically, the A.I.D./NCSU soils research projects facilitated NCSU's collaboration with the Peruvian tropical soils management center in Yurimaguas, Peru. The collaboration continues under the present CRSP. This has become a truly outstanding center for tropical soils research, which, through its collaboration with the CRSP, and through other more informal arrangements, contributes to worldwide improvements in soils management, most particularly in Latin America.

The new government which replaced the military government recognized early the shambles that had been created in the agricultural research and educational underpinnings necessary for the country's continued development. In 1979, it requested A.I.D. mission assistance in assessing the

status and opportunities for redeveloping research, extension and educational capabilities.[11] The mission responded favorably with A.I.D./Washington's strong support. A rather massive "baseline study" was undertaken, involving some 120 Peruvian professionals, three A.I.D. mission resource persons and sixteen NCSU special consultants. This study depicted clearly the serious "decapitalization" of earlier investments, which had taken place in human and institutional scientific resources for agricultural development. It outlined a general strategy for redevelopment, identified activities needing support, and identified types and possible sources of external assistance needed. The country development program which emerged from these internal assessments re-established priorities on research and science-based agricultural development. NCSU was called upon again to assist with the effort. From 1982 to 1988, to fill a continuing total of five advisory positions, NCSU provided ten different long-term professionals : two chiefs of party, two research advisors, three extension advisors, two educational advisors and one agro-economic advisor. Six of these were NCSU faculty members. Additionally, international agricultural research centers provided a total of eight long-term advisors to this program. Fifty-two NCSU professionals (and 26 from other universities) have served the program as external consultants.

The re-establishment of this science-based approach, integrating research and extension activities, has paid off in expanding agricultural growth rates, averaging 4.2% for crops and 4.5% for livestock annually from 1982 to 1987. It has produced some seventy new crop varieties, with accompanying production technologies, designed for the various ecosystems of the country.

> These production and productivity changes spanned two presidential elections, five changes in (agricultural ministry) leadership, a major restructuring of relevant government agencies and increasing levels of social and political unrest. A major source of program continuity has been the core NCSU professionals.[12]

Again, Peruvian plans are moving forward toward a renewed effort. The government of Peru has plans for seven new states, but our latest A.I.D./Peru contract, starting April 1, 1988, continues to support a science-based development strategy. The program focuses on creating a private foundation (FUNDEAGRO) to be catalytic (in program development and linking public and private institutions) and a co'investor in agricultural science based projects. The latest contract is joint with NCSU/Iowa State University and runs to March 31, 1993.[13] This bodes well for Peru: (providing, of course, that the country can stabilize its directions and make secure and responsible to its people its processes for selecting its government.

In the meantime, for as long as it remains in the U.S. interest to provide assistance to Peru's agriculture, North Carolina State University stands as a tower of professional and scientific competence upon which to draw. Since 1955, over eighty NCSU faculty members have worked with Peruvians, 47 of them on long-term assignments. They know the country, cherish their experiences there, and can serve it well. Few other places in the United States have developed such a concentrated level of professional expertise about a single developing country.

Iowa State University in Peru[14]

The Eisenhower Administration, in its last years, had taken a leadership initiative in relations with Latin America. It had decided that the United States should lend its weight to those economic, social and political forces at work throughout Latin America which were directed at the economic enfranchisement of the multitudes of rural families which had for centuries been locked into inescapable poverty as landless laborers, squatters and share renters. It had announced these intentions at an economic conference of the Organization of American States held in Bogota, Colombia, in September 1960. It had also given weight to its stated intentions by supporting the establishment of a "Social Progress Trust Fund" to be administered by the Inter-American Development Bank, recently established in April 1959. And it committed itself in the Act of Bogota to support this goal through a stepped-up bilateral assistance effort under the International Cooperation Agency (now A.I.D.).

President Kennedy appropriated this effort with zeal -- and gave it special recognizability and élan under the designation "Alliance for Progress." At the heart of this shift in U.S. policy and effort was, of course, the recognition that President Franklin Roosevelt's concept of "good neighborliness" could have significance only in the context of mutually supporting relations among the entire peoples of the several countries: not just a strengthening of governmental alliances among their political and economic leaders (or masters). This, it was seen, would require massive internal reforms to be undertaken by each country in its own way, assisted by the wealthier of the countries in the Organization of American States -- i.e., by the United States. Reform -- land reform, tax reform, governmental reform -- were not only catch phrases or political nostrums of U.S. policy toward Latin American States; they were to be the objects of practical planning and execution in carrying out U.S. assistance policy within the framework of the Alliance for Progress.

Peru was a case in point. The government of Peru, as a part of its effort to undertake some of the needed reforms, had established an Agrarian Reform Commission and an Institute of Agrarian Reform. Its efforts, however, were caught in a maelstrom of the crosscurrents of views and conflicts of interest between peasants aspiring to all such change and cherishing the status quo. The government of Peru needed help and requested it of the U.S. Ambassador to Peru. Thus, in early 1961, the U.S. Ambassador to Peru, James Loeb, asked the State Department in Washington to provide him, through some means, with expertise which he could assign to help these two Peruvian entities -- and, more widely, the Government of Peru and the American Embassy. Responsibility for responding to Ambassador Loeb's request was transmitted to the writer.[15]

He knew that very little expertise and virtually no experience existed in that field in the United States.[16]

Virtually the only U.S. university to have laid claim to any major concentration on problems of land tenure and land reform in less developed countries was the University of Wisconsin. It had its hands more than full in undertaking, on behalf of A.I.D., a wide variety of training, research and advisory activities throughout Latin America and, to a lesser extent, Africa and the Near East. One notable exception was Dr. John F. Timmons, Professor at Iowa State, graduate of the University of Wisconsin, who had begun a significant program of research and graduate training in land tenure at Iowa State University. The writer called Dr. Timmons to ascertain his interest and, in the

conversation, conveyed to him Ambassador Loeb's interest in obtaining assistance on the legal, as well as on the economic, dimensions of land tenure reform undertakings.

This insight by the Ambassador was to have far reaching consequences.

Dr. Timmons indicated his own personal interest and belief that Iowa State University would be interested in helping on the economics dimension of the problem. He stated that as the University had no College of Law it probably could not be of much help on the legal dimensions. As it happened, however, its sister institution, the University of Iowa, had a strong law school and one professor especially, Professor John O'Byrne, who had done considerable research on Latin American land law. The two universities had collaborated substantially on research, and on teaching and extension work, on Iowa land tenure problems, especially in improving land rental and land purchase contracts. This included work with the state legislature to improve land rental and land purchase contract statutes.

Shortly thereafter, at a meeting in a motel near the University of Iowa Campus, the writer met with Dr. Timmons, Dr. O'Byrne and a little later with Dr. Mason Ladd, Dean of the Law School at the University of Iowa, President James Hilton of Iowa State University, and several interested faculty of both institutions. The upshot was agreement that Ambassador Loeb should be advised that Drs. Timmons and O'Byrne would visit Peru to discuss with Ambassador Loeb and any others in the Embassy, A.I.D. mission, and Peruvian government or institutions that the Ambassador would indicate, the development of a longer term, suitable technical advisory arrangement.[17] At the time, it was anticipated that the activity might last from six to eighteen months, probably nearer the latter. Such a short-term arrangement would undoubtedly assist the government in its immediate choice of options to pursue, but not, of course, to appreciably improve its performance in implementing those choices.

The American study team arrived in Peru in September 1961. The discussions in Peru early identified the need for an internal capacity of trained manpower and a sound base of knowledge and analysis, either of which would undoubtedly require a much longer term of assistance than originally anticipated. Reflecting this reality, the invitational travel arrangements which provided for these discussions were followed by a series of four contracts between the Iowa universities and the A.I.D./Peru mission for work over the sixteen years from 1962 through 1978. The program was so designed and carried out that it contributed a steady flow of outputs which would be useful to Peru -- whatever the date of termination of the project. Assistance was of three types:

(1) Training of Peruvians, in the United States and in Peru;

(2) Research and studies in Peru;

(3) Advisory services to Peruvian officials.

By the time the project reached its sixteenth year, in 1978, 44 Peruvians had received training to the M.Sc. or Ph.D. level and an additional nineteen had received shorter-term training in the United States or elsewhere outside Peru in subjects related to agrarian reform. Also, "hundreds of Peruvians received on-the-job training while working on their jobs in Peru."[18]

By the same date, the two Iowa universities had sent 27 faculty members for long-term and 35 faculty members for short-term assignments in Peru.[19] It was a distinguished group. For example, of the group leaders one was later recruited by A.I.D. for an executive position in its Bureau for Program

Policy and Coordination, and later served on A.I.D.'s Research Advisory Committee.[20] Another group leader was awarded, by the Government of Peru, the Order of Merit, one of the most coveted of Peru's honors, the "first time in 20 years that this prestigious honor had been bestowed upon a U.S. Citizen."[21]

During this period, also ..."Hundreds of publications, working papers and memoranda were prepared with participation of Iowa staff members," to remain in Peru as descriptive and analytic foundations for the formation and carrying out of the sound and well informed agricultural development policy. Some of these papers contain extremely deep and unusual insights into fundamental issues of relevance as much to the United States as to Peru. Their originality and freshness of insight from the standpoint of U.S. application stems in large part from their examining old familiar issues from the fresh perspectives of a country whose history treated them very differently than did our own.[22]

But the focus of research was generally concentrated around policy, planning or implementation options immediately facing the Peruvian government as it struggled with the problems of expanding economic participation opportunities of rural peasants in the several culturally distinct areas of Peru. Also prominent were the problems central to all agrarian societies -- how to stimulate capital formation in the farm sector and tease it into non-agricultural capital investments to stimulate general economic development? And there were problems of farm price "management" -- to provide inducement for increased food production without stressing consumer food prices for non-farm workers and hence dampening non-farm growth.[23] Very practical problems of a legal character were also the subject of research: Questions of land tenure laws, leasing arrangements, equity sharing, reparation determinants -- and many other such issues - - were investigated by joint Iowan-Peruvian teams and the results were used by a succession of Peruvian governments.

Training took many forms. Among these was the training of Peruvians in formulating problems in such a way that they could be objectively researched and the results usefully applied -- and training in the application of rigorous research methods to these problems. Only the close and continuous interaction of the trainees and the Iowa staff -- on the Iowa university campuses and in Peru -- could effectively accomplish this kind of immediately relevant educational process.

Perhaps most significant of all was the maintaining throughout this rather long period of a mutually accommodating set of personal and professional relationships between Iowa professionals and Peruvian officials. Political instability, bordering on turmoil, characterized the period. The Iowa universities were doing their work on the very most politically disputatious issues in the country. And yet, their good relations with officialdom survived the tumult. This demonstrated their great finesse in identifying themselves with the solution of the country's most serious problems, and doing so through scientific research programs in which Peruvians participated sufficiently to perceive their essential scientific character and hence objectivity. Devoid of grounding directly in either expressed U.S. or Peruvian political policy, but in the pervasive need for national improvements and economic growth, with which most officials could identify, the Iowa/Peru program persisted in providing useful information and counsel, and enhancing the analytical skills of the Peruvians. In so doing, the Iowa university program increased the chance of Peru reaching its goals of "achieving progress toward economic growth, social growth and political stability"[24] which, in turn, serves the long-term U.S. foreign policy interest.

Many informal contacts and shared educational experiences continue between the Peruvians and the Iowa universities. It is to be expected, and certainly hoped, that these will continue. Great as the stakes might be, we have learned that the U.S. cannot induce deep-going structural reforms of other countries by application of financial "leverage" -- either as an inducement or threat of withholding it. Nor, as we and the Soviet Union should have learned, can it be induced by military process. But competent, objective, freely offered technical assistance to help countries identify and learn the advantages to themselves of such reforms, and to enable them to develop the manpower and institutional resources to carry them out effectively, can often accomplish this result. It would be in the U.S. foreign policy interest to foster this continuing effort -- and to learn this lesson from it!

Postscript on Peru

Any description of the last thirty-five years' agricultural development in Peru would no doubt highlight the instability and discontinuities of Peruvian governmental policy and approach. Clearly this is true of the accounts by North Carolina State University and by the Iowa universities. This instability reflects in large measure the periodic ascendancies and descendencies of political representation of the varied social and economic interest groups, as is to be found true in all societies in which people's voices are heard in the political process. There has been something almost bizarre, however, in the extent to which, in Peru, the two necessary ingredients of any significant agricultural development have been treated almost as if they were incompatible when, in true fact, they are not only compatible but the contribution of each is highly dependent upon the contribution of the other.

One necessary ingredient of successful agricultural development is the incorporation of scientific and technological advances as a principal causative element -- which in turn requires a strong underpinning of science-based, integrated research, educational and extension institutions. The other necessary ingredient of successful agricultural development is a form of economic organization and political power alignments which promotes the play of financial incentives to activate the productive energies of as large a fraction as possible of all persons engaged in agriculture.

The North Carolina State and the Iowa universities' accounts show dramatically that in those times when Peruvian governmental policy attention shifted sharply toward improving the distribution of economic opportunities, it did so at the expense of established or planned programs for strengthening the country's science-based agricultural research and educational institutions. As we have seen throughout this book, nothing could have more certainly defeated the government's plans and programs for the economic betterment of the economically disadvantaged in agriculture -- the renters, "squatters" and small-scale owner-operators. It is precisely by means of adopting and adapting new scientific technologies that the economic-incentives-driven small farmers have led the agricultural production explosion of so many Asian countries, for example.

On the other hand, reports on those periods of Peru's heaviest emphasis on building strong agricultural scientific institutions and on technological advance show little evidence of focus on the need, importantly, to redirect the substance of these advances toward the special characteristics and needs of the economically disadvantaged, low resource farm operators. This deficiency has built into it the raw materials of agricultural economic and productivity disappointment -- and even more certainly, the augmentation of social unrest, political upheavals and development policy discontinuities. In briefest statement, national policy and resource allocations for agriculture zigged

and zagged between structural reforms and support of scientific institutional underpinnings, althoug both were needed, in reasonable balance, for agricultural economic and social development to succee and persevere.

North Carolina State University worked with great effectiveness on building the neede research and educational institutional foundations; the Iowa universities worked long and effectivel also, on the needed structural reforms. Peru appears to have chosen and integrated these pa dichotomous emphases. As Dr. Coutu's cited letter indicates, Peru's new program "to support a science-based development strategy" involves a joint contract with North Carolina State and the Iow State universities, which runs until March 31, 1993. This would seem to provide optimum opportunit for the country to develop and start to implement a single strategy which continues building th necessary science and technology base with needed economic and social adjustments, adaptations an structural reforms. With its new greatly upgraded capabilities of trained manpower, and the promis of an equally strong base of institutional competence and sound development policy, outlook fc success is bright indeed. It will have very strong U.S. university professorial resources upon which draw. And the United States will have them to offer. The lessons, and resources, developed in th thirty five years of experimental effort which have marked Peru's recent history are the buildin blocks of a promising future. The United States would do very well to be extremely alert fc opportunities to assist Peru in the specific function of achieving this integration of agriculture development policy and program, and to be extremely wary of supporting anything which advance one at the expense of (or while ignoring) the other.

END NOTES

1 Dr. Theodore W. Schultz, Nobel Laureate, University of Chicago, circa 1964.

2 And so they appear in the writer's notes. In keeping with the timelessness of the wisdom exchanged at those meetings, the meeting date does not show in the notes.

3 Much of the material in this section is from a report prepared by Dr. Arthur J. Coutu, Agricultural Economist at North Carolina State University, long-time active participant as leader and member of the Peru Team and as campus coordinator. Dr. Coutu served for a time as Chief Agricultural Economist in A.I.D. 's Technical Assistance Bureau. A.J. Coutu, Report, Chronology of NCSU in Peru (August 26, 1989). Prepared in response to the writer's request of Dr. Lawrence Apple, Coordinator of International Programs, North Carolina State University, for information on this topic.

4 Coutu, p. 4.

5 Coutu, p. 4.

6 Coutu, p. 4.

7 Coutu, p.5.

8 Dr. Frank Parker had, by that time, left India, and after three years as Assistant Director General of the U.N. Food and Agricultural Organization (FAO) had come to A.I.D./ Washington as the writer's assistant in agricultural research. His premier standing and experience as an international soils expert gave the writer the necessary confidence and resources to proceed with this project.

Its purpose was to provide a better basis for determination by LDCs of their fertilizer needs, by type, for forward planning purposes and to improve the economic realism of recommendations to farmers on fertilization rates from the soils testing laboratories' analyses of their soils samples. Fertilizer comprised an enormous proportion of the foreign exchange requirements for increased food production in many LDCs; and, because of the extreme variability of soils from spot to spot, optimum fertilization requirements were very poorly known. This, in turn, led to poor allocative decisions regarding fertilizer use still an important problem in many places. For various reasons this project did little to achieve the improved analytical system the writer had hoped for. But it did significantly expand the soils testing capabilities in Latin America and intensify NCSU's very important soils research in Peru at a time of withering opportunities.

9 The others: Cornell, Hawaii, Puerto Rico, and Texas A&M at Prairie View. See section on Historically Black Colleges and Universities, in this book, for more complete discussion.

10 Others include Cornell University and the University of Hawaii.

11 Congressman Findley, author of Title XII, had had rather extensive conversations on this subject with the new government.

12 Coutu, p. 12.

[13] From letter to the writer by Dr. Coutu, September 11, 1987 (See "Iowa in Peru," in this book. In his letter, Dr. Coutu points out another very important feature of the NCSU program: it emphasis on donor coordination. This aspect was not acceptable to A.I.D. in 1980-81 but mos acceptable to the Government of Peru, World Bank, InterAmerican Development Bank, an many small donors. In a final report on the REE Project, 1982-88, the re-development effort were financed as follows:

	US $ Millions	Percent
GOP direct	127.2	55
GOP counterpart	27.7	12
InterAmerican Development Bank	34.6	15
BID	3.9	2
USAID	24.2	11
Others	12.8	5
Total	230.4	100

[14] See John F. Timmons, "Agrarian Reform, Agricultural Planning and Economi Development in Peru," International Development Studies in Peru, Monograph No. 1 (Ames, Iowa: Iowa State University, September 1981).

[15] Who had been originally recruited into A.I.D.'s predecessor Agency (ICA) the precedin November as a so-called "technical expert in land reform" -- for which he was "qualified" by virtue of having written one major article on the subject, as it related to India conditions. "Experts" by any definition, in that field, so important to U.S. policy, wer indeed a rarity at that time.

[16] Our country's last and only major action specifically focused on attaining a sound lan tenure system was the Homestead Act of 1862. (Although some would indicate that th Civil War was by far the most significant in destroying the legal basis for involuntar servitude; others would include various actions to enfranchise family farmers throug making credit more readily available, or actions to weaken the grip of land owners ove sharecroppers through many means, particularly as part of the civil rights movement. However this may be, there were very few American scholars indeed with any ever professed interest or capability to help the Peruvians in the way desired by Ambassado Loeb.

[17] It was arranged that the two Iowans be accompanied by a Peruvian graduate studen then studying at Iowa State University.

[18] Timmons, p. 1.

[19] By administrative definition "long-term" refers to more than one year under the contrac terms; but the majority are for two years or more.

[20] Dr. Eric Thorbecke, by that time Professor of Economics, Cornell University.

[21] Dr. Fred Mann, then Professor of Agricultural Economics, Iowa State University; late Director of International Programs, university of Missouri. Interestingly, Dr. Mann wa in 1982 University recruited at the request of the A.I.D. Mission in Peru to serve on three-year assignment to Peru as a member of A.I.D.'s Joint Career Corps Program.

[22] A case in point is the significance of the "balance of powers" concept built into the U.S constitution -- a concept often challenged by persons who would like to strengthen greatly the powers of the legislature or others who would like to strengthen the powers of the executive (or judicial) branch -- always at the expense of the other two. Iowa studies indicate that much of Peru's internal instability derives from constitutionally unlimited and unchecked powers of its legislative branch. With no built-in constraints upon its powers, it finds itself so over-representing the segments of society which control it tha unrepresented social factions express their frustrations through extra-legal processes such as revolutions and military take-overs of government. In brief, in the U.S. system the legislative branch agglomerates and adjudicates and represents the multitudinous

and often conflicting localized, and/or otherwise specialized interests of constituents. The executive branch reflects the larger national aspirations and expressions of national public purpose. This may be greater than, and it is certainly different from the sum of local constituent interests represented by the legislative branch. The idea that the legislative branch represents "the people" more directly or more fully than does the executive is a faulty conception. The executive equally exposes itself to "people's choice" elections. It does, however, represent a different dimension and different expression of the people's preferences. The judicial branch,especially in countries deriving their legal systems from the English "common law," balances against the heavy weighing of exigencies of the moment by both of the other two branches of government, the judicial interpretations of historic experience and"precedents." Oversimplified, perhaps; but the Iowa/Peru studies throw into empirically sharp relief the securities against discontinuities or disequilibrium so wisely --even if somewhat accidentally -- built into the U.S. constitution. Similarly far reaching in significance are some of the research findings related to spatial economics in development -- the impacts of social unity and opportunity generation of the historic processes of population concentrations in "production conglomerated" around a few large cities.

[23] Interestingly, it can be well argued that in the U.S., and elsewhere, artificial price supports (defined as above short-term market prices) have kept alive a steady flow of economizing inputs into agriculture which have kept food production at "artificially low" levels to consumers. Certain it is that the public subsidization of agricultural research has redounded very heavily to the benefit of consumers -- in the form of lower food prices than would have obtained, for the same quality of foodstuffs, in the absence of such publicly financed research investments.

[24] Timmons, p. 6.

ETHIOPIA:

Oklahoma State University

The Light That Did Not Fail

However worn and bright its glow
The Candle dies when the high winds blow
But may it not yet light the way for men
When with the calm it's lit again?

—anon.

In the death of Henry Garland Bennett,administrator of the Point Four program, I have lost a friend and the American people have lost a great teacher of the simple ideas of cooperation and brotherhood. He was a good man and he believed in the goodness of human nature; he was an educated man in the best sense and he believed in the right of all to an education. Finally he understood how people can work miracles by sharing knowledge to help themselves and each other. That is the essence of the Point Four program for which Dr. Bennett lived and died.

—Harry S. Truman, 1951[1]

The war had been won five years before. The Fascists and the Nazis were out of ancient Abyssinia. Now Ethiopia, it was back in the hands of its pre-war leader, the self-proclaimed "Conquering Lion of Judah, Emperor of Ethiopia, His Imperial Majesty, Haile Salassie." In his own way he had years before won the hearts of many Americans by his sturdy stand for the principles of the League of Nations, against Mussolini's attempt to subjugate his country. The little man, in his forlorn isolation, had warned what later became the "allied" nations that this conquest of Ethiopia in the mid 1930s was but a sword-testing precursor of the Axis countries' ambitions against all of Europe, Africa and Asia.

Already by 1950, the Marshall Plan, and comparable U.S. efforts on behalf of Japan, had largely restored the economies not only of the former allies, but also, of their erstwhile enemies: the Germans, the Italians and the Japanese. But poverty, ill-health, hunger, and illiteracy still hung heavily over Ethiopia, where economic prosperity and development were the remotest of hopes. What to do?

The Imperial Ethiopian Government "officially" invited Dr. Henry G. Bennett, President of Oklahoma State University, a strongly agriculturally oriented institution, to visit Ethiopia in April 1950. The purpose of his visit was "to evaluate (the country's) existing educational programs in terms of effectiveness in meeting the needs of the nation and to suggest needed adjustments and changes which would provide Ethiopia with a comprehensive, dynamic program."[2]

President Truman had made his "Point Four" proposal in his Inaugural Address in January 1949. But the idea was not signed into law until June 1950 -- two months after Dr. Bennett's visit to Ethiopia.

Things continued to move, though slowly. The Point Four General Agreement between the U.S. and Ethiopia was signed a year later, in June 1951, and an implementing agreement, "For a Cooperative Agricultural Education Program between the Imperial Ethiopian Government and the Government of the United States of America," was signed in Addis Ababa, Ethiopia, May 15, 1952.[3]

The underlying purposes of the agreement were broad, opening with the objective: "1. To promote and strengthen friendship and understanding between the people of Ethiopia and the United States of America and to further their general welfare."

Thus began a program which lasted sixteen years.

It was a heavy and very broad responsibility that Oklahoma State University (O.S.U.) undertook when it signed a contract with the Technical Cooperation Administration (now A.I.D.) on May 15, 1952. The contract provided that O.S.U. would "Give assistance to the Government of Ethiopia in the establishment and operation of.....

> A college of agriculture;
>
> A countrywide system of agricultural extension services to the people of rural areas;
>
> Agricultural experiment stations;
>
> Other such specific projects and operations...in related fields pertaining to the economic development of Ethiopia as the T.C.A. may request and the University may accept.[4]

Broad as was the mandate, it proved not broad enough.

Within a month it became clear that no college could function without students, and there were very, very few students with the type of background, interest and secondary education to enroll in the college.

The Jimma Secondary School

Consequently "the signatures to the contract had scarcely dried when an operational agreement between TCA and the IEG (Imperial Ethiopian Government) was signed"[5] through which O.S.U. would help in the development and operation of an agriculture secondary school. This turned out to be an abandoned, Italian vocational school at Jimma.

When, shortly thereafter, the first O.S.U. team members arrived to set up shop temporarily in the capital city, Addis Ababa, they quickly discovered that there was not in the country a single Ethiopian with a bachelor's degree in agriculture, with whom the O.S.U. staff members could work. Nor had the location site been selected for the about to be developed College of Agriculture. Nor was the Jimma Agricultural Technical School equipped with either staff or facilities to receive the high school students who were to be prepared there for later admission to the College of Agriculture.

Under supervision of the O.S.U. staff, which arrived at Jimma in June, 1952, grounds were cleared, buildings and dormitories repaired, and some 80 students selected by interview (school records being virtually non-existent) from some 500 applicants. Arrangements for student housing (all on the campus) and class rooms for teaching were necessarily makeshift. But classes began on time.

A subsequent survey was made of the future fortunes of these first eighty students. Fifty went on to complete the requirements for a B.S. degree at the College of Agriculture at Alemaya (the site for which had not yet been selected when these students began secondary school studies at Jimma). Of

these 50 B.S. graduates, 26 had (at the time of the study) received M.S. degrees from U.S. institutions, and 16 had completed or were in the process of completing Ph.D. degrees.[6] The writer concurs in the O.S.U.-expressed hope that the present "sophisticated" student selection methods will serve as well as the rough and ready, intuitive processes necessarily used for this first class.

The Jimma school also took on the task of providing two years' college level training while the College of Agriculture at Alemaya was being built. The earliest of these students were moved in their junior years to college facilities in Addis Ababa, where they were taught agriculture by O.S.U. staff members. After 1958, when the Agricultural College at Alemaya was ready to accept students, Jimma reverted to its original and appropriate function of a secondary level, "technical" school.

Twelve classes, totaling 550 students graduated from Jimma while Oklahoma State was working in Ethiopia. The basic purpose of the school was, of course, not only to prepare some students for admission to college but, also to provide its other graduates with technical training applicable directly in their vocations.

An evaluational study made in Ethiopia of all aspects of the effectiveness of the Jimma Agricultural Technical High School showed that fifty percent of the Jimma graduates continued their education at the College of Agriculture and ninety-four percent were either employed in or were continuing educational preparation for employment in agriculture.[7] Graduates of the school were notably dominant in the country's agricultural extension service, but were found throughout the country's various government ministries, educational institutions and private industry.

An interesting and very significant feature of the education of these high school students was the requirement that they all participate in agricultural research projects focused on solving real-life problems confronted in Ethiopian agriculture. This, at the very least, made its graduates more knowledgeably responsive to scientific research findings and research approaches toward carrying out their own vocations upon graduation. It undoubtably helped influence some of them toward pursuing scientific research careers.

The Ethiopian College of Agriculture and Mechanical Arts, at Alemaya

Development of the College of Agriculture moved more slowly, fortuitously, perhaps, to permit Jimma time to prepare some students for it.

Emperor Haile Selassie was very much personally involved in selection of a site for the college. The O.S.U. and the T.C.A. advisors were anxious, first and foremost, to have it at a central location where its functions as the central dynamic for research, extension education and agricultural development generally would be most assured. The O.S.U. staff group constituted itself a committee, developed a set of criteria, traveled widely (over 3,000 miles) to examine a large number of possible sites. It recommended, in a formal report to and meeting with the Emperor, a location some 45 miles from Addis Ababa, the capital city of the country. (A maximum of eighty miles had been set as the extreme limit from which the agricultural university could effectively carry out its several, nationally oriented functions.)

The Emperor had other ideas and a favored site of his own choosing. He did not warm up to the location recommended by Oklahoma State. But at the second meeting, a "compromise" site of some

1,150 acres was agreed upon, about 300 miles from Addis Ababa and near a lake and small village called Alemaya, by which location name the university became generally known.

It was a beautiful location where the buildings would overlook grassy lawns, fields and the lake. But, it was totally undeveloped. The land had to be cleared; the hillside upon which the buildings were to be built, subdued. Local limestone provided the building material and resident Italian artisans the stoneworking skills. Oklahoma State University supplied the teachers, research leaders and administrators, while Ethiopians were trained in the United States to take over these functions.

The college was originally designed as an independent institution, with its own president and council. It remained thus until, in 1961, it was made an affiliated college, along with several other colleges of the Haile Selassie University headquartered in Addis Ababa. This organizational pattern followed more closely the pattern followed throughout former British Colonies in Africa and Asia - - that of separate, residential colleges, located at several different sites, each administered from the technical side by the relevant governmental department, and from the pedagogic side by the university with which it is affiliated. Although this unfortunate reorganization no doubt deprived the Ethiopian college of some of its independence and sharpness of focus on agriculture, it would not necessarily have, in itself, irrevocably impaired its potential usefulness.

As the college evolved, its course offerings expanded more fully to embrace the diverse needs of the agriculture of the country.

By the 1958-59 school year, the college offered some 26 lower division and 27 upper division courses; by the 1967-68 school year it offered some 33 and 53 courses for lower and upper division students, respectively. It had followed an intelligent principle of providing a relatively standard study program for the first two years' study, with opportunity for considerable election and specialization in the second two years. Courses covered the normal array of basic sciences, general agricultural plant and animal sciences, animal husbandry, agricultural engineering, agricultural economics, teaching and extension methods and other courses to meet the broad spectrum of anticipated Ethiopian agricultural development needs. All students participated in seminars and in work on research projects carried out on the ample 1,000 acres of land available at the site for crop and animal experimentation. Except for those graduated from and tested by the Jimma technical secondary school, students were selected by a set of examinations developed by the college and administered throughout the country. From the beginning, instructional staff carried out research on problems identified as being of general importance to the country's agriculture. This research was integrated with instruction, as was extension training and field work, thus assuring the continuing relevance of all three functions to the agricultural needs of the country.

By 1967 -- one year before the O.S.U. contract expired -- the agricultural college had graduated a total of 384 students. Of these, 136 pursued graduate study at some 25 U.S. universities. The employment of these graduates, including the expected employment of those still studying in the United States, was determined in 1968 to be as follows: government, 65%; college or university, 17%; private industry, 18%.[8]

Research

At the time that Alemaya was selected as the site for the agricultural college, it was agreed tha the Central Agricultural Experiment Station should be located at Debra Zeit, some 45 miles from Addis Ababa. Three hundred acres were set aside for the research station. This was located on the "upper plain" of rich volcanic soils which surround the capital city. This broad area of rich soils and abundant rainfall constitutes the best farming region of the country and presents great opportunities for increasing farm production. The research program of this center, it was agreed, would be under the direction of the College of Agriculture although, because of distance, it would necessarily have a certain de facto independence.

The College of Agriculture was at the same approximate high altitude (6,000-plus feet) but was on a site representative of a different, relatively inferior, sandy type soil. These two areas together constitute a very significant part of the major crop growing area of the country. Since many of the problems would be quite different on these extremely different soils types, it made sense to plan, from the beginning, a correlated but separate research program at the two centers.

Oklahoma State University staff personnel were highly oriented toward research. "Research started with the arrival of the staff in Ethiopia and has been a basic component of the program."[9]

An enlarging stream of research publications, on a wide range of agricultural problems, was issuing from the three centers of O.S.U. activity. We are to remember that research was a significant part of the work done at the Jimma Secondary Technical School also. By 1966, after five years of O.S.U. work, the Jimma School had undertaken 70 research projects. Findings of this research were written up in various forms; research results were demonstrated, and publications distributed, at Annual Field Days, starting in 1953 and later, under government auspices, becoming a regular feature of a farmer education program.

Research at the two university centers (Debra Zeit and Alemaya) resulted, by 1968, in more than 100 publications, which took the form of publications in scientific journals, research bulletins laboratory textbooks miscellaneous publications and special reports requested by the government of Ethiopia or A.I.D. This information, on subjects ranging from plant and animal pest and disease control, plant breeding, food storage, farm management and marketing, land tenure, and other economics issues, and a host of other practical problems became woven into the warp and woof of Ethiopian agriculture. It was slowly but steadily shifting the base of farming practice from folklore to science when disaster struck.

The disaster was not one single bolt; it started as a series of budget cutting and over-management actions by A.I.D.. It culminated in a series of disaffections between the Ethiopian and United States governments. This latter was probably, in part, inevitable. To make any kind of impact, it was of course necessary that the U.S. government, specifically the local A.I.D. mission establish and maintain relatively close working relations with the Ethiopia government - - and specifically with the Emperor. This was true, as we have seen, also of the O.S.U. staff. When, after decades of being inherently under responsive to needs of its people, the government was overthrown inevitably the new government looked somewhat askance at the U.S. representatives for looking too closely aligned -- in its eyes -- with the old, deposed government. Furthermore, in broader terms, the government foreign policy interests slid -- or appeared to slide -- away from those favored by the

United States. As sensitivities increased, some of the programs and approaches identified with the former Emperor came in for bad times.

Yet, even the new leaders could not truly wish to go back to the primitive conditions extant when O.S.U. first began its operations there. A great distance had been covered in the interim. The foundations of institutions, of trained personnel, and of relevant scientific knowledge were well under way. Inevitably savagely hurt by the horrible droughts beginning in 1972, agricultural progress was grossly retarded. But the building blocks were there.

Nor did the Ethiopians, in spite of extreme political tensions with the United States, forget the excellent assistance the country had received from O.S.U.

In 1985, Dr. William Abbot, Assistant Director of International Programs and a long-time major figure in the Oklahoma State Ethiopia project, was invited by the President of the (renamed) Addis Ababa University to visit the scenes of O.S.U.'s old working grounds in Ethiopia. Accompanied by the Chairman of the O.S.U. Board of Regents, he visited the Addis Ababa, Alemaya, Debra Zeit and Jimma campuses. At social as well as professional functions, the words, "We are from Oklahoma," wiped away the quizzical expressions, and initiated smiles in their place and other emotions of warm remembrance and welcome.

They found at Alemaya the original equipment well cared for and operative. The regular student body now numbered 800, with an additional contingent of 500 involved in continuing education and special programs. The faculty totaled 110 - only 17 of whom were expatriots, the rest Ethiopians, almost all trained under the O.S.U. program. Key administrators had been trained under the O.S.U. program. A shortcoming: There is need for advanced training for more of its somewhat undertrained, younger staff members -- obviously, an excellent target for continued U.S. assistance, should opportunity afford.

Debra Zeit and Jimma were, also, each carrying forward the functions for which they were established. No doubt the rupture of the umbilical cord which for so long connected O.S.U. with the Ethiopian institutions had created problems. But the ties continue and the effects of the long term associations persevere.[10]

The point was very well made by Dr. Abbott to his Oklahoma State colleagues upon his return from the trip.

> Each of you -- I mean each person in your family -- has given a part of himself to Ethiopia, and the dividends to Ethiopia and the United States are tremendous! Alemaya College has now stood the tests of revolution, war, politics, and is an established institution. You can be proud of the part that you played in the building of this institution.

Those who have felt, or may feel, that because of the political stresses on official Ethiopian-U.S. relations, the Oklahoma State University project, for all its good work against almost insurmountable odds, has failed its purpose, have, in the mind of the writer, committed the grievous error of counting as dead chicks those eggs that have not yet had time to hatch. As a recent A.I.D. mission director to Ethiopia, the late Mr. Edward Hogan, once told the writer: "The Oklahoma State project was a great success; its impact is immense. It left about the only real track I could find in Ethiopia of the long U.S.

A.I.D. presence there. And when we take up major bi-lateral cooperation again, its benefits will be immeasurable to both countries."

Ed Hogan was a critical but wise observer!

END NOTES

[1] Statement by President Truman following the tragic death of Dr. Bennett, previously President of Oklahoma State University, and his wife and two aides in a plane crash in Iran, December 22, 1951. See also, in this book, "The University of Wisconsin Land Tenure Center" for discussion of Dr. Bennett's unique contributions.

[2] Oklahoma State University in Ethiopia, Terminal Report, 1952 - 1968 (Stillwater, Oklahoma: Oklahoma State University Press, 1969), p. 1. See, also, Jerry Lion Gill's The Great Adventure, Oklahoma State University and International Education (Stillwater, Oklahoma: Oklahoma State University Press, 1978).

[3] Oklahoma State University in Ethiopia. By that time Dr. Bennett, President of Oklahoma State University, had been selected by President Truman to head the new foreign aid program, and had been killed in a plane accident in Iran.

[4] From paper presented by Dr. Luther Brannon, first and last O.S.U. project team leader, at BIFAD Seminar, March 20, 1985.

[5] Brannon.

[6] Oklahoma State University in Ethiopia, p. 10.

[7] Oklahoma State University in Ethiopia, p. 10.

[8] Oklahoma State University in Ethiopia, p. 10.

[9] Oklahoma State University in Ethiopia. One of the staff members confided years ago to the writer, "We had to do research. Otherwise, we wouldn't have known what to teach."

[10] When the writer and his wife visited the Debra Zeit campus in the late 1960s, the Ethiopian in charge of Debra Zeit was very concerned about the imminent departure of the last O.S.U. staff director of the research center. Obviously well on top of the research program itself, he expressed concern largely over the lack of influence the center might have in governmental decisions affecting it once the O.S.U. connection was severed. We understood the point; but we could not help feeling that anyone who could press his points so successfully with visiting foreigners would be effective also in pressing his views with his own government. This apparently proved true.

A DIFFERENT APPROACH: SPECIALIZED CENTERS OF EXPERTISE ON PROBLEMS OF WORLDWIDE IMPORTANCE

INTERNATIONAL LAND TENURE CENTER: The University of Wisconsin, Madison

> The rising concern for the improvement of land tenure conditions in world agriculture is based upon the insights and the belief that present tenure arrangements are stifling the economic development of agriculture in many countries.
>
> —Dr. Kenneth H. Parsons, 1951.[1]

The first predecessor of A.I.D., the Technical Cooperation Administration (TCA), began with high-level concern with land tenure and land ownership problems in the less developed countries.

Its first Director, Dr. Henry G. Bennett, former president of Oklahoma State University, an agriculturist of breadth and vision, came by this concern directly - - his knowledge broadened an insights nurtured in the traditions of the last frontier state on the U.S. mainland. The "Sooner State of Oklahoma had received its nickname for the last great U.S. land rush by farmers who raced thei horse and oxen-drawn wagons to "stake their homestead claims" to recently released, free governmen land "sooner" than their competitors.

While President of the University, at the official invitation of the then Imperial Government o Ethiopia, Dr. Bennett had visited Ethiopia in April 1950. He traveled widely while there, and saw a first hand the implacable obstruction to individual initiative imposed by the lack of a land tenur system which would assure the people who worked the land that rewards for their extra efforts woul go to them, and not to someone else. Without such incentive, farm people could not be expected t depart from the security of traditional ways of farming, or to take the risks (or seeming risks) involve in improving their farms or in adopting new farming practices or technologies. Agricultura productivity could be expected to languish.

These insights were fresh in Dr. Bennett's mind when, a few months later, he was asked b President Truman to become Director of the Technical Cooperation Administration (TCA) to carry ou the President's new "Point Four" program of assistance to the less developed countries.

Dr. Bennett passed his convictions regarding the importance of land tenure issues down to hi subordinates. He did more. Almost immediately after he became TCA Director in December 1950, h requested the University of Wisconsin to undertake a major land tenure conference for policy maker and implementors from the less developed countries. He selected the University of Wisconsin i response to its representations that it was interested in sponsoring such a conference. The contrac was duly signed to finance the conference, to begin in the fall of 1951.[2]

The conference brought together over one-hundred men and women from six continents an nearly forty countries. The conference design called for each participating country to be represente

by one "senior academician," one "senior government administrator responsible for land programs," and one "junior person with promise in his or her country and ability to continue for a year of special training and graduate study." Although, as to be expected, there were some departures from this participant selection regimen, it was followed in the main. The plan was that by this means, after the conference, communication between intellectual analysis and governmental action within countries would be maximized; and a well-trained junior professional would be brought on line a year or so later to help carry out whatever tenure reforms the country elected to undertake. It was an ingenious plan, and undoubtedly has much to commend it for other applications.

The conference proceeded well and eventually, in 1956, resulted in the proceedings publication just cited, which is an excellent reference resource for interested scholars and practitioners. It is not a set of pre-prepared papers and discussions thereof as might be expected, but a documentation of country by country studies prepared at the conference itself.

The conference concluded by a visit by about sixty of the group (primarily the senior delegates) to the southeastern United States, concluding in a three-day visit in east Tennessee where the writer had completed his first year at the University of Tennessee, after having left the University of Wisconsin. There they were exposed to a "century of agricultural and industrial development in cross-section" by visiting an array of rural economic development levels, ranging from extremely isolated pockets of by-passed agriculture to the excellent farms caught up in the then rapid industrial development of the Tennessee Valley. They visited the cotton share-crop economy of western South Carolina on their way toward culminating their U.S. conference and tour by visiting briefly with President Truman.

They could identify with the extreme poverty they found in some parts of these southeastern states. And yet they were encouraged by the evident prosperity they found in close proximity. Their optimism was buoyed by the impact of recent economic growth in the localities they visited. They confided that they were stimulated by this experience to a greater sense of optimism for their own countries.

Spirits and expectations were high. The foreign representatives at the conference and other attendees, not from the University of Wisconsin, had formally recommended, at the conclusion of the conference, that the University of Wisconsin establish an "International Land Tenure Center" to provide training, to carry out research, to establish and maintain a specialized land tenure library and data service, and to provide consultative services to developing countries. The University of Wisconsin agreed with this recommendation and was proceeding to establish an International Land Tenure Center.

Dr. Bennett had seemed to have chosen wisely in selecting the University of Wisconsin as the lead instrument of his purpose in effecting improved LDC land tenure systems and arrangements. The University had, for over thirty years, accorded special concern in its teaching, research and extension programs to the subject of land tenure. It had pioneered in rural land zoning, in public purchase of farms so isolated that it cost the public far more to provide them with necessary support, with roads, and access to schooling, than they could possibly return in tax revenue. The University had pioneered also in financial support to rural students in high schools, and in improved land rental and land purchase contracts. It had several professors with overseas experience in working on land tenure and other agricultural development problems. Now, through the conference, it had established a broad strand of communications and confidence with relevant high level LDC personages -- and with

the Director of the Foreign Aid Agency, and even, in modest measure, with the President of the Unit States.

The stage was set. Everything appeared promising for major A.I.D. (then TCA) follow-up.

But it was not to be. Dr. Bennett's death on an Iranian mountainside snuffed the Foreign A Agency's immediate interest in land tenure problems. As detailed in another section of this boo most of the Agency's professional agriculturists -- including those supplied under universi contracts -- were heavily smitten by the (erroneous) view that only large farms could be efficie They, therefore, tended not only to accept but to favor the semi-feudalistic systems of large-sca largely absentee, land ownership which characterized much of Asian and Latin American agricultu organization. Efforts by governments to break up these large land holdings into smaller, family-si operational units were (again, erroneously) seen to be movements away from the logic of agricultu progress. "Ignore where possible, and discourage where necessary, any governmental concern wi land reform problems" was the unspoken but pervasive doctrine of the day.

Not until late in President Eisenhower's Administration was there rekindled in A.I.D. a interest in land tenure; and then out of consideration of social-political, and not economic, proble created by outdated land tenure systems. For the better part of a decade after the conference, t Wisconsin International Land Tenure Center went totally unattended by A.I.D. It was considered be a bit of academic irrelevancy, off the edge of U.S. foreign policy purpose, or of economic developme assistance philosophy or concern.

The Eisenhower Administration's refocus on Latin America, however, abruptly reawakened nascent interest. The Administration pledged itself at the Organization of American Stat Conference, in Bogota, Colombia, in 1960, to support strongly whatever interests Latin Americ countries might assert in effecting "land reforms" in their countries. It set up a special "Soci Progress Trust Fund" in the newly established Inter-American Development Bank, in part for th purpose; it advised A.I.D. field missions to get ready for major land reform assistance activities; planned a workshop in Santiago, Chile for A.I.D. Latin American Mission Directors and Chiefs Agricultural programs, for February, 1961, to discuss this upcoming land reform initiative. Amo the least of its decisions -- it decided it needed a resident "expert" in land reform -- recruited the writ for that position, and immediately (in November 1960) assigned him to the task of organizing t Santiago land reform workshop.[4]

President-elect Kennedy, it was found during the transition period, was keen on following up the land and other reform initiatives for Latin America inherited from President Eisenhower. H would look to Under Secretary of State-designate, Chester Bowles, to follow up. He recruited Teodo Muscosso, formerly U.S. Ambassador to Venezuela, to head-up the "Alliance for Progress," t instrumentality through which these reforms would be incorporated into U.S. bi-lateral assistance Latin American countries. The Santiago Workshop on Land Reform, it was determined early, wou go forward on schedule with all vigor.

To help him in designing and conducting the Santiago Workshop, the writer enlisted t services of Dr. Harry Steele, a Wisconsin-trained land economics specialist, made available by the U. Department of Agriculture for the purpose. Dr. Steele assisted the writer full-time on all aspects of t workshop preparation, which included keeping Under Secretary Bowles, who was following every st of the preparations, closely informed. The writer enlisted also the assistance of Dr. Raymond J. Pen

Land Economist at the University of Wisconsin. While Ambassador to Venezuela, Mr. Muscosso had become well acquainted with, and had formed a high opinion of Dr. Penn. No American he had ever known, he told the writer, had so quickly found favor with all the levels of Venezuelan farmer groups.

The three-day Santiago Workshop resulted in strong consensus among A.I.D. representatives that land reforms were badly needed in most Latin American countries, but that the nature of the problem varied greatly from country to country. All agreed that the initiative for reform should come from the countries themselves. Most of the attendees expected that this would soon come about, and that A.I.D. should encourage, and offer to help support, such initiatives. It was recognized that U.S. financial support, however, should come only when it was quite clear that the planned reforms were economically sound, well thought out, and buttressed by governmental capability to carry them out.

This latter was seen as the limiting factor. The countries needed more skilled -- or at least well-trained -- people in the many aspects of land reform. One obvious need was for better land ("cadastral") surveys and better identification of the currently accepted rights held by identified individuals in specific land parcels. Clearly, the countries would need direct consultative assistance. The Workshop resulted in a clear indication of need for some kind of support to the Wisconsin Center, so that missions could turn to the University for help with some confidence that the University could deliver it.

The new U.S. foreign assistance agency, the Agency for International Development (A.I.D.), was created around a very different set of philosophies than obtained under the earlier foreign aid agencies. One feature was an almost total focus on individual countries -- no A.I.D. "agriculture" program, or "health" program, or "population" program -- just a set of individual country programs with whatever emphasis, if any, and whatever type activities, in agriculture, health, population, education, or other sectors the particular mission director and his ambassador happened to prefer. The Agency's money was assigned on a country-by-country basis. Therefore, although individual missions as in this case -- might have a general foresight of need for substantial backstopping help, there was no major central funding resources, or organizational framework, or internal sympathy, for funding such backstopping resources as the Wisconsin Land Tenure Center. Each mission would get the money from the Washington headquarters together with a broad, centrally developed policy framework to guide it. But each mission had to "wing it" using resources available through remote control contracts, to get professional assistance, training or analytical work done. Where special efforts were required to build a central U.S. capability in a given field to assist several missions with similar problems, no effective mechanisms had been worked out to "pass the hat" among the missions for contributions.

Therefore, there were no A.I.D. resources available to help support on-campus work by the Land Tenure Center directly for the purposes identified at the Santiago Workshop. Mission requests, it could be predicted, would be spasmodic, short-term, and tightly country-service focused. Therefore, if the U.S. was to attempt to help support, and thereby have any positive influence on shaping LDC land tenure reforms -- asserted to be so central to U.S. policy at the time -- A.I.D. had to find some legitimate way of supporting the Land Tenure Center through engaging it in activities funded centrally, to supplement the intermittent service tasks funded by missions under mainstream, country-by-county, bilateral assistance programs. The ultimate objective even for central support to the Wisconsin Land Tenure Center was, however, to enable it to deliver competent training and

consultative advice, and to develop a body of sound research findings for use by individual countries and A.I.D. missions.

The only central resource available for this purpose was the newly established Central Research Program, an activity authorized for the first time in the Foreign Assistance Act of 1961 which established the new Agency for International Development. An A.I.D. research contract with the University of Wisconsin was signed in May 1961 conforming to the purposes and needs expressed at the Santiago Workshop. (The writer, Dr. Penn and Dr. Steele had had opportunity to discuss these thoroughly with attendees and with each other while at the workshop.) This contract, through ten amendments adding additional funds, continued through 1971. Although its primary purpose was to provide a solid research base for land tenure policies and reforms, it provided training for Latin Americans engaged with the University in research and, of course, provided opportunities for professional liaisons between the Land Tenure Center and both U.S. A.I.D. mission and host country personnel, from which contact flowed many other professional services to the countries -- some financed by the A.I.D. missions, most by the countries themselves.

Long before this period ended, A.I.D. official interest in land reforms, and other reforms, sharply waned. Much of this was associated with the change of key personnel, and philosophy, following President Kennedy's death. Much of it was, unquestionably, also due to lingering beliefs that such reforms would reduce agricultural economic efficiency. Much was no doubt due to the general (and perhaps wise) disinclination of U.S. embassies and missions to get involved closely in matters of such high local political sensitivity. In any event, major host country requests of our missions for help in carrying out land reforms did not materialize on a broad scale. Hence, by derivation, major requests to Wisconsin by A.I.D. missions also failed to materialize in expected magnitude.[5]

Wisconsin's research was largely of a micro-nature, focusing on specific issues or specific parts of specific countries. Most of it was in the nature of one-person research studies, rather than the kind of structured, inter-disciplinary team efforts (comparable to the Collaborative Research Programs) necessary to provide broad policy guidelines or, especially, broad advisory assistance, on the large array of interrelated technical, economic, political and social issues that arise when a major land reform or land colonization effort is undertaken. In short, the major call for U.S. assistance in helping countries undertake land reform, so confidently expected in 1961, did not materialize; nor did the University, in spite of many excellent accomplishments, achieve the types of integrated resource availabilities which would have been needed had such demands developed.

But something else <u>had</u> happened. The myriad of person-to-person collaborations in research and training relationships between Wisconsin and Latin American professionals ripened into long-term professional interdependencies. Countries sent people to Wisconsin for training. They invited Wisconsin people to visit them, help study problems and advise them. A.I.D. missions, while not often seriously involving themselves directly in major land reform undertakings, often directed host country attention to the Wisconsin Center. Publications, formal and informal documents, and letters flowed back and forth in great streams between Wisconsin professors and their Latin American associates.

As they approved (or could, if they chose, deny) all A.I.D.-funded travel to and from Wisconsin, A.I.D. missions were able to monitor all of the interactions between the Land Tenure Center and the host government or institution -- to assure they were consistent with U.S. policy and purpose. They welcomed these interrelationships as useful vehicles of U.S. purpose with respect to land tenure

problems, which obviated the need for more (and as they saw it, inherently dangerous) direct U.S. government involvement.

In short, the Wisconsin Center had, to an important degree, become a desirable means of indirect U.S. government involvement in developing country land reforms. Given the U.S. domestic, and the international, political climate of the times, this may have been about all that was possible. Most missions expressed appreciation to Wisconsin and to A.I.D. - Washington for keeping the Wisconsin resources alive and available.

In the meantime, technological improvements useful to small farmers, largely as a result of the research by the International Agricultural Research Centers and, to a lesser degree, by several U.S. universities working in the region, were working their way into improved farmer practices. These new technologies made possible substantial improvements in the productivity, and hence levels of living, on many of the smaller farms.

As the importance of the Wisconsin Land Tenure Center began to be somewhat better understood and appreciated within A.I.D., it was recognized that some continuing mode of support for certain functions -- above those that could be acquired under direct service contracts by missions -- would be needed. Consequently, as funds and logic for continued support under the central research authority waned, A.I.D. used its new "211(d)" university grant authority to support the Center. This authority more closely fit the Wisconsin situation; its basic purpose was to help universities develop and maintain on-campus capabilities to assist A.I.D. in subject matter areas where domestic needs were not such as to justify universities maintaining such capabilities entirely with their own resources. Therefore, in 1969, a five-year 211(d) grant was made by A.I.D. to the University of Wisconsin for this purpose. Through a series of amendments and supplements, this program was kept operational until 1979. Though still focused on Latin America, this arrangement permitted the University the needed flexibility also to develop and maintain capabilities to assist African countries on land reform and land tenure problems.

The following year, in February 1970, the wisdom of this decision was affirmed. A major policy oriented Spring Review (the vehicle then in vogue by which A.I.D. examined and formulated policies on one selected, important, complex policy issue each year) firmly confirmed, from examination of land reform experiences in some thirty countries, that land reforms consistently supported, rather than discouraged, increases in agricultural productivity. It reawakened A.I.D. interest in land reform and underscored the obvious need for continued A.I.D. support to this one major center of expertise in the subject. It also identified the extreme political commitment required of any country proposing to undertake such reforms, and highlighted afresh the delicacy of direct U.S. involvement as contrasted with use patterns established under the arrangements with the Wisconsin Lend Tenure Center.[6]

Finally, when the 211(d) program had run its course, A.I.D. used still another instrument, a "Cooperative Agreement" to support the Land Tenure Center arrangements with the University of Wisconsin. The "Cooperative Agreement" was signed in 1979 and through many amendments, remains in effect to this date. This arrangement differs greatly from the other two in that it is essentially a rationalizing into a cohesive system of the many requests coming from, and largely funded by, the individual missions. This gives the University a much better planning basis than does a comparable set of ad hoc mission requests. It is in many ways the ideal instrument as it ties funding to uses in the LDCs. The arrangement with Wisconsin suffers now, however, from a severe shortage of funds for maintaining those necessary central university activities and services -- such as adequate

maintenance of the outstanding land tenure library and the constant flow of informational services on requests it has provided so efficiently over the years.

The Wisconsin Land Tenure Center has undertaken a vast number of individual studies of local circumstances pertaining to individual countries. Most of this has been done as a combined research and teaching undertaking, usually as a part of a degree training exercise by a U.S. or foreign graduate student working under supervision of a Wisconsin faculty member. This approach has several advantages. The data have been local and, at least potentially directly relevant to the country's efforts on behalf of land reforms. Possibly, even, the study might prove part of the career-launching of the trainee's later responsibilities on behalf of such reforms. Thus, to the extent the studies were adequate and properly understood in relation to other variables, they were relevant to local applications. Thus, this approach led to a tremendous expansion of knowledge relevant to land tenure and reforms in less developed countries and a very significant increase in the number of professionals trained to carry out such programs, or to advise in the process.

The writer's counting of publications from such research efforts, and from direct research by the Wisconsin Land Tenure Center faculty and staff, suggests that a total of some 215+ such research publications have been prepared and are now available upon request from the Land Tenure Center. (Most of these have, of course, already been used in some measure by the person who wrote them.) In addition, the Land Tenure Center faculty have prepared, or caused to have prepared, several bibliographies of land tenure studies - - worldwide, regional, and special focus. An example of the last is a bibliography of studies of the special relationships between land tenure and forestry.

The graduate student training program has greatly increased the numbers of professional experts on LDC land tenure and reform.

Materials prepared, at the writer's request, in August 1989, reveal the following results of the University's special training program in Land Tenure to the Ph.D. level, for the period 1973-1988.

- Ph.D.'s granted:
  - Foreign born -- 45
  - U.S. born -- 19
- Ph.D.'s completed, except dissertations in process:
  - Foreign born -- 19
  - U.S. born -- 3
- Ph.D. candidates now enrolled:
  - Foreign born -- 13
  - U.S. born -- 9

This amounts to a total of 77 foreign students and 31 U.S. students who have completed, or are currently working toward, Ph.D. degrees in this subject. This is an enormously expanded base of specialized personnel experience and competence availabilities from that which confronted the writer in 1960 when he became the Agency's resident "expert" in land reform, as described earlier in this chapter. [7]

And yet, one has the feeling of need from more eclecticism, a bringing together of the hundreds of nuggets of knowledge and wisdom into a reliable source of perceptive, generalized and tested knowledge directly applicable in tenure reform efforts. The Center has produced several such:

notably, a widely used book by Dr. Peter Dorner. However, in the nature of things, it is a constant need.

Further, although Dr. William Thiesenhusen and others have written penetratingly on this subject, the fundamental interdependency of agricultural technological advance and land tenure systems remains still inadequately explored, in view of its absolutely central relastionship to successful LDC agricultural, economic, social and political development. The huge collection of the Wisconsin special studies themselves need special study to extract the juices of truth relevant to both U.S. and LDC policies and programs for land tenure reform.[8]

A parallel and extraordinary accomplishment of the Wisconsin Land Tenure Center was the development of the world's best library on land tenure. From the library has flowed a constant stream of documents to scholars and practitioners. And it stands, in Madison, as a monumental and superb resource to anyone who might wish to use it. The writer could not possibly do better than quote from the document prepared by Mr. James Knowles in response to his request of Dr. Marion Brown, former Land Tenure Center Director and now Head of the Agricultural Journalism Department of the University of Wisconsin.

> The Land Tenure Center Library has been part of the Center from its inception in 1962. The first books were ordered for the library in October 1962, and by the following June the collection included 3400 titles. From the beginning the library relied on gifts, exchanges of publications and materials collected bt LTC research staff to build a collection of hard-to-find materials.
>
> By 1970 the library's collection had grown to 16,000 volumes. That year was an important one for the library in two ways. First, its collection focus expanded to include Africa, Asia and the Middle East in addition to Latin America. This reflected a change in LTC's research focus. Second, the Land Tenure Center Library moved into the new Steenbock Memorial Library building in that year. This marked the beginning of a close working relationship between the two libraries, which are still housed in the same building.
>
> The 1970s were a period of rapid growth for the library. By 1980 the collection had grown to 56,000 volumes. Over half of these were research reports and unpublished materials. The library prepared a number of bibliographies during these years as well. Country bibliographies were published in LTC's Training & Methods series, while annotated bibliographies were commercially published dealing with Latin America (1974), Africa (1976), and East and Southeast Asia (1980).
>
> The library now owns some 68,000 titles. Expansion of the library has slowed, but this is due in part to the staff's effort to keep the collection up to date by withdrawing outdated materials.
>
> Integration into the University's larger library system began in earnest in 1980. In that year Steenbock Library, the agriculture library for the campus, took responsibility for circulation of LTC Library materials and for maintenance of course reserve reading materials. In 1984 the general library system began to provide the LTC Library's acquisition budget, and Steenbock began providing

interlibrary loan service to the collection as well as paying the salary of student workers to shelve library materials.

In 1986 the LTC Library began participating in OCLC, a national computerized bibliography database. This participation has greatly increased the accessibility of the collection to researchers not on the Madison campus, since it is widely used for interlibrary loan. In addition, the computer tapes generated by this process are the basis for the UW-Madison's on-line computer library catalog. Inclusion of the LTC Library in this computerized catalog has led to a rapid increase in circulation, since for the first time students and faculty anywhere on campus can become aware of the LTC Library's holdings.

When the library was founded, the LTC Annual Report (1963) stated, "It is our hope that this library will become the foremost collection of materials on this subject in the United States." The Library has fulfilled that hope.

From the standpoint of the long-range U.S. interest, the Center represents a resource o inestimable potential value if we can effectively utilize it. The University is currently (1987 data supporting the Center at the rate of about $165,000 per year, plus overhead costs which would raise the total of well over $200,000 per year. It is greatly in the U.S. interest -- if any of the lessons of this book are heeded -- to take the necessary support actions to make the resource operationally useful in the years just ahead. As the hard lessons of the limitations of military process as a diplomatic tool are learned, and the happy lessons of the enormous powers of science and technology to improve agricultural productivity on family operated farms become understood, it becomes increasingly important that developing countries evolve systems of agricultural organization which harness economic incentives to the stimulation of agricultural productivity and development. It makes less and less sense that the lightly populated tropical regions continue to suffer for want of food while the densely populated tropical regions demonstrate what modern technology properly utilized by a compatible tenure system can produce. The United States needs continuously to join this set of issues -- intellectually and in its policies. As an extremely distinguished group of outside evaluators made clear in December 1982,[9] "the Wisconsin Land Tenure Center -- though substantially supported by the University and widely engaged in servicing many developing countries and international agencies -- cannot maintain, much less expand its capabilities without assistance from A.I.D." The stakes are large and it is hoped that some means for assured central U.S. governmental funding of this unique institution can be realized. The amounts of funding required are minute compared with any alternative means of assisting countries to stabilize social-political structures gone awry through inattention to needs and demands of the yeoman farmers. Perhaps, should this materialize, the decades-old struggles of precept between A.I.D. and the university can be put to rest in a solution that makes the university a more directly useful vehicle of U.S. policy.

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Much has been accomplished in the LDCs through the services of the Wisconsin Land Tenure Center, and such special efforts as we have seen in the experiences of the Iowa Universities in Peru But the kinds of incentives-driven land tenure reforms which triggered the intensive-farming agricultural productivity explosions undergirding the rapid general economic development of much of Asia, are still in the future for much of Africa and Latin America.

We may hope that they may yet occur, and that a continuing investment in the Wisconsin Center may help steer them in sound directions. They are in tune with the rapid expansion of the private entrepreneurship mode of economic organization which is so evidently displacing throughout the world the fading lure of collectivism or other large-scale systems of farm organization. The outlook for compatibilities of goals, and even for cooperation in pursuit of those goals, between "East" and "West," and between more and less developed economies, is much greater than when the U.S. economic development assistance effort began in 1951. And many of these capatabilities are forged at the agricultural frontiers on the anvils of free, incentives-driven tenure systems structured to be responsive to opportunities created by on-marching science and technology. One land tenure system is better than another only if it works better. To our great good fortunes, and with adaptations to be sure, "our" incentives-driven system turns out, in less developed as well as in more developed countries, to work much better.

RURAL FINANCE AND AGRICULTURAL CREDIT: Ohio State University's Program of International Research and Service

Background

Since time immemorial money lending has been an instrument both of assistance to and exploitation of farm people. Control over the availabilities of loan funds has commonly brought with it varying degrees of control over the borrowers -- in much the same way that control over land constituted control over the people who wished to farm it.[10] In fact, as land rights are often the chief security equities of the borrowers, and the land owners and money lenders are normally the relatively affluent sources of borrowed capital, their intertwined control over land and over loan capital has historically served to lock out successful entrepreneurship by the typical LDC peasant. Furthermore, in traditional economically underdeveloped societies, indebtedness is a burden normally passed down from generation to generation, as are the assets from that indebtedness inherited by creditors, so that the slow upward percolation of mortgaged rights bind societies into structured layers of debtors and creditors, of families without and others with economic power and social standing. In such a setting, money lending rates and terms bear no necessary nor close relationship to the productive value of the borrowed capital. In fact, in most such societies, most monies so borrowed by farm peoples are used to finance consumption rather than to increase productivity. The sanctions against usuary -- or even in some cases money lending on any terms -- to be found in many if not most major ancient religions, no doubt arose as efforts to eliminate or ameliorate this mode of exploitation.

Dr. Arthur Lewis well describes the rationale which has led many less developed countries to establish credit cooperatives to serve small LDC farmers.

> It is understandable that countries proposing to undertake economic development and desiring that their fruits be broadly shared throughout society, would be concerned with breaking this chain of self-perpetuating indebtedness among the rural peasantry. They responded favorably to the urge to create public financial institutions [which] springs from the desire to make finance available to groups who have special difficulty in raising money from private lenders.[11]

Dr. Lewis goes on to point out that these credit societies borrow their loan funds from a variety of sources: commercial banks, private money lenders, or savings deposits from the general public However, he finds, it is usually necessary for the government to lend the societies additional sums.

> Small farmers are unable to borrow cheaply from private lenders because of the risks of this kind of lending and because of the cost of administering it. Both the risk and the cost are greatly reduced when the lending is done through co-operative village credit societies, small enough for the members to know thoroughly the affairs and the credit-worthiness of each other.[12]

Beyond their humanistic desires to free farmers from the motivation-strangling grip of the money lenders, governments desired to get some control over the flow of loan funds to farmers to assure that the loan funds contributed to development. This required that a much larger fraction of monies borrowed by farmers be put to production-increasing changes in agricultural practices, rather than directly into consumption uses[13] or into merely "carrying the farmer through until the harvest season" without improving in any important way their productivity.[14] It required also that money-costs (interest rates) to farmers be low enough to bear some reasonable relationship to productivity, so that they would induce investment in new development-yielding farming practices and adoption of new productivity increasing technologies. This was essential to capital formation in agriculture which, in predominantly rural societies, has to be the predominant, long-run source of internal capital formation for the entire economy, especially during its early years of economic growth.[15]

In a relatively few years, several of the countries where A.I.D. had assistance programs began to establish various kinds of public assisted farm credit programs. Most numerous were credit cooperatives, focusing primarily on relatively short-term credit ("production credit"). Other provisions were made in some countries for long-term credit to enable farmers to obtain ownership of, or rights in, farm lands. In still others provisions were made for "intermediate credit" -- the type needed by farmers to finance major transformations of their traditional into more modern farming systems, as, for example, investments in irrigation and drainage structures and equipment, dairy herds, dairy equipment and buildings, seed stock production facilities and the like.

As the countries started embarking on these new, important and hazardous undertakings, they turned to the U.S. A.I.D. missions for technical help -- and often, especially in later years, for financial support for the new institutions.

These requests for technical assistants were met by A.I.D. largely by borrowing personnel from the U.S. Farm Credit Administration (for short-term credit institutions), the Farm Security Administration's Supervised Credit program (for intermediate and long-term credit institutions) and other public and private financial institutions. What was sought was personnel with operational experience with credit programs, rather than theorists or students of the capital formation and disbursement process as related to economic development. Although most major U.S. Land Grant universities had some involvement with credit programs in their respective states, very few if any had made a major[16] effort to involve themselves deeply with the operational details of credit program administration.

The exception was the Ohio State University.

Dating back to 1915, the Department of Agricultural Economics and Rural Sociology at the Ohio State University had placed heavy extension emphasis on the practical "business" side of agriculture in the state. Because the university fully integrated at the department level the teaching, research and extension dimensions of its subject matter, the teaching and research functions of its college of agriculture were related closely to the problems felt most pressingly by its farmers and other elements of the agricultural industry. The leaders of the Department of Agricultural Economics for many years had developed a wide, well structured program of research, teaching and extension activities dealing (along with other issues) in a first-hand way with the financial management concerns of farmers, and with the credit institutions developed to deal with these problems. To a considerable degree, Ohio State became "specialized" as a center of expertise and experience with agricultural credit. As such, the institution provided a disproportionate share of the agricultural economists dealing with agricultural credit problems in the United States throughout the 1920s, 30s and 40s.

As A.I.D. recruited most of its credit expertise from these federal government agencies, it too, by derivation, drew heavily upon Ohio State's historic specialization. More directly, also, it turned to Ohio State to recruit (or provide) personnel for specifically identified field assignments.[17]

Early in 1947, A.I.D. assisted in financing A Study of Agricultural Credit in Latin America by the Center for Monetary Studies in Latin America (CEMLA) an association of Central Banks of Latin America, headquartered in Mexico City. A.I.D. and CEMLA engaged as consultant to the project, Dr. Mervin G. Smith, Chairman of the Department of Agricultural Economics and Rural Sociology at Ohio State. This was a valuable study. It described situations and identified imminent problems in 12 Latin American countries; it developed a list of 17 needed additional research topics in those countries -- many of which were eventually undertaken; it made many recommendations of a practical nature and identified the need for special training in agricultural credit. In short, it institutionalized the beginnings of Ohio State University as a center of specialized competence in agricultural finance problems of the less developed countries.

Shortly after the writer joined the Agency he was given technical responsibility for developing the agricultural component of the newly established A.I.D. research program. This was to be centrally financed research of world-wide applicability; individual country research was the responsibility of individual country missions.

As an agricultural economist, he had become extremely concerned over the dearth of understanding of the possibilities and means of capital formation in LDC agriculture, and the means by which such capital would be channeled into non-farm growth. (See earlier footnote.) This was a problem of world-wide nature and fit well into the charter of the Agency's new central research program authority. Knowing of its historic interest and involvement with agricultural finance issues, he arranged through proper procurement channels for Ohio State to undertake a major research study on this subject. It was a topic requiring a good deal of highly sophisticated theoretical and analytical talent -- and Ohio State had such talents. A major research project was begun by Ohio State in 1947.

Events have a way of conforming human long-range plans to immediate needs.

By the time Ohio State got its research program well under way, many LDCs were experiencing serious managerial problems with their agricultural credit programs, many of them established with U.S. advisory and financial assistance. Quite naturally, Ohio State set about (with strong A.I.D.

mission concurrence) trying to search out the proximate causes, and to recommend solutions to these omnipresent problems. Chief among them: farmers were not repaying their loans; hence credit societies were unable to pay their money suppliers. Causes were many. Managerial competencies were much lower in many credit cooperatives than such a complex activity required. Supervision of credit use was too limited in amount and/or competence to direct borrowed monies into productive uses. Charges to borrowers (interest and service charges) were too low to cover the administrative costs of bringing money sources and users together. Inflation in many countries reduced the value of money over the term of the loans by more than the interest rates.

But undoubtedly, the largest source of problems was that agricultural technology advances were not rapid enough, nor moving rapidly enough into farm practice to create sound investment opportunities at anything approaching the real costs of money available to any credit system. The heart of the problem, in other words, was that the credit infusion came too soon in the process of technological growth to meet a real economic need. This lack of opportunity for well-paying production investments enhanced the leakage of such loan capital into consumption and other unproductive uses -- which in turn led to borrower reneging on loan repayments. And, of course, the cheaper were the interest rates, the greater were the levels of borrowing and hence, the more serious became all of the above problems.

A.I.D. has maintained with Ohio State University a series of "basic" projects on agricultural finance. Although some of these focused attention to specific countries, they had as their fundamental purpose enabling Ohio State to maintain and develop its own capabilities and to advance the state of the art in the complex subject of agricultural finance in less developed countries. Frequently, activities under these "basic" projects were carried out in such a way as to assist the countries and the A.I.D. mission in the countries in which part of Ohio States' work was carried out. These "basic" projects -- centrally financed by A.I.D.'s Bureau for Science and Technology and its predecessors -- include:[18]

- Study of Agricultural Credit in Latin America (discussed above) - - 1957.
- First Basic Research Project (work done primarily in Brazil, Colombia, Ecuador and Peru) - - 1964-67.
- Capital Formation and Utilization (work done primarily in 1968, 1969-1975).
- Information Network in Rural Finance - - 1974-76.
- State of the Art in Rural Financial Markets - - 1976-77.
- A.I.D. Cooperative Agreement and Master Plan - - 1977-82; 1982-90.

Under these "basic" arrangements, a number of individual country projects or sub-projects were carried out. In the main, these were funded by individual A.I.D. missions. Usually, they involved study of some specific set of problems in the country, resulting in prescriptions for solutions -- and often in arrangements for training of LDC personnel.

Countries involved were: Dominican Republic, Ecuador, Honduras, India, Jamaica, South Korea, Nepal, Niger, Nigeria, Peru, the Philippines, Portugal, Sudan, Taiwan, and Thailand.

Training

Several other LDCs were served in less major ways, or indirectly through their participation in conferences or studies of a regional or worldwide nature. Still others benefitted from training in farm finance at Ohio State through the regular A.I.D. participant training programs or through training of participants under Ohio State's many technical assistance projects.[19]

Publications

From the beginning, directly and indirectly, a flow of publications has come from the Ohio State University (O.S.U.) programs of research and other activities in international rural finance. In the last five years alone, 1984 through 1988, Ohio State University "faculty members and their associates in international rural finance" have written 234 publications consisting of the following:[20]

38	Monographs, Books, Book Chapters
21	Journal Articles
45	OSU Department of Agricultural Economics and Rural Sociology Publications
6	Bibliographies
73	Papers
2	Book Reviews
20	Research Reports
11	Theses or Dissertations
5	Other

"A number of these have been translated into foreign languages such as Arabic, Chinese, French, Japanese, Portuguese and Spanish so they can be given wider distribution."[21]

Appreciation

The large reliance placed by A.I.D. upon loans to LDCs for the purpose of establishing rural credit institutions created an enormous need for technical assistance. Some of these U.S. loans were made to help finance well organized, on-going local credit institutions where lack of capital funding was the primary limiting factor. Others were to finance well researched and well designed new credit institutions to serve a well defined need, and provide a system for assuring that these new credit funds would indeed flow into production increasing uses. But, as has been pointed out elsewhere in this book, the desire to provide loans in rather large aggregates, requiring few if any U.S. technical advisors, and directed to the agricultural sector made agricultural credit projects attractive to foreign aid donors and recipients alike. The American dollars or other "hard" currencies from the donors were used by the less developed countries to provide foreign exchange for purposes of industrial expansion. The local currencies generated by the internal conversion of these currencies provided the local funds to undergird the farmer credit programs. Local credit institutions were often thrown together with vastly inadequate local study, trained managers or provisions for supervision of, or at least advice to, farmers on the changes in farming practices needed to increase productivity. Therefore, country followed country in witnessing disappointment in performance of the newly created farm credit

institutions. Fortunately, the practical business focus, and the close-to-the-ground research approac of the Ohio State program lent itself to correcting local practices and improving local situation rapidly in many cases. The writer would agree with the assessment of his recent superior officer A.I.D., Dr. Nyle C. Brady, Senior Assistant Administrator for science and technology:

> Because of the analytical findings of the O. S.U. rural finance team, the Agency for International Development has played a leadership role among the donors in many developing countries in presenting strong rural finance support systems... O.S.U. has been engaged successfully in helping our field mission change and improve rural credit policies and institutions in developing countries.[2-2]

Characteristic of his fashion, this is a quiet understatement of the value of the O.S.U. progra which the A.I.D. Bureau which he headed continued to support during his eight-year tenure.

Yet, as in any major element of development, a full assessment of successful endeavor requir some notice of short comings or at least of disappointments or unfulfilled hopes.

To the writer, the first of these is the modest contribution to the basic issue of understanding th processes and uses for general development of capital formation in the agricultural sector predominately rural economies. Particularly is he disappointed at the modest attention given to th in the policy dialogues and recommendations from the group. As implied earlier, most of this capit development and capital flow almost certainly lies outside the farmer-credit institutions. The issu will become increasingly urgent as the lesson spreads as to the extreme limitations on the extent which developing countries can borrow their way into development.

The writer's second reservation is with O.S.U.'s over-emphasis on increased interest rate charged farmers as the solution to virtually all the ills which befall LDC credit programs. This ha two unfortunate consequences. It shifts attention away from many needed reforms (often identified b O.S.U. itself) which continue regardless of interest rates. Also, it precludes use of farm credit as a instrument of structural reforms which often -- more then lack of credit itself -- are essential economic development. The great body of research done under O.S.U. direction can, itself, contribut vastly to economic development in the near future if not sterilized by over-simplification of i messages and over-interpretation and emphasis on one of its major, significant messages.

When all is said, however, there are very few examples of so great a contribution to such a important issue, in so many countries by such a modest expenditure of A.I.D. funds, as the Ohio Stat International Rural Finance Program. Its greatest value is yet to be realized -- and may well depen in large measure on the extent to which its publications challenge and stimulate researchers at othe institutions here and abroad as they struggle intellectually with the processes by whic predominantly agricultural, economically less developed countries produce, assemble and dissembl capital for their general economic development.

END NOTES

1 Parsons et al., editors, Land Tenure: Proceedings of the International Conference on Land Tenure and Related Problems in World Agriculture (held at Madison, Wisconsin, 1951). Book edited by Kenneth H. Parsons, Raymond J. Penn and Philip M. Raup. (Madison Wisconsin: University of Wisconsin Press, 1956), p. 739. Quote from "Introduction" by Kenneth H. Parsons, p.3.

2 Many of the writer' s insights into Dr. Bennett's attitudes on this matter were gained from conversations with his associate and successor, Mr. Stanley Andrews. These conversations took place as we were flying, as part of Secretary of Agriculture Orville Freeman's 1961 fact-finding party, over the mountain location in Iran where, after just six months as TCA Director, Dr. Bennett had lost his life in a plane crash in June 1951. Mr. Andrews had succeeded Dr. Bennett, and the natural drama of the occasion made his comments enduring.

3 See "Must Farms Be Large To Be Efficient and Productive?" in this book.

4 The writer began work for A.I.D. on the morning of the day President Kennedy was elected and spent all that day and night wondering who his new "big boss"would be. Having just returned from India, where he worked indirectly for A.I.D. under a university contract, he (probably in common with most other U.S. citizens) knew little of what to expect of either candidate.

5 Lack of an agricultural technology suited to the kind of agriculture which would result from appropriate ownership reforms was probably the largest single limiting factor in most areas in Latin American and Asia. Given such technology--as now exists for much of Asia--tenure arrangements, which capitalize on the free and effective play of economic incentives, come to dominate. This is being demonstrated now throughout Asia and Eastern Europe, as it was in the United States and similar western countries a century ago. Wisconsin's land tenure research program paid too little attention, in the writer's judgment, to these interrelations between tenure and technology in Brazil, Nigeria and several other countries.

6 Spring Review of Land Reform June 2-4, 1970, Findings and Implications for A.I.D. Available for examination, A.I.D. Reference Center.

7 In addition, a huge number (unavailable to the writer) of foreign students received special training and /or research experience at below the Ph. D. level. It is from this lower level of training that the greatest number of LDC reform practitioners is drawn.

8 Like the copper mine slag piles of the lower Katanga which were reported to the writer, in 1954, to be among the richer stores of uranium ore, this is, by the way, commonly true of major research efforts. Dr. Peter Dorner's outstanding thesis on capital flight from the U.S. south drew most of its data from the files of completed regional home economics research projects of human nutrition in the region.

9 Comprised of Dr. John D. Montgomery, Harvard University; Dr. John P. Powelson, University of Colorado; Dr. G. Edward Schuh, University of Minnesota -- with collaboration of Dr. Albert Berry, University of Toronto; Dr. Thomas P.Carroll, InterAmerican Development Bank; Dr. Alain de Janvry,University of California-Berkeley; Dr. Grace Goodel, Harvard Institute for International Development and Dr. Hung-Chao Tai, University of Detroit.

10 Control over credit has often been used, where opportunities for gainful employment are sufficiently limited, to perpetuate forms of peonage approaching that of slavery, or feudalism -- and have, in fact, often replaced these institutions of tyranny when they have been exterminated. The coal miner's lament,"I owe my soul to the company store," had its counterpart among the southern sharecroppers of this country until the middle of this century and among the very poor rural people in many of the less developed

countries yet today. Heavy indebtedness, inherited, exploitative, continuous, forms a enclosing crust of containment over aspirations of these rural poor, which challenge governments seeking to to expand the reach of political freedom to the economically mo depressed of their citizens. Unfortunately, it is sometimes exploited by governments a one more lever for exerting downward pressure on these same, disadvantaged groups, that happens to be the government's pleasure.

11 W. Arthur Lewis, The Theory of Economic Growth (London, U.K.: George Allen an Univin, LTD., 1955), p. 269.

12 Lewis, p. 269.

13 Marriage ceremonies and dowries, for example, have historically been a major absorbe of borrowed funds throughout most of rural Asia.

14 Credit expended for this use essentially succeeds only, in net effect, in convertin economically inefficient (unproductive) farmers into indebted economically inefficier (unproductive) farmers.

15 The most relevant definition of the rate of a country's agricultural capital formation i this context is: "the rate of increase in the value of output to the cost of input in th agricultural industry." As such capital formation proceeds, there arises the nex question, as to how a major part of it can be transferred into the non-farm sector, to brin about total economic growth, without which agricultural development operates withi sharp constraints. There are many routes for this transfer. The "ancient" Ricardia concept was that it was effected by reduction of the food costs of labor, hence reduce wages, hence more economies within industry to be reinvested by industry as industria capital. This is probably still a major channel, especially mid-term in the economi growth process. Another channel for transferring agricultural capital into nor agricultural growth, highly weighted by LDC planners, is through increasing productio of agricultural export crops, foreign exchange which can be used to finance industria expansion. A third major mode or channel, largely overlooked but eventually likely t prove the most important of all, is investment, via both public and private channels, c agricultural productivity gains into scientific human resource and institutiona development of the type that enhances productivity gains throughout the economy Capital transfers through farmer money savings institutions, which in turn lead t industrial entrepreneurs, are worthy but relatively minor channels for carrying capita transfers of the magnitudes required. It is extremely unfortunate, as can be seen in th indebtedness status of so many LDCs today, that internal capital formation was given s little attention by development planners and development assistance donors of the 1960 and '70s, and such heavy emphasis placed upon external loans (as distinct from externa investments) as sources for industrial (as well as agricultural) investment capital.

16 When dealing with universities, one learns to use qualifying words generously, as fe things dealt with heavily in a major subject by any university are totally overlooked b most other universities. This grows from the fact that each is a service institution to it own state and cannot totally overlook even a minor component of its clientele. This is th down side of the Land Grant College system and does exact a price in failure to specializ and concentrate resources.

17 In the writer's earliest days with A.I.D. he shared an office with Mr. Ralph Battles A.I.D.'s Ohio State-trained credit specialist, borrowed from U.S.D.A. Requests fron missions for credit experts were frequent, and Mr. Battles orchestrated a rectangl connecting the A.I.D. missions, A.I.D./Washington, U.S.D.A. and Ohio State University (A humorous note: At that time, A.I.D. was emerging from ICA as the new foreign ai agency. Authorities and procedures for both were in effect simultaneously: ICA for old retiring activities, A.I.D. for the new! Mr. Battles was the writer's immediate superviso for the "old" ICA activities; the writer was Mr. Battle's supervisor for the "new" A.I.D Each was simultaneously the other's boss. History records no exploitation by either o the alluring possibilities suggested by this unusual arrangement.)

18 In writing this statement on Ohio State University's activities with A.I.D., the write drew heavily upon a report which, in response to the writer's request for information Vice President Frederick Hutchinson had the University prepare: The Ohio Stat

University International Agriculture, Home Economics, Natural Resources History, Accomplishment, Impact, 1949-89, assembled and prepared by Marvin G. Smith (May 1989).

19 "From 1977 to 1988 a total of 54 Ohio State University graduate students (29 M.S. and 29 Ph.D.) have either completed or are still working on theses or dissertations (in) international rural finance, of which 46 were foreign and eight were U.S. students."

"The rural finance program has a large component of graduate student training as part of its research activities...Many graduate students have conducted research done in their own countries so they become spokespersons in the dialogues leading to policy reform. They do become researchers for future analysis of rural finance issues in their countries." The Ohio State University International Agriculture, Home Economics, Natural Resources History Accomplishment, Impact, 1949 - 89, p. 46

20 The Ohio State University International Agriculture, Home Economics, Natural Resources History Accomplishment, Impact, 1949 - 89, p. 46.

21 The Ohio State University International Agriculture, Home Economics, Natural Resources History Accomplishment, Impact, 1949 - 89, p.47.

22 The Ohio State University International Agriculture, Home Economics, Natural Resources History Accomplishment, Impact, 1949 - 89, p.49.

THE JOINT CAREER CORPS: A Program of Merit

—Government's work is God's work.[1]

The Need: The Professional Personnel Dilemma

U.S. Governmental foreign assistance is a complex, work-intensive undertaking.

It involves two broad kinds of work activities: that which can be "contracted out" and that whi cannot -- work done for but not necessarily by government, and work which must be done government. This distinction is of critical importance.

Work in implementing government programs can be done either by "direct hire" governme employees or, working under policies and procedures established by government and agreed-up plans and specifications, by contractors. For example, government employees could be hired to do t work involved in building a government office building. In practice, this rarely happens; it is normal more efficacious to engage contractors or to contract with individual workers -- to do this kind of work

But the decisions as to whether to build the building, where, to what specifications and at wh cost, selection of contractor to build it, monitoring of the contractor's performance and auditing of h expenditures for compliance with contract or legal requirements are, at bottom, government responsibilities. Even here contractors may be of assistance: they can conduct special audits, mal studies of alternative building locations, designs and construction types to be considered. These assist the governmental decision maker; they cannot, however, perform his function. In the end it government which must make the decisions; it alone is responsible and accountable to the publ through established administrative and political processes.

In brief a large part of the work done for government can be shopped out; but a certain amou must be done by government --- i.e., by government employees.

The Joint Career Corps (JCC) was created specifically to provide an operating effective link, technical subject matter areas, between the irreducible minimum of work which must be done government - i.e., by A.I.D. personnel and implementation work which being done by contractors. I merits are greatly weakened if thought of, in general or in specific application, as simply an extensi or component of university contract work. It is an extension of the capabilities of A.I.D.'s personnel do its job. The fact that there are indeed "gray areas" between the two types of work responsibiliti intensifies the need to keep the problems posed by the sharp distinction clearly in mind. The fact th there may be large long-run pay offs to the participating U.S. university in increasing the quality of i educational functions is very important to the feasibility of the program. But, to repeat, the Joi Career Corps' purpose is that of creating within A.I.D. an increased scientific professional capability enable A.I.D. employees to carry out effectively A.I.D.'s immutable responsibilities.

Virtually every study, conference, or structured advisory process, within the Agency, that dea in any way with the technical assistance program or the use of universities has highlighted o central problem: the shortage of professional staff[2] in A.I.D., particularly in the field missions, whi has existed since the present agency was created in the reorganization of 1961.

The reorganization of 1961, as has been pointed out, was explicitly for the purpose of diminishing the role of A.I.D. "professionals," the technical experts, in correspondence with the new doctrine which, in its purist expression, held that the primary reason for underdevelopment of a country did not importantly involve technical issues but only problems of macro-economic policy and shortage of foreign exchange. Therefore, it was held, A.I.D. technical experts were needed and should be used only as relatively minor figures, to help missions assess, and sometimes to help develop locally, the technical framework for transference of capital, through loan or grant, from the U.S. to the developing countries.

Congruent with the change in development assistance doctrine and the accompanying change in organization was a restructuring of the staffing pattern for A.I.D. A.I.D.'s tasks would be largely limited to those of "management" - - developing country-by- country assistance strategies, plans and programs, evaluating plans put forward by host governments and managing the transfer of financial resources to them to support those plans. To the extent that U.S. technical expertise was required, it could be obtained by contracts with private businesses including consulting firms, with U.S. colleges and universities, or (through contract-like arrangements)[3] with other U.S. Federal Government agencies. In short, planning and management functions would be performed by A.I.D. personnel; implementation of all technical assistance programs would be done for A.I.D. by contractors. This decision led quickly, of course, to reduction of A.I.D. field staff - - those technically competent professionals who had previously been involved in implementation as well as management functions. This idea of relying primarily on university or other contractors to implement A.I.D. field programs has much to commend it. It is about the only way A.I.D. programs can be up-to-date scientifically, and flexible enough to bring needed specialized technical competence to bear. Technical experts have great difficulty retaining their scientific expertise when engaged in programs far removed from the centers of scientific advance, as is typical of A.I.D. career employees who move from country to country with intermittent tours of duty in Washington, D.C. On the other hand, such experience develops exceptionally keen and valuable capabilities in the many operational processes involved in adapting and transferring such advanced scientific knowledge to LDC use -- including the capability of identifying U.S. sources of needed capabilities. Bringing this experience-based professional expertise into a proper guidance relationship with the state-of-the-art scientific expertise, which is (or, at least should be) provided by the university team, provides powerful potentialities for harnessing the best which modern science has to offer to the LDC development process -- not so much in "transferring" new scientific knowledge as in adapting, testing for relevance and insinuating it into the process of institutional and human resource development within the developing country.

In actuality, however, the reduction in A.I.D. professional staff was not offset by recruitment of more technical people through universities and other sources, because the Agency had shifted emphasis away from technical advisory functions toward capital transfers and did not see the need for "in-house" technical capabilities.

As the new Agency grew into its job, however, it became increasingly clear to all unbiased, competent observers that LDC development turns much more heavily upon technical and science-based factors than the "new" doctrine had assumed. "Correction" of macro-economic policy and unguided capital transfer proved, by themselves, limp levers of economic development assistance. Secondly, it became apparent that considerable A.I.D. technical expertise was necessary to distinguish "good" from "bad" proposals, whether they came from U.S. suppliers of technical expertise or from the developing countries. It normally takes a medical doctor, or medical scientist, to diagnose and cure a

disease. It takes an agricultural soils expert to recognize a soils problem and prescribe intelligibly for it, an expert in plant breeding to recognize a promising plant breeding proposal. Proposals are presented by advocates; they must be appraised by experts. And, ultimately, the decision as to whether or not to fund them (whether they come from U.S. suppliers or from host governments) must be made, with advice from many quarters to be sure, by persons responsible to the U.S. public which provides the funds.

The problem of shortage of professional-specialist in the field sometimes appears to be almost insuperable. There are so many powerful forces working against it. Congress persistently places ever-tightening constraints upon "operational" (as distinct from "program") funds on some kind of assumption that funds used for "program" purposes are all that accomplish anything; staff and other such trivia funded by "operations" funds are seen as a kind of unproductive overhead. If carried to its extreme, of course, the maximum ratio of "program" to "operating" expenditures would obtain if the Agency were limited to only one person whose job it would be to write checks to developing countries. This would accomplish little if anything toward achieving their development. And concern with accountability would quickly lead to need for several personnel-requiring fiscal monitoring procedures which, no matter how thoroughly carried out, would in themselves provide the country with little, if any new, capabilities for self-development. Unfortunately, a certain prior imperative associated with these programming and monitoring functions (auditing, drafting contracts, preparing budgets and programs for presentation to Congress, and preparing necessary reports) absorbs most of the personnel requirement, so that the professional, scientific expertise, which should constitute the heart of the Agency's needed staff capabilities, dwindles to minute proportions.[4]

Another factor often worked strongly against the maintenance of sufficient A.I.D. personnel in field missions. Every few years a new initiative would be undertaken -- often at the suggestion of some ambassador -- to reduce "the American presence" at overseas posts, not as a result of a local, specific circumstances, nor as an economy move, but in principle. Such a move is no doubt seen by the initiating official as an automatic generator of favorable publicity. It identifies him, almost automatically, with what superficially appears to be conservative common sense.

The proposition that the fewer government-funded Americans are in another country -- and, especially, the fewer U.S. Government employees -- the better, is a good principle, if requirements for the job of advancing the U.S. interest are not taken into consideration. These constraints on total "American presence" levels impact more grievously even than constraints on operations funds as they apply also to program-implementing contract personnel as well as to direct hire personnel.

A certain imperative is inherent in many A.I.D. functions, particularly those closest to fiscal processes: auditing, drafting contracts, preparing programs and budgets for the Congressional Presentation, preparing necessary "findings" regarding such things as environmental impact, role of women, and monitoring fiscal aspects of contractor and host government performance. These operational questions do not yet touch, except by the finger tips, the substance of development or development assistance. But they receive priority from such limited staff as are available.

Confronted with this situation, missions must choose between several unfavorable options.

In the earlier days of the new Agency, policy preferred heavy reliance upon the "Program Loan" approach. In it, the U.S. requested the host government to forward a long-range country economic development plan. When, after negotiating non-technical details related to general economic

development policy, the mission and A.I.D. Washington approved the country's general development plan and A.I.D. loans were made leaving details of implementation up to the country. This may work well in countries whose institutions and personnel are so well advanced as to raise questions as to the need for special U.S. assistance. Normally, the lack of such institutional and trained manpower capabilities, as we have discovered, is the precise cause of the economic underdevelopment we are trying to correct, and is the proper justification for special assistance.

The "Sector Loan" was a modification of the program loan in that it identified the "sector" - - agriculture, health, education, population control, for which the loan was being made - - and thereby made it possible to identify expenditures with Congressional Appropriations categories. And, also, the country's plan could be expected to be in more detail, thereby permitting larger U.S. involvement in performance monitoring. But, the more detail, the greater the U.S. staff work burden.

A third option was to share with the U.S. contractor a large fraction of the planning and evaluation functions. At its best, this approach works well, but only if competent prior planning has been undertaken so that the U.S. university whose resources best match the country's needs is selected. Once that selection is made there is a built-in tendency to shape the program to the university's available expertise resources rather than, necessarily, to the country's needs. In any event, as the U.S. universities have themselves consistently pointed out, substantial technical staff capability is required in the A.I.D. mission for the system to work, as the arrangement's greatest value is that it shifts A.I.D./university interaction from the mechanics of contract compliance to the substance of development needs, processes and performance -- technical subjects, all.

A final device open to missions is to use contract personnel other than those implementing the missions programs. Personnel from contractors would then assist the mission in its management functions on a technical advisory basis. The difficulty is that such persons are insufficiently close to mission functions to be optimally effective. Such personnel can, indeed, provide useful advice and information to the decision maker. But, the decision maker on behalf of government still has no one to fill the technical gap.

The important point is that all these options minimize the quality of scientific technical input that U.S. government puts into the design and management of activities which <u>inherently</u> are primarily technical in nature. Yet it is precisely on technical considerations that success or failure of such enterprise depends.

Thus the combination of historic factors and the technical complexity of development assistance combine to create in missions a chronic shortage of the very types of A.I.D. professional personnel resources upon whose shoulders the success of the enterprise most depends. Furthermore, technical scientific expertise becomes quickly obsolescent when occupied in managerial tasks remote from centers of scientific advance. So the need was translated into the concept of a Joint Career Corp: a cadre of scientific professionals who would have a "joint" A.I.D./university career carrying out governmental functions while working for A.I.D., and university functions while working for the university.

The Program

Somewhere in the mists of history the suggestion was made that some type of joint career arrangement between A.I.D. and the U.S. universities was needed. The idea was swirling around the Agency when the writer joined it in 1960, was swirling in fact when he first began to work for the Agency under contract arrangements in 1954 and 1955. By a decade later, several advisors to A.I.D., including Dr. Gardner, had recommended such a joint career employment arrangement. Still another decade later, in 1975, the Title XII Amendment was passed and its Board for International Food and Agricultural Development (BIFAD), in its legislated advisory capacity, put the issue squarely on the A.I.D. agenda. Could there not be worked out some arrangement under which carefully selected individuals would undertake a truly "joint" career, rotating in an organized manner between A.I.D. and university assignments: working for, under supervision of, and paid by A.I.D. while on A.I.D. assignment, and working for, under the supervision of, and paid by the universities while back on campus? Their on-campus work (especially research and graduate teaching) would keep them at the cutting edge of their scientific disciplines; their overseas assignments would keep them at the frontiers of experience with economic development by development assistance to less developed countries, as related to their subject area of special competence. So went the concept.

Many ideas were advanced as to how to bring into being such a joint career arrangement. One such idea, presented by the BIFAD staff, would call for BIFAD itself to maintain a field staff (financed by A.I.D.) to look after Title XII matters at mission level. This was infeasible on a variety of counts, and it would not, in any event, have solved A.I.D.'s need for additional technical staff to provide guidance and information to missions to help them carry out their governmental functions. BIFAD is an Advisory Board. Such a staff would doubtless have expanded upon the value of its advice; but it would not have met the problems in hand. A.I.D.'s then Deputy Administrator called upon the writer to develop a proposal.

The writer procured the services of Mr. Fred Simmons, a recently retired A.I.D. foreign Service employee. He had served brilliantly as Administrator Bell's Executive Secretary, as Mission Director in Thailand, and as A.I.D.'s Director of Personnel -- and from those perspectives had seen the crisscross of Agency activities with exceptional clarity and intensity. After substantial discussion around the Agency and the university community he presented an imaginative proposal which looked forward to A.I.D.'s developing a cadre of at "least one-hundred" joint career professional employees (in all technical fields, as needed) who would spend about one-third of their time working overseas for A.I.D. and two-thirds on campus, financed by A.I.D. and the university, respectively, while on these assignments. He spelled the arrangements out in considerable detail which, with modest adjustments, was agreed upon by A.I.D. One such adjustment, was to lower the number target, to "take it one at a time and see how it worked out."[5] Out of this effort developed the agency's Joint Career Corps (JCC) program.

It was quickly expanded to include a second dimension: a similarly "Joint" Career for selected A.I.D. professional employees who would rotate their employment with A.I.D. with assignments to universities. This, for clarity sake, was labeled the "Reverse Joint Career Corps."

The "Reverse" JCC was established as an arrangement under which A.I.D. professional employees, selected by A.I.D. upon recommendation of the mission of his/her current assignment, would be placed on staffs of selected U.S. universities to do research, teaching or other professional work. While stationed at the university, these individuals would be paid by the university at salary

rates commensurate with those of regular university employees of similar professional levels, doing similar work. A.I.D. would contribute, from its personnel development budget, to cover costs from such an arrangement, so that the individual would, on balance receive amenities comparable to those received by other A.I.D. employees when sent by A.I.D. on personnel development special training arrangements. This "Reverse" JCC arrangement is an excellent device for recharging the intellectual batteries, and renewing the scientific capabilities of A.I.D. technical experts.

These "Reverse" JCC members also bring to their universities of assignment an intimate awareness of the special requirements of governmental (particularly A.I.D.) employmentm, thereby subtly but importantly elevating the capabilities of their university colleagues to work effectively for A.I.D. under contract arrangements.

The JCC program in both of its elements has grown slowly -- as could be anticipated during a period of general A.I.D. program and personnel retrenchment. But, it has grown, steadily, and must be adjudged a success.

Inherently, the Joint Career Corps program is managerially difficult and cumbersome. The JCC appointee is simultaneously a university and a U.S. government employee. Not only must the terms and conditions of the individual's employment in both university and A.I.D. personnel systems be recorded, the overall policies and provisions of the two employment systems must be in accord. If the appointment is to be a "career" arrangement, the employee's several changes of assignment from university to government and government to university must slide smoothly together. Furthermore, arrangements must provide that quality-of-service merits in both type assignments accumulate to the employee's credit and be reflected in promotions in university rank and tenure, comparably with performance credits earned in full-time university service. Similarly, in "Reverse" JCC, an employee's accomplishments while on assignment to a university must be made an organic part of his/her personnel achievement record.

In accordance with advice from BIFAD and other university advisory sources, A.I.D. was determined that university employees return from an A.I.D. detail to academic positions "at least equal to" - and preferably better than - - those held before the detail to A.I.D. This was necessary for two reasons: 1) to prevent any career disincentive to employees; and 2) to discourage universities from using this program to "dump" unsatisfactory employees. (It should be recorded that no case of such efforts has been thus far encountered.) Universities thoroughly accepted this principle. And they agreed it should be specifically stipulated in the A.I.D.-university agreement. This was not always easy of accomplishment. The personnel management charters vary from university to university. Any formal agreement regarding any one employee (in this case a JCC employee) must be consistent with those governing all other employees of that university. Similarly, provisions governing A.I.D. "Reverse" JCC must be consistent with all U.S. government personnel policies and procedures. Yet, A.I.D. was determined that the JCC arrangements not be ad hoc. It hoped to establish a pattern that could be adapted through time, grow, and become a central part of A.I.D. employee program and policy.

A large step in this direction had already been taken by Congress in passing the Inter Agency Personnel Act (IPA). A.I.D. had been using this authority substantially for several years, primarily for details of senior-level employees to Washington jobs - - but not to Foreign Service appointments in the field and, more importantly, not on the rotating "career" basis desired for the Joint Career Corps.

Using this I.P.A. authority as a base point, and calling very widely upon university administrators for advice, A.I.D. drafted a "Basic Agreement" which, when signed by A.I.D. and a given university, would cover all individual JCC appointments and "Reverse" JCC assignments with that university. The Basic Agreement was for ten years, self-renewable unless either side chose to withdraw. They were all identical except, in some instances, for minor working differences necessitated by variations in governing state laws or university charter provisions. In such cases, these modifications were closely examined by A.I.D. to assure their full conformance with the intent and purpose in the standard doctrine.

Negotiation of this instrument between A.I.D. and the specific university required much time and effort on both sides, but especially in the universities where, in some cases special action had to be taken all the way up through the university executive echelons and governing bodies.

Though laborious, this effort paid dividends in the form of understanding and support by the university administrators. It focused attention on one major, general problem with which many thoughtful university executives were deeply concerned -- the widening gap between scientific and educational processes on campus, and their proper origins in and applications to the "real life" of private and public experience. Although foreign assistance programs are a small dimension of university involvement, this JCC program was thought of as an exemplar of the "Joint Career" approach to maintaining a solid anchor for university research and education in the realities, needs, problems and promise, of the total human enterprise.

The "Basic Agreement" covers all anticipatable aspects of assignment of university employees to A.I.D. positions (in field missions and in Washington) and of A.I.D. employees to university employment. It indicates that "candidates proposed by universities should be tenured faculty, at least at the Associate Professor level, with established scientific reputations, leadership qualities and the ability to provide both technical and broad-gauge advice to mission and high-level host country officials."

It includes provision for such operational factors as:

- A.I.D. fiscal obligations;
- Evaluation of JCC members' performance when working for A.I.D. (to be supplied to the university);
- Salary allowances and benefits;
- Travel and transportation expenses;
- U.S. A.I.D. Mission logistic support;
- Security and medical requirements;
- Accrual of employee annual and sick leave while on assignment with A.I.D.

It also includes statements of university obligations, specifically including: employment, tenure, and promotion policy to be applied to university JCC members.

Throughout, the premise is that, while on assignment with A.I.D., university JCC members enjoy the same privileges and perquisites, and carry the same authorities and responsibilities as direct A.I.D. employees; "Reverse" JCC A.I.D. employees, while on assignment to universities, carry the same privileges and responsibilities as do comparable level university employees. Once the Basic Agreement is signed between A.I.D. and a university, the individual agreed upon to fill an A.I.D. position established in a field mission (or Washington) is appointed under a standard IPA appointment arrangement. Terms and conditions of the individual's appointment are spelled out in detail. The employee retains his formal employment (and tenure) with the university. He continues to draw university salary checks, and enjoy standard university perquisites, for which A.I.D. reimburses the university. A.I.D. employees on a "Reverse" JCC assignment continue to draw U.S. government salary checks, for which the university reimburses the government for his services.

Accomplishments: The Present Status

At the time of this writing, the JCC is a significant, but not yet major, part of the A.I.D. personnel system. It is, of course, a relatively much smaller part of the total U.S. university community's personnel system. As of January 1988:

- Sixteen university JCC members had served in an A.I.D. assignment and returned to campus. Of these, eight had served on a total of thirteen subsequent, short-term overseas assignments. Several more such assignments were in the process of being arranged.
- Eight A.I.D. employees had taken "Reverse" JCC assignments at eight different universities.
- The Corps is slowly building, and in that measure the bridges between theory and practice, and between university and government personnel policy and procedure, are being solidly strengthened.

Most important, the persons selected, both university and A.I.D., for JCC appointments have generally proved of exceptional quality. Evaluations by missions -- and, perhaps especially, honors and awards by the LDC governments with which they have worked -- have strongly borne this out.[7] Most of them have been highly praised in mission personnel evaluation reports.

The JCC program has had its vicissitudes. Principal among its shortcomings are those which impede its expansion or delay assignments of individuals. These fall into three classes:

1. Shrinking demand caused by atrophying of technical assistance and research projects at country mission level;
2. Overly restrictive salary and other A.I.D. imposed constraints (including time consuming security clearance processes);
3. Disappointing amounts of university response to JCC appointment opportunities.

Each of these shortcomings derives, in part, from the others.

- Missions find it difficult and excessively time consuming to obtain badly needed help via JCC. This has, in turn, led to reductions in their requests for JCC personnel and reliance upon other less worthy but more facile expertise recruitment channels.

- Universities have failed to respond to this small market, opting instead to use their energies toward broader scale means of participation, through contracts, in implementation of foreign assistance projects.

- Potential university JCC members, though more interested in and suited for JCC appointments, when confronted by overly restrictive A.I.D provisions, have elected to pass up JCC opportunities in favor of participating through university grant and contract projects.

Professional standards for JCC members are, and should continue to be, very high. University administrators of international programs understandably, but shortsightedly, are often reluctant to encourage JCC assignments for individuals who, by virtue of their outstanding qualifications and availability for foreign assignments, would be excellent choices as leaders or key members of an overseas team on a project for which the university is competing.

All these considerations accumulate to the program's greatest liability: the large and demanding burden on both sides of recruitment of personnel. This is largely a front-loaded burden. As increasing numbers of "Basic Agreements" are signed, this time consuming work element disappears. As a cadre of field-experienced JCC members evolves, re-tapping members of this cadre for subsequent tours, long-term or short-term, is relatively easy to achieve. As more "Reverse" JCC A.I.D. employees return to field assignments, they understand more fully the advantages of utilizing JCC recruitment mechanisms and personnel, and are cognizant of the operational processes for doing so.

Perhaps the most important single thing that A.I.D. and the universities could do to improve the totality of factors which would expand and make more effective the entire range of university-implemented A.I.D. activities, would be to take those steps necessary to expand and make more aggressive use of the JCC program including specifically the "Reverse JCC" dimension. A.I.D. has taken one important step forward by spelling out clearly conditions and circumstances of employment under which JCC employees may be funded from "program" -- and those which must be funded from "operating" -- funds. Its wisdom has led it also continuously toward more "project" oriented programs as experience has shown the weakness of earlier capital transfer approaches. This requires, of course, more reliance on up-to-date professional capabilities -- i.e., more JCC personnel.

On a successful JCC program depends heavily the capacity of A.I.D. to recognize, to understand and to carry out well, the kinds of technical, educational, science based assistance programs which breathe life into local economic development. And on it depends also the creation of opportunities for the universities to participate more broadly and more effectively in expanding countries' efforts at economic and social development. The time is ripe for a high-level, joint look by A.I.D. and the universities at how to step up the level without compromising the character and quality of the two dimensions of this program. Congress should, through appropriate mechanisms, be involved in order to see the flowering and potential fruits of its own creative IPA legislation, as adapted by A.I.D., to the task of advancing the prospects for international order and peace through its bilateral collaboration in economic and social development. Such involvement might lead to discovery of the serious damage

wrought to the foreign aid program generally by the imposition of arbitrary constraints on "operating funds" -- especially as they apply to field missions.[8]

END NOTES

[1] Inscription over the entrance of the Indian national parliament building, New Delhi.

[2] By "Professional" is meant here the scientists and technical experts in fields such a agriculture, health, education, etc. -- as distinguished from the "managers" of A.I.D., th "generalists" who may also, of course, be considered professionals in their own areas c responsibility.

[3] Normally, the Participating Agency Service Agreement (PASA).

[4] Someone with wry wisdom has likened A.I.D. staff makeup to a fictional hospital whicl to meet mandated managerial budgets within restricted total staffing ceiling, expande its cadres of lawyers, bookkeepers and the like and discharged all its doctors, nurses an medical technicians.

[5] Mr. Robert Nooter, an extraordinarily competent, senior, experienced A.I.D. employe who, for all practical purposes ran the A.I.D. side of the Title XII program (and in fact th Agency itself) and deserves most of the credit for whatever positive use A.I.D. made of th legislative amendment during the first three years of President Carter's administration.

[6] Mr. Simmons felt that this was a serious mistake. He had a keen sense of the dynamics c personnel policies and practice and felt that only a major, strongly pushed initiativ would bring the program into being; a slow, cautious effort would condemn it to slo death by inertia.

[7] Universities receive no "overhead (or indirect costs) compensation for JCC appointment (as contrasted with grants and contracts in which this represents an average o approximately one-third of the total cost to A.I.D.). Strangely, but as a testimonial t university administrators' recognition of the broader value to the university o participation in the program, this has rarely, if ever, been a point of contention in th negotiation of "Basic JCC Agreements."

[8] The writer is pleased to note (from an examination of an early draft) that the Office o Technology Assessment of the U.S. Congress concludes similarly with the major point made in this chapter on technical staff shortages in A.I.D. and, specifically, with the nee to expand and invigorate the A.I.D. Joint Career Corps.

SECTION III

AFTERMATH OF THE 1961 REORGANIZATION OF U.S. DEVELOPMENT ASSISTANCE; EFFORTS IN FINDING OUR WAY

The International Rural Development Conference

Shortly after President Kennedy had appointed Mr. Fowler Hamilton to serve as Administrator of the newly created Agency for International Development (A.I.D), the National Association of State Universities and Land Grant Colleges (NASULGC) expressed to the writer an interest in getting acquainted with the new Administrator and in learning what it could about the new Agency. The universities had always had quick and open channels into the predecessor agencies through the technical offices which dominated decision making in the Agency. However the universities were at a loss with respect to the new Agency. With very few exceptions, all the A.I.D. people who appeared to be consequential were not only new to the Agency but personally unknown to the universities and unfamiliar with the content of the technical programs in which the universities were engaged. The Association assembled a group of about twenty-five executives from as many universities -- most of whom had had considerable personal experiences with foreign aid projects abroad -- to meet with the appropriate A.I.D. people for a several hours' meeting. After several A.I.D. officers had explained the new organization from the perspectives of their respective offices and bureaus, Administrator Hamilton addressed the group. It was a warm and friendly meeting.

Administrator Hamilton was very pleasantly surprised to find the group so obviously well-informed and, especially, so supportive of U.S. foreign assistance. The university representatives were also pleased with his expression of appreciation for their interest and support. But they were virtually unanimous in their private expressions of concern with the new Agency as it had been described to them -- and with the obvious lack of familiarity of the Administrator and his senior executives with the substance of foreign aid generally, and technical assistance particularly.[1]

The university group's discussions after the departure of Administrator Hamilton turned largely around the need to establish very greatly expanded channels of communication if all the dearly-won gains and lessons of the past decade of mutual cooperation with A.I.D.'s predecessor were not to be lost. In this discussion, Chancellor Clifford M. Hardin[2] of the University of Nebraska suggested that the NASULGC should set up some special office of its own to be in continuous liaison with A.I.D. The group, in strongly endorsing this idea, saw it as imperative to fill the break in communication channels created by the reorganization-ordered demise of the predecessor agency's technical offices -- especially the old Office of Food and Agriculture. It was recognized that, eventually, the new university association office should be financially supported by the universities. But the immediate question was need for startup funding while the longer-range funding processes were worked out.

To the suggestion that A.I.D. fund the startup process, the writer countered that the office should be free from any such dependence upon federal funding. The alternative was to seek startup funding from the private foundations -- a decision made practicable by the fact that representatives from the Ford, the Rockefeller, and the Kellogg Foundations were all present. This was then accepted as the proper approach and the International Office of the NASULGC was established -- and is still rendering valuable services, among other things, to the improvement of U.S. university/A.I.D. working relationships.

Obviously, a key to the success of the new office would be the choice of a director. The NASULGC persuaded Dr. Ira L. Baldwin, Vice President of the University of Wisconsin, to accept this

role. He was an extraordinarily good choice. As the University could spare him only half-time, th Association provided him a nearly full-time assistant director in the person of Dr. Raleigh Fosbrink o Purdue University.[3] Dr. Baldwin is an exceptionally competent administrator as well as a renowne scientist, and immediately developed a program for his office. As with the university group whos action had led to the establishment of his office, he quickly realized that restoration of effectiv intercommunication between the universities and the Agency for International Development was th highest priority, the required first step.

This was not easy to accomplish. There were many agricultural universities, one per state, plu seventeen "predominantly black" institutions created by the "second Morrill Act" of 1890, al members of the NASULGC. Many of these universities were either engaged, or at least interested, i A.I.D. projects. They were capable of conjoining their representations, to a degree, through th NASULGC and its new International Agricultural Affairs Office which Dr. Baldwin would serve a director. But A.I.D.'s central offices were very weak indeed and played no important role in th management of overseas technical assistance projects. The Administrator's position was essentially figurehead insofar as matters of interest to universities was concerned. And now the regional bureau were each different from the other in approaches to technical assistance.

Worse, the Agency had reduced its professional staff so heavily -- and especially had lowere their role in Agency decision making and program management -- that universities found i shockingly difficult to get competent responses to problems of project content or implementation.

Dr. Baldwin was, therefore, interested in undertaking a rather massive intercommunicatio process between the universities and A.I.D. -- something which would narrow the huge gap i understanding which threatened the entire future of what they felt to be the extremely impressiv progress thus far of U.S. university institution-building and other technical projects overseas, process initiated by President Truman and given great impetus during the years of foreign ai administration under President Eisenhower, particularly by Governor Harold Stassen.

At that time, the writer and Dr. Baldwin -- often together with a representative of the U.S Department of Agriculture -- were meeting at least weekly. Out of these meetings grew the idea of major conference on international rural development to be jointly sponsored by the Agency fo International Development (A.I.D.), the U.S. Department of Agriculture (U.S.D.A.) and the Nationa Association of State Universities and Land Grant Colleges (NASULGC).

These three knew that they could count on enthusiastic support of the NASULGC, includin specifically, its President Elect, President Elmer Ellis of the University of Missouri, who wa thoroughly familiar with his university's program in India. They knew, too, that Secretary o Agriculture, Orville L. Freeman, was intensely interested in foreign assistance programs and ha pledged full support of his department to the effort. Fortunately, the Agency had a new administrator David E. Bell, who had greatly impressed everyone who had met him. Therefore, the little group o three aimed high.

The three recommended that President Kennedy be asked to call a conference, jointly sponsore as indicated above, inviting the presidents of all the member institutions of NASULGC and severa other special guests, to hammer out proper frames of reference and general procedures for carrying ou cooperative efforts among the three entities to achieve the President's goals for foreign assistance t agriculture. Mr. Bell felt the proposed conference was a bit minute to draw the "enormous prestige o

the President's Office."[4] However, he did support the holding of such a conference, with highest possible A.I.D. support and visibility and, to include, if possible, a meeting by President Kennedy with the conference attendees. Administrator Bell said he would undertake to persuade the President to do so.

Secretary Freeman enthusiastically embraced the idea. Planning began in earnest under the general direction of a Committee chaired by Mr. William S. Gaud, Deputy Administrator of A.I.D., and under the daily staff supervision of the writer, with very large inputs of effort by Dr. Baldwin and several U.S.D.A. persons including Secretary Freeman's special assistant, Ms. Dorothy Jacobson.[5]

Preparatory work on the conference was just begun by the tragic day of November 22, 1963, when President Kennedy was assassinated. Work on preparation proceeded as contacts with the new White House staff provided assurance that President Johnson would welcome the opportunity to meet with the assembled attendees at the conclusion of the conference, on July 28, 1964.

The conference was organized around four topics, each developed by a joint committee of university, U.S.D.A. and A.I.D. representatives, which met several times each. Major papers developed by these committees were distributed to prospective attendees. At the conference itself, attendees were divided among four study groups to examine these papers and develop formal recommendations to the conference -- recommendations directed in most instances at A.I.D. but in others at universities and U.S.D.A. The four major conference topics, all selected after much discussion among conference planners were:

Group I	Country Program Planning and Execution
Group II	Project Planning and Execution
Group III	Development of Personnel and Institutions
Group IV	Contractual Arrangements

In each case the pre-conference committee was chaired by a senior, experienced A.I.D. official. Later, each conference work group was chaired by a president of a university prominent for its historical experience in overseas technical assistance work for A.I.D. These working groups developed reports with formal recommendations for presentation to the conference by this chairman.

The other major components of the conference were the major addresses of Administrator Bell, NASULGC President Elmer E. Ellis and Secretary Freeman. Probably Secretary Freeman best described the attitude of the attendees at the conference, at his address at the banquet the first evening:

> We support technical assistance programs for rural development in the less developed countries of the free world for at least three reasons:
>
> 1. It is economically advantageous to do so.
> 2. It strengthens political independence and freedom, and thus contributes to security and peace.
> 3. It is morally right.[6]

His address then elaborated these three points and left the crowd with an immense sense of enthusiasm for the work in which they were engaged for A.I.D..

The attendance at the conference may be best summarized as follows from the report itself.[7]

"We have had 335 people registered; 118 of them representing 69 colleges and universities about 175 representing the U.S.D.A. and A.I.D., 12 representing 12 different national and international organizations, 14 representing ten other federal agencies, and some representing foundations and UN agencies."

All of the entities were represented at the top most level, and other staff which attended were also senior executives. The concurrence among all groups was very close and agreement uniform that some major interest points had been identified which required action on the parts of the three entities. Since A.I.D. was the funding agency, most of these actions fell upon A.I.D. to implement.

Administrator David E. Bell summarized his conclusions about the conference.[8] "We take away two kinds of results from this gathering:

"First, a sense of agreement, of consensus, on the nature of the problem and how to meet it, and a sense of commitment that we can and should move along the lines we have identified to improve upon past performance.

"Second, we in A.I.D. carry away a list of priority issues and proposals on which it is our responsibility to take the lead in following up."

Mr. Bell was an extraordinarily able, intellectually powerful, informed, strong and meticulous administrator. To keep his word to the conference he asked Mr. William Hall,[9] at that time the Assistant Administrator for Administration and normally spoken of as third ranking person in the Agency, to personally keep his eye on the process by which the follow-up was consummated. Mr. Hall properly delegated the responsibility to the Technical Assistance and Research Council, a committee which represented all segments of the Agency at the levels that were most cognizant of technical assistance activities. Each regional bureau had an office director with overall responsibility for technical assistance in the several technical fields. This person, for each Bureau, was a member of the Technical Assistance and Research Council. Included also among its members were the Agency Director of Personnel, representatives of the General Counsel, and the Bureau for Program and Policy Coordination. The committee was chaired by the Deputy Director of the Bureau for Technical Cooperation and Research.

This committee made out an extensive workbook which did the following things:

1. It identified all the significant actions recommended by the conference either formally or implicitly in the content and nature of its discussions;

2. It wrote those recommendations out in actionable form;

3. It assigned an individual (usually a member of the committee) to take the follow up action, and;

4. It committed itself to present all of these actions in writing to the administrator in a form suitable for action.

Forty-five formal recommendations were specified and processed in the above described way. Some of these were acted upon rather quickly and, upon final approval throughout the Agency, were formally implemented.

Perhaps the most immediately significant, as an example, was the recommendation to consolidate in the Agency a single Office of Contract Policy for the development and maintenance of standard formats for contracting, and specifically for university contracting. Difficult as it may be to believe, until this time each bureau, including the central bureaus, had its own contracting format, its own "boilerplate" terms, its own techniques for contractor selection, and operated essentially as a separate agency of government only loosely federated under the administrator. This caused universities unbelievable difficulties as they often had three or four contracts with as many different segments of the Agency, each with its own internal character and each requiring different reporting systems, terms and conditions. The Rural Development Conference had simply made it so clear that this was unworkable that the Central Office of Contract Policy was established and has remained in existence under one name or another until this day. Its powers are not absolute, as individual bureaus still have some discretion. But the bulk of the university contracts are now enveloped within the same general policies and provisions, and changes in them are the result of Agency-wide deliberations rather than made through varying procedures within individual bureaus.

Although a specific follow-up action was developed and a responsible person and office was specified for each of the thirty-five recommendations, the actions taken often were not immediately apparent in changed Agency procedure. By their very nature, many of the actions would take time and trial and error to evolve. For example, one recommendation provided that a research component should be included in as many projects as were suited to this kind of provision. It was agreed by all that a research component within a technical assistance project would improve its relevance and greatly enhance its impact. An evaluation component within each project was similarly recommended and was recognized as clearly desirable in order, through time, to winnow out those projects which were not being successful and to identify the causes of success or lack of success. These kinds of recommendations lent themselves only to a statement of policy and attitude as the details had to be worked out in each individual case. Several of the actions were to the effect that a study group should be set up to examine the problem further. Another group of actions determined that a staff paper would be prepared that could then be examined by all Agency executives, who would be expected to include the substance of the recommendation into their respective areas of responsibility. Some of the actions were in the form of policy papers which would be distributed to each of the missions and throughout the Agency depicting a clear line of policy within which the decentralized authorities could shape their own decisions with a great deal of discretion as to when and in what form the policy applied. A few actions, such as the one establishing the Contract Office, were immediately put into place by the Agency.

The nature of this exercise illustrates very well the limitations of the organizational structure of the Agency to respond to obvious needs and requirements for change in policy and procedure. Even though the Technical Assistance and Research Council represented all action elements of the Agency, at the executive level the end result was that unless a discussion convinced the representatives to such a degree that they in turn could convince their superiors, or unless it was something of such overriding

importance that the administrator put unusual personal pressure on it, the recommended changes might have some slight influence but not result in clear cut action.

The same general circumstance applied to those recommendations directed at USDA and even more so to those that were directed at the universities. For example, the universities were and clearly are in agreement that they should provide their best people to the technical assistance teams assigned overseas. What constitutes the "best people" is in each case, however, subject to debate. Furthermore those "best" people might not especially wish to serve overseas and there is no way -- or intent -- to compel them. Never has there been developed, even to this day, a reliable measuring criterion to identify those "best" people. So it amounted to a moral commitment by universities to use their best efforts, and to be willing to make their best people available, and possibly to induce them through policy and promotion incentives. Let us clearly indicate need for continuing advice on how to implement this agreed upon policy -- advice in which the universities would like to share deeply. This is not to imply that the universities are not providing good people -- it is only to highlight the fact that work overseas on technical assistance projects, at the end of an extremely long line of communication, dealing across cultures, where diplomacy is a daily requirement and where resources are always extremely limited in relation to the magnitude of opportunities, requires outstanding people. And people of this caliber are always scarce. The extent to which the commitment directed by the universities to this objective has had an impact would be difficult to measure; but it has clearly been considerable.

An illustration of the tenuous and torturous path by which a recommendation gradually became a part of the Agency's operations would be informative.

Dr. Meredith Wilson, President of the University of Minnesota, and chairman of the work group reporting on "Development of Personnel in Institutions" reported the group's recommendation that each university technical assistance contract with A.I.D. carry an additional 10% of flexible money to be used to strengthen the U.S. university's capability to carry on that project.[10] The university should have substantial flexibility as to how these funds were used providing only that they were used in a way which directly increased the effectiveness of the undertaking on behalf of A.I.D.

During the discussions of that group's report, Administrator Bell raised questions of clarification. In his summation, he indicated[11] that he understood the recommendation was for "a lump sum, so to speak, not against a prior plan, and the university would use them" and report on how it had used them.

After a brief discussion in which President Wilson indicated that that was the general thought but that the committee recognized that in order to justify the use of federal funds for this purpose some kind of a project plan for this specific use of those flexible funds might be necessary to "identify things which would be done." Mr. Bell returned, however, to the original idea of a lump sum to be justified after the fact in order to allow the maximum flexibility, and then concluded with these words: "It is extremely helpful to have that clarified and I must say that while I haven't gone through this with the lawyers and so on, basically I agree with this and will try to follow it."

Following the conference, the Agency diligently pursued this idea but for a variety of reasons could not find a suitable means for implementing it. However, shortly after Mr. Bell left the Agency, a program was initiated to strengthen the capabilities of universities under Section 211(d) of the Foreign Assistance Act. Those grants were made around a relatively detailed plan; but they were

lump sum grants, and the details of the expenditures were justified after the fact by the university against the general framework of the previously agreed upon plan. They were flexibly administered by the university to strengthen its capability to carry out its technical assistance work for A.I.D.. The main point had been won so far as the nature of the management of these grants was concerned. That is, the university, rather than A.I.D., would have the responsibility for deciding what was done with the funds with the burden of responsibility resting on the university to prove to A.I.D. that the funds were used in a way that enhanced its performance for A.I.D..

The ten-percent idea, however, did not seem to be possible to incorporate into each contract as the agreement would have to be reached with each country to concur in that use of project funds. However, years later with the passage of Title XII, and the stipulation by Congress that funds should be used from Title XII to "strengthen" the universities, a modification of the 211(d) program was set up, under the title "University Strengthening Grants" in which the maximum amount of grant monies that any university could receive would be 10% of their volume of overseas business with A.I.D., using a three-year moving average to reduce the annual fluctuations which result from annual contracting. This meant in essence that: a) the university would have responsibility to decide what was done with the funds within the framework of a prior agreed-upon plan, and, b) that the amount of funds which could be so used would be established by the volume of technical assistance work done overseas for A.I.D. (Technical assistance in this context would include research work.) These grants are matched dollar for dollar by the universities, plus a university contribution of all overhead costs. The criterion applied to work done overseas because it is precisely for overseas work that the university has to equip itself in a special way. This idea has prevailed to the present time under the support grants which are a part of the memorandum of agreement programs, first undertaken in the mid-1980s. One could say that this idea, born at the 1964 conference, came fully into being approximately 20 years later. Nevertheless, it strongly influenced the design of contracts and the way in which funds could be used when it was clearly in the Agency's interest to have the university use some of A.I.D. funds for such things as language training, orientation, and preassignment travel to equip them for more effective work overseas.

Furthermore, the conference identified to all in attendance the enormity of the problems that had been created by the reorganization of 1961, responsive to the International Development Act of that year. It showed the great need for strengthening the technical staffs of missions, which was an explicit recommendation of the conference. It showed the great need to strengthen the technical competence at the center of the Agency where policies are established and evaluations are made. It showed that the administrator's role in the Agency had to be strengthened. It demonstrated the obvious weakness of the concept of the administrator as being a referee among his assistant administrators, and made it clear that the Agency was so throughly designed to be responsive to individual country differences among the LDCs that it was almost impotent in dealing with problems where a U.S. national strategy was required and where access to U.S. resources, whether in the universities or other agencies of government, had to be both facile and competent.

By lending weight to the strengthening of the central staff offices, and perhaps especially by concentrating responsibility for contracting policy in the Central Contract Office, subtle but powerful forces were set in motion to give a greater cohesion to the Agency as a whole. However, progress toward that end has been halting and minimal in contrast to the degree of change which is necessary if the Agency is to work effectively in the technical areas.

A prophetic note was indicated in the statement of Elmer Ellis, at that time the President of the University of Missouri and also that year's President of the National Association of State Universities and Land Grant Colleges: "Congress needs to provide us a charter, another Morrill Act, which spells out the needs, outlines a more workable partnership of federal agencies with state universities, and sets up a system of more adequate funding." He then went on to say that "the necessity of total university commitment has been emphasized many times without much visible results because the administrative and financial environment has simply not permitted it." Eleven years after this conference, President Ford signed Title XII of the Foreign Assistance Act which was seen by its authors as a sort of Morrill Act which gave to the Land Grant university some of the incentives and some of the responsibilities for international work that the Morrill Act had given for their teaching of the youth of 1862 and beyond, those things necessary to be successful farmers. Evaluation of the Title XII will be given in another section of this report but the power of ideas to make their point and prevail is thus again illustrated.

Perhaps the key phrase in the quote from President Ellis is "Partnership of federal agencies with state universities".

The Conference on International Rural Development, whatever its success as an instrument for effecting changes in A.I.D., the universities and the U.S. Department of Agriculture, relating to their roles, responsibilities and mechanisms for cooperating in programs of assistance to less developed countries, was enormously successful in its impact on attitudes of all these entities. It was exceedingly well received by all participants. Importantly, it was a truly joint workshop in which major issues were addressed and consensus arrived at. Most especially, it engaged detailed attention of persons at a level capable of putting conclusions into practice.

The then A.I.D. Administrator, David E. Bell, attended throughout and personally contributed greatly to the discussion. His deputy, Mr. William S. Gaud, chaired the Conference Planning Committee. He was to become the A.I.D. Administrator after Mr. Bell's resignation to become Vice President of the Ford Foundation. Most of the Assistant Administrators of A.I.D. attended and two carried heavy work assignments in furthering the conference. Mr. Gaud's successor as A.I.D. Administrator, Dr. John Hannah, could not attend, but was ably represented by Dr. Glenn Taggart, who carried a major assignment in the conference and kept Dr. Hannah closely advised.

The Honorable Orville L. Freeman, Secretary of Agriculture throughout the Kennedy/Johnson administration participated directly in the conference planning, as a principal speaker, and assigned key U.S.D.A. executives to significant roles in preparation of a major committee report. Especially important, he kept in close personal touch with the writer throughout the conference planning period; he kept an active communication process, parallel with and supportive of A.I.D.'s, with President Johnson and his staff.

The next two Secretaries of Agriculture under the Nixon administration, also had very active roles in the conference. Dr. Clifford N. Hardin, then chancellor of the University of Nebraska and to be President Nixon's first Secretary of Agriculture, was chairman of Study Group I, "Country Program Planning and Execution." Dr. Earl O. Butz, then Dean of Agriculture, Purdue University, and to be President Nixon's and President Ford's Secretary of Agriculture after the resignation of Dr. Hardin, served as an active member of Study Group II, "Project Planning and Execution." Thus, the three

agricultural secretaries who served under four presidents -- all highly supportive of A.I.D. -- participated actively in this one conference.

From the National Association of State Universities and Land Grant Colleges side, several of the future presidents of the association, and chairmen of the standing committees relevant to international agricultural programs, were in attendance. Four of the five directors, to date, of the International Agricultural Development Office of the Association and a large fraction of the key policy shapers of the universities were present, most of them highly engaged in the conference deliberations.

Perhaps as important as any attendee of the conference, in its effect on future U.S. universities' contributions to U.S. foreign aid, was Dr. Nyle C. Brady, then Director, Sciences and Education, U.S.D.A., later to become Agricultural Experiment Station Director, Cornell University, Chairman of the A.I.D. Research Advisory Committee, Director of the International Rice Research Institute (IRRI) in the Philippines and, until recently, Senior Assistant Administrator for Science and Technology, A.I.D. It may be perhaps reasonably assumed that attendance at this conference contributed significantly to development of the extraordinary capability he has brought to his several subsequent positions, and especially, to his most recent position. Without doubt, he has contributed more, in total impact, to the development of LDC agriculture than any other single person ever to grace a senior A.I.D. executive post. And there have been many who have contributed a great deal!

After the conclusion of the conference, the writer shared a seat on the bus with his old friend and office mate at the University of Wisconsin, Dr. Clifford Hardin. Hardin's response to expressions of caution about A.I.D.'s actually putting into practice what we now knew needed to be done -- primarily because of its extreme decentralization of decision-making and the even greater diversity among the universities as a whole -- was: "I think the best thing about the conference is that we <u>had</u> it. Even if there is no follow-up, we now all <u>know</u> what needs to be done, and that knowledge will survive." Many persons in all three entities had actively participated. They had sealed their understanding in the warmth of Presidential blessing in the Rose Garden. The top executives of U.S.D.A. and A.I.D., for the entire period from the Kennedy through the Ford Presidencies,[12] had been directly involved and their views and attitudes affected. A look back over the years would suggest that Chancellor Hardin was undoubtedly right![13]

The Administrator's Economic Advisory Committee

Aristotle: Introduced brains into Greece

—David McKay, 1924[14]

Probably no A.I.D. Administrator worked as hard to bring the intellectual resources of the country into the development of A.I.D. as did David E. Bell. He did this in part through appointment of advisory committees of outside experts, the members of which he did not hesitate to use as individuals to help A.I.D. find its way on specific policy and program issues. Important among these was "The Administrator's Economic Advisory Committee."[15] Other advisory committees included the Research Advisory Committee[16] and, later, the University Relations Advisory Committee. All of these committees continued to function through several A.I.D. -- and U.S. Executive Branch -- administrations.

It was well that Administrator Bell drew upon external advice as heavily as he did in the early days of the new agency--and that he, himself, had the intellectual capacity and personal energy to use it, as the Agency was in an extreme state of doctrinal and structural disorganization as a result of the reorganization of 1961. In the new A.I.D., policy decisions were made in such a decentralized manner by country missions and regional bureaus that no pattern which could be called "U.S. policy" floated to the top. The first new A.I.D. Administrator[17] had seen himself, to use his phrase, "as a referee" of the competitive claims among the regional assistant administrators. In the early 1960s, this "referee" function carried little weight as appropriated funds were so abundant that little real "competition" developed -- and regional bureau administrators did not feel the necessity to compromise their ideas to accommodate Agency policy in return for more funding. (This situation would change radically in later years!)

Furthermore, the early days of the new A.I.D. administration had been days of transformation of concept about how LDC development was to be achieved and how it could be best assisted. The technical assistance component of U.S. foreign aid, which was the mainstay of President Truman's "Point Four" concept, and of predecessor foreign aid agencies, had been reduced by the reorganization to little more than a memory. The new doctrine held that underdevelopment was caused almost entirely by interactions among poor LDC economic planning, poor macro-economic policy, and shortage of hard currency foreign exchange to pay for capital imports. It logically followed, according to the new A.I.D. doctrine, that all that was needed to achieve development of the LDCs was for them, through good economic planning, to adopt good macro-economic policies and to acquire massive importations of capital from all available sources. A.I.D. was seen to be an important instrument both for improving the LDC's economic policy and for providing the needed capital. In fact, A.I.D. would see that they were tied together. A.I.D. could assure good macro-economic policy by the borrowing country by the application of what was then called "leverage," the promise of giving or the threat of withholding foreign aid to be tied to the individual country's having prepared a national development plan to the satisfaction of A.I.D. economists. The idea of technical assistance was in disrepute: whether it was to help LDCs develop agricultural universities or other public institutions such as agricultural or health ministries, or to carry out agricultural development or human disease control programs. At best, such technical assistance activities were to be treated as peripheral to capital transfers designed to force "better" economic plans and policies as well as, of course, to relieve capital shortages. "Project" assistance, which tied technical and capital assistance together in a project to accomplish a specific purpose (such as developing a university or carrying out a disease control program), was in disfavor, as it was held that it diluted the "leverage" over national planning and macro-policy needed to effect total development. Technical people in A.I.D. were similarly in disfavor as they kept raising embarrassing questions of technical feasibility and technical constraints.

In compliance with the new A.I.D. doctrine, the 1961 reorganization had removed A.I.D.'s technical people in Washington from any significant control over decision-making by the Agency, greatly reduced their numbers and scattered their remains, in small groups, among the several regional bureaus.[18] Similar reductions in numbers and influence of technical experts were effected at country mission levels. In substance, the reorganization of 1961 changed the Agency from a technical advisory and assistance agency to a "lending agency of last resort," a place where LDCs could get financial assistance when other sources would not supply it -- providing only that the country present a "sound" economic development plan.

When Mr. Bell took over he did not in any way significantly change the A.I.D. organization, or greatly improve the basic development doctrine of the Agency! This would have been almost impossible. The reorganization was too recent and the new undergirding doctrine was much too fervently held. However, he did concern himself greatly with the details of the problems of the individual sectors, such as agriculture, health, and education. He came quickly to recognize that "sound" LDC macro-policy and capital infusion would not in themselves solve all of the problems of these sectors. Also, he concerned himself greatly with the utilization of science and technology, research and education, as instruments of development. Essentially alone at the executive level, by dint of great personal effort and involvement, he held together the beginning research effort which was then very unpopular throughout the Agency.

In any event, Bell utilized strongly the Administrator's Economic Advisory Committee chaired by Dr. Edward Mason, from Harvard, under whom he had studied at Harvard and had worked in a Harvard-operated project in Pakistan.

The Committee met with the Agency for two days every three months. Administrator Bell was always present and the Committee's efforts were largly addressed to his questions. Other top executives of the agency attended the meetings and important issues were indeed surfaced.[19] This extraordinarily competent committee examined primarily economic planning and economic policy issues. But it did so with an amazing degree of remoteness from the hard technical facts of the development process. Discussion of agriculture, for example, was thin on detail and limited almost entirely to questions of whether the agricultural sector was moving forward as well in one country as another and what the implications of a lagging agricultural sector might be for the future general development of the country. Discussions as to <u>why</u> agriculture and food production might be lagging were usually answered by an assumption that it must somehow be rooted in bad general economic policies. Dr. Shultz continuously pressed for recognition of the role of free price markets to guide resource use and development.[20]

Although the writer considered himself to be an agricultural economist, and attended all the Committee meetings, he found it difficult to participate in these discussions because of their being so totally out of contact with the simple but all important technical problems of agriculture. He once pointed out that food is produced by plants and animals, neither of which can respond to policy options; that raising the price of potatoes, for example, did not have much to do with production if diseases were destroying the roots or insects were destroying the leaves. The Agency's chief economist responded that this was a trivial issue beneath the dignity of the Committee. But eventually there was sparked during these discussions some interest in two major questions: 1) Why wasn't LDC agriculture moving forward more rapidly? 2) What might be done to make the U.S. universities, the largest instruments of A.I.D.'s technical assistance, more effective in carrying out their programs?

Dr. Max Millikan, on the Committee, addressed himself to the first of these questions; Dr. John Gardner, also on the committee, addressed himself to the second. Both later tendered formal reports to the Agency, each representing much investigative effort under their respective directions.[21]

No Easy Harvest: The Millikan Report

Dr. Max Millikan, extremely respected for his economics competence, but refreshingly nor doctrinare about its application, explained in a committee meeting with the Administrator that h didn't at all understand agriculture, especially LDC agriculture, nor why it didn't respond better t the general macro-policy prescriptions coming increasingly into place. He said he would like t organize a workshop, at M.I.T., of the best and most informed minds he could assemble to get at th question.

He indicated that the group should include some experts in technical agriculture, in economics including agricultural economics, in nutrition and in public administration -- about 50 people for tw weeks, he felt, should be sufficient to do the job.

Administrator Bell responded that the Agency would support the effort.

By that act, A.I.D. senior executives rediscovered agriculture.

Dr. Millikan assembled the group. It was a competent group indeed, many of whom ha extensive experience working in LDCs on agricultural development problems: people such a Dr. Frank Parker of U.S. A.I.D./India fame; Dr. David Hopper of Canada, and Ford Foundation Dr. Woods Thomas of Purdue University and Brazil; Dr. Clifton R. Wharton (later to become chairma of the Title XII Board for Food and Agricultural Development); A.H. Kahn of Pakistan; R. Krishnan o India; and Dr. Walter W. Wilcox, Agricultural Economist of the Library of Congress.

The group worked hard, and turned out a very useful book on a wide array of issues. But it principal value was in the fact that Dr. Millikan was an "insider" to the new A.I.D. doctrine. His ora reports back to the Administrator and other A.I.D. executives were taken seriously, because be wa articulate and because he was "one of them." It introduced many of them, for the first time, to th realities and complexities of LDC agriculture. One of his statements, which caught the ear of th writer, illustrates his central point. "The problem is that in many LDCs there are multiple millions o small farmers. For agricultural productivity to improve importantly, most of those small farmer have to farm better! It's a colossal task to get them to do it. There is no way to force it; there are to many of them. And we don't, really, know how to induce it! One thing certain is that it's not a simpl matter of policy -- but of a thousand, specific changes in farmers' activities. It has to be a massiv educational process, but what kind of process we probably have yet to learn."

The report emerged formally much later. But the informal discussion gave a new shot of life t the agriculturists in the Agency. It re-legitimized the role of technical specialists, and technica assistance as a modus operandi of development assistance. Mr. Bell asked the writer to draft a majo memorandum, assembling what facts he could, on the progress being made by LDC agriculture.[22] Thi paper was discussed thoroughly at executive staff levels and, by Administrator Bell and the writer with Dr. Walter W. Rostow, foreign economics policy advisor to the President. The learning activit led to a number of country and regional examinations of agricultural problems and progress. These i turn resulted in some changes in mission priorities and programs. After the Millikan study, it coul well be said that the agricultural sector was never again so totally neglected by A.I.D.[23] Indeed, eve the entire idea of technical assistance was to a degree rescued from its moribund state.

The "McGovern Bill"

The Millikan Study had another consequence. One of the participants was Dr. Walter W. Wilcox, Senior Agriculturalist of the Library of Congress.[24] Dr. Wilcox was highly stimulated by the M.I.T. experience, and returned from it with an intense feeling that some means had to be devised to get strong Congressional support for the kind of long-term effort which would be required. He himself had had personal experience with the U.N. Food and Agricultural Organization (FAO) in Latin America.[25] He felt that only the U.S. Land Grant Universities could marshal the professional and scientific resources of the quality and breadth required for the kind of undertaking identified as necessary by the workshop group.

He also knew that the instruments through which A.I.D. worked with the universities would never unleash the kind of cooperative energy required by the task ahead. He had worked with Senator George McGovern, and the Senator's assistant, Ben Stong, in developing a special kind of program to enlist university support for research and development work on water problems in the United States. So he drafted a memo (after discussions with the writer) and presented it to his long-time friend, Senator McGovern. It was a proposal to provide the necessary inducements and funding formats to the Land Grant Universities to harness their dynamics to development of LDC agriculture. (As an agricultural price policy expert, and price support advocate, he understood very well the advantages which strong LDC economic growth would bestow on U.S. farmers through the expansion of LDC imports of U.S. food products.)

Senator McGovern liked the idea and asked Ben Stong to work with Dr. Wilcox to draft a bill. The result was the introduction to the U.S. Senate on February 19, 1965 of a bill by Senator McGovern entitled "A New Basis for Providing Technical Assistance through Colleges and Universities."[26] The bill was co-sponsored by Senators Mansfield, Ribicoff, Randolf, Nelson, Montoya, Moss, Bayh, McCarthy, McGee, Inouye, Long, Yarborough, and Muskee. The National Association of State Universities and Land Grant Colleges, and their separate member universities strongly endorsed it. Administrator Bell, testifying in support of it stated in part that:

> We (in A.I.D.) are convinced of the very great importance of improving the effectiveness of United States assistance to rural development of the less developed countries...It is our firm conviction that we must seek to engage the resources of the Department of Agriculture and the universities more broadly than they have been engaged thus far in international development work.

The bill had great political appeal. It passed the Senate as S. 1212. The House of Representatives was astir with activity, largely around the question of a proper sponsor for an identical or similar bill.

The bill was simple. It had three "titles." The first stated its name and purpose. The second provided for a set of grants (to be determined by some formula) to be made by A.I.D. to selected universities especially qualified by experience and or interest, to help them establish and maintain "colleges and universities foreign affairs centers, institutions and departments," to strengthen and maintain their capabilities to carry out for A.I.D. technical assistance or research work on agricultural or rural development problems in the less developed countries. The third, Title III, provided that A.I.D. (in essence utilizing existing authorities but presumably through unspecified, improved instruments) would draw upon these special university resources much more freely than previously in implementing its agricultural and rural development assistance programs in the LDCs. For this

purpose "there is authorized to the Secretary of State, to be administered by the Agency for International Development or successor agency, the sum of $80 million in fiscal year 1966, $100 million in fiscal year 1967, and $125 million in fiscal year 1968 and such sums as are appropriate in the years thereafter."

The time was ripe for a new, reinvigorated approach to A.I.D./university relationships. As Administrator Bell also pointed out in testimony, the McGovern Bill was totally within the spirit of the findings of a study by Dr. John Gardner on changes needed in the broad structure of A.I.D.'s relationships with universities. The universities were extremely enthusiastic. The importance of doing something more effective about the agricultural sector of the countries it was assisting was becoming increasingly clear throughout A.I.D. -- and indeed throughout the entire development community.[27]

The International Education Act

But the McGovern Bill, despite its popularity and timeliness was not to become law. An accident of history and politics was about to cross its path.

President Johnson wished to do something "special" in his speech at the Smithsonian Institute Conference. He had received a memo from the Department of State -- in a different connection -- recommending establishment of an International Education Program. The memo was persuasive. President Johnson included this idea in his speech and gave responsibility for the program to Dr. John Gardner, newly named as his Secretary of Health, Education and Welfare. Dr. Gardner, of course, knew A.I.D. well, and was held in high esteem by everyone in A.I.D. who knew him. The proposed International Education Act was designed to give U.S. universities highly expanded educational responsibilities throughout the entire range of U.S. international relationships, in advanced as well as in under developed countries. Its breadth, therefore, far exceeded that of A.I.D. 's special concerns. But, inevitably, there would be some overlap. This did not concern Administrator Bell. As he told the writer: "With John Gardner there as Secretary we need not worry that he will do the wrong things. We just need to hope the Congress will appropriate enough money for him."

He was characteristically right in this judgment. The Bill recommended by Secretary Gardner to implement President Johnson's proposal passed through both houses of Congress and authorized $70 million for the program.

Dr. Gardner appointed Dr. Paul Miller, President of the University of West Virginia, as Assistant Secretary for International Education. Dr. Miller was well known to A.I.D., and, personally, to the writer as an extremely able man with much experience in international matters and foreign assistance programs. A.I.D. decided, as a matter of strategy, to drop its advocacy of the McGovern Bill in light of the Presidential sponsorship of the International Education A.I.D. could, after all, do all the things listed in the McGovern Bill within existing authorities -- or request those authorities and be mightily assisted toward its goals through close coordination with H.E.W.

However, the Congress does not always pay for everything it authorizes. Appropriations processes, even during periods of minimal budgetary constraints, have a dynamic of their own. The same Congress which moved so rapidly to authorize the President's request would not appropriate any money whatever to implement it. Different committees were involved, and the House Appropriations

Committee was adamant in its opposition. In spite of heroic efforts by Dr. Miller, and able support by Dr. Gardner, the Appropriations Committee would not agree even to appropriate a requested $30,000 to finance planning and analytic work to develop more fully to the Committee's satisfaction the rationale and justification for the program.

Anticipating a possible unfavorable Congressional Appropriations response to the International Education Act, A.I.D. had developed an alternative presentation to accomplish the objectives of the now-failed McGovern Bill initiative. Its existing authority permitted everything in that Bill, except the provisions in Title II for grants to help develop and maintain the special capacities of universities to carry out overseas programs for A.I.D. This had been identified as a key to successful A.I.D./university relations during the International Rural Development Conference.[28] It had been strongly supported by universities as a component of the McGovern Bill. Similar provisions in the International Education Act had drawn enormous university accolades.

So A.I.D. requested, with support from the Office of Management and Budget (OMB) specific authority from Congress. It was granted, as Section 211(d) of the Foreign Assistance Act, with an annual ceiling of $10,000,000 -- and remains in the Act today, renumbered Section 122(d). As it derives its funds from total A.I.D. appropriations, and has been carefully and productively used, it requires no separate appropriation and has received no particular negative action in the appropriations process. (As related to agricultural assistance, it has been overtaken by a similar provision in the Title XII Amendment.)

The Gardner Report

One member of the Adminstrator's Economic Advisory Committee was Dr. John Gardner, then President of the Carnegie Corporation of New York, which was a private public service foundation that had some interest in international affairs. One Committee meeting was given over to a discussion of university/A.I.D. relationships. Some light was generated around issues such as A.I.D. contracting policy, selection of universities, comparative advantages of universities versus other sources of technical talent and similar matters. Dr. Gardner participated impressively in these discussions. In the meantime the technical staff of the Agency, small as it was, had attracted the Administrator's attention to these kinds of issues. So Administrator Bell, on July 13, 1963, asked Dr. Gardner to undertake a study of A.I.D./university relations: specifically what kinds of changes in A.I.D. practice and in university practice could improve their performance under A.I.D. financed assistance programs to the less developed countries.

Dr. Gardner[29] undertook this assignment with extraordinary vigor. A large task force of A.I.D. employees and university representatives was set up to serve as an advisory and resource panel. Funds were provided to him through the Bureau of Technical Cooperation and Research, then headed by Dr. Leona Baumgardner, and the study was placed under the writer's overall supervision as Associate Assistant Administrator of that bureau. Dr. Harold Enarsen, later to become president of the University of Cincinnati and of Ohio State University, was the A.I.D. project manager.

A very large number of letters was collected by Dr. Gardner's staff and assembled in a huge filing room in his New York office. These dealt with all manner of questions bearing on the effective-

ness of universities under A.I.D. contracts. Dr. Gardner had several staff people go through th materials, digest them, classify the contents, write brief essays about them and form conclusions.

The analysis seemed to be lagging behind the data collection process until Dr. Baumgardne and the writer visited with Dr. Gardner in his New York suite. It was clear that he had absorbed a tremendous amount of knowledge and deep insights from having personally read the collecte materials and staff presentations. The conclusion of that meeting was that the way to bring this al together was for him to declare the staff work done and, himself, sit down in the midst of all of th information and write a report. This he did and it was submitted to the Agency on April 13, 1964, nin months after the project began.

This booklet enunciated many principles and elucidated many problems. It was widel distributed, as Mr. Bell had indicated would be done in his foreword, and it profoundly affected th atmosphere surrounding university/A.I.D. relations. Strangely, the pages of the bulletin were no numbered. Someone has ventured the hypothesis that this was based on the idea that it should not b read in pieces, that indeed it was so well written that anyone interested would read the entire 40-pag document without setting it down. However that may be, it was a widely used, widely read, an widely discussed document. It arrived at several conclusions which might be summarized as follows:

1. Dr. Gardner clearly saw that the U.S. universities were located at the spearhead point o the development and testing of new scientific and professional knowledge needed fo economic development, and that it would be unthinkable for the U.S. to undertake majo development assistance projects overseas without heavy reliance on these fountainhead of such knowledge and scholarship.

2. He found that A.I.D.'s procurement policies, university selection policies, personne salary policies and contract management procedures all tended to trivialize th A.I.D./university relationship, and militate against the effective utilization of th universities, and weaken A.I.D.'s ability to weed out indifferent performers.

3. The very weakness of the technical and scientific staff competence of A.I.D., in terms bot of numbers of staff and especially in their relatively low power relationships within th Agency, was a crucial limiting constraint. (The reorganization of 1961, which had bee designed deliberately to weaken the power of the technical offices, had essentiall destroyed the capability of the Agency to utilize effectively what technical competence i had.) On this issue, Dr. Gardner made many recommendations and suggestions, the gis of which was an argument for more in-house technical competence, more centralization o policy-making pertaining to technical and scientific aspects of development, and mor weight to the use of technical people throughout the Agency in making decisions of a technical nature. To accomplish this he recommended, therefore, strengthening of th central staff office and many changes in procedures.

He identified the personnel approval process of university contract employees as being quit obstructionist and a serious impediment to acquiring highest quality university personnel for A.I.D field projects. It wasn't so much the problem of security clearance (although this still impede enthusiasm of university faculties as the indignities of the Joseph McCarthy period lingered in th minds of many). The big problem was that clearance procedures greatly slowed down personne actions. As opportunities arise at the country level, university professionals to meet personnel need

would be identified, but by the time the clearance was formally completed, the university, or the individual, had often taken on some other assignment, and/or the host country might have lost interest in that particular form of assistance. This was illustrative of the type of problem created by the entire project development and management process.

In some instances projects were developed with the technical components relatively well staffed out at the mission and LDC national level. But then they went through a program review process, which was handled by people without technical competence or responsibilities, at the mission level and in the Washington regional bureaus. By the time the project was remade and accepted by them it had lost its content and unique applicability and, importantly, the persons who had been professionally identified with it had lost interest and moved on to other responsibilities. In the meantime the implementing universities presumably selected because they had the strongest capabilities for the job, were not involved in the reformulation processes. Often finding many technical shortcomings with the new version of the project, they were, of course, reluctant to throw their full weight into implementation of it as they did not feel it was well designed.

Dr. Gardner summarized the important problems of contract management in these words, "Within the Agency there are two vitally important requirements for achieving improvement of the contract process: 1) There must be close and continuous teamwork between the contract officer and A.I.D. professional persons concerned with the contract. The importance of such teamwork can hardly be overestimated. 2) A.I.D. contract specialists handling university contracts should be individuals who have had experience in such dealings with the universities."

Dr. Gardner recognized that at the heart of making effective use of American universities was the selection of universities, matching the right university to the right job. This, above all, required a highly competent A.I.D. technical staff. He acknowledged that use of outsiders as advisors would be helpful, but stated that there were real limitations on the extent to which such crucial issues could be "shopped out" by reliance on such advisory mechanisms. "Other agencies have found that the advisory panel is an excellent device for helping to select individual research projects, but A.I.D. must make judgments on institutions and that is much harder for an advisory panel of university people to do wisely and fairly."[30] He stated that the use of advisory panels for selection of research projects is much more useful than for selecting universities to undertake technical assistance abroad, where the level of knowledge of the advisory group about the country and its problems may be a major limiting factor. In any event, the constant theme of the report was the need for developing more technical expertise in the Agency; consolidating it to make it effective; relating it to programs in a way that brings that expertise directly to bear on the content of the field projects. Failing that, universities would not be used at anything approaching their full potential because the wrong ones would be selected and their assignments improperly designed.

Recognizing A.I.D.'s weak organizational structure created by decentralization to the regional bureaus, he considered what might be done within the framework of that unfortunate structure to create better working mechanisms for dealing with universities. He recommended that among other things which the Agency should do informally to collate its diversified relationships with universities, should be to bring into the Agency a university person of high standing to work throughout the Agency to identify and staff out broad policy matters that would, when necessary, be referred directly to the Administrator for resolution. This was done through recruitment of a very adept, suave and experienced individual in the person of Dr. Norman Auburn, President of the University of Akron,

who was brought into the Bureau for Technical Cooperation and Research, the grandfather of th present Bureau of Science and Technology. The results of the experiment with Dr. Auburn's three year assignment were that he did as much toward improving the university relationships as anyon probably could have from that position, but he had far too little direct relationship to what the Agenc actually did at the field project level to have much lasting effect.[31]

A second instrumentality was created in the form of a university relations advisory committee A committee of 12 or 15 people selected from different type universities and university association was created to meet with the Administrator and his top executive command every four months t discuss various problems and issues that seemed to be impeding smooth working relations with th universities. The agendas for these meetings were put together by Dr. Auburn and others of the sam central office, discussed with the Administrator in advance, and usually circulated throughout th Agency at the executive level for reaction. Dr. John Hannah, later to become Administrator of th Agency, served as a university representative on that committee for several years. It was hi assessment, when he took over as A.I.D. Administrator, that the committee had not been useful. I took up much time of very important people on both sides and solved only a very few problems. Th level of dialogue was high, but the Agency's follow-through capabilities extremely low. After h discussed the matter with the writer, whose observations were similar, Dr. Hannah quietl discontinued the university advisory committee shortly after taking office.

Dr. Gardner concluded with the recommendation that a "new unit within A.I.D." should b created. He went on to say that "one is tempted to describe this new unit as a greatly strengthene Bureau of Technical Cooperation and Research,[32] but that as it now exists, that Bureau "offers only hint" of what the new unit would be like. That challenge still lies before A.I.D.. Although during Mr Bell's administration, the Bureau for Technical Cooperation and Research (TCR) was strengthene somewhat, it did not rise to the level of responsibility implied by Dr. Gardner's statement. A subsequent reorganization took place shortly after Mr. Bell left the Agency. Mr. William Gaud, the Administrator, responding to substantial political pressure, reorganized the central staff office without changing the basic organization dilemma created by the regionalization of the Agency. H established a "Bureau for the War on Hunger" into which he placed most of the agricultural office an the population and health offices of the central staff bureau, while shifting responsibilities fo education, science and technology, and university relations into the Bureau for Program and Polic Coordination. This greatly weakened the Agency's capability for dealing with the very kind o problems Dr. Gardner wanted to solve. The weakness of the Bureau of Technical Cooperation an Research had been that it did not have enough leverage within A.I.D. as a whole, nor quite enoug manpower. The problem with the subsequent reorganization was that it further subdivided th technical manpower and lost most of what leverage the old Bureau of Technical Cooperation an Research had achieved.

This situation, however, was improved upon when Dr. Hannah became Administrator. Again he did not change the basic regional bureau structure of the Agency. He said he simply believed tha organization was not really important, that what counts is the quality of people in the Agency. H believed strongly that the Agency had succeeded in assembling extraordinarily able professiona people. In this he was correct. But in his judgment about the relative unimportance of organization he was wrong--as he freely admitted by the time he left the Agency.

Dr. Hannah restored, as a central staff office, essentially the old Bureau for Technical Cooperation and Research under a new title, simply the "Technical Assistance Bureau." Organizationally, it was in no significant way different from the old Technical Cooperation and Research Bureau, but it was larger and thereby had somewhat stronger influence on the Agency, especially as Dr. Hannah gave it more support than his predecessor had given the preceding bureau.

However, with the coming of the Carter Administration, this central staff office was violently wrenched again in the direction of surrendering most of its significant functions. It was retitled the Development Support Bureau and its mission defined as being that of supporting the missions and the regional bureaus in whatever they undertook to do. This resulted in the Agency largely surrendering its capacity for developing strategies to deal with the large, technical problems sweeping the LDCs: problems of food production, agricultural growth and institutional development, human disease control, general education, housing, and so forth. (The population issue had been moved for a time into a separate central bureau.) The upshot of all this was that, in minor matters, the Agency moved in the direction of the Gardner Report's recommendation, but in those major considerations that would determine how effectively it used the universities, the Agency moved in the direction opposite that recommended by the Gardner Report, back towards organizational intelligence: The McPherson-Brady Era.

The consequence of this was very serious and increasingly so, until finally the Agency was again reorganized modestly at the beginning of President Reagan's Administration. Under the administratorship of Mr. M. Peter McPherson, another reorganization was created, which again did not change the Agency's basic structure at all, but redefined the central staff office to give it stronger roles, stronger personnel and more support at the Administrator's level. This resulted in the creation of the Bureau for Science and Technology.[34] This bureau organizationally did not differ greatly from the old Bureau for Technical Cooperation and Research and was like it in that the Administrator recruited a top level agricultural scientist to head the bureau. It was much stronger than the Bureau for Technical Cooperation and Research, however, in that the head of the bureau, Dr. Nyle Brady, was much more personally effective in using informal mechanisms to impact on technical aspects of the Agency's program on a worldwide basis than were his predecessors. Furthermore, Administrator McPherson probably exceeded any other in the history of A.I.D., at least since Governor Harold Stassen, in comprehending the technical dimensions of development and the need to harness scientific and other professional resources of the universities to the task.

The mechanisms created by Dr. Brady were a set of technical "councils," one for each technical field, chaired by the top technical people in the central staff office and comprised of the top technical people in each of the regional bureaus, together with other interested offices, to work at the individual sector level on matters of agriculture, health, science and technology, and human resources. This was buttressed by an over-all council, chaired by Dr. Brady, of the heads of the regional technical assistance offices to which the several individual technical offices reported. Dr.Brady thereby established a direct linkage between all technical issues in the Agency and the Administrator. This informal arrangement -- which copied exactly an earlier one established by the ancestor Bureau for Technical Cooperation and Research -- was much more effective, primarily, because of the personal qualities of Dr. Brady and Administrator McPherson. These various councils developed a certain internal esprit de corps and, knowing that they had the strong support of the Administrator, achieved considerable internal influence individually and collectively within their regional bureaus. Through that indirect process, they impacted importantly on country programs. However, it was a very far cry

from the kind of Agency-wide central technical policy making, professional staff management and program review structure that had been in force under the earlier organization of the 1950s, and later so strongly recommended by the Gardner Report.

In Summation

Therefore, the final appraisal of the Gardner Report and A.I.D. follow-up would have to be that this man of such talent and genius had embraced the essential core of what was needed to make universities work more effectively on behalf of A.I.D. and had recommended in the correct directions but that those recommendations were accepted in minor ways and were largely ignored in formal executive actions in subsequent periods.

Such reports, however, have an educative quality. The educative content of the Gardner Report no doubt, directly or indirectly, gave cause for pause to many of the line operators as they considered various technical and professional matters, and has thus had an influence far beyond its immediately created, explicit actions by the Agency.

The Hannah Report

International Developmental Assistance and International Education[35]

---Political virtue does not follow geographical divisions. It follows the eternal division inside of each country between the more animal and the more intellectual kind of men, between the animal instinct that would run things by main force and brute possession and the critical conscience that believes in educational methods and the rational rules of right.

—William James, 1903[36]

The U.S. effort to provide substantial assistance to the less developed countries was nearing its 20th year.

President Truman, a Democrat, had initiated the program, presented it to the American people, pushed it through Congress and established a temporary Agency to carry it out.

President Eisenhower, a strongly internationalist-minded Republican, had greatly increased the levels of foreign assistance, had over-hauled and given an aura of expected longevity to the Agency that administered it, had sharply increased the size of its staff and, through Governor Harold Stassen's early leadership, had heavily involved U.S. universities in carrying out its programs. (Under a succession of subsequent leadership by lesser men, however, the Stassen emphasis on U.S. institution-building programs deteriorated and atrophied steadily.)[37]

President Kennedy had established the foreign aid agency as a "permanent" Agency for International Development (A.I.D.), and had greatly increased its resources. He had radically reorganized the Agency and changed its development doctrine -- both badly, as it turned out. But, also, he had reinvigorated it with freshness of spirit. He had twice met personally with the Agency's Washington-based staff, in a press conference-like setting, where questions and comments were freely exchanged, impressing upon each staff member, at all levels, that he or she was contributing importantly to matters of great national consequence. By sheer strength of person he had lifted the staff's eyes to the farther horizons where, he had convinced them all, the hopes and ideals of international progress and peace could be transformed by the application of sufficient effort and intelligence into the happy realities of achievement. The U.S. universities had, during this period, great difficulties in finding their way through the organizational maze to the points, if any, of definitive decision and action. They had equal difficulties in getting any clear sense of Agency policy or procedure which seemed almost to depend upon with whom they had last talked.

But, they shared and were inspirited by President Kennedy's lofty goals, high expectations and buoyant enthusiasm. And those in close enough contact with the Agency to know its new Administrator, David E. Bell, were very favorably impressed by him.

President Johnson had changed things subtly but powerfully. Happily, from the universities' point of view, he had kept Administrator Bell (until, upon Bell's resignation, Bell was succeeded by his Deputy, William S. Gaud).[38] The Johnson Administration's escalation of and preoccupation with the war in Vietnam had created on many campuses, among faculty and students alike, entirely different attitudes toward their university's involvement in implementing any part of the U. S. Government's foreign policy. Whether this was a strong majority view, sufficient to smother continuing positive

university participation in A.I.D. programs, was difficult to discern above the din, and especially above the aberrant media dramatizations of campus demonstrations and protests.

Particularly irksome to the consciences of the universities was the fact that U.S. economic assistance to South Vietnam (to offset the economic hardships caused by the war, including the severe fiscal-monetary dislocations created by the U.S. military presence in the country) was assigned to the Agency for International Development to administer. In fact, this was highlighted by creation of a separate "Bureau for Vietnam" in A.I.D. -- comparable in organizational level to the Bureaus for Latin America (Alliance for Progress), Africa, Near East, and Asia -- but vastly more heavily funded. Although minor "developmental" activities were being pursued there, the U.S. activity in Vietnam, whatever its merit, was one of war and should have been so accounted and administered. It had nothing in common with, was in fact the antithesis of, the Truman Point Four idea to which the universities had so strongly and formally pledged their support.

Now, President Johnson had announced irrevocably that he would not run for re-election. The political processes of the major parties were under way toward establishing the voters' choice for this replacement as either the Democrat's current Vice President Hubert H. Humphrey or the Republican's most recent Vice President, Richard M. Nixon.[39] The universities confidently believed from his senatorial record that Mr. Humphrey would support continuation of foreign aid programs and a strong university role in implementing them.[40] They were not quite so sure of former Vice President Nixon's position, but assumed he would have a positive attitude toward both foreign aid and university involvement, formulated during his years as Vice President to President Eisenhower. They were even less sure about the relative weight that either candidate would give in the international arena to "educational methods and rational rules of right" as compared to the continuation of efforts to "run things by main force." Neither candidate had found it comfortable, in light of his association with the President under whom he had previously served, and of current national turmoil regarding Vietnam, to announce his position clearly on the subject. The universities were not sure of Mr. Nixon's position on either issue -- but they were quite optimistic largely on the basis of the rapid forward movement of university participation in U.S. foreign aid programs in the early years of the Eisenhower administration.

Furthermore, university leaders knew well that both candidates had grounds for concern over what the universities' attitudes might be -- both during and after the election.

Therefore, it made sense for the universities -- at least for the state universities -- to declare themselves; and while they were at it to get in a few words of advice to the new President, whoever he turned out to be. So the National Association of State Universities and Land Grant Colleges (NASULGC) set up a nine-person task force to study the issues and draft a report for the attention of the new President. The twenty-year cycle was complete. The chairman selected for this task force was the same person who had spoken for the Association in pledging to President Truman in 1949, pledging U.S. university support to his new program of technical assistance to the underdeveloped countries: Dr. John A. Hannah, President of Michigan State University.

The membership of the task force was carefully selected: an exceedingly competent group of university executives, all of high standing and most with considerable experience with A.I.D. university contract programs. Their recommendations would not only speak for but effectively speak to U.S. universities of varying sizes and characteristics. The membership was as follows:

- V.P. Emeritus Ira L. Baldwin, University of Wisconsin
- Chancellor John T. Caldwell, North Carolina State University
- President James C. Fletcher, University of Utah
- Chancellor Clifford M. Hardin, University of Nebraska
- President Philip G. Hoffman, University of Houston
- President John W. McConnell, University of New Hampshire
- Dean Charles E. Palm, College of Agriculture, Cornell University
- Dr. E. T. York, Jr., Provost for Agriculture, University of Florida
- Dr. George H. Axinn, Michigan State University, Study Director

The charge to the task force by the Senate of the National Association of State Universities and Land Grant Colleges, was both broad and specific.

1. to restate the philosophy, purposes and objectives which justify and obligate our Nation's commitment to the assistance of developing peoples;

2. to state its views on how this effort should be organized and administered;

3. to express its judgment on the approximate levels and conditions under which funds should be appropriated with optimum prospect of achieving the purposes;

4. to identify the functions our universities are peculiarly fitted to perform and must be expected to perform if the programs of developmental assistance are to be effective;

5. to indicate in both general and specific terms the conditions under which university competence can be most effectively employed; and

6. consistent with the findings, to propose remedial legislative and executive measures.

The task force grasped the nettle. It restated, in its report of January 1969, its continuing faith in the foreign assistance precept by quoting, in part, from the Association's letter written by Dr. John Hannah to President Truman in support of his "Point Four" initiative, on February 4, 1949.

> ...being fully aware that sacrifices are involved in a world program such as you have outlined, I am personally convinced and our member institutions collectively are convinced that the stability, welfare, and democratic freedom of the world demand the cooperation of all Americans in such a program. We feel that this responsibility is particularly incumbent on us as colleges and universities supported by state and federal funds and carrying on in a long democratic tradition.

The report listed twenty things that the twenty years' foreign assistance "experience has demonstrated."

Any abbreviation would do this list injustice. But it might be summarized as follows:

- Development of LDCs requires the building of a "multiplicity of institutions," political, economic, social governmental, educational and private.

- "Human resource development is the most critical need...the building of indigenou educational institutions the most effective and enduring possible U.S. contribution ..."

- "Technological development, like human resource development, is crucial t international development assistance. This technology can best be developed throug evolution of a worldwide network of interconnected mutually supportive research an training institutions."

- Agricultural development is essential to developing countries. U.S. food aid is valuabl in meeting short term disaster and food crises; it is probably counter-productive in th long term as it diverts developing country attention from long run agricultura development.

- "The myth that Americans had the 'know how' to solve all the world's problems misle us." Much research and analysis is and will continue to be needed.

- Capital development and assistance are, indeed, often required. But they should b administered by banking officials experienced in international finance, funded "to th extent feasible" through international agencies and private capital ventures.

- The Agency for International Development should be reorganized, or a new, substitut one created, to concentrate U.S. efforts on the real central dynamics of human resources institutional and educational development, and the development of research an technologies essential to the political, social and economic development of the les developed countries.

The report outlined some of the activities appropriate to such a reorganized and redeployed foreign aid effort, and concluded in a statement of intellectual and moral commitment.

> It should be increasingly clear to all of the peoples of the world that mankind's only hope for enduring peace must be based on recognition that the significant problems of all peoples -- of all races, all colors, all religions, all cultural backgrounds -- may have implications for all others. The people of the United States, in their own self-interest, must be willing to do their fair share to respond to requests for assistance from less advantaged peoples to help them create and sustain programs and institutions designed to develop their own resources -- human and material -- to improve the lives of their own people and their opportunities for human development.
>
> That is what international developmental assistance is all about.

Well stated and profoundly true. This is, indeed, what it is all about.

The report was written, approved by the NASULGC Senate and transmitted to President-elect Nixon. The question to be answered is: did it have any effect?

We can only conclude that it did, in the most direct form possible.

The President-elect selected one of the task force members, Chancellor Clifford Hardin as his Secretary of Agriculture.

In that position, Dr. Hardin supported within the new administration the continuation of a strong U.S. foreign assistance effort and, as was fully expected from his earlier experiences, major roles for U.S. universities in carrying it out. This is highly important as many farm producer-groups often voice their (mistaken) belief that U.S. assistance to LDC agriculture diminishes markets for U.S. produced agricultural products. However, in the writer's estimation, he did not while Secretary of Agriculture engage himself in these issues as energetically as did either his predecessor Orville Freeman or his successor Dr. Earl Butz.

More importantly still, the President-elect asked Dr. John A. Hannah, Chairman of the task force, to serve as his new A.I.D. Administrator. Surely this would assure maximum possible conformance of A.I.D. policy thenceforth to the principles and recommendations of the task force.

In many respects it did. Dr. Hannah served as A.I.D. administrator for four and one-half years, longer than any previous administrator of the U.S. foreign aid program. He became beloved by the A.I.D. rank and file staff. He was very popular in Congress (at a time when A.I.D. definitely was not, primarily because of continuing U.S. involvement in Vietnam). He re-oriented its programs largely toward developing human and institutional resources -- toward people and the institutions which serve them and away from direct support to government leaders (in cases where these distinctions were important). "It's only people who count," was his credo.

Dr. Hannah also gave strong support to building LDC agricultural research capabilities and advancing LDC agricultural technology, primarliy by his action of pledging U.S. support to the International Agricultural Research Centers of "one quarter of 'their' core cost." This commitment has been maintained ever since. It marked a watershed in the stabilization of the International Agricultural Research Center System, stabilizing, in effect, not only U.S. support but that of other donor governments as well. This may well have been his greatest single contribution to the future of LDC agriculture. Except that, also, on one occasion he saved the Agency from extinction.

The U.S. Senate, in an act of incredible irresponsibility, had simply voted A.I.D. out of existence. Dr. Hannah mobilized his great persuasive powers to induce spokespersons from a myriad of organizations, including the universities, to bring their intelligence to bear upon the Senate. The Senate repaired its action and the Agency continued to go forward with its program.

Strangely, perhaps, Dr. Hannah did not importantly and directly effect major changes or improvements in A.I.D./university relations. His tenure came after the principal initiatives in the early stages of A.I.D. -- undertaken largely to offset the traumatic discontinuities caused by the 1961 reorganization -- and before the "Findley Bill" brought about the Title XII Amendment, and before Administrator Parker, his successor, initiated the Collaborative Research Support Program.

Dr. Hannah did not reorganize the Agency in a major way. This was fortunate. He could well have followed the theme, "the Republicans had it right the first time!" and changed it back to an Agency organized around the principal economic sectors or programatic areas -- such as agriculture, population, health, education. This would have enormously improved the effectiveness of U.S. development assistance: the mobilization of U.S. resources, development of U.S. policy and strategy, and insulation of long-term U.S. economic, social, and political development goals from the day-by-day pressures of short term political objectives. Because our foreign aid would have been more effective in

achieving these development goals, it had been more effective, also, in achieving long term U.S. political goals.[41]

But Dr. Hannah did make one improvement in organization of the A.I.D. Central Technical Staff Bureau. He eliminated the "War on Hunger" Bureau which had floundered somewhat in pursuing a too-narrow objective and replaced it with a Technical Assistance Bureau, with all of the essential characteristics of the old Bureau for Technical Cooperation and Research, but with much more support from the Administrator. Instead of choosing a technical person, or scientist, to head it, he selected Dr. Joel Bernstein, an economist and former superb A.I.D. Mission Director in Nigeria and Korea. Dr. Bernstein was totally committed to the concepts which had been evolving through the series of studies and conferences listed in this chapter, was an excellent program officer, and brought a thorough Mission Director perspective to the Central Agency Research and Technical Assistance leadership functions.

Except for a rather truculent Congress, impatient and contentious over the slow closure of the Vietnam misadventure, the Hannah Administration was a new type experience in A.I.D. relations with universities: a few new exciting activities, and few major problems or complaints.

There was one. Virtue does not always beget virtue. For some time, several of the more strongly supported members of Congress were desirous of A.I.D. directing its attention more at the "very poor" or, even as some put it,"the poorest of the poor" in less developed countries. The idea of average U.S. taxpayers being expected to contribute to the ultimate financial benefit of wealthy, corrupt national leaders is properly intolerable. That some of this had happened was probably unfortunately true. Tightening and redirection of the program was no doubt in order. Dr. Hannah welcomed this Congressional initiative which culminated in the redirection of the A.I.D. program in the Foreign Assistance Act of 1975.

However, in practice, this initiative shifted A.I.D. programming attention away from economic development toward, in some instances, almost dole-like programs. Projects were often turned down during review because they increased productivity of relatively poor people too much -- so that they rose above a very low "poverty" line. Some of the best university projects were discontinued because they did not focus directly enough on the "poor majority" as the target group came to be called.

Nevertheless, although some frictional slippage did occur, the process eventually resulted in much more critical analysis of the distribution of benefits effects of A.I.D. programs and ultimate recognition that few people of any income group could benefit much unless the program brought about substantial economic improvements. The goal came back to that of achieving advantages for the poor through their proper participation in the results of development. Development and improved income distribution were not (as originally) posed as alternatives, but each as a necessary condition of the other.

There was a bit of muddling through to proper perspective during this period. But programs, and priorities, were better. And Congress felt, rightly, that the new A.I.D. program was of its own making, not something imposed upon it by the President. Therefore they came, slowly, to support it better. This was Dr. Hannah's goal.

One other member of the task force was to have significant influence on A.I.D. : President E.T. York of the University of Florida. Under the Carter Administration he was appointed to the Title XII

Board for International Food and Agriculture (BIFAD) and later, during President Reagan's Administration, named chairman of that board, succeeding Dr. Clifton M. Whorton, Jr., who had been appointed by President Ford and reappointed by President Carter.

Through its influence on effecting this combination of executive personnel appointments, the National Assocation of State Universities and Land Grant Colleges' action in undertaking the "Hannah study," had much positive influence on the U.S. foreign policy aid program. It sustained and reinforced David Bell's initiative -- based significantly on the studies and other external initiatives cited in this chapter -- to ameliorate the unfortunate doctrines and organizational shortcomings with which the Agency for International Development had been afflicted since 1961.

Conclusions

So ends the saga of the International Rural Development Conference, the Administrator's Economic Advisory Committee, the Millikan Study, the McGovern Bill, the International Education Act, the Gardner Report and the Hannah Report. Each illuminated the path before the Agency for International Development and the U.S. universities in their mutual efforts in international development assistance.

Together, their individual shafts of light have kept alive a flickering but all important national intelligence of the true U.S. resources for and interests in the economic and social development of the less developed countries -- and of the long and torturesome journey toward a world order, based upon the realities of national sovereignties, anchored in the promise of achievable economic progress and peace, for all countries.

History cannot provide judgment on what might have been had either the McGovern Bill or the International Education Act developed into strong features of the U.S. foreign assistance legislation, or had Gardner's recommendations or the Hannah Report been vigorously followed, especially as they related to A.I.D. organization and staffing. Certainly, U.S. universities would have played a much stronger role, had more influence, accomplished more than was possible with A.I.D. 's instruments and capabilities for engaging them.

The Vietnam war, and the resulting disenchantment with the international development work, was to descend upon the universities and disfigure A.I.D.'s march toward President Truman's objectives before Title XII was enacted, picking up some of the concepts and restoring some of the momentum started in these earlier initiatives. By then, however, much of the bloom was off the blossom. But clear it is that these earlier initiatives interacted upon each other in a strangely circular process of reiterative interinvolvement. Each and all together, led to later improvements in the U.S. foreign assistance program. Perhaps more importantly, each contributed mightily toward preventing, or at least slowing down, the degenerative process of disillusionment and disappointment which are the normal consequences of long-term dedication to a necessarily difficult agenda with distant, even lofty, goals. The Agency is much the wiser for these early initiatives. Their major contributions have seeped, largely unwittingly, into the processes of both policy making and implementation.

The great philosopher and logician, John Dewey, is reputed to have said that "policy is secreted into the interstices of administration." A.I.D. administration has improved. Universities have been provided some funds for developing and maintaining their capacities to carry out this somewhat exotic

role. Above all, the powers of the professional and educative processes, and of human intelligence have come widely to be recognized as the key and strategic variables in national quests fo development. These forces of education and science are recognized as more powerful than the tinkle o foreign exchange as levers of development, and more effective than the truculence of war machines a instruments of diplomacy. The most interesting, and certainly most positive, element in the equation which foretell human destiny, is that these truths are, at bottom, understood by both sides of th historic power alliances, and by both ends of the "levels of development" spectrum along which th "less" and "more" developed societies are aligned. The impacts of activities discussed in this chapter far from minor or fleeting, have been major and lasting. And they will last and be important so long a human sanity prevails.

END NOTES

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[1] This was a rather bizarre meeting in fact. A man in charge of a large Agency attempting to explain the Agency's objectives, organization and program approaches to an outside group vastly better informed than he regarding all but the most recent organizational aspects of his Agency. It is probable that university attitudes formed during these early days of A.I.D. have been at the root of some of the more long-standing disquiet among universities regarding A.I.D. policies and procedures for involving universities in its activities.

[2] Later to become Secretary of Agriculture under President Nixon.

[3] That office, under differing titles, has continued in effective service until the present time. With the passage of Title XII and the establishment of the Title XII Board for International Food and Agricultural Development (BIFAD), this office has served less fully as a direct liaison instrument between A.I.D. and the universities, but in its role has performed admirably. It has had a series of directors, as follows, beginning dates of service (??) preceding positions as given:

19 : Dr. Ira L. Baldwin, Vice President, the University of Wisconsin;
1964: Dr. Elton Johnson, University of Minnesota;
1966: Dr. Louis B. Howard, Dean of Agriculture, University of Illinois;
1968: Dr. Paul Shaffer, University of Illinois;
1974-1977: a series of part time and acting directors;
1977 until present: Dr. James W. Cowan, Dean of Agriculture and Interim President, American University, Beirut, Lebanon. Of these, in the writer's view, Drs. Baldwin, Howard and Cowan gave the office exceptionally strong leadership. For additional information, see James W. Cowan and Paul R. Shaffer, "International Affairs and the National Association of State Universities and Land Grant Colleges," Journal of the Association of International Education Administrators, Vol. 7, No. 2 (Fall 1987).

[4] In a note to the writer. A couple of points are relevant here. First, "foreign assistance" is always viewed as the "The President's" program. Most directives in the legislation -- even those at rather low level of detail are cast in terms.... "the President shall..." do so and so -- not "the Administrator shall...," nor "the Secretary of State shall...." Also, it was known, at least to the writer, that the President was very concerned at the apparent lack of significant accomplishment in the agricultural dimensions of the Latin American "Alliance for Progress" program. The writer still believes that the President would have responded favorably to such a suggestion. It would have been excellent politics. But it was not to be!

[5] The writer was also greatly assisted by Mr. Wade Jones, senior A.I.D. officer whose full-time services were loaned to him by the Bureau for the Near East and South Asia -- the one regional bureau which had kept reasonably intact the U.S. university projects begun in earlier years by A.I.D.'s predecessor agencies.

[6] Proceedings of the Conference on International Rural Development (Washington. D.C., July 27-28, 1964), p. 29.

[7] By Doctor Leona Baumgartner, presiding over the final plenary session. She was then the Assistant Administrator for Technical Cooperation and Research, the ancestor of the present Bureau of Science and Technology. Proceedings of the Conference on International Rural Development, p. 55.

[8] Proceedings of the Conference on International Rural Development, p. 77.

[9] Later to become Ambassador to Ethopia.

[10] This idea has been frequently credited to the writer. This is incorrect. It was firs suggested by Dr. James M. Blume, long-time head of the technical assistance staff offic of the Near East-South Asia Bureau -- and early member of the India A.I.D. Mission. Dr Blume suggested this to the committee chaired by President Wilson -- and late presented it as a working principle for the 211(d) program. As we shall see, it wa adapted and eventually adopted under Title XII. But Jim's idea, of a directed add-on t every contract, would have been simpler and better had A.I.D. simply decided to do it!

[11] Proceedings of the Conference on International Rural Development, p. 63.

[12] The single exception was Dan Parker, who was A.I.D. Administrator during the For Administration, and who was not at the conference. But he had worked closely with Dr Hannah during Hannah's period as Administrator, and with the writer subsequently Furthermore, he was intensely interested in this subject and worked closely wit Congressman Findley and the university spokesmen during the evolution of Title XII. I is doubtful if any of the lessons of the International Rural Development Conferenc escaped this intellectually sensitive, analytical and competent man.

[13] And it should be recalled that the immediate purpose of the conference, in the minds o those who promoted it, was not so much that of significantly changing A.I.D. policy o procedure, but of establishing new and better-spririted communication betwee university executives and the new A.I.D. administration -- more accurately, t re-establish the type of friendly communication which had been so rudely ruptured by th re-organization of 1961.

[14] David McKay, Ed., Who Was Who (Philadelphia, Pennsylvania: David McKay, 1924), p 15.

[15] Actually, this Committee had been organized earlier by Dr. Hollis Chenery, an economis and first head of the new Agency's (A.I.D.'s) central office (later bureau) for policy planning and program coordination, for the purpose of providing Mr. Fowler Hamilton first Administrator of the new Agency, with sound policy advice. It was an excellen Committee, but a forlorn hope. When Mr. Bell succeeded Mr. Hamilton he quickly pu the Committee to work on a variety of important issues, some of which became strategi to Agency-university relations, and will be related briefly here.

[16] Every centrally funded research project, and every research project funding action was for seventeen years, reviewed by this Committee -- and not one project was funde against its advice.

[17] This Administrator was Mr. Fowler Hamilton. ("A.I.D." here refers to the new Agency created in 1961.) Mr. Hamilton also liked to say that, being himself a lawyer, mediatin between the regional bureau heads and the President,"the President is my client." It wa strongly rumored that the President did not especially like the characterization.

[18] As one wag put it, the technical people were "scattered around the Agency like a dog's breakfast."

[19] These meetings were intensely popular as it was great theatre to watch Mr. Bell interac intellectually with the giants of the various professions who were members of tha Committee: people such as Dr. Mason, Dr. Max Millikan, economist from M.I.T., Dr Alan Holmberg, cultural anthropologist from Cornell, Dr. Lucien Pye, political scientis from MIT, Dr. Theodore Schultz, economist from the University of Chicago, Dr. John Gardner, from the Carnegie Corporation, and Dr. Everett E. Hagen, sociologist fro M.I.T. The room would fill up with A.I.D. people who wanted to attend the theatre -- probably more people than Mr. Bell felt should attend -- yet the seminars were tremendously educational for those individuals who made use of the ideas presented With his usual astuteness and a bit of grim humor, Mr. Bell laid down the rule that those who attended the Friday seminar had to attend the Saturday seminar also. This greatly thinned the ranks of attendees and improved the quality of the audience, as giving up a holiday every three months or so was a steep price in the eyes of some -- especially those who had attended the Friday meetings primarily for their entertainment value.

[20] In other words, Shultz foresaw the inherent weakness in central planning, then so much in vogue in A.I.D., when carried beyond reliance on free markets to allocate resources

and set prices. U.S.S.R., China and other "Central Plan" countries have since learned this "the hard way" as have many LDCs. The "bloc" countries have not yet, however, quite learned what to do about it -- but are on their way toward doing so.

21 Max F. Millikan and David Hapgood, No Easy Harvest, the Dilemma of Agriculture in Underdeveloped Countries (Boston, Massachusetts: Little Brown and Company, 1967), 178 pages; also, John W. Gardner, A.I.D. and the Universities, Report to the Administrator of the Agency for International Development, 1964, 51 pages.

22 Erven J. Long, "The Performance of the Agricultural Sector of A.I.D. -- Assisted Countries," (December 3, 1964), 20 pages. Fortunately, at that time, an A.I.D. research project with the U.S. Department of Agriculture, was turning out a large amount of raw data from 26 A.I.D. - assisted countries which the writer, as project manager of the U.S.D.A. effort, drew upon heavily for the paper.

23 In fact, under Mr. Bell's successor, Mr. William Gaud, it was elevated to such a high state of prominence, under the ill-fated "War-on Hunger" theme, that the goal of total economic growth was overlooked and virtually all A.I.D. activity subordinated to the simple end of "ending hunger." This backfired in several ways and order was restored upon Dr. John Hannah's succession as Administrator. Mr. Gaud was very well intentioned and competent. This, his one error of consequence, was, however, a large one.

24 Dr. Wilcox was an Agricultural Economist, previously professor at the University of Wisconsin and Iowa State University, and close personal friend of the writer. He was highly respected in his profession, in part for his close personal familiarity with and influence on Congressional actions related to U.S. agricultural policy.

25 In fact, Dr. Wilcox had been the U.S. delegate to the working committee of experts which had set up the FAO as a special agency of the United Nations at the close of World War II.

26 The Congressional Record (Senate, February 19, 1965).

27 This was a profound (and necessary) turnabout in thinking. Prevailing logic had been: "developed countries are predominately non-agricultural; underdeveloped countries are predominately agricultural; a shift from agricultural to non-agricultural dominance has characterized economic growth of the 'developed' countries; therefore, assistance to help underdeveloped countries to become developed should be in the form of assistance to the non-agricultural sector."

The logic was impeccable. It was also wrong. It overlooked the role of agricultural growth in bringing about general economic growth. It should, sadly, be admitted that pursuit of agricultural growth as a total end in itself, as during the later "War on Hunger" period of A.I.D. doctrine, can also be equally wrong. Agricultural development has to be seen within the context of its contribution to the total economic and social development of the country. Man, indeed," cannot live by bread alone."

28 Dr. Miller, in his testimonies and work with Congressional staff, steadily supported this 211(d) initiative by A.I.D.

29 Later to become Secretary of Health, Education, and Welfare under President Johnson, Dr. Gardner was extremely articulate, verbally as well in writing. Dr. John Hannah once told the writer that Dr. Gardner was the only person he had known who "talked and apparently thought in complete paragraphs." A sentence at a time is about as much as the rest of us can handle.

30 Foreshadowing one of the crucial weaknesses of the Title XII Board mechanism, as we shall see!

31 John M. Richardson, Jr., Partners in Development (East Lansing, Michigan: Michigan State University Press, 1969).

32 The title then of the central technical staff bureau, now the Bureau for Science and Technology.

[33] In a presentation (to which the writer was invited) to the new Administrator and I Deputy, after having made a visit to several countries at the request of the President.

[34] Headed by a "Senior Assistant Administrator" -- presumably to indicate t pre-eminence of this Bureau in Agency-wide matters of Science and Technology.

[35] Study by Task Force Named by the National Association of State Universities and La Grant Colleges (January 1969). The Study was chaired by Dr. John A. Hannah a funded by the Kellogg Foundation.

[36] As William James Said (New York, New York: Vanguard Press 1942), pp. 143-46.

[37] Richardson. See for commentary on A.I.D. leadership from perspective universities f period 1950-1966.

[38] University attitudes toward Administrator Gaud changed drastically during his tenu He started off badly due to the reorganization which eliminated the Bureau for Technic Cooperation and Research and replaced it with the Bureau for the War on Hunger. T Research Advisory Committee, chaired at the time by Dr. Arthur Mosher, President the Agricultural Development Council and comprised largely of university professiona met with Administrator Gaud, criticized him roundly for the re-organization a persuaded him to readjust the new Bureau back as far as possible to the original, unde new name. This readjustment helped, but only modestly. A scientist had been replac by a political appointee to lead it.

The writer attended a meeting of agricultural deans, where their association had on t table a letter to President Johnson requesting Mr. Gaud's resignation. Persuasi prevailed, and the group reversed itself. The writer, however, reported the action to M Gaud and gave him a copy of the withdrawn letter.

The happy sequel was that three years later, approximately the same group, immediate after Mr. Nixon's election, met with the writer to enlist his help in soliciting Mr. Gau concurrrence in their attempt at a "draft Gaud" effort, in the form of a letter to t President elect. Mr. Gaud demurred on the grounds of infeasibility -- but was immense pleased at the change of heart by the university spokesmen. The issue soon became mo when President Nixon's chose Dr. John Hannah as successor to Administrator Gaud.

[39] The only time in U.S. history that the choice was so constructed by the two major parti -- i.e., between two former Vice presidents!

[40] In fact, Senator Humphrey had successfully sponsored an amendment, Sec. 621, in t Foreign Assistance Act, which provided that A.I.D. should draw more heavily up domestic U.S. government agencies, cooperatives, and colleges and universities carrying out its programs. Senator Javits inserted a phrase to include priva businesses. Senator Humphrey resisted this on the ground (right, as it turned out) th this would ultimately dilute and weaken the provision -- but withdrew his objection order to get the amendment adopted -- at least, it created a record on his attitu supporting fuller A.I.D. use of universities. He had always supported, and continu strongly to support, A.I.D. and later cosponsored Title XII.

[41] As mentioned elsewhere, Dr. Hannah stated that organization was not important: " It the quality of people in the organization which matters." This he found to be over-simplification.

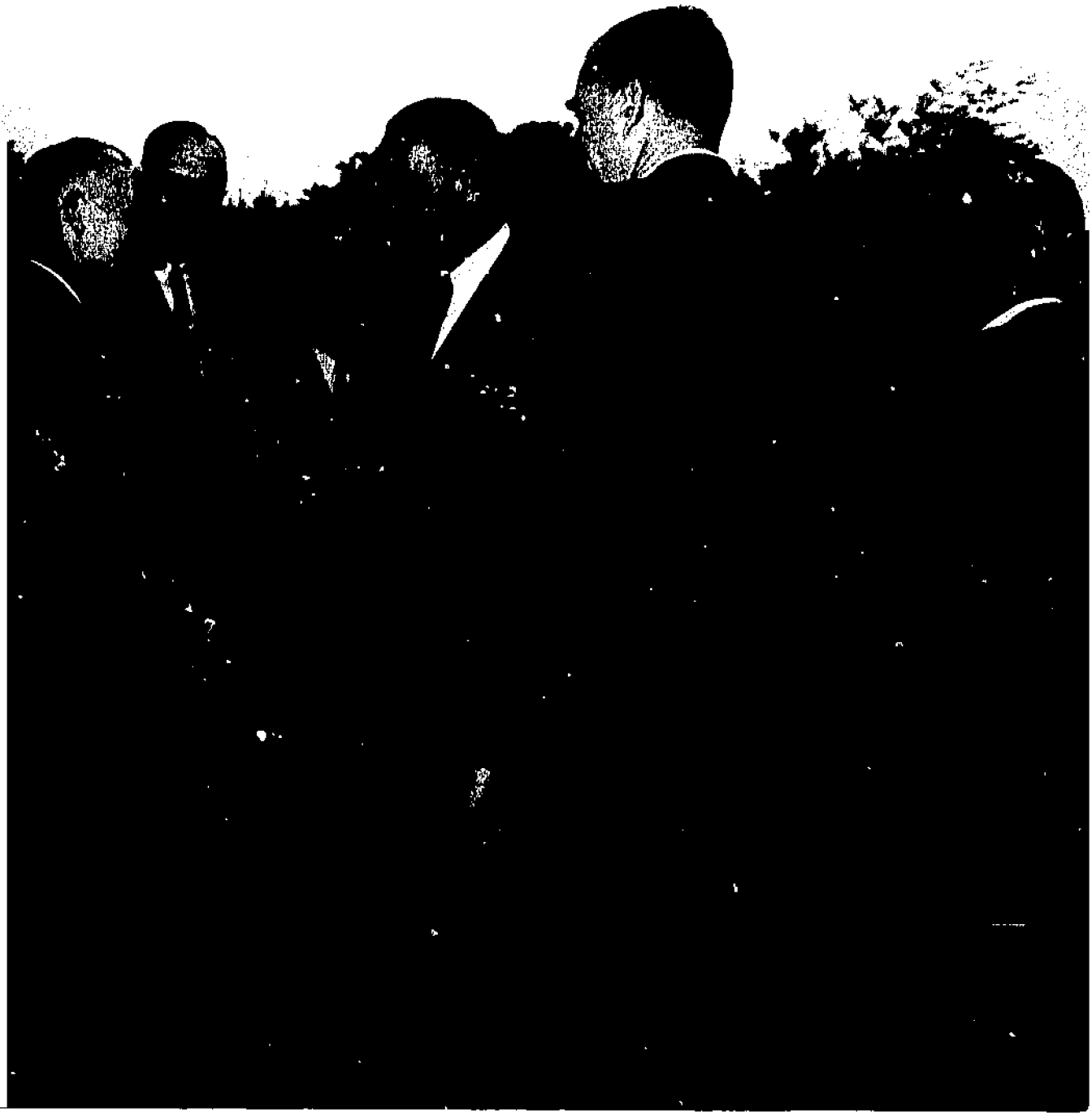
Dr. Erven J. Long
(Author)

Harold E. Stassen
Director, Mutual Security Agency (1/28/53 – 7/31/53)
Foreign Operations Administration (8/3/53 – 6/30/55)

David E. Bell
A.I.D. Administrator (12/21/62 – 7/31/66)

John A. Hannah
A.I.D. Administrator (4/2/69 – 9/30/73)

M. Peter McPherson
A.I.D. Administrator (2/27/81 – 8/7/87)

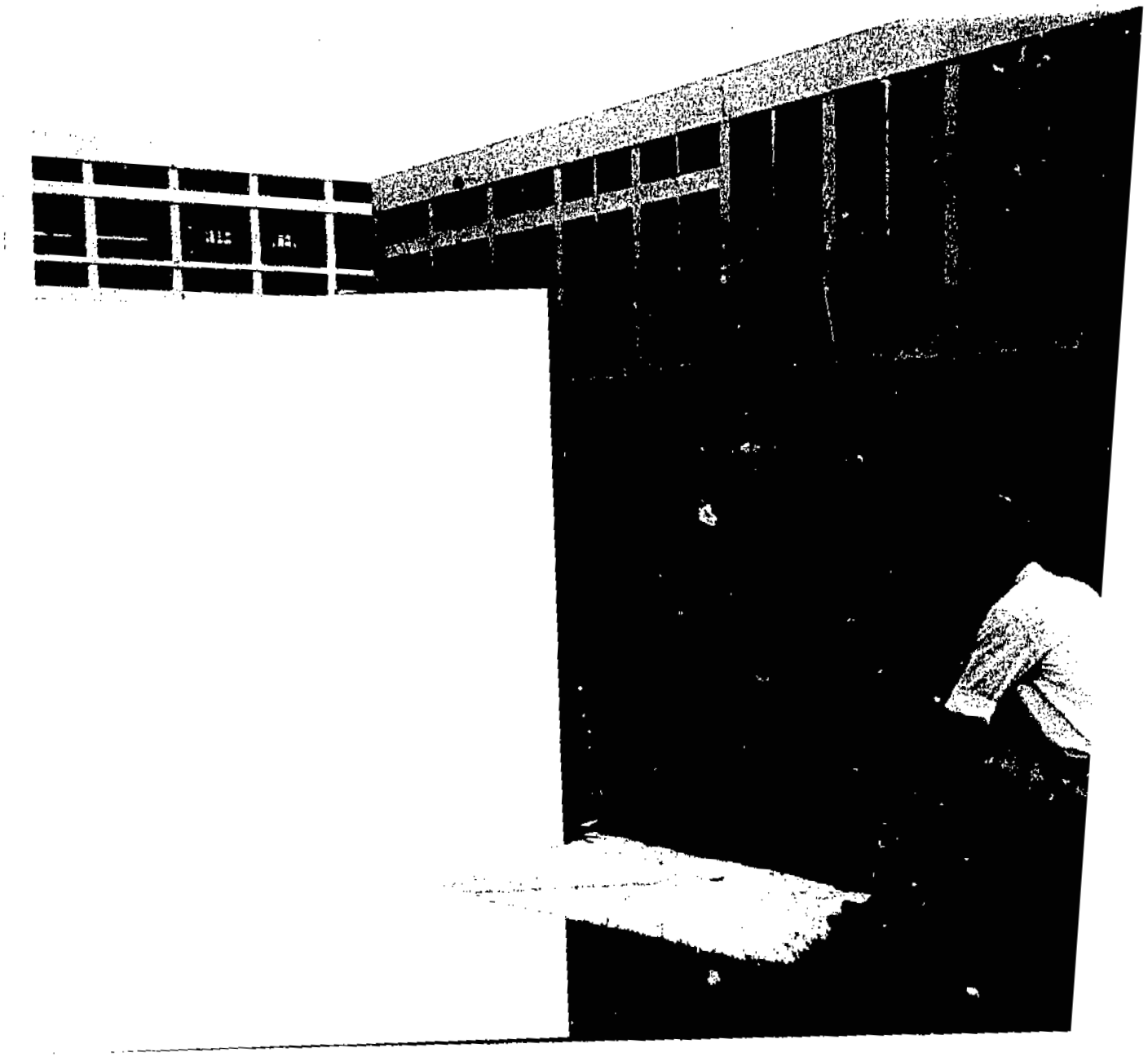


President Johnson meets with attendees at the Rural Development Conference in Washington, D.C., July 1964.

In foreground, left to right: ⊙ Dr. Meredith Wilson, President of University of Minnesota, ⊙ Not Identified, ⊙ Dr. Ira L. Baldwin, 1st Executive Director of International Programs, NASULGC, ⊙ President Johnson, ⊙ David E. Bell

Dr. Nyle C. Brady

New Delhi, India, 1960. Paul Beamer (left) of the University of Illinois, instructs students of the Tarai State Farm in the care of cattle.



Ludhiana, India, 1968, Punjab Agricultural University.
The University is patterned after land-grant institutions in the U

Yurimaguas, Peru. North Carolina State soil scientists work with small farmers on an A.I.D. soils research project

President Reagan signing Executive Order 12320 directing that U.S. Government agencies assure the HBCUs were awarded a larger share of the university business of the agencies.

SECTION IV

A NEW FORMAT FOR A.I.D. / UNIVERSITY PARTNERSHIP IN AGRICULTURE - TITLE XII

THE COLLABORATIVE RESEARCH SUPPORT PROGRAM

> And he gave it as his opinion that whoever could make two ears of corn, or two blades of grass, to grow on a spot of ground where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together.[1]

Background

A.I.D. Administrator Daniel Parker - - "Dan" to all who knew him - - was a very strong believer in research. As he saw it, a world rapidly gobbling its store of non-renewable sources of energy and minerals necessary to economic development, rapidly eliminating its remaining frontiers of unsettled lands, rapidly expanding its population, and rapidly improving - - or trying to improve - - its living standards, was inevitably pointed toward a major shortfall of available resources.

The major fraction of the world's non-renewable resources were being consumed by that relatively small fraction of the world's population comprising the "developed" countries. Improvement of living to those relatively high levels by the majority of the world's population who live in the "less developed countries" would require an enormous upsurge in resource consumption. Factor in the predictable population increases in the poor countries, and add the consequences of the richer countries themselves continuing rapidly to increase their per capita levels of living and thus of resource use, and the outlook was grim indeed.

But this grim, Malthusian-like projection model overlooked the key, positive variable. Malthus' long-term prediction of a starving world, caught in the ever-tightening vice of rapidly ("geometrically") increasing populations and slowly ("arithmetically") increasing food supplies overlooked the vast frontiers of about to be settled lands in the "new worlds." Similarly, the recent grim projections for declining world-economy growth overlooked the key variable of science-based technology to be created by research. The power of research to literally create new resources was unlimited: or, more accurately, was limited only by the abilities of the disciplined human intellect,[2] and by the national will to put that intellect to work in an effective way. Parker deeply comprehended all this and its significance to U.S. policy. He once said to the writer, in a confiding moment, that people almost always underestimate the potential payoff from investments in research and overestimate the time required for those investments to pay off their costs.

So the dire projections regarding the world's and the United States' economic outlook (intensifying at that time and destined to become almost a national state of mind during the Carter administration) were not validated by immutable laws of nature. The future was profoundly subject to influence by sound policy and application of sufficient effort -- especially effort in the form of sharply increased, and better, investments in research. The problem lay not in our stars; it lay, instead, in our perceptions, and its solution lay in our hands.

To Administrator Parker, the U.S. foreign assistance problem was that we invested far too little in research. And, worse still, as President succeeded President, and A.I.D. Administrator succeeded Administrator, pressures of new policies, new personnel and new commitments would very likely reverse the historically glacial but recently more rapid progress toward greater investment in agricultural research. The capstone of this progress had been his predecessor's (Dr. John Hannah's) commitment of U.S. support of up to 25% of the core costs of the International Agricultural Research

Centers -- upon whose research the spectacular increases in LDC rice and wheat production in As had been so heavily based.

Parker's insight into the fragility of A.I.D.'s future commitment to research was, unfortunatel to be proved all too accurate. He therefore made a major attempt to establish a sound financi underpinning for a major, sustained U.S. investment in research on behalf of LDC agriculture. To l sustained, he believed (correctly) that it must be funded outside the annual Congression appropriations process. He proposed that a certain fraction of repayments by LDCs of A.I.D. loans l set aside to establish a fund in some kind of separate institute, independent of Congression appropriation actions, to fund continuing agricultural research. He was not the first to propose tl idea, nor would he be the last. But he was the first A.I.D. Administrator strongly to support it.

To begin this effort, Parker enlisted the services of Mr. Bart Harvey, for many years a leadi economist in A.I.D.'s Bureau for Policy and Program Coordination (the central economic policy a budget bureau of the Agency) and subsequently director of A.I.D.'s field mission in Nepal. Ba Harvey was a good choice. Though not an agriculturist, he had acquainted himself quite thorough with both U.S. and LDC agricultural policy issues -- and during David E. Bell's administration, h (assisted by the writer) led A.I.D.'s discussions and negotiations with U.S.D.A., culminating in revis P.L.480 "Food for Peace" legislation and new U.S.D.A./A.I.D. cooperation procedures.

After several weeks of exploration, Bart Harvey concluded that Parker's plan was not feasibl primarily because the Congress would not agree to any funding action which would significant reduce its year-by-year control over U.S. foreign assistance efforts. He was, sadly, probably rigl Members of Congress love to play at foreign policy administration but most find few opportunitie especially as individuals, to get involved. Participation in the A.I.D. appropriations process represen one of the few gates into this garden and they want to keep it wide open. It had been Parker's origin hope that some ancillary funding by non-U.S. government sources might add appeal to tl arrangement, but the ultimate outcome was a non-starter.

Having lost this hope, Parker asked the writer if he had any ideas. (The purpose, it should l remembered, was to get some kind of self-assured U.S. funding system for sustained agricultur research in and/or for the LDCs.)

The only thing the writer could suggest was that A.I.D. establish something that would be close to the long-run vested interest of the U.S. Land Grant Universities and the clientele they ser that they would, quite literally, fight hard educational battles to keep the funds flowing, as they h done so successfully for so many years for federal funding of their domestic agricultural resear programs.

The U.S. Land Grant Universities had always actively supported A.I.D. programs, out general convictions on U.S. national policy interests, and out of desire to maintain opportunities f their staffs and students to have significant contacts with the developing world: in short, to ha instructional capabilities to equip their students to deal with the world in which they live.

But this proposed program was to be something of a different dimension. The universities h for many decades fought many political battles for support of the Hatch Act and successor systems f federal funding of domestic agricultural research by the universities. As the purpose of this domest research is to help Americans (in the first instance American farmers), this support has enlisted lar

public educational efforts by organized farm and other citizen groups. This kind of support is hard to muster in a major way when, as in the case of foreign assistance, the direct beneficiaries are foreigners, not Americans. Therefore, to meet Administrator Parker's objectives, a new type of research program was needed: one which would be correctly perceived as being directly in the interest of the same organized farm groups which had historically supported domestic agricultural research by the Land Grant Universities.

On its face, this would appear impossible. But upon closer examination it appeared that this was exactly the kind of research investment which would have the highest payoff for the LDCs.

The Concept

"Science," as the saying goes, "is universal." The United States had been spending at the rate of about one-half billion dollars per year on domestic agricultural research. Of this, about one-third was furnished by the Federal Government and about two-thirds by the several states. In addition, almost as much was being spent on an extension system for getting this research tried and tested in the work and lives of farm and rural people. Other developed countries spend appreciably for the same purposes. Why, then, need we spend any more for the less developed countries? Why don't they just take all this gorge of scientific knowledge and apply it?

The answer is quite simple. With, of course, exceptions here and there, it won't work! It had taken A.I.D. and its predecessors several decades to learn this simple fact. It had been a bitter lesson. A folklore, almost a mythology, had evolved from the original Point Four idea. In simplest form it was: "Americans know how to farm; let us teach (by some means) the farmers of the poorer countries our way of doing things, our farm practices, and they will prosper as we do." This approach was tried to some substantial degree in several countries and didn't work. The tendency was to blame the local systems of communications, or, even more unfortunately, the capabilities or motivations of the local farmers. But the hard truth was that the information being supplied these farmers was often wrong or inapplicable. Although genetics principles, and corn breeding techniques, may, for example, be largely universal, our corn won't grow in most LDCs. They are just too different -- similarly for about everything else of consequence. Perhaps ninety percent of the U.S. research was potentially, at least, relevant to LDCs. But that ten percent gap, that missing link of knowledge, made this advanced-country research almost totally useless, irrelevant to direct LDC application. This was the sad fact: almost but not quite applicable knowledge failed in practice and backfired upon the American advisors and local practitioner with equal force and pain.

The problem was even more serious and difficult to solve than it first appeared. It was more than merely a problem of adapting -- through what had come to be known as "adaptive" research -- the scientific principles and practices of advanced countries to the needs of the poorer countries. As countries become more and more advanced, the research, and even the basic principles it uncovers, becomes more and more specialized to fit the peculiar advanced country circumstances of, generally, temperate climates, large highly capitalized farms, expensive labor. With time, the knowledge gap widens, the adaptation process becomes more and more difficult, the basic principles less and less directly relevant and useful to LDCs. The investment in local research, consequently, must become larger and larger if the LDCs are to be able to take advantage of the powers inherent in the constantly expanding underpinning of more basic knowledge evolving in the more advanced countries. As the

poorer countries tried to copy the more advanced scientific research of the advanced countries, tl often did so without linkage to local circumstances needed to make it relevant. As a result it beca quite useless and increasingly esoteric, and gave rise to nega ive attitudes toward scient approaches to problems and underinvestment in research -- precisely, the wrong, but understandal policy implication.

Clearly, what would serve LDC needs best would be investments designed to make the hi U.S. investment in agricultural research more directly relevant to LDC needs: a program wh would warp U.S. research toward more universal applicability and toward being more easily usable the LDCs. Ideally, with such changes in more advanced country research, integrated and meshed w adjustments from the LDC side, the gap could be closed so that knowledge generated anywhere wo be useful everywhere. At least bridges could be built across the chasms so that knowledge could m readily move back and forth from advanced to less scientifically advanced countries in a free l intellectually disciplined manner. This would greatly reduce the costly, endlessly duplicative bits a pieces of unorganized agricultural research scattered across both the developed and underdevelo country landscape. The Collaborative Research Support Program was designed to become a princi vehicle for building these bridges and closing the gaps between LDC and advanced coun agricultural research by uniting scientists from both sides in collaborative research on agreed-u problems and joint research plans.

A very practical basis of fact underlies this approach. To a surprising degree, both advan and less developed countries rely on the same crops and animals, for the bulk of their food and fib Wheat, corn, rice, millet, barley, potatoes, sweet potatoes, beans, peas, squashes, citrus fruits, b cattle, dairy cattle, sheep, swine, chickens -- all are produced and consumed as common staples in b types of societies. Major scientific progress on any of these would, in principle, be useful as build blocks of agricultural development in almost all countries.

These crops have many common pests and diseases here and in the less developed countri Problems relating to pest management, to soils management, to genetic improvement are similar a similarly important in the United States and in the developing countries. Problems relating to su basic factors as photosynthetic efficiencies, and resistance to drought, temperature, salinity stres are important everywhere the crops are grown -- as are disease and pest resistance or other forms control. Therefore, LDC agriculture abounds with opportunities for research which will not o directly solve LDC problems but, perhaps even more importantly in the long run, make the enorm quantity of agricultural research in the developed countries more nearly directly applicable to L conditions.

The argument that the less developed countries should become individually or even as a gr scientifically independent -- i.e., capable of doing all their own research -- ignores the small financ capabilities of most of those economies and the enormous costs of research. Even our country could afford to "go it alone." And the economies of even our smallest states exceed in size those of ma developing countries. Clearly, if the developing countries' agricultural economies are not to d further and further to the rear, ways must be found to link their research enterprise to the v outpouring of research knowledge from the more advanced countries, without undue duplicating research needed to bridge the gaps between this advanced country knowledge and less develo country application.

For certain enterprises and types of problems the International Agricultural Research Centers had provided with astounding success this connective relationship! But more, much more, was needed. The CRSP was designed to provide that increment. And, as we have seen, it was designed to provide a basis for U.S. public understanding and support, hopefully from spokespersons for both U.S. farm producers and U.S. consumers, for such bridge-building research. It must be remembered that the U.S. contribution to the International Agricultural Research Centers came from the A.I.D. appropriations and had no domestic U.S. constituency of its own. This, again, it was believed, could be assisted by an integrated, collaborative research program effort.

The advantage of such a research program to LDC agriculture is evident. But what about American agriculture, to whose interest we must appeal for the desired long-time commitment of support to LDC agricultural research.

Interestingly, for many types of research the case is clear. Most U.S. food crops originated in LDCs. Only a few, corn (maize), squashes, potatoes, cassava, are native to the western hemisphere and only a very few (e.g., cranberries and turkeys) are native to the United States. Long centuries of human selection of seed stock plus decades of modern plant breeding work, have greatly narrowed the genetic pool of variability with which plant breeding scientists have had to work in further crop improvement. The wild stock and their historic descendants are to be found where the plants originated. Access to this germ plasm pool found in the LDCs, on a systematic and continuous basis, is a necessary component of U.S. university crop and animal breeding research if it is to be effective for improving these species for use in the United States itself. Desirable genetic traits are found wherever they exist and can be built into the genetic characteristics of our own plants and animals. This requires major involvement of U.S. agricultural scientists in research overseas, particularly in the less developed countries where most of our commercial crops and animals originated.

Also, many plant diseases, insect vectors, and insect pests which prey on commercial U.S. crops are native to the area of the crop's origin. Time and easy international travel break down barriers of isolation and insulation against the importation of these pests and diseases. It becomes imperative that these pests and diseases be intercepted and studied in situ, and protective controls or disease resistant varieties be developed before the disease or pest invades our shores and becomes adapted and established here. U.S.D.A. quarantine systems have, on the whole, been extremely effective and are absolutely essential. But no such system can be perfect, and breakout of serious insect or disease pathogens can never be predators totally assured. Unfortunately when these pests do come to the United States they are often unaccompanied by their own natural biological predators so that under favorable conditions they multiply rapidly into serious economic problems. It is better to eliminate them at their source -- or at least have a real head start on controlling them through having researched them and their own predators at their source of origin.

All of this means that American agriculture and the food-consuming American public are ill-served by a research process which attempts to limit, or believes it can limit, its research activities within the boundaries of the United States. American agricultural and consumer interests would be well served by a system of research investments which induce creative, organized, disciplined collaboration between U.S. and LDC scientists working on well-defined, carefully chosen major problems of importance and concern to each. In the value such research would have to American agriculture lay the potential, or so the writer hoped and believed in 1974, for obtaining long term U.S.

support for a sustained agricultural research effort directed at LDC problems. This was the conceptual basis for the Collaborative Research Support Program.

Administrator Parker liked the idea. He saw in it, also, an ancillary value, a contribution to one of his most vexing concerns -- the enormity of the communication problem among scientists. He asked the writer to write it up and help him get it started.

This was done through several drafts, discussed several times, usually, as the writer recalls, while riding to and from "the Hill." Those were busy times, for him, with the Congress.

At the time the writer placed great emphasis on a two-pronged approach. First would be a sharply increased emphasis, through A.I.D. regular bilateral assistance programs, on strengthening the LDC agricultural education and research capabilities, primarily through helping them to develop agricultural colleges and other research centers as we had been doing in India and Brazil. This he dubbed the "horizontal" approach: organized and funded on a country-by-country basis. Second would be a set of Collaborative Research Support Programs (CRSPs), centrally managed and funded but with strong participation of individual country missions. These research programs would be selected on a problem-by-problem (or subject-by-subject) basis. Each CRSP would pull together into specific organized collaborative research arrangements the best available scientists on a given topic (say sheep production or potato production) in both the U.S. and LDC universities and other research institutions such as an International Agricultural Research Center. The topics would be so selected and the research program so designed as to be of sufficient importance to both the participating LDCs and to the participating American states that they would all significantly support it financially. It would, necessarily, be of sufficient importance to LDC agriculture to justify high priority A.I.D. funding and LDC institutional participation and ancillary support.

The Initiation

To initiate activity under the CSRP it was obviously necessary to enlist the leadership of the U.S. agriculturally competent universities. The proper level at which to enlist this support was the top executive heads of the colleges of agriculture. Unfortunately, these people go under various titles such as dean, vice president, provost, etc. For convenience we will normally refer to them as the "agricultural deans." The next layer whose support was essential was that of the directors of the agricultural experiment stations. These are the officials directly responsible for the research work of these agricultural colleges, whether funded by the state or various grant programs from the federal government. Finally, it was important to enlist support of the persons with responsibility for the international agricultural programs of the respective universities, normally known as directors of international agricultural programs. As both of these administrative levels normally report to the agricultural deans we felt we should meet first with the agricultural deans as a group.

Such a meeting was quickly arranged. This was made possible by the fact that these deans met at least once annually with the Secretary of Agriculture. Such a meeting with the then Secretary, Dr. Earl Butz, was imminent. Thus was arranged, through Dr. Elmer Kiehl, then chairman of the International Committee of the Agricultural Deans, an evening meeting in the offices of the National Association of State Universities and Land Grant Colleges in downtown Washington, D.C.

The meeting was held under circumstances which were not entirely ideal.

Dr. Kissinger, Secretary of State, was engaged in a meeting with the United Nations in New York which might involve U. S. foreign assistance commitments. Secretary Kissinger had made it clear to Mr. Parker that he wanted him to be within easy reach of the telephone at all times. As Mr. Parker's meeting with the agricultural deans followed their meeting with Secretary Butz, its starting time was somewhat uncertain. This, coupled with Parker's uncertain availability schedule, introduced some humorous drama into the arrangements. Fortunately, Administrator Parker had a telephone in his car. So we arranged that the writer stand in the window of the meeting room to signal when the group, after finishing dinner and regular association business discussion, would be ready for his presentation. Parker circled the building to put him in contact with the window every few minutes. When given the signal he promptly parked and came to the room to make his presentation.

Parker introduced the concept of the two-pronged approach he wished to take. He emphasized that it was his intention to put more emphasis than in recent years on helping LDCs build Land Grant Colleges, and particularly their agricultural research capabilities. This he referred to as a "horizontal" approach in that it would be organized, as at present, on a country-by-country basis, funded through A.I.D.'s normal country mission and regional structure.

To supplement this familiar but reemphasized institution-building effort, A.I.D. would initiate what he called a "vertical" program, to deal with major agricultural problems on a worldwide, or at least multi-country, basis. This new approach would be carried out under a set of joint A.I.D./U.S. University Collaborative Research Support Programs (henceforth, CRSPs -- always pronounced "Crisps")!

Research would be the principal instrument of attack -- but research carried through and tested in application, so that actual improvements in agriculture, and not just research publications, would be the objective and the warrant of the research. To the extent feasible, this testing under LDC conditions, and participation in the research programs themselves, would be done by LDC colleges and research institutions, especially those which had been or were being developed and strengthened through A.I.D.'s "horizontal" country-by-country programs. This would serve both to make the research more directly useful in LDCs, warranting its findings in actual application, and also importantly to strengthen the local LDC institutions for accommodating their countries' needs on other agricultural problems. These new programs, CRSPs, though primarily research, would also provide for training LDC scientists, and for strengthening LDC institutions collaborating in the research to the extent that this was essential to accomplishment of the collaborative research program objectives. This would be of great ancillary benefit to the participating countries, especially as demonstrations of the importance of scientific approaches to problem solving.

Problems selected for such organized research attack should be of major world-wide or multi-country importance, particularly significant to the "poor majority" in LDCs and especially suited to the competencies and corollary domestic interests of the participating U.S. agricultural colleges. The effort was to be thoroughly collaborative among all the U.S. and LDC (including international) research institutions participating in the specific program. A.I.D. financing would be through support grants, rather than contracts, reflecting a partnership rather than employer-employee relationship between A.I.D. and the U.S. universities. Potential for feedback to the solution of U.S. agricultural problems would be an important selection criterion. Participating U.S. universities would be

expected -- by virtue of the benefits which would accrue to their domestic roles -- to contribute significantly to the funding.

Arrangements and criteria for this shared funding were not yet determined but were to be worked out in concert with the agricultural deans. In general, A.I.D. had in mind that the Agency would contribute the overseas costs and the U.S. universities the costs for the U.S. based work. The latter would be provided primarily by U.S. universities modifying relevant portions of their ongoing research to make them organic elements in the worldwide research program effort. A.I.D.'s contributions would undertake two major components of effort: 1) to finance the work done overseas by the participating U.S. universities, and 2) to add resources to the cooperating LDC institutions. In addition, certain managerial costs would be borne by A.I.D..

The presentation elicited lively discussion and great enthusiasm. Cost-sharing of some type was acceptable to the deans as condition for being actively involved in this type of partnership arrangement with A.I.D. This was the key! The group expressed appreciation to Administrator Parker and commissioned Dr. Kiehl to set up a committee of university representatives to work jointly with an A.I.D. group which Administrator Parker would designate. To this group, we all agreed, should be added a representative from the U.S. Department of Agriculture, whom we should ask Secretary Butz to designate.

Thus was the CRSP idea introduced to and endorsed by the top leadership of the U.S. Land Grant Colleges.

Dr. Kiehl and Administrator Parker moved quickly to appoint the joint working group -- with Dr. Frederick Hutchinson, Vice President for Agriculture at the University of Maine, and the writer serving as co-chairmen. The group brought together university persons from all major U.S. geographic regions and from the three administrative levels: agricultural deans, experimentation station directors, and directors of international agricultural programs. Agricultural specialists from the A.I.D. central staff office (now Bureau of Science and Technology) and from each of the four geographic bureaus comprised the A.I.D. representation. A member of the international programs office represented the U.S. Department of Agriculture.

The working group met promptly and outlined a set of guidelines for the proposed new CRSP effort. From this the writer prepared a draft "CSRP Guidelines" document, took it to Maine for discussions and refinement by Dr. Hutchinson, and submitted it back to the working group for editing and approval. This set of "guidelines" was only modestly modified thereafter, through the Title XII structure, and became the operating ground rules for the CRSP program. The proposed program was discussed informally with the Office of Management and Budget, and with staff members of key Congressional Committees -- the normal steps for initiating a new A.I.D. Program.

The CRSP and the Findley Bill

Activity on the CRSP from this point on, however was marked by a major political event. Congressman Paul Findley of Illinois, at that time a member of both the Agricultural Committee and the Foreign Affairs Committee of the House of Representatives, became very interested in involving U.S. Land Grant Universities in a vastly expanded program of institution building in the less developed countries. He was especially interested in building and strengthening agricultural

extension services abroad, and put forward a "bill" -- through many drafts -- to accomplish this. His bill would have given authority, responsibility and funds for this effort to the U.S. Department of Agriculture, which would make grants under "Memorandums of Understanding" to U.S. Land Grant and other agricultural universities to carry out the work. The grants would be in response to proposals from the universities, and selected by a "board" of presidentially appointed university persons. Because of the total intertwining, from this point on, of the CRSP idea and the "Findley Bill," a digression here to discuss this major new element in the relations of A.I.D. and the U.S. universities is necessary.

The Findley Bill, in its many drafts, was widely circulated among universities, where it was strongly and enthusiastically supported. Testimony by numerous university officials, to several sub-committees of Congress, was arranged. Senator Humphrey of Minnesota sponsored an identical bill in the Senate. A large number of members of both houses of Congress expressed positive interest; several listed themselves as co-sponsors.

Secretary of Agriculture, Dr. Earl Butz, who had previously been Dean of Agriculture at Purdue University, quickly became interested in the Bill. He had long been a staunch supporter of U.S. assistance to agricultural development in the LDCs, and had often worked throughout the university community to help enlist support for A.I.D. programs. He had served on the so-called "Peterson" Commission on foreign aid -- a blue ribbon panel, chaired by Rudolph Peterson, President of the Bank of America, appointed by President Nixon at the beginning of his administration. Dr. Butz felt that the Findley Bill would be useful to stimulate U.S. Land Grant University participation in, and especially political support for, foreign aid.

But he did not believe that it was politically feasible, given the attitudes of the Congressional agricultural committees, and the vested interests of several politically potent farm producer groups, to place responsibility for the program with the U.S. Department of Agriculture. Unlike Dr. Butz and many others inside and out of government, some of these groups did not recognize that such aid, in the aggregate, had the long run effect of increasing, not diminishing, the overseas market for U.S. produced farm products. Nor, he felt, would it be sound policy to split such a major component out of A.I.D. and away from the broad responsibility of the Secretary of State. As he said to the writer, "No President with any sense would ever agree to it." He felt that the responsibility should be with A.I.D., and the Bill made an organic part of the U.S. foreign aid legislation. He met with Congressman Findley to press these points. Congressman Findley accepted the advice and introduced his bill, not to the Agricultural but to the Foreign Affairs Committee of the House of Representatives -- a shift facilitated by his serving on both. There it was eventually approved, as an amendment to the Foreign Assistance Act of 1976, under the numerical designation of "Title XII" -- and under the descriptive title, "Famine Prevention and Freedom from Hunger." So it has, to this day, been referred to as Title XII. The CRSP program, through much discussion with Congressman Findley, was incorporated as a specific component of the Title XII amendment.

In its long earlier development, the Findley Bill had encountered, essentially, indifference in A.I.D. Many such "bills" are introduced by individual Congressmen for each one that actually is enacted. Even more disappear during the subsequent appropriations process. A.I.D. saw the Findley Bill as one that, like many before it, would disappear into history unenacted, and certainly unfunded, during the rigorous Congressional authorization and appropriations process. Also, as the general question of jurisdiction over foreign aid programs had long since been decided in both the executive

and the legislative branches, there was no reason to assume a different outcome in this case. Therefore, A.I.D. considered the Findley Bill matter as something for the U.S. Department of Agriculture to handle politically.

A major negative factor, from A.I.D.'s point of view, was that the bill provided no new program authority and no new money, but did provide cumbersome and potentially difficult powers to a Presidentially appointed "board" of outsiders which would share policy making authority in some obscure manner, with A.I.D.... agricultural institution-building in the LDCs of the type discussed in the Bill and in testimony on its behalf traced to the beginnings of the U.S. foreign assistance program and had been a major (but admittedly diminishing) element in A.I.D.'s agricultural program ever since Governor Harold Stassen's Administration. The Bill did seem to introduce a new emphasis upon agricultural extension work in the LDCs; but this was an emphasis that had been largely discredited by early experience -- except where such work was closely tied institutionally to research. Indeed, we were told, Congressman Findley had been inspired in preparing his bill, largely by reading an excellent book describing the U.S. experience in India in the 1950s and 1960s, in which six American universities had helped develop state agricultural universities which integrated research, education and extension functions.[3] This India program stood as an example par excellence of success in foreign assistance. But the program to develop these integrated universities followed and helped repair a program of agricultural extension services, and community development programs, begun with early A.I.D. and Ford Foundation assistance, which served best to illustrate the futility of agricultural or "rural" extension efforts when not integrated with and based upon aggressive agricultural research.

When, however, the Findley Bill was presented as a proposed amendment to the foreign aid legislation, and when it became clear that it had substantial Congressional support -- and intense support from U.S. universities -- A.I.D. developed strong and generally favorable interest in the proposal. The idea occurred that the new CRSP program, to which A.I.D. was now committed, should be combined with the Findley Bill initiative, whatever that should, on examination, turn out to be. Administrator Parker asked that the writer chair an Agency-wide committee, which would work out the details of such an arrangement.

The A.I.D. committee and senior executives drafted alternative, simplifying language. Negotiations with Congressman Findley were cordial but largely inconclusive as much of the detail, which A.I.D. felt to be obscure and cumbersome, kept reappearing in drafts presented by the Congressman after Mr. Parker and the writer felt they had been negotiated out. Particularly troublesome were such issues as establishing "eligibility" requirements of universities to participate in the program. Other questions abounded such as what, exactly, were the legal powers of the Presidentially appointed "board?" What kinds of programs would be included within Title XII? A host of implicit procedural issues were unclear, such as if and how Findley's proposed "memoranda of understanding" could substitute for grants and contracts as funding instruments. Finally, after several negotiations and discussions, both sides accepted wording which left most of the ambiguities intact, on the general principle that -- as A.I.D. was strongly supportive of the general idea -- the details would be worked out in practice through the forthcoming executive level A.I.D. meetings with the proposed board. Provision for the CRSP initiative was specifically included in Title XII.

Inasmuch as use of U.S. universities for providing technical assistance to agriculture, for a host of purposes including helping LDCs develop agricultural colleges, extension services and research institutions, had been a major component of A.I.D. efforts back into the early 1950s, there were only

two new authorities in Title XII. First, there was authority for the establishment -- and financing costs of -- the "board," with its subordinate committee and support staff, coupled with a definite indication of Congressional intent that this board should "participate" in A.I.D. programs under Section 103 of which Title XII is a part. (Section 103 provides authority for programs in food, agriculture, nutrition, forestry and rural development.) As the amendment does not define what "participate" means in practice, and as, clearly, a federal agency cannot delegate powers to an independent outside body, the board was set up as an advisory committee, under the general limits and constraints applied to such bodies under the operative advisory committee legislation and implementing executive directives. In practice, A.I.D. worked this all out to mean that the board's so-called powers are strictly "advisory;" but that A.I.D. should take this advice very seriously, as appeared to be in line with Congressional intent.[4] Second, there was authority for use of "support grants" for carrying out CRSP programs. Also, for the first time, mention of A.I.D.'s support for the International Agricultural Research Centers was recognized in the legislation, by including it under Title XII.

Even the two "new" authorities were probably entirely within the scope of both existing authority and previous practice. Previous advisory committees had been appointed by A.I.D. under the advisory committee legislation. The A.I.D. Research Advisory Committee had been in operation for some twenty years. Its advice on specific research projects had been followed with great care, as it had proved consistently to be sound, precise and judicious. Various kinds of grants and cooperative agreements had been used in lieu of contracts to finance projects with universities where shared funding was involved. The authority in Title XII to "strengthen" universities so that they could perform more effectively in A.I.D. funded projects had been specifically previously granted by Congress in Sec. 211(d) -- later renumbered Sec. 122(d) -- of the Foreign Assistance Act and had resulted in a rather large, generally effective set of grants and had greatly enhanced university capabilities for and interest in undertaking A.I.D. projects in LDCs.

What Title XII did create was a revitalized A.I.D. interest in agricultural problems of LDCs, and a mild redirection of agricultural programs toward strengthening LDC agricultural colleges and their research capabilities, supported by an improved and vitalized worldwide agricultural research effort. It created an institutionalized university presence (through the Title XII board, joint committees and support staff) within the tissue of the A.I.D. administration, which served as a continuous monitor of and articulate voice for LDC agricultural institution building and support of research. It served also, of course, as a voice for more A.I.D. support of U.S. universities and for providing them more facile working arrangements in A.I.D. programs.

The Title XII legislation formalized the joint research working group effort by providing specifically for a Joint Research Committee (JRC) which would report to the board. A parallel Committee, the Joint Agricultural Development Committee (JCAD), similarly comprised of A.I.D. and university representatives, was provided for under the Title, to be concerned with individual country agricultural development programs. This committee also reported to the board. Thus we were back on the original "two-pronged" approach which Mr. Parker had advocated in his meeting with the deans. In both cases (unlike the original work group which was jointly chaired by university and A.I.D. representatives), these joint committees were chaired by university representatives recommended by the board and approved by A.I.D. After several years, the board recommended that these two committees be merged into one, the Joint Committee on Research and Agricultural Development (JCARD), which would have co-chairpersons representing the universities and A.I.D. This

recommendation was enthusiastically endorsed by A.I.D. As would be anticipated, these committees did much of the work and deserve much of the credit for the relative harmony between the board and A.I.D. through their many years of attempting a competent and significant response to a legislative initiative which was as noble in its objectives as it was ambiguous and cumbersome in its wording.

Nevertheless, an accurate assessment would have to conclude that the Title XII amendment would have accomplished much more had it been much simpler and more explicit in its prescriptions that: 1) A.I.D. should intensify the development of integrated research, educational and extension institutions abroad; 2) it should build a major CRSP-like program of research in key problem areas; 3) it should use U.S. universities relatively more fully for these functions; 4) selection of universities for projects and support should be based heavily on their performance; and 5) there should be established an advisory board structure to monitor, assist with and support these functions. With these congressional directives clearly stated, and the procedural emphases and ambiguities removed, A.I.D. could have been held to account for a much better balanced program of longer-term benefit to agricultural development in the LDCs.

Beginnings Of Implementation

Now firmly anchored in Title XII, the Joint Research Committee began to put meat on the skeleton of ideas comprising the proposed Collaborative Research Support Program.

The Joint Research Committee in the first several months of its existence concentrated on two fundamental activities. The first was establishing priorities as to which cooperative research support programs should be undertaken. The second was reworking the guidelines and getting them formally approved by A.I.D. and the Title XII Board (BIFAD, as it was now called).[5]

The committee selection and establishment of priority areas for research was done by a Delphic process of voting among alternative fields by the committee. The priority considerations were: 1) the relative importance of the problem to the developing countries, 2) the interest and competence of U.S. universities to work on these problems, 3) the extent to which the problem, if solved, would contribute to the well being of the very poor people in the developing countries (reflecting A.I.D.'s then emphasis on solving the problems of the very poor), and 4) the likelihood that important progress could be made through research on the subject matter area within a reasonable period of time. ("Interest" of U.S. universities, highlighted in consideration two, would be measured largely by their willingness to contribute financial and other support to the program.)

The Joint Research Committee looked at many options. It considered whether the work was being done elsewhere or whether other entities such as some other government might not be better suited than the CRSP to tackle the problem. For this reason, for example, wheat was passed up as a possible CRSP, although the crop was extremely important, because the need for research was already being well met by the International Wheat Research Center (CIMMYT)in Mexico and other activities.

The other focus of the Joint Research Committee's effort was to refine the guidelines. The process seemed interminable as there were many issues needing discussion. A.I.D. was represented primarily by agriculturalists whose experience and interest lay at the level of individual countries. These persons were dedicated and generally supportive of the notion of CRSP. However, they were intensely committed to making the research pay off at the individual country level and to have it be

seen favorably by A.I.D. missions as doing so. The university representatives similarly were oriented toward activity at the individual country level because most of their past work with A.I.D. had been at that level. This focus on practical application deriving from the make-up of the JRC was necessary and desirable. It had a price, however, and that was a lack of direct focus on the original intent of the CRSP, which was the modification of domestic U.S. agricultural research simultaneously with a modification of LDC research to the end that they both work together in effective common purpose. The original idea was to develop research arrangements and philosophy which would make all agricultural research on a given problem more applicable in developed and less developed countries alike. The committee process of restructuring the program sacrificed much of this focus. On the other hand, the mere act of bringing developed and developing country scientists together on a common problem would go far toward accomplishing this purpose whether it was highlighted as a philosophy or not!

The original concept had been that the states would establish the bonafides of their contributions by the care given to the modification of their own domestic research or parts of that research so that it be more applicable in developing countries. This idea was somehow largely lost in the discussion process. In its place was retained the idea of a state contribution but in the form of a requirement that at least 25% of any CRSP be funded from the collaborating U.S. states (excluding federal funds under their control). This had a very desirable effect of limiting the interest in participation in a CRSP to problems and to universities which really did wish to work on foreign agricultural problems in order to further their own state's research interests. Through this device much of the gap-closing characteristic which had been hoped for in the CRSP was retained.

END NOTES

[1] Jonathan Swift, Gulliver's Travels (1726). Statement attributed by Swift to the "King of Brobdingnay." However, there is another lesson to be learned about research administration from Swift. He observed from his visit to that same island country, peopled and run entirely by scientists who were working on the most wonderous ideas for the betterment of mankind, that the country was from a practical point of view in a shambles. No one was using the results of these marvelous scientific findings; they didn't fit and they didn't work. Especially, the research work to produce them was never quite finished. The scientists, with their eyes always cast toward the future, all needed "a little more time and a little more money!"

[2] Which, by the way, is one good, broad definition of science: made better by adding Karl Bunkman's phrase,"to make and remake the universe to its liking."

[3] Hadley Read, Partners with India, Building Agricultural Universities (Urbana-Champaign, Illinois: University of Illinois Press, 1974).

[4] The term "appeared to be" is deliberately chosen. Clearly, Congressman Findley and many other Congressional supporters of Title XII advocated very strong roles for the Title XII "board." However, those groups and committees within Congress, who felt themselves charged with responsibility to assure strict Executive Branch enforcement of the very restrictive uses of advisory committees imposed by legislation and Executive Branch orders and procedures, took precisely the opposite stance. A.I.D. officials trying simultaneously to satisfy both Congressional representations unavoidably developed something of a tennis ball complex. This was often reflected in discussion at A.I.D./Title XII board meetings, especially in early years, and especially in response to A.I.D. General Counsel's efforts to rationalize opposing Congressional representations regarding the Board's proper powers and procedures.

[5] BIFAD -- (Board for International Food and AgriculturalDevelopment).

PROGRAMS

Planning and Management Arrangements

Since this was to be a collaborative arrangement involving in each program several U.S. universities as well as developing country institutions and international research centers, it was necessary that care be taken in the planning and management.

For each collaborative research program a rather elaborate planning process was to be undertaken. This was essential to determine: first, what the scope and design of the program should be; second, which American institutions were most suited to take on roles in this program and what these specific roles should be; and third, what the nature of the arrangements with developing country institutions should be and which institutions in those countries should perform which roles.

Obviously these were questions which were substantially loaded with the vested interests of the collaborating institutions. Therefore, the selection of an entity to do the planning studies was a matter of great interest by the Joint Research Committee (JRC) and eventually the BIFAD. A.I.D. had the responsibility of making this decision in all matters pertaining to the CRSP; however, BIFAD's role and that of the Joint Research Committee as a supporting body of BIFAD was given great weight in the decision making process. By the wording of the Act of Title XII and understandings with Congress, although technically acting as an advisory body, the BIFAD's role was to be more than narrowly advisory. BIFAD was to "participate" in A.I.D. decisions pertaining to Title XII. They were to be "shared" between BIFAD and A.I.D. - - a point of view which A.I.D. strongly endorsed and totally accepted.

The JRC developed a list of some 19 different programs which it felt met the criteria for a CRSP and recommended that all of these be thought of as potential candidates for implementation. However, it listed these in priority order, so that A.I.D. could take action in a sequential order depending upon the availability of funds and other considerations. The first step in each case was to select a "planning entity" - - an institution of standing to undertake the early studies. The first so selected was the Research Triangle Institute, a consortium of institutions in North Carolina with substantial experience in this kind of work, to make the planning study for a CRSP program on small ruminants (in practice sheep and goats). The planning process was usually established in two phases, the first of which was a rather broad feasibility phase that could be brought back to the Joint Research Committee, BIFAD and A.I.D. for consideration as to whether to proceed onto the more detailed second phase.

For the second CRSP, research on sorghums and millet, closely related cereals which are very important in developing countries, the University of Missouri was selected as the planning entity.

In the early CRSPs, care was taken to select as a planning entity an institution competent in the subject matter but which accepted that it would not be a participant in the CRSP itself.[1] This was done for the obvious purpose of eliminating institutional bias in the planning recommendations. The planning entity made recommendations pertaining to a potential CRSP in the subject matter of its assignment. These recommendations first dealt with design of the program -- what should be its components; which sub-subjects should be worked on? For example, in the project on sheep and goats the planning entity recommended components of work on breeding for higher production, disease

resistance, disease control, nutrition and adaptability to local circumstances, etc. For each of these components, the planning entity recommended the U.S. institutions best suited, by interest and capability, to undertake specific assignments, and made similar recommendations with respect to potential participants from the developing countries and international research centers. It made recommendations as to the relative costs of the different components, the overall budget, time schedule, the inter-relationships among these components, and the direction and growth pattern that each of the components might be expected to undertake. These recommendations by these planning entities, which were funded at about $100,000 for each CRSP planning study, were then evaluated by the JRC and its recommendations passed on to the BIFAD which, in turn, recommended it to A.I.D. for implementation. The planning entity recommendations, as modified by JRC, established in detail the pattern for the beginning phase of the CRSP and in broader terms for the duration of the program.

Among the recommendations made by the planning entity which were scrutinized very strongly by JRC and BIFAD was the recommendation of a "management entity" to manage each CRSP. That management entity was to be selected by A.I.D. on the advice from the Joint Research Committee and BIFAD. As it was necessary that this management entity be acceptable to the participating U.S. and developing country institutions, each was consulted substantially by the planning entity and by A.I.D. before ultimately selected.

The collaborative research programs were seen entirely as an organized research undertaking; the role of the individual collaborating institution was determined by the requirements of the program and not by its own individual special interests and experiences with A.I.D.. Universities could be dropped from participation on the basis of poor performance, or if other research had solved the problems for which its services had been needed or, conversely, if research did not seem to be making progress on these problems. In short, it was the requirements of the program and not any entitlement by the participant institutions which determined their participation and the size of their budgets. To handle these management requirements, it was necessary that for each CRSP the management entity selected be strong and well supported by other components of the total CRSP management structure.

Because of the individual participating university's interest in the financial management, it was obvious that the management entity should have high standing among all the participating institutions. It was also clear that some form of group participation in management decisions by the participating universities would be required. This participation would necessarily be advisory, though significant, as the management entity would, in the end, be held responsible by A.I.D.. This required sensitive and sophisticated management structure. The early ad hoc research planning group established a basic management framework which, with minor modification but with very careful examination by the JRC and BIFAD, was instituted from the beginning of the CRSP program. (Titles varied from program to program but the basic structure was the same.)

At the top of the management structure was A.I.D. which had a project officer responsible to A.I.D. for the entire project. This officer was in the Bureau of Science and Technology in each case. Next stood the management entity which received all the funds, disbursed the funds to participating institutions and was responsible to A.I.D for the project. Advisory to the management entity was a board of directors. The board of directors was comprised essentially of one person per institution, usually a person responsible for his institution's agricultural research program. These were normally the directors of the agricultural experiment stations of the American Land Grant Universities. It was necessary that this level of administration at the universities be represented because, as will be

recalled, the university had to make substantial commitment of budget resources, as well as personnel. Thus it was necessary that the directors of research be involved in the processes of decision-making which would involve commitment of substantial resources for which they were responsible. These directors, in the main, became very enthusiastic about these programs and were themselves sources of strength to the program.

At the next level stood a technical committee, again comprised of one representative from each institution, usually the CRSP project director at the university, or persons with similar technical responsibilities from the international research centers that were collaborating in the CRSP. Participation in these committees by the developing country's personnel was seen from the beginning as very desirable; but it was recognized that flexibility had to be allowed as to how they were fitted in because of problems of travel and related issues. This technical committee, as its name would imply, was responsible for formulating the details of the CRSP research program and determining the day-by-day or month-by-month performance of the different research components as related to the CRSP's technical requirements. As in the case of the board of directors, this committee served as advisory to the management entity.

The third advisory structure was the external evaluation committee. It was difficult to achieve total consensus about the necessity for such an external evaluation committee. However, the early ad hoc committee and later the JRC very wisely believed that it was necessary to get a committee of experts in the subject field from institutions not involved in the CRSP. This was necessary in order to achieve objectivity and external leverage on issues which would differentially affect the participating institutions. It was recognized from the first that some institutions' participation might, for one reason or another, need to be terminated or reduced. It was absolutely essential that the management structure have objective external advice that could lead to such termination or reduction of the roles of individual collaborating institutions, in order to husband resources for other activities more badly needed for the CRSP. Every evaluation of the CRSP effort that has taken place since its initiation has concluded strongly that its success often depends very much on maintaining an effective and energetic external evaluation process, and that a standing committee of this sort is much better than ad hoc evaluations which are often, and properly, heavily discounted because of lack of continuity and familiarity with the subject matter.

This managerial structure seems at first glance to be cumbersome. Certainly the roles of each element in the structure differ somewhat from case to case and through time as the individual CRSP programs unfold.

For example, the individual CRSP program manager, employed by the management entity, plays an especially key role. The role of each CRSP's advisory board and technical committee (but not of the external evaluation committee) differs from program to program, in part reflecting the different characteristics and style of the program manager. Nevertheless, and in spite of modifications and adaptations, the basic management structure adopted for the CRSP program appears to serve well the requirements for effective management and especially for maintaining substantial and enthusiastic participation by the collaborating institutions. It has forced hard decisions resulting in institutions dropping out and roles being substantially modified. It has reformulated the programs to reflect breakthroughs in knowledge and to exploit unforeseen technical findings, or to expand the effort in areas which proved more difficult than anticipated at the early planning stage. Research by its nature is experimental; the point in time at which a program is initiated is the point of maximum ignorance

about the project or the problem. It is essential that the program be continuously reformulated in light of findings and experience. This requires a good deal of forward planning and the capacity to replan in a rolling fashion as the execution of the program provides new data and new information relevant to the program needs.

The management entity sub-grants funds to the participating institutions commensurate with the agreed upon plans and roles of those institutions. Collaborating developing country institutions can be provided funds directly from the management entity or from the management entity through a collaborating U.S. institution that may be working at the site of the participating developing country institution. The same is true for International Agricultural Research Centers. Under the rules also, the participating U.S. universities as a whole must contribute at least 25% of the total U.S. cost of the CRSP. Those funds normally come to the CRSP from the directors of the state experiment stations. Furthermore, developing countries, particularly A.I.D. missions, may contribute to the program, usually through grants to the collaborating LDC institution.

This management structure is complex and seen by some as unduly cumbersome. Unfortunately this became a matter of more than casual concern in the early stages of the CRSP as A.I.D Administrator McPherson was greatly concerned that the programs be kept as simple as possible. This applied in two dimensions: he wanted to keep the number of collaborating U.S. institutions down to as few as feasible, and he was concerned over the number of advisory committees and the fear that the programs might get entangled in the crosscurrents of conflicting advice. His personal view was obviously extremely crucial to the success of the program. Experience, one would conclude, suggests he was probably wrong in applying it as strenuously as he did. If the programs are to be successful, they simply must embrace all the elements strategic to their success. Because of the specialization among U.S. universities this required obtaining resources from several institutions. These special competencies might be, and in some instances were, hired off the campuses of those institutions. But this would not bring forth the commitment of university resources or intellectual energy that resulted from embracing those universities as institutions in the CRSP rather than as hiring agents. This question will probably never be answered completely. But, unless a board or some structure is involved to enlist enthusiasm of the top university research administrators, university support for the CRSP is likely to wane. If this happens, the entire part of the CRSP is lost. Similarly, unless there is an interacting mechanism to bring the technical insights of the various individual project or sub-project directors to bear on the total CRSP, it is likely to become fragmented. So a technical advisory committee is needed. Unless there is an objective external evaluation group, technically competent but having no vested interest, the CRSP is likely to become self serving and stagnating in its ideas; so an external advisory committee is needed. And unless it has a management entity totally responsible to A.I.D., it is unmanageable from the A.I.D. standpoint. Therefore, the future would be well served if A.I.D. maintains approximately the management structure and the overall concept of the CRSPs as they were designed, modifying them incrementally from experience but keeping always in mind the large issues to which they were originally addressed.

CRSP Programs Undertaken

The Joint Research Committee (JRC), after much discussion, consideration of presentations by the many advocates for individual programs and seemingly endless voting, came up with some nineteen "priority" problem areas for possible CRSP programs. Of these, six were elevated to the top

of the priority list. JRC recommended that their feasibility for CRSP implementation be explored by means of a grant to a "planning entity." These six -- in the order of their ultimate implementation and, to a degree, JRC priority -- were the following:

1. Small Ruminants (Sheep and Goats)

2. Sorghum and Millet

3. Tropical Soils Management

4. Food Legumes (Beans and Cowpeas)

5. Human Nutrition (Effects of Marginal Malnutrition)

6. Fisheries and Aquaculture -- to be subdivided into three major subject areas:

   a) Pond Dynamics
   b) Stock Assessment
   c) Storage

BIFAD recommended to A.I.D. that analytical processes be undertaken by the planning entities, which had been identified by the JRC. These planning entities would first undertake preliminary feasibility assessments and, if in the sequence of JRC/BIFAD/A.I.D. view these findings were sufficiently positive, they would proceed to plan the individual CRSP program through in sufficient detail for implementation. The recommendations by the planning entity were to include, for each CRSP, the management entity that A.I.D. should fund to carry out the CRSP program. Implementation of these six CRSP research endeavors constitutes the A.I.D. CRSP program to date. Brief description of factors leading to the selection of each of these illuminates the underlying A.I.D. university consensus on objectives for the CRSP.

A.I.D., by preference and by Congressional mandate, placed high priority on programs focused especially on assisting the very poor within the less developed countries. Both the executive and the legislative branches of the U.S. government recognized that all societies, rich and poor, are characterized by wide variations in individual income distribution. The Foreign Assistance Act of 1975 had made much of the need for A.I.D. to focus on helping the very poor people in the LDCs.

Although totally accepted by A.I.D. in principle, translating this policy into operational programs resulted in many anomalies and wide divergences of view. There were even those who believed that productivity-increasing projects almost automatically worsened income distribution and they therefore favored A.I.D. projects directed specifically at income redistribution, even at the cost of economic growth. Fortunately, however, both those from A.I.D. and from the university side of the Title XII structure disagreed with this view. They stood together in supporting ways of improving the lot of the LDC poor by simultaneously enhancing economic development and growth, and redirecting that growth in ways which would contribute specifically toward improving the levels of living of the poor majority.

Therefore, in selecting CRSP topics, much weight was given to the improvement of agricultural production and use of crops or animals consumed and/or produced largely by the lower income segments of LDC societies. This theme can be seen in the selection of all six of the problem areas selected for CRSPs. Other criteria were the relative general importance, relative U.S. comparative advantage in the subject, likelihood of success in producing positive improvements in a reasonable

period of time, interest and capability of U.S. universities to participate, and interest of LDC institutions in participating in research in the subject area.

Small Ruminants: Sheep and Goats

Large land areas of the less developed countries of the world are suitable only for grazing. Usually these are areas of sparse rainfall, rough and infertile terrain -- and of very poor people. Many residents of these areas derive their livelihoods from cattle. But, especially among the very poor, many more rely upon sheep or goats -- the so-called "small" ruminants. Surprisingly little effective, modern research of the type that radically improves their productivity under LDC conditions was being done with these animals. Here existed a great opportunity to improve the lives of some of the very poorest people in the LDCs through increasing economic productivity of sheep and goats so that the poor people who raised them would have more to sell and the poor consumers of these animal products could buy them more cheaply. Such research would be useful, too, in the parts of the United States where production of these two species of animals is important.

Opportunities were great in the LDCs. These animals, in the main, were badly nourished, suffered from numerous diseases and pests, and were of poor genetic capability to produce meat, milk, or wool efficiently. The greatest need was to collate the fragmented knowledge, experience, and scientific research, through which these problems were being dealt with in different places in the underdeveloped areas. This was needed as a basis for developing and testing generalizable solutions, through application in LDC conditions, of their own LDC knowledge in combination with the most advanced scientific knowledge being developed on related (but not identical) problems in the United States, Australia, and other advanced countries. For example, "face scald," from the blazing sunlight characteristic of many tropical, arid areas, takes a heavy toll of sheep in the LDCs. Many breeds of sheep have a heavy protective wool covering to protect the face; but this causes its own problems under such hot conditions. But, it was held, there are genetic strains of sheep in certain small North African areas that had evolved genetic resistance to this problem. Another problem is the poor reproduction rates characteristic of sheep generally. This results in too small a ratio of offspring to parents, and hence wastes too much grazing resources on breeding-flock maintenance, relative to the consumable annual lamb crop. However, it was alleged that in certain local LDC breeds and strains, twin birth was the rule rather than the occasional oddity. As another example, the so-called "Mandya" sheep breed of South India is amazingly able to thrive on very poor grazing conditions (and provides an excellent quality of meat). But its leg is so light (as some wag from the U.S. said, "from the rear the sheep's legs look like parentheses"), and its other flesh covering so thin, that the meat productivity is very low. Many breeds of Europe and the new world have excellent fleshing traits, but these breeds succumb rapidly to the rigors of life in most LDCs.

The many breeds and strains of sheep interbreed freely. Therefore an imaginative, international breeding effort should be able to locate the best combinations of genetic traits and combine them into desirable adaptations of local breeds -- in short, genetically to "program" breeds to meet individual, specific, local conditions. This would be done primarily by adding desirable genetic traits -- such as resistance to sun scald, better reproduction ratios, more efficient body conformations -- to breeds, such as the Mandya breed of South India, already well adapted to local areas. Well

nourished sheep breed in their first year, so genetic improvement can come much more rapidly and economically than with cattle.

Similarly, feed production and supplementation practices vary from place to place -- as do disease and pest control techniques. Well designed, cross-national research was needed to gather these bits and pieces of technical knowledge into organized systems so that modern science could be brought effectively to bear on solving key production, nutritional and disease problems of sheep throughout the world. Sheep production thus increased would contribute importantly to the economic development of several less developed countries, to the incomes of some of the poorest farmers and to the nutrition of some of the poorest people in the world. The research would also contribute greatly to the U.S. sheep industry and to all who depend upon it.

The same general approach was needed for goats.

In the early planning process, implemented by the Research Triangle under A.I.D. funding, expertise with both U.S. and LDC experience was assembled to put these general concepts into detailed plans. The Collaborative Research Support Program, with the University of California at Davis as management entity, was implemented by an A.I.D. grant in September of 1978.

Sorghum and Millet

> Fill our hands with wives. Fill our hands with children. Fill our hands with millet. Fill our hands with sorghum.
> —From an ancient Mali prayer-dance song.

Wheat and rice are the two largest food grain staples in the developing world -- and in the world at large. The International Agricultural Research Center for Corn and Wheat (CIMMYT), located in Mexico, working with a network of developed and less developed country research institutes had become the fountainhead of scientific advances which had led to enormous production increases in much of the wheat growing areas of the less developed world. (CIMMYT had also made great contributions to LDC corn production -- although for a host of technic[illegible] reasons, not with the explosive worldwide impact achieved with wheat.) Similarly, the International Rice Research Institute (IRRI), located in the Philippines, had provided much of the scientific base for the impressive rice production increases in the less developed countries. It is probably not too much to say that much of Asia would be in acute famine now had this, or some other institutional mechanism for a massive research attack on LDC wheat and rice production problems, not been initiated.[2]

But wheat, rice or corn are not the staple food crops of many of the LDCs' poorest people. Sorghums and millets are more common to the arid, rough, poor soil areas of much of Asia and Africa. These loosely related types of grains are, ordinarily, grown where rainfall is too sparse for wheat production. Irrigated land, on which most of the LDCs' rice crop is produced, is almost never used for sorghum or millet. These are the grain crops of last resort -- and the staff of life to millions of some of the most underfed and malnourished peoples in the world. Over the years, per acre yields of sorghum and millet have been, in most LDCs, abominably low. It was not uncommon to find yields so low that one-third of total production was used for seed for the succeeding year. Localized total crop failures were frequent in years when the always-light rainfall skipped over the area entirely. One International Agricultural Research Center -- "ICRISAT," located in India -- was giving a large

fraction of its attention to these crops. It was making some real progress but provided only a glimmer of distant promise against such an enormous problem.

Furthermore, major negative circumstances compelled modest expectations. The wheat and rice examples had been exciting. But with both of these crops, the great breakthroughs had come from improvement in the crops' ability to use heavy inputs of fertilizer. Furthermore, virtually all of the increased rice production -- and much of it for wheat -- had been on irrigated lands. The varieties of wheat and rice commonly used before that time had "lodged" (fallen over and rotted on the land) when fertilized heavily enough to get high yields. This was, of course, destructive under all conditions and ruinous under heavy irrigation. A major breakthrough requirement with both crops was to eliminate this problem. This was accomplished in both cases, essentially by finding genetic lines with short, stiff straws.

This characteristic was built into the wheat and rice strains developed by these centers, providing the starting point for developing higher yielding, disease resistant, better adapted varieties for LDC use. Adaptations of these genetic lines were developed by local institutions and introduced, with startling success, into local farming areas. Corollary farming practices for improved production were researched out, both at the international research centers and locally. With these new varieties and improved farming practices, heavy fertilization, made economically feasible by the favorable price ratios between fertilizer and grain, achieved large and rapid increases in yields, especially, but not entirely, on irrigated lands. The rush to the "green revolution" was on. One of the most rapid, large-scale food production increases in the world's history was under way.

But, for the most part, no such explosive breakthrough could be expected for the millet and sorghum producers and consumers. In general, on the sorghum and millet lands, water was the major limiting factor. No simple, single limiting factor -- such as lodging -- could be removed with such dramatic results.[3] What was needed was a combination of scientific advances which would make these crops radically more productive on the poor, marginal lands where they were grown. These crops had little role to play in the better lands more suited to the other great food crops. And, anyway, it was on these poor, dry lands where most of the poorest people lived and where famine stalked. Thus, with its priorities favoring emphasis on the poorest people, A.I.D.'s attention was drawn to the needs of the sorghum and millet producers and consumers.

To supplement, complement and work with ICRISAT (the International Crops Research Institute for the Semi-Arid Tropics, located near Hyderabad India), a CRSP on sorghum and millet was recommended by the Title XII Joint Research Committee.

For years A.I.D. had been supporting, under its central research program, research projects on sorghum -- notably at the Universities of Nebraska, Kansas State, and Purdue. Nebraska and Kansas State were charged primarily to work on improving yields; Purdue was charged with trying to improve the nutritional value (especially the protein quantity and quality) of the grain. All had some significant successes. All worked informally with each other and with ICRISAT. But the effort was far too modest -- and was too loosely tied together -- to have the needed major impact. Especially, ties with local LDC institutions were fragmentary and weak.

The new CRSP was to weave all these A.I.D. funded efforts into a coherent program, augmented sufficiently to do for sorghum and millet what the international agricultural research centers, and their field networks, had done and were doing for wheat, rice, and corn.

BIFAD and A.I.D. accepted the JRC recommendation and chose the University of Missouri as the planning entity to bring the program design to the point where it could be recommended for implementation. Implementation of the program was initiated by a grant to the management entity, the University of Nebraska, in 1979. Later, a change of program managers was made and the management entity responsibility was shifted to Purdue University. On its success will depend the lives of millions of the recurring famine victims in Africa[4] and the livelihood of countless others in Africa and Asia. And through its success may the prayers of the Dogon of Mali, and millions of other, similarly hungry people of the developing countries, be answered.

Food Legumes: Beans and Cowpeas

"Food Legumes: The meat and milk of the very poor."

Focus on the very poor in the LDCs led the Joint Research Committee, almost inevitably, to special concern with the food legumes.

Generally, poorer segments of LDC populations derive most of their sustenance from plant rather than animal products. Even under optimum conditions, very large energy losses are sustained when animals transform animal feed into human food. Beef animals, sheep and swine normally require in the range of eight to ten calories of grain and other feed stuffs to produce one calorie of human food in the form of meat. Dairy cattle do a little better -- perhaps in the range of six to eight feed calories per calorie of milk. Broiler chickens are, under optimum conditions, capable of processing calories at something like a two and one-half to one ratio. And, under optimum pond-fed conditions, fish (such as catfish and carp) can better that somewhat. However, as the efficiency ratio goes up, the quality of feed stuffs required tends to go up also -- to become more competitive with human food. Meat goats, under LDC conditions, get a large fraction of their feed from browsing on brush and small trees -- usually on land not suitable for crops. Sheep, like cattle, are grazers (grass eaters) but tend in LDCs to be found in arid areas where crop yields would be low at best and, as with goats, often on land too rough or rocky for successful crop production. Beef animals often graze lands marginal to food crop production. Dairy cows tend to compete directly with food crops on the better, rain-fed lands. Broiler chickens, and pond produced fish, when produced under the high conversion ratios listed, require diets of high food values and therefore compete quite directly with humans for food stuffs. (However, application of science to new "pond dynamics" in aquaculture is, in essence, shifting the energy source for fish food production directly to the sun; see below.)

In short, processing feed stuffs through animals as a source of human food is, in its nature, costly and results in higher per calorie cost of human food. And using land for livestock production which could produce human food stuffs reduces total food available for human consumption. Therefore, most of the poorest people cannot afford animal products. They get most of their food directly in the form of plant products.

This undoubtedly has some nutritional advantages, as in minimizing consumption of saturated fats. But this is advantageous largely only to the overfed, richer societies or sections within societies.

Among the poorer people lack of animal foods has, in practice, some serious negative nutritional implications, especially in creating protein deficiencies -- deficiencies in quantities, and more especially in the quality (amino acid balances) of proteins in LDC diets. The consequences are most serious among growing children.

Most cereal grains fall somewhat short of meeting dietary protein requirements of adults and radically short of meeting the protein requirements of growing children. Especially, they are short in one of the essential amino acids, lysine, necessary to child growth. Potatoes, a primary energy source throughout much of the higher altitudes of Latin America (where they originated, the term "Irish potatoes," used to distinguish them from "sweet potatoes," being a misleading misnomer) are better. Cassava,[5] a principal energy source of many of the very poorest people in Africa and some parts of South India and Latin America, is much poorer, supplying only negligible amounts of protein.

A.I.D. had invested substantially in plant breeding research designed to improve the protein values (quantitatively and qualitatively) of cereal grains -- wheat, corn, sorghums, millet. Although this is an ideal way to improve nutritional values of these foods, often almost the sole calorie source among the poorer LDC people, success in this effort has been modest as a whole. This leaves one major stratagem -- improving all aspects of production, through to consumption, of the protein-rich food legumes.

"Food legumes" is a term applied to that very large group of food crops which serve as hosts to bacteria (rhizobia), which live parasitically on plant roots, ordinarily in colonies encased in "nodules." These bacteria are able to take nitrogen, abundant in the air, and place it ("fix" it) in the host plant or eventually in the soil in such a form that the host plant or subsequent crop utilizes the nitrogen for its own growth. (Because of the mutual advantage of this nitrogen fixing arrangement to both the host plant and the bacteria, it is known as "symbiosis.") As nitrogen is a key component of all protein, seeds from these leguminous plants are relatively rich in protein (as are the leaves, which may be used therefore as protein rich animal feed). Thus in many LDCs food legumes -- many genera and species of beans, peas, lentils, peanuts -- are the principal protein concentrate foods: "the meat and milk of the poor people's diets."

The Joint Research Committee, early in its deliberations, concluded that a high priority need existed for a CRSP in the food legumes. ICRISAT in India was devoting considerable attention to some food legume crops, and substantial amounts of research were being carried out on selected legumes in various LDC institutions. But those efforts were piece-meal; a systematic, collaborative effort was needed to collate this work into an organized, cohesive attack --as protein deficiency, especially among growing children, was clearly one of the great nutritional and health problems among the poor of many LDCs.

Relatively little progress was being made in LDC food legume production. In fact, there seemed to be considerable evidence that the great progress in wheat and rice producing technologies was causing many farmers in several developing countries to shift their land and other resources into wheat and rice production at the expense of food legumes, so that total food legume production was going down.

The JRC, however, was confronted with serious questions as to how to attack the problem: especially, whether to attempt basic research on issues in common for all food legumes, or to concentrate on a broader range of constraints on production of a few important food legume crops.

It decided on the latter. It applauded strongly A.I.D.'s other research work on legumes, including its concurrent effort to improve the general efficiency of the rhizobian/legume nitrogen-fixing relationships. The, project, it felt, would provide findings and leads useful to the CRSP and other research work on specific LDC-grown food legumes.

With the decision to concentrate the CRSP on a few specific crops, the questions remained: Which crops? And how, and where, to conduct the research?

The JRC decided, first, not to include either peanuts or soy beans in the general CRSP. Although both peanut meal and soy meal were potentially important sources of protein for human consumption, both crops were produced in LDCs primarily as sources of vegetable oil. A separate CRSP was recommended for peanuts. And augmentation of A.I.D.'s several years' old soy bean research program with the University of Illinois was also recommended. It was decided that the "food legumes" CRSP should concentrate on two crops: ordinary beans, the staple food legume of Latin America; and, "cow peas," a favorite food legume in much of Asia and Africa. These were two distinct genera, different crops with different problems needing research, but having, also, much in common.

A gratuitous advantage of all legumes, including food legumes, was that they fixed atmospheric nitrogen in the soil for crop growth, thus reducing the need for nitrogen fertilizer, usually the most deficient and the most costly of the three major soil fertility supplements required by LDC agriculture.

The JRC recommended that a planning grant be made to Michigan State University to develop a CRSP project on "beans and cowpeas." This resulted in preparation of a research matrix identifying the many "knowns" and the greater number still of "unknowns" in this broad area, with a design for an organized research attack. This recommendation was accepted by BIFAD and by A.I.D.. In September 1980, a grant was made to Michigan State University to serve as management entity of the Food Legumes (Beans and Cowpeas) Collaborative Research Support Program.[6]

Inasmuch as the protein deficiency problem is much more serious among children than adults, food preparation, distribution and consumption practices within the family are often as important as food production practices in use of food legumes for achieving improved child nutrition. The JRC felt that the program should, therefore, have a major cultural anthropology component. This attitude was reinforced by the fact that food legume production in LDCs is often closely tied to table vegetable production, largely done by women. As the program unfolded, this feature became increasingly emphasized -- to the point where a cultural anthropologist became the program manager, although the bulk of the total program activity remained focused largely on technical problems of production and storage.

The Effects of Marginal Human Nutrition

Human nutrition was specifically included within the provision of Title XII. The Joint Research Committee (JRC) was keenly interested in including a CRSP in this subject area if a very important problem area could be identified which was suited to this approach. Such a problem came

immediately to JRC attention. This was the need to have, for LDC policy making purposes, much better information, tested on a broad basis for general LDC applicability, on the general effects on LDC people of sustained marginal malnutrition.

Considerable information was available to LDC policy makers on the effects of acute nutritional deficiencies: vitamin A deficiencies, iron deficiencies, calcium deficiencies, and protein deficiencies (in quantity and quality) had received much research attention. This research had pointed quite clearly to the health and productivity deficiency implications which provided valuable tools for LDC policy makers and to the U.S. specialists who advised them.

But nutritionists had, at that time, developed a serious concern over the broader malnutrition problem: the health and productivity implications of the fact that millions of LDC persons chronically have too little to eat, or suffer severe undernutrition for long periods during the long droughts, or other natural catastrophes, which frequently affect large areas of the earth.

Undernutrition, when it is sufficiently acute as during the recent, terrible African famines, or the Asian famines three decades earlier, are very conspicuous and their policy implications fairly straightforward. But nutritionists felt, quite generally, that "marginal" malnutrition (short of starvation, but short, also, of adequate food intake) was pervasive in LDCs, and had serious consequences for the health, longevity, and productivity of their people. Such consequences, although very costly in both human and development terms, were inconspicuous and therefore escaped policy makers' attention. However, the research basis was inadequate even to establish, much less to measure, this fact. Unmeasured and unquantified, these consequences of chronic, marginal malnutrition were not easily caught up in the cost-benefit type analysis so demanded by national budget makers and program planners.

Because the problem was important, required a broad-scale, multinational attack, and required, also, a high level of scientific and analytic competence input from several U.S. and LDC research institutions, it was represented as a high-priority subject area for a CRSP.

It, however, presented a special kind of institutional problem. As with many nutritional problems, the subject embraced food, agricultural, health and medical dimensions. U.S. talents for the work resided in both agricultural and medical colleges but potential U.S. university budgetary support seemed unlikely because of the less clear relevance to U.S. applicability. However, the U.S. nutritional scientific community was extremely interested and supportive of the study. Unfortunately, even today many American people, especially children, are marginally undernourished, for either economic or social reasons. For them, as for LDC people, better knowledge of the consequences of this chronic undernourishment is needed as a basis for national and local policy and programs.

Because their funding structure differed from the state agricultural colleges, the participating medical schools, it was feared, could not contribute sufficiently to meet the CRSP requirement. However, the CRSP guidelines provided that all participating universities could, in effect, pool their contributions to meet the minimum 25% of total costs. In fact, the guidelines provided for a waiver of this entire shared-contribution provision "in exceptional cases." As it turned out, the 25% minimum contribution has been met for this CRSP by the collective contributions of participating U.S. universities.

By its nature, the problem required data-gathering on quantities and types of food intake and, for the same persons, on several measures of the effects of the various levels of nutrition. After some exploration, it was agreed that the work would be done in three LDCs: Egypt, Kenya and Mexico. All data were to be fitted into a uniform analytical model to permit cross country comparisons and development of generalizable conclusions.

Original planning was done under a grant to the University of California at Berkeley. This same university was subsequently selected and funded as the management entity. Other U.S. universities participating in a major way were Purdue University, the University of Arizona, the University of Connecticut, and the University of California, Los Angeles.

The Peanut Program

I asked, 'Dear Mr. Creator, please tell me what the Universe was made for?'

The Great Creator answered, 'You want to know too much for that little mind of yours. Ask something more your size.'

So then I asked, 'Please, Creator, will you tell me why the peanut was made?'

'That's better, but even then it's infinite. What do you want to know about the peanut?'

'Mr. Creator, can I make milk out of the peanut?'

'What kind of milk do you want? Good Jersey milk or just plain boarding-house milk?'

'Good Jersey milk.'

And then the Great Creator taught me how to take the peanut apart and put it together again.

—George Washington Carver, circa 1916.[7]

The great, gentle biochemist, Dr. George Washington Carver of Tuskegee Institute (now Tuskegee University), did indeed succeed in making "good Jersey milk" from the peanut. He succeeded, also, in making some 350 products, of varying degrees of usefulness, from the fats and oils, the gums and resins, the carbohydrates and proteins and other organic compounds in the peanut. He also assembled some 150 kitchen recipes for household use of peanuts as food. And, he published a long list of the special values of peanuts as a farm crop, including the usefulness of both the peanuts and vines as animal feed and the values of the peanut crop as a leguminous nitrogen-fixer for "enriching the soil."

By the time the Joint Research Committee (JRC) was establishing priorities to recommend to A.I.D. on topics for CRSP research, peanuts had long since become as ubiquitous in geographic distribution as in their multitudinous uses. Originating in South America, the crop had migrated (probably largely by way of North America) to countries throughout Asia, Africa, Central America and the Caribbean, as well as throughout its native South America.

India and China dominated the world in total area planted in peanuts, followed by Sudan Senegal and the United States. Total world area planted in peanuts in 1979 was estimated by the U.S Department of Agriculture at about 18.5 million hectares (45.7 million acres), of which India accounted for about 7.3 million and China about 2.5 million hectares. In total tonnage harvested however, India and China ranked first and second, but both Sudan and Senegal ranked behind the United States. This, of course, reflected differences in yield levels -- in which the U.S. far outstripped all other countries.

Peanut Production, World and Key Countries, 1979

	Area (Hectares) (000)	Production (Metric Tons) (000)	Yield (MT./Hectare)
World Total:	18,659	18,437	.99
Key Countries:			
India	7275	5700	.78
China	2525	2638	1.04
Sudan	980	1100	1.12
Senegal	975	958	.98
USA	617	1804	2.92

These gross variations in yields -- with the LDCs averaging about one-third that of the United States -- coupled with the lack of major, organized world research attention to peanuts as grown under LDC conditions, was one of the major reasons for the JRC recommending a CRSP on peanuts. There were others! The situations confronting LDC peanut production, and especially the transference of U.S. technology to it, were very complex. So, it was recognized, must be the research attack by which these gaps could be bridged.

For one thing, the crop is, in general, put to different types of uses in the LDCs than in the United States. Here it is produced primarily for direct consumption as a "confection" - i.e., as shelled or whole peanuts, as peanut butter (which alone accounts for 60% of all U.S. peanut consumption) or in candies, sweet rolls and the like. In most LDCs peanuts are grown primarily as a source of vegetable oil. In India, for example, only 5% of the peanuts (in 1979) were exported; the remaining 95% were consumed within the country. Of this, only 1.5% were consumed as nuts or in other "confectional" forms; the rest was used as vegetable oil. This pattern exists quite broadly throughout the less developed countries.

In spite of the large quantity, and relatively high basic nutritive quality, of the protein rich peanut meal or peanut cake left as a by-product of oil extraction, relatively little use has normally been made of it in LDCs as a human food (or even, in some places, as animal feed). It often ends up only as an organic fertilizer.

This appears a hideously wasteful use of this product in light of the extreme protein deficiencies in the diets of many children in those same localities.

It may, however, represent the accumulated if unarticulated wisdom coming from generations of experience with the product. Peanuts have a strong propensity to play host to activity of the fungi which produce what is known as micotoxins; of these, the "aflotoxins" are especially dangerous, no

only for their toxicity to humans but, as has been established, because they serve as carcinogens. This problem exists in LDCs with other food grains also, especially when stored under too humid conditions, but is especially prevalent in peanuts, presumably due in part to their high oil content and other characteristics affecting their receptability to the fungus infection. This unmeasured but, no doubt, significant cause of cancer among, especially, rural populations of the peanut-growing less developed countries has obviously put a damper on their enthusiasm for peanut meal, or for that matter for peanuts themselves as a food source -- whatever their nutritive values.

Also, because the plant is a legume it is an important supplier of nitrogen for its own growth, minimizing fertilization costs; but only if, through well organized research, good combinations of peanut varities and nitrogen-fixing rhizobia bacteria can be developed. This requires organized research under LDC conditions, involving several different sites, and countries.

Finally, there were several U.S. universities which had undertaken a considerable domestic research program because of the importance of the crop to their own states. These universities were desirous of financially supporting the formation of research linkups with LDC institutions and scientists because of the opportunities such linkages presented for more powerful attacks on problems facing the peanut crop and industry in the United States. Of these, Georgia was clearly a leader, reflecting the importance of peanuts in the state's agriculture.

With rich insights into the need for a peanut CRSP, and the many problems over the entire range from production, through processing, to consumption which needed attention, the JRC recommended that a planning contract be signed with the University of Georgia. This resulted in a report, on November 17, 1981, which was formally submitted in revised form in March 1982.

Following quite closely the recommendations of this report, A.I.D. entered into a contract with the University of Georgia as management entity of the CRSP in July 1982. The research was to be carried out by four U.S. universities: Alabama A&M, Texas A&M, North Carolina State and, as indicated, the University of Georgia as management entity. The management entity was supported in its role by a board of directors, a technical committee, and an external evaluation panel. This latter has, over the years, been constituted of eminent experts from institutions not directly participating in the CRSP and has included representation from non-U.S. institutions. All three of these bodies have served extremely well to strengthen the performance of the CRSP.

The CRSP goal has, from the beginning, been a guided effort focused on a mobilization of world research resources to:

1. Develop and expand the research base and technological capability in both the U.S. and host countries for peanut research and development.

2. Organize the resources of both developing country and U.S. research institutions into a long term collaborative research program to relieve constraints to peanut production and utilization.

The CRSP is carrying out the bulk of its work in three major world areas, as follows:

Semi-arid tropical Africa -- Senegal, Burkina Faso, Niger, Nigeria, Sudan.

South East Asia -- The Philippines, Thailand.

Caribbean -- Trinidad, Jamaica, Belize, Antigua, St. Vincents, St. Kitts.

Several additional arrangements for collaboration with other countries, including several in Europe, and especially ICRISAT, the International Agricultural Research center located in Central India, broaden the structure of inputs and collaboration of peanut researchers worldwide.

The CRSP has at this writing undergone five major evaluations by the external evaluation panel. In general the findings have been very favorable. The CRSP has, from the beginning, been well conceptualized, well managed, well led technically and is producing results at an acceptable rate. Especially, it has kept its focus steadfastly. Limitations of funding have, of course, prevented following up many enticing leads on a wide array of subjects; but, by virtue of the management and evaluation system, the basic problems are kept firmly in their proper priority setting. This formulation of its goals led to identification and adoption of more specific objectives which were held in common for all activities, relating largely to means and substance of collaboration among LDC and U. S. scientists and institutions. It led, also, to identification of a list of priority assigned "constraints" all along the path through all phases of production, storing, processing and ultimate utilization and consumption -- for all major uses and by-products of the peanuts.

Research was then organized by teams of U.S. and LDC experts, selected for their specific competence and interest with respect to the "constraint" to which they were assigned. Work was done at whatever combination of U.S., LDC or international research institution provided the optimum, feasible opportunities for the research in question. Feedback to the U.S. peanut industry should be a substantial, secondary benefit -- especially important in view of the increasing U.S. interest in the special health values of the mono-unsaturated oils (peanut and olive).

The most troubling concern is the lack of staff stability in some of the cooperating LDC institutions. As LDC scientists become well known through their scientific work they are frequently drawn off into, doubtless better paying but less important, jobs in government or private employment. This sub-optimum use of this scarce and extremely valuable resource is a problem throughout the development process. Perhaps an examination by these countries of the Indian experience, where it has been reasonably well managed, would be useful. In fact, there appears to be considerable variation among countries cooperating in the CRSP itself. This should be examined within the CRSP and efforts made to reduce it for future years. In any event, it is a problem which benefits by recognition of its cost to development and by careful preplanning to minimize its prevalence. This problem can, in varying degrees, be conquered through time. It is a concomitant of development and, in fact, the CRSP offers an excellent mechanism for conquering it.

Especially needed is an expansion of the opportunity for participant training as part of the CRSP -- which is, of course, possible only if, and to the extent that, this extremely worthwhile program itself is sustained and expanded.

Reviews made by external evaluators are very complimentary to the CRSP. Their reviews have lead to several recommendations which, after careful examination, have been accepted by the CRSP managers. These should improve project performance. Some have been technical in origin; most deal with how best to allocate sharply limited resources among an array of worthy alternative uses.

The cluster of activities concerned with increasing crop productivity -- through identification, selection and testing of several improved breeding lines (cultivars) of peanuts, and similar activities to

improve nitrogen-fixing performance through selection of better rhizobia lines and matching them with improved peanut cultivars -- is on target and proceeding well in several countries of differing ecological types.

Sharp focus is maintained on the microtoxins, especially aflatoxin, problem, focusing largely on prevention of contamination. One major project headed by Texas A&M University concentrates on this issue, but it is an important secondary objective of several. Since the problem is importantly a function of weather conditions, the CRSP is wisely examining it in several ecological settings, ranging from arid to highly humid conditions.

The question of degree of emphasis on basic as distinct from applied dimensions of many of the problems under investigation is a topic of some difference of view between the project scientists and the evaluators. The evaluation group tends to recommend relatively more emphasis at the application end, and less basic science emphasis, than do the various CRSP scientific teams. Probably the sharp intellectual joining of these issues now taking place is of more positive significance than is the actual final outcome of the decisions in the matter, as it forces an integration -- rather than separation -- of the basic and applied dimensions of the investigations.

Certainly, the basic research should not be unduly restricted, nor should it be carried on out of context with adaptation to applied use. Containing the basic research within a program framework which continuously subjects it to experiential, as well as experimental, testing is the sure means of providing it with the greatest ultimate discipline and also of assuring the relevance and usefulness of its results. This is the ultimate purpose and advantage of the CRSP type research approach.

Also, there is some uncertainty -- given present and foreseeable shortage of funds -- as to how far the CRSP should pursue the processing, storage, marketing and consumption dimensions of its overall plan and purpose. As indicated, progress on the production side seems more rapid and more assured than on these topics. On the other hand, the CRSP will fall sadly short of its potential should the problems lying between the production and the ultimate human consumption or use of the peanuts be overlooked. Certainly the program must, if at all possible, continue to include those aspects of the entire LDC peanut industry bearing strategically upon the usability and safety of its products and principal by-products.

The peanut will probably never reach the exalted state predicted for it by Henry Ford -- who foresaw the entire automobile eventually coming from "chemurgy," most of it from the peanut. But it can be an increasingly important, safe part of the diet of many LDCs, greatly helping to offset protein deficiencies in their diets. Also, it may help reduce foreign exchange deficiencies of some LDCs, resulting from consumer disaffection, for health reasons, among western importing countries for the "tropical vegetable oils" -- palm oil and coconut oil. Peanut oil shares with olive oil the value of being a "mono-unsaturated" fat -- believed now to help support levels of the valued "high-density lipids" needed in conjunction with use of polyunsaturated fats to offset high levels of "low density lipids," (cholesterols).

This CRSP, as are the others, is representative of the enormous benefits that accrue from the right kinds of U.S. investments in development assistance. Its results of economic benefits to both LDCs and the U.S. peanut industries have begun to flow in and will grow greatly if the CRSP can be sustained at an adequate level. It represents the best kind of the research and development approach

to foreign aid, one that ties U.S. and less developed country professionals together in a free, open an cooperative effort effectively committed to the worldwide betterment of the human condition.

Management of LDC Tropical Soils (TropSoils)

> The review of the TropSoils CRSP has been revealing, reassuring and gratifying. The unheralded, enormous potential contributions of the participating universities and their host country collaborators came to the fore with startling impact. Results to date indicate that CRSP-produced knowledge and technologies, current and prospective, offer the potential for changing the course of development in the high-rainfall tropics, improving the odds in the semi-arid tropics, and producing inestimable conservation and environmental benefits. The performance of the CRSP is a reassuring, gratifying confirmation of the CRSP concept.[8]

Thus is summarized the findings of the team requested to make a total review of th management, outputs and potentials of this CRSP, some seven years after its initiation. Though th words are those of the report's authors, the consensus it expresses is that of a very much larger grou of soils specialists and other agricultural experts who participated in one way or another in tha review.

"Under everything in life are the soils," is an oft-stated thesis by soils scientists. It is more however, than a statement of a spatial relationship. It is a statement of the dependency of huma existence upon the productivity and, increasingly, upon the management of the soils which produc the food for man and animal alike.

The countries which A.I.D. has assisted have all, to some degree, studied their soils problems made soils surveys, classifications and maps of soils, based largely upon their geological derivations studied responses to fertilizers of various soils so classified and mapped; studied the chemica properties and the changes responsive to various treatments and mistreatment of their soils; teste soil samples to diagnose and prescribe, for farmers, the fertilization treatments needed; studied th erosion of their soils by water and wind, its effects and how to deter it. Before this CRSP progran began, A.I.D. had, itself, invested appreciably in soil research in the LDCs, both within individua countries and on a cross-country basis, in an attempt to get information which was generalizable an therefore usable under an array of differing circumstances.

For therein lay the principal problems. Soils, and the proper prescriptions for their effectiv management, vary greatly from place to place--not only from one country to another, but from a hillto or hillside to the valley at its foot. The problem facing any advisory process on soils management i that of obtaining sound conclusions, both precise enough and yet generalizable enough to be useful fo broad advisory use--and for the development of sound national policies and institutional resources t maintain, or expand, the productivity of the countries' soils. There also lies a deeper problem: Unles properly managed, once opened to agricultural use, most soils deteriorate, sometimes almos irreversibly except at enormous costs. And this deterioration is augmented by the combinations o

heat and water in the hot humid climates, or of heat and wind in the semi-arid lands -- in short, in the tropics, where are to be found most of the LDCs' less developed countries.

Most serious of all: as populations increase, the pressure for space upon which to produce food causes expansion onto the ever-more fragile lands, the forests, the mountains and steep hillsides, the arid semi-deserts. For example, "it is estimated that worldwide at least seven million hectares (17.3 million acres) of tropical forests are cleared annually."[9] Some of this is done for the value of the forest products; but most of it is done primarily to make room for food crop production. Demands for food cause increased domestic animal grazing in the forests, killing off young trees and driving out wildlife. And it causes ever heavier grazing of the semi-arid grass lands, leaving less and less plant foliage, exposing plant roots, and leaving the soils to the predations of wind erosion. Concern for increasing and maintaining the productivity of the better and the poorer soils alike, so that growing populations may be adequately fed without destroying the very base of their future existence, portending ecological degradation, was one of the factors which caused BIFAD's Joint Research Committee (JRC) to recommend a CRSP on soil management. The need was clear and the potentialities were impressive. A concept of what needed to be done emerged. We shall allow the then Chairman of the JRC to recall this in his own words.[10]

> In 1977, when the collaborative Research Support Program was being created by USAID and BIFAD (JRC), there was an intensive effort to prioritize among many agricultural research opportunities. At that time many individuals, both within the Agency and within the university community, pointed out that deforestation and soil erosion were becoming a serious problem in many developing communities. Something had to be done to show U.S. concern regarding this problem, which in more recent times has been designated as 'agricultural sustainability.'
>
> It was agreed the focus of the CRSP should be on soil management in specific ecosystems, such as tropical rain forest, savanna and steep lands. Given the population pressures in countries such as Haiti, Peru, India and Nigeria it seemed prudent to accept the fact that these fragile lands will be utilized for food and fiber production, if only for sustainability of the family. We were confident that several of our U.S. universities such as Cornell, North Carolina State, Wisconsin and Florida had sufficient experience working on soil problems in these ecosystems that demonstrated their ability and interest in developing effective soil management strategies for the future.
>
> It was also stated that research on such soil problems in the developing countries would be of benefit in the U.S. Farming systems that are compatible with long-term sustainability of the soil resource and with adequate economic return to the farmer have not been easy to develop anywhere.

North Carolina State University was selected--and agreed upon by all participating U.S. universities--to serve as management entity for the soils management CRSP. Upon recommendation by BIFAD, A.I.D. signed the contract with North Carolina State on September 25, 1981.

The other U.S. universities to participate in the CRSP, under sub-grants from North Carolina State, were selected. Visitations abroad, consultation with A.I.D. missions and host governments, and consideration of technical, ecological, and historical factors resulted in a match-up of U.S. universities with host country research organizations in the three ecological zones chosen for study: the humid tropics, the semi-arid tropics and the acid savannas. Planned research for the steep lands was not originated for lack of funds but these lands remain an ecological type commanding concern, as they are

often relatively fertile, highly used and prone to both gully and sheet erosion by water. A U.S. research team is located in each cooperating country, working with local scientists as counterparts.

The match-up of U.S. universities with ecological zones, host countries and local institutions--and current arrangements with some A.I.D. missions--are described briefly in the Review Report.[11]

Agroecological Zone	Cooperating Nation	U.S. University
Humid Tropics	Peru Indonesia	North Carolina State University University of Hawaii
Semiarid Tropics	Niger Mali	Texas A&M University & Texas Agricultural Experiment Station
Acid Savannas	Brazil	Cornell University

Memorandums of Understanding (MOUs) and collaborative research activities are in operation between the CRSP and the following institutions and nations:

- Peru -- Instituto Nacional de Investigacion Agraria Agroindustiral (INIAA)
- Brazil -- Empresa Brasileira de Pesquisa Agropecuaria (EMBRAPA)
- Niger -- Institut National de Recherches Agronomiques du Niger (INRAN)
- Mali -- Institut de Economie Rurale (IER)
- Indonesia -- Center for Soils Research (CSR)

Memorandums of Understanding are in force and up to date in each of the countries. The soils management CRSP is a component of U.S.A.I.D. country mission research programs; thus, there is generally timely review and updating of MOUs. Under the MOUs, U.S. university and host country personnel are working together at all locations and worksites. Research operations are being carried out in a truly collaborative mode as envisioned and intended. Annual work plans are developed jointly. Such plans serve as blueprints for collaborative activities and the bases for preparation of annual budgets.[12]

As the CRSP is rapidly acquiring new technical knowledge and managerial insights on proper management of tropical soils in the selected ecological zones, the management of the overall process of testing its results, and of other forms of participation by other countries in their zones but not now participating, presses hard on the CRSP management. These LDCs, and U.S. A.I.D. missions in them, are indicating interest in getting involved in the CRSP. They need its results to use in their immediate development programs. At long last, reversal of the process of ecological destruction is coming within reach, if sufficient resources can be mobilized for the effort. These resources can come from many sources and can be applied through many channels. Everything that contributes significantly to efficiency of food production on tropical lands contributes to making ecological restoration possible. But a key and essential component is the proper management of the soils to increase their yearly productivity while maintaining their potential for production in future years.

For this, maintaining and expanding the soils management CRSP is vital. The margins are narrow, the risks are high and the time is short.

Again, the review team states the matter well. After listing several examples of requests by countries "to help accelerate the adoption of CRSP-generated technologies," and recommending some important management adjustments within the CRSP, the team report comments as follows:

> After seven years, the CRSP appears to be well-positioned and poised to contribute importantly in helping to achieve sustainable, productive, economic food and pasture systems for the tropics . . . . The CRSP, through its participating universities and host country collaborators is now positioned, poised and ready to help step-up the pace of development in the tropics. Currently constrained by lack of adequate resources for expansion of programs, serious consideration should be given to seeking funds from the Congress and other sources to support a much broader program to address the massive needs of the environment, natural resources and sustainable agriculture. Means are needed to create greater, more intense efforts at prime sites and to initiate activities at connected, secondary sites, so as to accelerate the generation and spread of knowledge and technologies. The matter is urgent. For many clients and situations, tomorrow may be too late.[13]

Well stated. And true. With CRSPs such as these, and with the International Agricultural Research Centers pouring their outputs of generalizable scientific knowledge into the LDC agricultural universities and other educational research capabilities built and being built around the world through the cooperation of U.S. universities, A.I.D. can in a marvelously expanding way achieve the elimination of hunger, expand the basis for industrial growth and save the ecologies of the less developed countries of the world. It takes both imagination and perseverance. But how much better than a contest of arms--an every-present danger when hope disappears-- where there are no winners, and losers lose so very much indeed.

Helping poor countries to solve their most serious problems is so much more successful than efforts to try to force them to accept those problems, or believe they don't exist. And it is so much less expensive.[14]

Fisheries and Aquaculture

> Give a man a fish and he eats well that night. Teach him how to fish and he eats well forever.[15]

During its evolution into Title XII of the Foreign Assistance Act, the Findley Bill was amended by Congress specifically to include fisheries and aquaculture within its terms of reference, and to make the so-called "Sea Grant" Colleges and universities "eligible" to participate in its programs. Although these provisions did not specify any particular action, they did clearly indicate Congressional intent that aquatic animals should not be overlooked as a component of A.I.D.'s attack on "famine prevention and freedom from hunger."

This injunction corresponded with Administrator Daniel Parker's interest - especially in aquaculture. He often commented reflectively on the significance of the fact that whereas the domestication of land plants and animals had begun in the ancient ages of pre-history and marked the

earliest beginnings of civilization, the domestication for human uses of aquatic animals and the aquatic plants upon which they feed is in its infancy. Even more importantly, as he saw it, on a worldwide basis modern scientific approaches, which have so revolutionized agricultural production, have been applied to production of aquatic plants and animals only in a minor way and, with a few exceptions, only very recently - - this in spite of the rather spectacular achievements where scientific approaches have been so applied.

This, he further believed, reflects a general attitude that fish are a "free good" -- like water and air -- produced freely by nature to be harvested at will. These interests of the Administrator had been communicated to the Joint Research Committee (JRC) and to its precursor joint work group which had designed the outlines of the Collaborative Research Support Program.

Aware as it was of the Congressional and A.I.D. executive level interest, the Joint Research Committee was aware of an even more important fact as it went about setting its CRSP priorities. Fish and other aquatic animals are an extremely important part of the world's food supply as a whole, and specifically of the LDCs - - far more important than is probably generally appreciated by most Americans. Annual world tonnage of fish catch (including aquacultural production) exceeds world production of beef and poultry combined. In the less developed countries, fish provide from one-third to one-half of their total animal protein consumption.[18] An important additional factor was the concern of A.I.D. and Congress with protein deficiencies in many LDCs, especially as it affected physical and mental development of children. Another was the awakening U.S. public awareness of the dietary values of fish, coupled with increasing concern over possibilities that given current fish capture rates, natural fish harvesting might well be approaching non-sustainable levels.

The Joint Research Committee quickly concluded that a CRSP was desirable in the fisheries-aquaculture subject field. With A.I.D.'s help, several meetings and one major conference established the fact that the other criteria were also met for initiating a CRSP: feasibility, adequate U.S. university interest and capability, and significant feedback potential to the United States.

The question was: On what issues within the very broad fields of fisheries and aquaculture should the CRSPs focus? Should they concentrate exclusively on ocean fisheries or on aquaculture? The U.S. Sea Grant Universities worked on both. And both have great potential significance to the less developed countries: as a source of improved nutrition and as a source of foreign exchange for national development.

A.I.D. had involved itself early -- in the 1950s -- with helping LDCs do a better job of fish capture, primarily from the adjacent ocean shelves. This work had focused largely on improved fishing methods, and on boats, tackle, and other equipment. These efforts had met with very limited success.

But in more recent years A.I.D.'s attention had shifted toward aquaculture, i.e., the cultivation of fish in man-made ponds and other structures. The reasons were straightforward.

First, it appeared from literature and experience that the available supplies of "wild" fish, especially of the more desired species, were about fully exploited; helping one country do a better (i.e., larger) job of fish catching would merely reduce fish supplies for other countries (including our own).

Second, many of the LDC areas where increased supplies of fish are most needed for nutritional purposes are too far removed from coastal areas to benefit much from increased sea and ocean fishing.

The extremely poor people, who are the targets of A.I.D. programs, cannot afford the transportation, refrigeration or processing costs necessary to bring ocean fish to them (in edible condition)if they live several hundred miles from seacoasts. In consequence, fish consumption in LDCs is largely concentrated rather close to seacoasts and other large bodies of water, leaving inland areas very deficient in this excellent source of protein and minerals. Therefore, aquaculture, including fish production management not only in man-made ponds but also in natural inland lakes and streams, was, and should be, of more direct concern to A.I.D.

On the other hand, ocean and especially coastal fishing is the dominant source of total fish supplies in the less developed countries (and in the world as a whole). Modest percentage gains in total ocean fish catch would have greater impact on total fish consumption than would even a very large percentage gain in all forms of pond aquaculture and inland waters fish production.

This led to the sensible conclusion that, rather than choosing between aquaculture and fisheries, the CRSP might best target on the one or two topics within each field, selected to be strategic to the general field, which lent itself especially well to the CRSP mode of attack. This resulted in identification of two CRSPs, one in fisheries, one in aquaculture, each of which focuses on systems analyses to improve upon research methodologies in general use. Although extremely limited for funds, both of these CRSPs have made excellent progress during their first three years. For fisheries, the topic selected was "Fisheries Stock Assessment," for aquaculture the topic was "Pond Dynamics."

1. Fisheries Stock Assessment

In spite of its title, this CRSP "is not itself engaged in stock assessment, rather it is engaged in developing new methodologies for stock assessment."[17]

Best estimates are that potential world fish catch from conventional methods and sources are in the magnitude of 100-million metric tons per year. However, this potential can be achieved only if each species, in each locality, is harvested in proper quantities and at the proper time. Under-harvesting of certain species or of certain areas,[18] and over-harvesting of others, each has the effect of reducing total production.[19] At present, world fish catch approximates 75-million metric tons, and most experts believe that this harvesting rate is above sustainable levels unless it can be better balanced among the different species, localities and times of harvest. Even at these high rates, certain species are underharvested to optimize total productivity.

To achieve a better balance of harvesting to supply it is necessary to have more accurate, efficient and more readily aggregatable assessments of fish stock availabilities -- so that future harvesting plans of LDCs and more developed countries alike can rationalize their harvesting plans to the realities of fish stock availabilities.

Much has been done by many countries and with many species to assess fish stock availabilities. What is needed, and what this CRSP intends to do is to assess the different methodologies, and to evolve through interaction among experts at several locations readily adaptable and generalizable analytic models, both to render the analyses by individual countries more accurate and useful for their own application and to provide for better coordination of data and, hence, planning among countries.

The University of Maryland-College Park is the CRSP management entity. The University of Washington, the University of Rhode Island, the University of Costa Rica and the University of the

Philippines are the other principal participating institutions. Altogether, a total of 60 scientists and a dozen research institutions in five countries are engaged in the project.

The essentialities of fish management in open waters are those of managing fish stocks to achieve maximum total production, adjusted for consumer preferences among different species. Old methodologies of stock management, and of stock assessment as key to that management, are inadequate. "The application of standard approaches to fisheries management has not materially extended stock assessment knowledge in recent years and new methods....are needed."[20] The CRSP appears to be moving well toward genuine improvements in these stock assessment, and hence, stock management methods. It is essential that this progress be maintained. Fish provide from one-third to one-half of total LDC animal protein consumption. Most of this is from relatively small scale, family-based fishing operations.

This project is aimed at combined use of highly sophisticated analytic methods with the production of information in forms that will result in very useable, practical handbooks and other documents that can be readily used by policy makers and fisheries managers everywhere.

The output of the collaborating scientists thus far has been very high and of excellent quality. Best of all, results are being synthesized, as they arrive, into generalizable forms. The only shortcomings have been as a result of the slow reduction of funds available to the program. It is devoutly to be hoped that perhaps in part through more contributions by A.I.D. field mission programs -- and perhaps from other donor entities including the LDCs themselves -- this CRSP and the associated activities it has motivated may be more adequately funded. It is extremely important, however, that its original sharp focus on objective not be sacrificed to accommodate desires of possible additional funding sources.

Improved technology of fisheries management would appear to be on the threshold of breakthroughs of enormous economic significance (as is certainly true of aquaculture). It is clearly an area historically neglected by all development agencies, including A.I.D. Continuation and slow expansion of this CRSP may well do for this subject what the international research centers and concomitant efforts by a large group of LDC universities and governmental agencies have done for wheat and rice production -- without which severe hunger and the frustration and desperation it creates would have become the central ingredient in present U.S. relationships with many developing countries.

2. Aquaculture: Pond Dynamics

Extremely high production rates per acre, and per pound of feed, have been obtained in many places by growing fish in manmade ponds. In fact, yields per acre, and conversion rates of feed into fish flesh, have been spectacular. Especially noteworthy have been the experiences with catfish production by Auburn University's International Aquaculture Center.[21] Outstanding results have been achieved also with tilapia in Africa, and Asia, and for centuries with carp in China. With the passage of the Sea Grant legislation, several other U.S. universities have undertaken major aquacultural research and development work. Several developing countries have also initiated significant aquacultural research and development efforts.[22] These efforts are very much on the increase.

However, aquaculture embraces a very large number of technical interrelationships which vary from location to location. These include variations in fish (or other aquatic animal) species, aquatic plant species for fish feed, temperature, water chemistry, available fish feedstuffs, and a host of other factors. Professional research work ranges from genetics and breeding of the animals, and of the macroscopic and microscopic plants used as feedstuffs, fish physiology, plant fertilization, experiments with fish feeding regimens, species mixes, anti-leeching pond-building techniques, sex and reproduction control of fish stock and a host of other technical considerations.

Because of these many variables -- and the maze of interrelationships among them -- generalizability of research conclusions from place to place has been difficult to achieve. Production systems worked out to achieve extremely good results in one location may prove highly disappointing when attempted at another - - or when, for economic or other reasons, a change in one or more factors (such as source of feedstuffs) is introduced. As long as this obtains, the spread of modern aquacultural production is inhibited by the unpredictability of results -- even when the best known and accepted sets of recommended practices are applied.

The Joint Research Committee (JRC) agreed that a CRSP should be established to get at this problem in a basic way, by establishing a network of research efforts in several locations, tightly designed so as to provide, ultimately, the means by which aquacultural investigators or practitioners in any location can readily identify and deal with the specific causes for variations or departures of their individual cases from the norms established through successful experience elsewhere.

This conceptualization of approaches was designated as "pond dynamics." It was hoped that this title would convey the objective of achieving fundamental, systematized, generalizable information of all the major elements of successful fish production in aquacultural ponds.

After approval of the JRC recommendation by the BIFAD and by A.I.D., the "Aquaculture/Pond Dynamics" CRSP was initiated on September 1, 1982 by an A.I.D. grant to Oregon State University, the institution chosen by all participating U.S. universities to serve as management entity of the CRSP. "The U.S. institutions participating in the CRSP are Auburn University, the University of California at Davis, and the Consortium for International Fisheries and Aquaculture Development (CIFAD) (which) includes the University of Arkansas at Pine Bluff, the University of Hawaii, the University of Michigan, Michigan State University and Oregon State University."[23]

"From 1982 to 1987 CRSP projects involved participation of government agencies and educational institutions in six host countries: Honduras,Indonesia, Panama, the Philippines, Rwanda, and Thailand.[24] Funding reductions have required reducing these sites to three: Rwanda, Thailand, and one yet to be selected in Latin America.

"In the course of the planning it became apparent that there are two important aspects of improving the efficiency of pond culture systems. First, there is a need to improve the technological reliability of pond production systems. Second, there is a need for economic optimization consistent with local cultures."[25]

These words establish that the CRSP group early seized upon precisely the purposes A.I.D. had in mind in establishing the CRSP.

The researchers' findings quickly affirmed that practices which have produced high yields in certain locations, sometimes for centuries, when "applied to other ponds, . . . aren't reproducible....that

there are subtle differences regulating productivity from pond to pond, but the nature of this regulation remains obscure." They also early established that "rigorous economic analysis of pond aquaculture systems" is necessary as extremely great variation exists in the costs per pound of output of alternative production systems.[26]

To get at its carefully crafted objectives, the CRSP management designed two closely interwoven sets of research activities. The first involved development of a single global experiment approach, to overcome data communication problems resulting from the lack of standardization in experimental design, data collection and analysis.

With the development, through group effort, of a standard research protocol, a wide range of environmental and production variables were monitored and recorded at seven different locations. Variables observed, frequency of observation and materials and methods were uniform for all locations. These observations were analyzed (again under a standardized protocol) by the research team at each location and then, collectively, by the CRSP "data synthesis team." (These data are filed in a centralized CRSP data base.) Rapidly, what had been essentially discrete observations became a systematic set of generalizable statistical descriptions of technical relationships among principal variables involved in pond fish production.

Simultaneously, a second set of activities was undertaken at the various locations listed. These were specific research investigations on a wide array of issues deemed to be highly important to the specific research sites. These ranged from experiments with prawns (shrimp) in Thailand to experiments with walking catfish in Indonesia; from studies of tilapia pond fertilization with manure in Honduras to comparisons of effects on water quality of organic and inorganic fertilization of fish ponds in Panama; from a study of temperature and other limitations and requirements for tilapia production in Rwanda to experiments with use of bivalves and fish to maintain suitable water quality for the production of shrimp as the primary product in the Philippines.

The unique thing about these projects is that they are all so designed, with the standardized data base system as a basing platform, that all results will fit into a common system of statistical and scientific inferences, so that the findings can be more easily generalized and applied.

The methodological accomplishment in prospect for this CRSP has enormous implications for research reaching far beyond significance for aquaculture. The CRSP has made much progress. It is sincerely to be hoped that in some way funds can be found to continue it at a viable level.

Although participant training was not a direct obligation of the CRSP, by its fifth year a total of 51 graduate student theses had been submitted by students from five of the participating countries, prepared while studying at one of the collaborating U.S. universities.

In virtually all of the participating countries specific activities have been undertaken to upgrade the efficiency of their aquacultural enterprises, using people who have acquired experience working with the CRSP.

The flow of special publications and other documents dealing with specific issues has been very large. More importantly, there is emerging a large body of systematized conclusions which may -- if A.I.D. follow-through can be adequate -- profoundly increase the quantity and both reduce the cost and improve the quality of fish and other aquatic animals on the world's dining table. This program has enormous, as yet unexploited potential. By its design, as these results are expanded and

systematically assembled they become more readily fed back into expanded and improved aquacultural enterprises in the less and more developed countries alike -- including specifically those in the United States. They may, by extrapolation, be extended from pond cultures to application toward increasing the fish productivity of inland streams and lakes. All these applications are necessary to meet the rapidly rising consumer demands for fish and other "sea foods."

By helping meet that rising demand this CRSP should not only contribute mightily to improving human nutrition and economic well being; it should reduce the degradation of the great lakes, seas, and oceans by reducing fishing pressures which, without improved aquaculture, are a certain consequence of world population expansion and income growth.

END NOTES

[1] This principle was subsequently abandoned as it was found in experience that other built-in safeguards obviated this provision, which had other serious disadvantages.

[2] The rapidity and success with which individual LDCs made use of this new scientific knowledge, and translated it into radical food production increases, depended very heavily upon the extent to which the country had developed strong agricultural research, educational and public service institutions. Always, local adaptation, through additional research, and testing on local farmers' fields, was necessary before the new technologies could be put to work. This required a supply of well-trained, local agricultural scientists, local research facilities, and effective institutional ties with local farmers.

[3] However, at least one major dramatic demonstration of the potentialities for millet production had already occurred in the early 1960s. At the writer's recommendation, based on examination of old research on fertilization, a vigorous program of fertilizing "ragi," a local millet, had in three years tripled production of this staple of the poorer people of Karnataka State, India.

[4] We have all seen, at close range on our television sets, the awful human consequences of these semi-arid Africa famines. To the writer, they bring to memory's surface President Harding's haunting characterizations and unanswerable questions about the war just past -- "the inexcusable causes, the incalculable costs...the unutterable sorrows and the ever-impelling questions: How can humanity justify and God forgive? "(In his address to the World Disarmament Conference, Washington, D.C., November 12, 1920.)

[5] The name commonly used in English-speaking Africa. In southern India it is known as "tapioca," in French-speaking Africa as "manioc," or by its genus name "manihot."

[6] By this time, A.I.D. had become persuaded that it was not necessary to exclude "Planning Entities" from further participation in the CRSP it had helped to plan.

[7] Graham and Lipscomb, George Washington Carver: Scientist (New York, New York: Pocket Books, Inc., 1957), p. 122.

[8] Clarence C. Gray, III (Rockefeller Foundation); W.F. Johnson (A.I.D.); John L. Hegland, Administrative Management Collaborative Research Program, October 1988, A.I.D. Report Available from A.I.D., Bureau for Science and Technology.

[9] Gray et al., p. 10.

[10] Dr. Fred Hutchinson, then Vice President for Agriculture of the University of Maine, later Executive Director of the BIFAD Staff, now Vice President for Agricultural Administration, Ohio State University and Chairman of the Board of Directors of CIAT, the International Agricultural Research Center located near Cali, Colombia (himself a soils scientist), by letter to the writer, November 29, 1988.

[11] Gray et al., pp. 8-9.

[12] Gray et al., p. 11.

[13] Gray et al., p. 39.

[14] We should, as did Abraham Lincoln, come to "understand" that "the function of political leadership [by] a democracy is not to impose [our] will, but to help people to decide wisely for themselves." From Benjamin B. Thomas, Abraham Lincoln (New York, New York: Alfred A. Knopf), p. 499.

The interested reader is urged to examine the entire Administrative Management Review cited above. Three other documents published by the Soils Management Collaborative Support Program are worthy of note: Topsoils, Administrative Report, 1981-1986; Topsoils, External Evaluation 1986-1987; Topsoils, External Proposal and Program Plan, 1987-1992 (Raleigh, North Carolina: North Carolina State University).

[15] Ancient Chinese proverb. It needs updating: "Learn how to produce fish, scientifically and efficiently, and the world will eat better."

[16] See, for example, "Oceans and Coasts," World Resources, 1986 (New York, New York: World Resources Institute and International Institute for Environment and Development, 1989).

[17] "Fisheries Stock Assessment," Triennial Review and Continuation Proposal (College Park, Maryland: Office of International Programs, the University of Maryland), p. 2.

[18] As with land animals, where over-grazing vastly reduces total production of both domesticated and wild animals in large areas, especially those of Asia and Africa.

[19] Over-harvesting has, of course, profoundly reduced total production in many areas of fish and other aquatic animals and threatens this food source in many areas of the world.

[20] "Fisheries Stock Assessment," p. 2.

[21] A.I.D. has used the services of the International Center to provide expert technical assistance advisors, to carry out research, and to provide training for participants from many countries. Detailed information is available from that Center.

[22] For example, in 1954 the writer visited excellent pond fisheries programs in eastern Zaire (at that time the Belgian Congo) and Rwanda (administered as a League of Nations trusteeship by the Belgians) where fish farmers were obtaining excellent yields of tilapia, using techniques developed at the local aquaculture research center. He was so impressed that he recommended similar undertakings by the University of Agricultural Sciences, Karnataka State, India, which have grown into the substantial fisheries program at that University's fisheries center in Mangalore (not to be confused with the main campus at Bangalore).

[23] Pond Dynamics/Aquaculture, Fifth Annual Administrative Report, 1987 (Corvallis, Oregon: Oregon State University), p. 1.

[24] Pond Dynamics/Aquaculture, Fifth Annual Administrative Report, 1987, p. 1.

[25] Pond Dynamics/Aquaculture, Fifth Annual Administrative Report, 1987, p. 3.

[26] Pond Dynamics/Aquaculture, Fifth Annual Administrative Report, 1987, p. 3.

THE COLLABORATIVE RESEARCH SUPPORT PROGRAM APPROACH

An Appreciation

The Collaborative Research Support Program, working in close and continuous interaction with the other programs (discussed in this book) which build and strengthen the agricultural research and educational capabilities of the less developed countries, is the best adaptation of President Truman's dream to the conditions and needs of tomorrow and beyond.

The direct provision to LDCs of American "know how," we soon learned, was not enough. The LDC problems were not the same as ours. And when they were similar, our specific answers did not fit well with their specific circumstances.

The LDCs needed institutional and professionally skilled manpower capabilities of their own - especially in the scientific underpinnings of agriculture. These capabilities, as we have seen, the U.S. has helped many countries to build. And we have every reason to be proud of and pleased with this effort.

But the realities of the necessary scale and costs of scientific enterprise brought recognition, in its turn, of the unpleasant limitations of any country-by-country, go-it-alone approach toward this end as applied to the smaller, poorer countries -- and even, in full truth, to the larger and richer.

Somewhat tardily, but thoroughly we should hope, we have learned that although each nation will and should be free to choose its own course of institutional development, it cannot successfully do so in the long run in isolation from the work and resources of the scientists, and the peoples, of its neighbors on the planet. Individual less developed countries will continue to be left out of the onward march of economic progress and development unless they can find ways to "hook in." Unless they have large quantities of oil and other readily marketable resources -- and even then after the supplies or markets for the special resources give out -- for the less developed countries ways must be found to permit their participation in both the process and the fruits of science and technology. To be efficient and effective, to avoid the wastefulness and futilities of uncoordinated replicative and duplicative bits and pieces of scientific effort, the work of scientists and researchers must, somehow, be organized. The hardened shells of international political and bureaucratic structures do not serve well as instruments of such organizations. Rather, what is required are adequately financed unions of purpose and procedures of the scientists and research administrators themselves -- working together toward common ends, under common discipline and utilizing mutually agreed upon procedures and protocols. The CRSP serves well as a method. There are others. They are all needed.

Whatever their dissimilarities all of them should be designed to simultaneously:

1. Advance the state of the selected scientific art;

2. Contribute directly and continuously to the solution of a genuine, important human problem through an output flow of useable (and used) knowledge;

3. Strengthen the institutional and trained human resource capabilities of the participating countries to continue in the processes of self-development.

Such self-interest driven collaborative unions of less and more developed country scientists, administrators and sponsors in research missions of common purpose and common design have marvelous potential and, ultimately, unmeasurable powers. Their productivity of results should, itself, create various modes of voluntary participation by sponsoring governments and institutions which would ultimately outline the need for special "foreign aid" type support. If, together, the richer and poorer countries can set their sights high enough, and apply sufficient courage and energy, such organized, purposeful, multi-country collaborative efforts can most certainly conquer, worldwide, the scourge of hunger and malnutrition and probably most epidemic diseases. By comprehending, and scientifically manipulating, the most infinitesimal particles-- and the largest aggregations -- of mass, energy and life; by extending organized research and development activity to the furthest reaches of scientific creativity and of disciplined human imagination and intellect, such organized, focused collaborative research efforts can carry the scientific voyagers -- and mankind-- into as yet unguessed and uncharted frontiers of human betterment. One is tempted here by Homer's lyric phrase: "into the path beyond the stars!"

SECTION V

MORE ON TITLE XII

ON THE ORIGINS

This book makes no effort to describe adequately the totality of the special Title XII program. As has been described at length in the Chapter on the Collaborative Research Support Program (CRSP), A.I.D.'s original interest in Title XII was in obtaining clear Congressional authority for this new research initiative.

Although the universities thoroughly welcomed the new A.I.D. research initiative, their interests were in a much broader set of changes in A.I.D./university relationships. These interests had evolved in part out of their earlier keen enthusiasms for the well-conceived but ill-fated McGovern Bill and similarly ill-fated International Education Act, and from their participation in numerous studies, workshops and conferences outlined elsewhere in this book. A.I.D. knew this, and therefore elected to tap the broader resources of interest and support which the Findley Bill had engendered. A.I.D. fully supported the spirit and intent of the Findley Bill but had enormous difficulties with many of its specifics. Its largest shortcoming was that apart from the new research program it provided very little new authority, no additional funds, and extremely ambiguous provisions for substantial modifications of operational processes. It did -- in somewhat vague but clearly strong legislative language -- insinuate that A.I.D. should place more emphasis upon helping LDCs develop agricultural colleges and universities which combined teaching, research and extension functions, and that it should involve U.S. agricultural colleges and universities more fully in this effort.

Politically, the McGovern Bill and the International Education Act had been lights that failed. Politically, the Findley Bill (and the identical Humphrey Bill which Congressman Findley had induced Senator Hubert Humphrey to introduce in the Senate) had succeeded and emerged as the "Famine Prevention and Freedom from Hunger Amendment" -- Title XII, by number, to the Foreign Assistance Act of 1975.

Undoubtedly, this success was primarily the result of the very deep commitment and energy applied to it by its author, then Representative Paul Findley, of Illinois.

Congressman Findley was very proud of the fact that he represented in Congress the same district as had President Lincoln.[1] He knew well that President Lincoln had been the president who had signed the Morrill Act, establishing the American system of Land Grant Colleges.[2] He was intimately and personally familiar with the achievements of that system (of collaboration between Land Grant Colleges, U.S. Department of Agriculture and county and state governments). in furthering the development of Illinois agriculture and -- from his experience as member of the committee on Agriculture of the U.S. House of Representatives -- he was well acquainted with that system contribution to the development of U.S. agriculture as a whole. He also knew well the results of the University of Illinois' participation in building agricultural universities in India, and assistance to Indiana agricultural development generally. He had become, from several visits to less developed countries as a member of the U.S. House of Representatives' Foreign Affairs Committee, concerned with the slow rates of agricultural development in several of those countries. So a Lincolnesque step was in order. Engaging assistance from the Office of the National Association of State Universities and Land Grant Colleges, he drafted the Findley Bill. He believed fervently that his bill, if enacted by Congress and acted upon properly by the executive branch would achieve very great things on behalf of LDC agriculture, which he rightly knew would be profoundly in the U.S. interest. Most

importantly, he succeeded in inducing strong and broad support in the House of Representatives. Similarly in the Senate, through persuading Senator Humphrey to sponsor an identical bill,[3] he enlisted strong support also among the U.S. universities, from the National Association of State Universities and Land Grant Colleges, from the U.S. Department of Agriculture through many contacts (notably from Dr. Don Paarlburgh and Secretary Earl Butz), and, eventually, from A.I.D. through numerous visits with Administrator Daniel Parker.

The Title XII amendment was of course designed to go far beyond contributing to research, which dimension has previously been described in detail in the preceding chapter. This report will only briefly describe its other areas of impact, largely because the Title XII-created Board for International Food and Agricultural Development (BIFAD), its support staff, its support committees and its constituent universities will no doubt continue to analyze and describe the Title XII program.[4] Therefore we shall here limit our comments to a few special program efforts deriving directly from Title XII, and a few personal observations about the total accomplishments and needed new directions of this effort.

END NOTES

[1] The writer takes no responsibility for describing how closely the boundaries of this district now coincide with those of Lincoln's time.

[2] President Lincoln also signed the Act that established the U.S. Department of Agriculture, and the Homestead Act which set the stage for developing the frontiers of much of the U.S. Midwest and West on a family farm, freeholder tenure basis.

[3] Congressional custom dictates that in such cases of identical bills, the Senatorial sponsor's name be listed first in public presentations. Senator Humphrey, in appreciation of Congressman Findley's efforts, eschewed this privilege and insisted in referring to it as the "Findley - Humprey Bill."

[4] For example, the Office of Science and Technology Assessment of the U.S. Congress is at the time of this writing carrying out a substantial assessment of Title XII. The reader is encouraged to examine the results of that analysis as they merge. See also the A.I.D. Annual Reports to Congress on Title XII, required by the legislation.

STRENGTHENING U.S. UNIVERSITIES:

The Several Support Grant Programs

The very first paragraph of Title XII, under the listing of its descriptive Title, beings as follows:

> Sec. 296. General Provisions -- (a) The Congress declares that, in order to prevent famine and establish freedom from hunger, the United States should strengthen the capacities of the United States land-grant and other eligible universities in program-related agricultural development and research .....etc.

Next, after a list of factors which "Congress finds" call for the Title XII Amendment,

> (b) Accordingly, Congress declares that, in order to prevent famine and establish freedom from hunger, various components must be brought together in order to increase food productions, including
>
> > (1) strengthening the capabilities of universities to assist in increasing agricultural production in developing countries

The Amendment then goes on to list four other components.

These citations are listed only to document the clear Congressional emphasis upon this component of the new A.I.D./university relationship in agricultural assistance efforts.

Strengthening Grants

The provision above was, in fact, just an authorization without funding levels or any other details. In fact, the argument could be made that this "strengthening" would evolve directly out of an improved set of mechanisms of cooperation between A.I.D. and the universities, as much had been made of the debilitating impacts on universities of prevailing contract systems.

However, BIFAD and the universities quickly, probably correctly, perceived this as a new program for which there was a clear Congressional mandate. A.I.D. soon accepted the interpretation that it was clear from the record of Congressional hearings that A.I.D. should undertake this U.S. university strengthening as a formal program effort. (It should be pointed out, however, that the House Foreign Affairs Committee had much difficulty in accepting this provision.)

The amendment did not specify explicitly the criteria to be applied for the selection of the universities to be so strengthened. It merely indicated that they must be universities declared (presumably by A.I.D. with BIFAD participation) to be eligible to participate in Title XII.

In the earlier version of the Findley Bill the presumption appeared to be that the Title XII program was directed largely at enhancing and improving the established agricultural program relationships between A.I.D. and the U.S. Land Grant universities, at most expanded to include a very few other state universities with major agricultural programs. Had this concept prevailed, the "strengthening" assistance would have been for the purpose of expanding the capabilities for overseas work by universities actually involved in A.I.D. overseas assistance program[1] development. However, the Title XII Amendment took a somewhat different turn. What at first seemed rather minor

adjustments in wording came to have profound implications for the entire program, but most specifically for the university strengthening component.

Spokespersons for those smaller, non-Land Grant Universities or colleges which had some significant domestic agricultural capabilities and programs, asserted the case for including these colleges as eligible under Title XII. In itself, this was rather innocent of implications as even in the absence of any new legislation such institutions were clearly eligible to contract with or receive grants from A.I.D. (as were the Land Grant universities) and had been doing so for years to an extent commensurate with their resources and interests. But as eligibility to participate in Title XII brought with it eligibility to receive strengthening grants (which were funds to be spent on-campus), there was a rush of interest in Title XII by many institutions (including some Land Grant Universities) which had not heretofore been involved significantly in A.I.D. programs.

There was a larger dimension to this issue. The presentations on behalf of expanding eligibility qualifications to include these non-Land Grant Universities was primarily in terms of the need for A.I.D. to enlarge the base of U.S. universities from which it could draw resources. This argument ran to the effect that A.I.D. had historically returned time after time to a rather small group of universities well known to A.I.D., and whose prior experience lent additional cogency to their statements of qualifications. There was, of course, some truth in this as A.I.D. in any given case wishes, quite properly, to get the best service for the money; and effective previous experience in technical assistance for A.I.D. is both the source and the test of the university's competence to be effective on a subsequent project. Not surprisingly, such proven performers tend to get re-selected.

To provide openings for new (especially smaller) schools to "break into" the system, Title XII was amended in a series of stages to broaden the eligibility requirements - - which theretofore had included only the Land Grant universities created in the first Morrill Act of 1862, to include also:

- Colleges and universities created under the second Morrill Act, of 1890 (the now seventeen predominantly black Land Grant colleges and universities);
- the National Sea Grant colleges and universities created under the National Sea Grant Act of 1966;
- and "other United States colleges and universities which
    1) have demonstrated capacity in teaching, research and extension activities in the agricultural sciences; and
    2) can contribute effectively to the attainment of the objectives of the Title. . ."

This Congressional discussion and amendment process created a history of legislative intent quite different from that originally elucidated. The primary purpose of the strengthening program, according to the later legislative history -- and so interpreted by A.I.D.'s General Counsel -- was to "expand the base" of U.S. institutional resources. Therefore, criteria which A.I.D. would originally have applied -- and the character of the grants themselves -- were radically shifted. A.I.D. had thought of strengthening grants as being used by universities primarily for funding certain staff and institutional improvement arrangements which were specifically needed to assure that the university would be optimally effective overseas, but which were of such nature that they were not normally fundable by the universities from their own funds. The prime and best example would be special

language training for faculty and other staff members who might be expected to work in an A.I.D contract in a non-English speaking country. Other examples would be reorientation of certain technical expertise toward LDC conditions by participation in research in a tropical area.

The new interpretation coming from this later legislation would, of course, permit strengthening grants for the purpose of improving a university's project performance -- but placed emphasis on strengthening grants primarily as instruments for helping institutions inexperienced with foreign technical assistance work to qualify for Title XII field projects.

Perhaps even more importantly, strengthening grants became thought of throughout the BIFAD structure and university community as an inherent right of any university which met Title XII eligibility requirements - - rather than as something earned and justified by the institution's history of prior and present activities for A.I.D.

A.I.D. and BIFAD (which at all times included one person selected to represent the interests of these smaller institutions) accepted this change in original intent -- and indeed saw some merit in it. As an example: as the program criteria evolved, an earlier specification limiting A.I.D.'s contribution to "not to exceed 10 %" of the university's volume of business with A.I.D. was waived for five years -- up to a total of $1,000,000 per year. By this means, universities declared eligible to participate in Title XII could receive strengthening grants of not to exceed $100,000 per year for five years, if their proposal was judged worthy, even though they had no on-going or previous programs with A.I.D. By the end of five years, this waiver would be dropped and A.I.D.'s strengthening grants could be no more than ten percent of the university's average volume of business with A.I.D. for the preceding three years.

By this means, strengthening grants were indeed used to expand the base available to A.I.D. of university resources and interest, while still focusing on performance-improving activities for those universities actually engaged in A.I.D. contract projects.

Anticipating the flood of interest by universities with little experience and little to offer, the terms of strengthening grants were such as to discourage participation by universities with only a casual and short term interest.

First, the university had to be declared eligible as a Title XII institution, by A.I.D. on BIFAD recommendation. This required that the university submit substantial detail on its agricultural capabilities, evidence of faculty and executive interest, statements of university policies regarding overseas programs (including personnel policies to entice excellent staff) and other materials, for thorough review by a joint A.I.D. /BIFAD eligibility review committee.

Second, all A.I.D. strengthening grant funds had to be matched by at least an equal contribution by the university. These matching funds were totally blended into the strengthening program budget. A.I.D. monitoring of the proper use of the university-contributed funds was as stringent as it was for the A.I.D. grants; in fact, the two were treated identically.

Third, the university bore all indirect - - i.e., all overhead costs. This overhead cost normally is about fifty percent of program costs and applies to both the university and the A.I.D. contribution. Therefore, for this typical case annual strengthening program funding would be about as follows:

- A.I.D. grant program contribution $100,000
- University program contribution 100,000 (minimum)
- University overhead cost contribution 100,000

Total $300,000

In short, universities contributed at least two-thirds and A.I.D., one-third of the total cost of the strengthening program.

Fourth: and, most importantly, although most (but by no means all) of these total expenditures could be on-campus rather than overseas, they were to be totally for the purpose of strengthening the capabilities of the universities to perform effectively for A.I.D. in its overseas assistance efforts.

Universities were required, each year, to submit a budgeting report of their strengthening activities of the preceding year together with a general budget and plan for the next five years and a detailed budget plan for their next year's program, the plan for the current year having been presented and approved in the preceding year. Thus, each year's activities and expenditures were reviewed against a detailed agreed upon program and budget in the context of a five-year program plan. Any expenditures, whether from A.I.D. or university sources, found in A.I.D. review of the report to have been for activities not sufficiently in support of the A.I.D. grant purposes, were disallowed. In practice, if there were disallowed expenditures from A.I.D. contributed funds, the next year's A.I.D. contributions were lessened by that amount; if the expenditures were from university sources, A.I.D.'s contribution the succeeding year was reduced by the amount of the shortfall thus created, from the required dollar for dollar match. If the university had sufficiently over-matched, as frequently happened, the effect of some disallowed uses of university contributions would be to that extent reduced or eliminated.

In essence, the university was required to make its own decisions on day-to-day expenditures, within the framework of agreed upon plans. An annual report was required to demonstrate how these expenditures of A.I.D. and university funds had carried forward the agreed upon objectives. To the extent it failed to do so, the following year's A.I.D. funding was reduced. At its best, this fixing of responsibility upon the university resulted in much better decisions than could possibly be made at a distance by an A.I.D. project manager. However, it was obligatory upon the university to demonstrate in its annual report that these were in fact good decisions, or their inadequate justification in the narrative report resulted in their disallowance.[2]

Selection of strengthening grantees was by review of proposals. Following issuance of guidelines, eligible universities were invited to submit proposals to BIFAD for first review. Using special committees BIFAD staff, and special consultants, in a highly organized procedure BIFAD reviewed, requested modifications, and re-reviewed these proposals. If and when a proposal was found acceptable this fact was communicated to A.I.D. by formal BIFAD action, and the proposals were then turned over to A.I.D. for consideration and implementation.

A.I.D. then scrutinized the proposals very closely, for all aspects including, specifically, budgeted detail for both the A.I.D. and the U.S. university's contributions. Usually, this A.I.D. examination resulted in modification and rewriting of the proposal, to make certain details clearer but not, commonly, to change major program content as the prior BIFAD review process had been

exceedingly thorough and competent on this aspect. Nevertheless, the A.I.D. staff review resulted in an average of more than one resubmittal per university -- and in some cases lengthy negotiations.

Few grants (or contracts) made by A.I.D. had as much scrutiny per A.I.D. dollar invested, and none have had anything comparable in the form of university contributions as did these Title XII strengthening grants.

> Since its inception in 1979, 58 institutions (including 9 minority universities) have participated in the program. The grants have been used for faculty development (38%), administrative capacity development (26%), curriculum development (20%), and research base development (14%). Of the 58 grants, 56 have been completed. The remaining two will be completed in 1990.[3]

Some of these grants were extended into the sixth and seventh year -- in conformance with the earlier suppositions that such flow of support funds would be a permanent feature of A.I.D.'s relationships with these universities, as had been recommended consistently by almost all special studies and recommendations to A.I.D. on the subject of A.I.D./university relations.

Probably no undertaking by A.I.D. or its predecessors has so massively impacted the basic character of U.S. universities as has the Title XII strengthening program. An analysis made by the writer of the impacts of the program's first three years revealed the following:

- 133 new courses on LDC agricultural subjects had been developed;
- 232 existing courses were subsequentially modified specifically to address and be more relevant to LDC agricultural issues;
- 3,580 persons enrolled per year in the above courses;
- 139 U.S. graduate students were doing Title XII related work, 99 of whom were doing their work in LDCs at the time of the study;
- 149 faculty had done 3,400 person-days of research in LDCs, and another 132 had done 4,000 person-days' research in the United States but directed at LDC problems;
- 51 workshops had been held on the role of U.S. and LDC women in LDC development, with a total attendance of 1,500 persons;
- 89 <u>new</u> language courses were developed, 46 in Spanish, 39 in French, 2 in Arabic, 1 in Portugese, 1 in Indonese; total enrollment in these courses was 1,009. All focused on Title XII related vocabulary and usages.

> Already the reorientation of the attitudes, policies and programs of the ...higher agricultural education systems in the United States promises to be massive and deep (and) much more relevant to problems of less developed countries.[4]

As U.S. foreign policy identifies itself more and more positively with economic and social development of poor countries, including some which are loosening the grip of Communist doctrinal domination, increasing opportunities will inevitably be created for U.S. universities to participate directly or indirectly through their normal research and educational processes. Sophistication and experience by U.S. professors regarding the substance, technical and otherwise, of agricultural

development in the poorer countries will be invaluable resources toward cementing of professional ties between them and their students from afar. Of such are the potentialities of positive attitudes and cooperation between nations built, ultimately, we should fervently hope, replacing the necessity for sterner, confrontational means of interaction.

As the strengthening program was phased out, another program, the Memorandum of Understanding with accompanying support grants, replaced it. Results of this program are different, in some respects better, and certainly more controversial. We shall now turn our attention to this later experience.

Memorandums of Understanding (MOUs)

As the Strengthening Grant Program was coming into its fifth and sixth years, the question of burning anxiety to the grantee universities was: "What comes now?"

At the time of initiating the strengthening program, the person[5] most responsible for drafting the details regarding criteria, terms and conditions, review procedures, standard provisions and the like, had a clear view that the program would be a continuing feature of A.I.D. relationships with those universities with which it held technical assistance contracts in agriculture. (Therefore, they had tied the program, after its initial five years, to the volume of business of this type being done by the university for A.I.D.) However, both the A.I.D. Deputy Administrator and the BIFAD Chairman at the time chose to let the "after the first five years, what?" question hang in limbo as they were, no doubt correctly, concerned about possible negative reaction from a number of sources to a too-specific statement of intent at this early stage. Both A.I.D. and BIFAD staffs were disappointed, but accepted the necessity of postponing the issue and dealing with it when the time came. Nevertheless (as was agreed at all levels), each grant annual renewal would be predicated upon a five-year forward plan, extended forward a year at each annual renewal. This forward planning was necessary to provide context for annual activities and expenditures, and for the universities to make meaningful down-year matching commitments.

By the time the first year's grants were approaching their conclusion, some key personalities had changed. Deputy Administrator Nooter had left, and the new Administrator, M. Peter McPherson, who before becoming Administrator had himself been a member of BIFAD and later of the Joint A.I.D./BIFAD Committee on country programs, took much more personal interest in Title XII than had his Carter Administration predecessors, who had essentially delegated responsibility to their deputies. Administrator McPherson was concerned about the questionable value of carrying on strengthening programs with so many colleges and universities.[6] Furthermore, a General Accounting Office (GAO) review of the strengthening program had identified the fact that the selection of universities for contract projects was totally independent from the strengthening program, and that this lack of linkage resulted in apparent losses in efficiency.

In view of these considerations, Administrator McPherson chose to emphasize a new mode of support relationships with the Title XII universities rather than continuing the strengthening program and relying upon the built-in provisions of the funding formula and grant monitoring to reduce the numbers and adjust the content of the strengthening grants.

At his request, a joint A.I.D/BIFAD committee was set up to develop a new approach. Chairman of the committee was Dr. Elmer Kiehl, then the Executive Director of the BIFAD staff. However, for a variety of reasons, his deputy, Dr. Morris Whitaker, formerly of Utah State University, took over the basic responsibility for the assignment, and worked in a very close personal liaison with Administrator McPherson during this period.

The Memorandum of Understanding (MOU) was adopted as the appropriate designation for the new approach -- and as the new instrument of agreement between A.I.D. and the selected universities.[7]

These Memorandums of Understanding would be non-funded agreements between A.I.D. and selected individual universities, spelling out the general terms and conditions, specifying purposes to be served by the specific MOU, and specifying also, in general terms, the commitments undertaken by A.I.D. and by the university. Funds would be provided under an appended support grant which was in essence a modified version of the original strengthening grant instruments and based upon the same legislative authority.

Upon BIFAD acceptance of this new "MOU" mode of university support, the A.I.D. Bureau for Science and Technology undertook to get the new program under way. Mr. Leonard Yaeger, Deputy of that Bureau, chaired meetings of the directors of the agriculture offices of the four regional bureaus and representatives of the BIFAD staff and A.I.D.'s General Counsel to establish agreement on which universities should be selected for support under the Memorandum of Understanding support grant format. This involved analysis within each bureau of the anticipated needs for university resources, and, through discussion within the group, identification of those U.S. universities thought to best match those needs.

Once the selection discussions were completed, Mr. Yaeger entered into protracted discussions with the five universities selected, following which a Memorandum of Understanding and an accompanying Support Grant was signed with each by A.I.D.

Although the change of the name and implementing instruments of the A.I.D. university support effort was in itself inconsequential, the change in the program heralded by the changeover was significant indeed, although, as we shall see, many of the changes have been tempered by subsequent events. Principal among the effects of substituting the new program were:

1. A sharp reduction, in the first instance, of numbers of university grantees. (This was subsequently greatly modified as we shall see later in this chapter by initiation of a Joint MOU program. In any event, application of volume-of-business and other criteria built into the strengthening grant program would have, probably, brought the numbers of grantees to the present level.);

2. Prior selection of grantee universities by A.I.D. committee based on anticipated future needs for the selected universities rather than on the basis of current and recent levels of involvement with A.I.D.;

3. Larger grants per institution;

4. Greater freedom of the universities in the uses of the funds, including carrying over of unused funds from year to year.

The five institutions selected for the first Memorandum of Understanding/Support Grant arrangements were:

- Colorado State University
- University of Florida
- Purdue University
- Utah State University
- Washington State University

Although selection of these universities was need-focused, each of the five universities worked (or were interested in working) in a variety of countries and in several technical fields. Therefore, to the extent that activities under their MOU program are focused, it tends to be more on a selected subject or function than on individual countries.

A recent review of the first five years of these five MOU programs[8] provides excellent information supporting the review's conclusions that "the program is judged to be highly satisfactory," that its "achievements ...are numerous and notable," and that each of the five should be continued.

Most interesting, and perhaps most significant,is the extent to which the program is financed by the universities. This is a result of the application of the same general matching requirements as had been applied to the strengthening program. It also, of course, reflects the universities' collective sense of the benefit, to their own roles as research and educational institutions, of participating in A.I.D. programs. This university contribution to these five MOU/Support Grant programs may be best seen in the following table.

Total Expenditures under MOU/Program Support Grants
for Four Years, 1983-84 Through 1988-89 (Inclusive)

	Expenditures (Thousands of Dollars)		
University	A.I.D. Funds	University Funds	Total
Colorado State University	$1,155	$1,241	$2,796
University of Florida	586	895	1,481
Purdue University	896	1,056	1,952
Utah State University	1,018	1,538	2,556
Washington State University	744	932	1,676
Total:	$4,799	$5,662	$10,461

The universities' contribution is considerably higher than these figures indicate. As explained earlier, all overhead costs are borne by the university. This can only be very roughly estimated as it

varies widely depending upon individual university budgeting practices and location of the program personnel. (It is normally determined by special audit for the U.S. government as a whole by the agency which conducts the largest amount of contract and grant activity with the given university.) These indirect, or, as often called, "overhead" costs are, however, genuine costs, and include such items as building space, heating, permanent equipment, pro-rata portions of executive management costs, etc. In this case, a conservative "rule of thumb" might be fifty percent of program costs. Therefore, the breakdown of total contributions for the five universities for the first four years might be best portrayed about as follows:

A.I.D. Program Support Grants	$4,397
University Program Contributions	5,666
University Overhead Contribution	5,083
Total:	$15,146

Thus the A.I.D. contribution comprises about 31% of the total program costs.

This would be an equally applicable assessment of the relative degree of university contribution to all strengthening efforts under Title XII.[9]

The ceiling amount for each year's A.I.D. Program Support Grant is set by a rather complex formula which has evolved over the years to take into account that the purpose of these grants is to enhance the quality of performance by the institutions in their A.I.D.-funded agriculture projects. Obviously, this implies that the recipient university is doing work for A.I.D. as improved performance in a non-existing project would be a non-sequitur.

Two measures of the amount of such work done for A.I.D. are used. Each has its values and each its limitations. They are: (1) the dollar value of A.I.D. agricultural contracts held by the university, and (2) the amount of university staff and faculty supplied by the university.

Each has complexities of calculation. Should one include, for example, dollars spent by the sub-contractors? May the university include employees recruited from another university? Does either dollar volume of business (or manpower provided) apply only to overseas work, or may it include also money spent for (say) research work done in the United States but on problems of unique and important concern to developing countries? Depending upon the types of their own involvement, universities have differing points of view among themselves, as does A.I.D., on these points. Therefore, after much discussion, a formula was developed which sets the limits according to a combination of these two factors, and which specifies inclusions and exclusions.

In principle, the purpose is to prepare the universities' most competent faculty for optimum effectiveness working overseas for A.I.D. Therefore, for setting support grant funding limits, the weighing should be as heavily as feasible upon the amount of such faculty and staff the grant-receiving university itself supplies for overseas agricultural work.

However, this and other factors such as those listed may vary through time, necessitating adjustments as experience and shifting needs dictate.

The review cited listed several specific recommendations for changing other aspects of the MOU/Program Support for the five universities. Its recommendation that the grants be continued for

five more years has been implemented. Some of its other recommendations are being accomplished through project management and communications processes. Its principal recommendation for change was that the individual grants should be reshaped to create special "centers of excellence" on certain aspects of agriculture. Each of the universities has been specializing somewhat. The reviewer favored more of this. The writer agrees in principle. However, the feasibility of this will depend upon the extent to which A.I.D. mission projects come to be packaged around subject matter problems. Universities are understandably loath to specialize their international competence in some subject field, only to see that outlet for those special talents fail to develop. (See the discussion in Section II of the special experience of the University of Wisconsin Land Tenure Center as a good example.)

The principal concern is: Why this particular group of five universities? Several others have currently, and have had a history of, larger amounts of A.I.D. agricultural work than do any of these. Growth in use of these particular universities is not appreciably greater than that of several others.

Joint Memorandums of Understanding

Immediately after the five universities had been selected, A.I.D. had to face the question of where to go next. BIFAD and the remaining universities (correctly) felt that the selection of five favored institutions did not comply with the sense and spirit of congressional intent in Title XII. But the process just gone through was clearly not replicative for any major fraction of the remaining Title XII universities.[10] Especially non-feasible was a set of "pledging" negotiations in which the universities pledged to make available upon A.I.D. request a specified number of individuals, and A.I.D. indicated its intentions to utilize that number. A.I.D. contracting procedures would not permit such pre-determination of suppliers, nor could A.I.D.'s needs necessarily happen to match the pre-selected individuals made available by the grantees. A university strengthening (support) effort with only a very few U.S. universities did not make sense in face of A.I.D.'s broad pattern of needs and uses, and the legal requirements of open competitive contractor selection.

A new need was confronting A.I.D. -- that of finding the means of involving more "historically black colleges and universities" (HBCUs) in its overseas programs. Mandated by both the President and the Congress, and honestly desired by top A.I.D. management, this requirement posed a serious question: how to insert the excellent but extremely limited expertise found in these colleges into A.I.D.'s ongoing and prospective overseas projects? A.I.D. undertook an aggressive and, as it turned out, extremely effective program to get these HBCUs involved (increasing their participation some twelve-fold in five years). This is discussed in detail in Section VI of this report. Suffice it to say here that strategic to this effort was the initiation of a set of "Joint Memorandums of Understanding/Program Support Grants." These were grants, similar in many respects to the other MOU/PSG arrangements discussed above, except that they were made as an arrangement between A.I.D. and a pair of universities: a historically black college or university and a non-black university with an on-going major program of involvement with A.I.D. The Memorandum of Understanding would be a joint document of the two universities and A.I.D. They would be funded by a support grant by A.I.D. made separately to each university to carry out activities outlined in the Joint MOU. In all cases, the MOU (and the program support budgets) would provide for some activities to be done individually by each university, and some to be done jointly by the two partners. In addition, they provided that a specified major amount of the non-black institution's activities would be for the

specific purpose of assisting the black university to prepare for and get engaged in A.I.D. overseas an other program activities.

After thorough discussions with BIFAD and with A.I.D. Administrator McPherson, Dr. Nyle C Brady, Senior Assistant Administrator for A.I.D.'s Science and Technology Bureau, approved th Joint MOU program for six years (1986-91) on March 14, 1986.

A total of sixteen such Joint Memorandums of Understanding were made with 3 accompanying program support grants (PSGs). Of these, twelve MOUs and 24 program support grant were in agriculture, and four MOUs and eight PSGs were in human health. These latter (fallin entirely outside Title XII) reflected a parallel sharp renewal of Congressional interest in healt generally - - and "child welfare" specifically -- and in assuring that the historically black college participate in this as in A.I.D.'s agricultural programs.[11] The agricultural grantee institutions wer selected in a thoroughgoing review procedure, involving campus visitation in which BIFAI participated fully.

Thus, the Memorandum of Understanding/Program Support Mechanism was expanded fron the original five to a total of 29 universities receiving A.I.D. support under the strengthenin provisions of Title XII.

By this time, substantial experience with the first five MOU arrangements[12] indicated clearl that the rather general wording of the first MOUs needed to be sharpened considerably for the ne Joint MOUs -- with the thought that the first five would gradually be amended, in wording or practice to conform. For example (as stated in Dr. Brady's approval memorandum): "the formula fo determining the maximum size of the annual grants is:

1. 2% of the institution's average dollar volume of Title XII business during th immediately preceding three years; plus,

2. $15,000 per average FTE (full time equivalents of persons per year) of overseas technica services provided by regular employees of the institution to A.I.D.-funded Title XI projects during the immediately preceding three years; plus,

3. 20% of the sum of 1 and 2 up to $50,000, but not less than $30,000.

"Each university or college can be awarded a grant of up to $350,000 per year; however, it i estimated that the average funding per partner institution will be $180,000 per year."

These seemed to reflect the proper reconciliation of various views encountered during lon experience with the strengthening grant and MOU administration.

Other provisions were also tightened, largely to assure that grants would reflect th universities' contributions of their own personnel, and that the universities use their own funds onl for purposes in total consonance with the grant terms, and restore, annually, any unspent funds (o unmatched funds) to the corpus of the grants.

Added also was a provision that twenty percent of all program funds be spent supporting on going A.I.D. contracts. To assure that both partners would execute their support responsibilitie

toward strengthening the HBCU partner, it was required that at least twenty percent of its program support be spent for this purpose only.

The Joint MOU/PSG program is newer than the "Single" MOU program reviewed above. It has not yet had, but deserves, a major evaluation along the lines of the other just cited. The principal questions needing examination (over and above those relevant to the first five) are:

- How well is the partnership working? Is the non-black partner really helping to strengthen the other? Are the two institutions exchanging faculty, and students? Are they acting as a unit in bidding on A.I.D. field projects? Is the HBCU partner expanding its activities with A.I.D.? Is it building, on-campus, significantly expanding interest and capacity for work on LDC problems? Have the non-black university partners educational programs benefited from cooperation with their HBCU partners? In short, are the Joint MOUs carrying out the special purpose for which they were created, or are they becoming merely a means for more universities to obtain what are essentially "Single" MOUs?

Such exposure as we have to the process would indicate, in the main, highly positive responses to all these questions.

Matching Support Grant Program

A third and final U.S. university support grant arrangement has been set up, open only to universities otherwise qualified for participation in a Title XII MOU arrangement, but for which there exists no HBCU partner. This is based on a "competitive" approach. A modest amount of money is set up for which qualified universities may submit unsolicited proposals of up to $50,000 per year for the duration of the project. Again, the grant must be matched, and the overhead costs borne by the university. These are related to specific activities the applicant proposes to undertake in direct support of an A.I.D. effort in which it is engaged. Nine such grants, for a total of $1,305,000, have been made since its initiation date in 1986. A committee of A.I.D. officers, weighted heavily by those actually using these universities' resources, selects the most worthy.

Experience with this program should be examined very closely by A.I.D. as it may well, in the long run, represent the direction that all A.I.D./U.S. university support efforts should go. These grants relate so directly and so specifically to the carrying out of A.I.D. field activities that they are, in essence, jointly funded A.I.D./university technical assistance, research, or training on behalf of foreign assistance undertakings. Universities participate out of consideration of the benefits to themselves achieving capability and competence through such development experiences. Perhaps the best feature is that they are in no way an "entitlement" of the university, but a response to unsolicited, competitive grant proposals selected on the basis of merit.

END NOTES

[1] It should be kept in mind throughout this discussion of "strengthening grants" and related programs, that their purpose was not to strengthen neither agricultural nor other technical competencies of the U.S. universities. In fact, these competencies were the requisite criteria for a university's eligibility for participation in Title XII -- and, in fact, constituted the justification of the Amendment itself. "Strengthening" efforts were to enhance the capabilities of the U.S. universities to put their technical capacities to work more effectively in a host of advisory relationships in countries vastly different from the United States. The differences included, of course, many physical circumstances such as soils, climates, and water availability (although the U.S. as a whole has great variation in these same factors). The differences included also institutional, governmental, language, population densities, income levels. Especially, they included enormous differences in technology levels and requirements. "Strengthening" activities were limited to those which could assist U.S. universities to understand and, especially, to deal effectively with these differences when working in less developed countries as technical assistant contractors or when training less developed country participants at the U.S. university. To repeat: the grants were not enable the U.S. university to qualify technically as an eligible university, but to enable it to work more effectively for A.I.D.

[2] This was not a token matter. Failure by universities to make proper expenditures (or to make them within the allowed time frame) resulted, at the end of the first year, in a reduction in grant outlay by A.I.D. the following year of over 30%. Disallowances continued to be substantial thereafter.

Review was by A.I.D. staff. Procedural provision was made for appeal to a BIFAD review group, for recommendation to, and reconsideration by, the Administrator. Such recommendation was never made by BIFAD which, in the interest of the program, was as totally committed as A.I.D. to high performance by recipient universities.

[3] A.I.D.,"The Title XII Partnership, 1985-1988," Report to Congress (on Title XII) (April, 1989), p. 18.

[4] Data and quote from A.I.D., Report to the Congress (on Title XII) (April 1, 1981), pp. 15-16. (This specific report was transmitted during a relatively brief period when A.I.D. was organizationally subordinate to an empty shell kind of entity entitled "the United States International Development Cooperative Agency" which is listed as the author of this issue of the report.

[5] This included, especially, Dr. Woods Thomas, then Executive Director of the BIFAD Support Staff, Dr. Fletcher Riggs, the writer's then Deputy as Director of the Office of Title XII, and the writer.

[6] Nearly everyone in the Agency involved with the program, including the writer, shared this view. Please recall that it was a result of unfortunate Congressional history. (Actually, the program was designed to "self destruct" except for those universities whose continued participation was justified by their level of participation in A.I.D. overseas technical assistance project. Also, these grants were, by A.I.D. monitoring, being sharply shifted in content away from activities designed to help them qualify for A.I.D. technical assistance contracts toward activities which would enable them to carry out such activities more effectively).

[7] Title XII calls Memorandums of Understanding between A.I.D. and universities, for much broader purposes than here used. The use as described in Title XII proved to be entirely infeasible for A.I.D., and the concept slipped from consideration, and from A.I.D./BIFAD discussion, as the Title XII program proceeded.

[8] Clarence C. Gray, III, Desktop Evaluation of the Program Support Grant-Single Memorandum of Understanding-Agriculture (A.I.D., March 15, 1988). Dr. Gray was a highly competent and experienced, long-time senior staff member of the Rockefeller Foundation, with much experience in less developed countries.

[9] Except for the historically black colleges and universities for which special concessions were made, as described in the section of this book dealing with those universities.

[10] It would probably have been easier to terminate all strengthening activity than to stop with these five.

[11] A list of these 16 pairs of institutions is appended to the section of this book related to HBCUs.

[12] After the Joint MOUs were started these were always referred to as "Single" MOUs (SMOUs).

WERE THE UNIVERSITY STRENGTHENING AND OTHER SUPPORT EFFORTS SUCCESSFUL?

Certainly, in their primary objective, the several U.S. university strengthening efforts have been successful. They stirred a mighty wave of university interest in participating in A.I.D. agricultural assistance projects. The disaffection with U.S. foreign aid programs growing on campuses as a result of U.S. experience in Vietnam was rapidly turned around. This new attitude continues. Probably the totality of Title XII had the effect. But the number of institutions participating in the various strengthening and support activities increased so much more rapidly than for other Title XII activities that they were the principal change instruments of the reawakened understanding. The fact that university administrators had to find and to justify inputs of substantial university funds for matching and overhead costs of these programs massively impacted university attitudes. It caused both administrators and faculty to face up simultaneously to the costs to them of participating in A.I.D. programs, and to the academic costs of not doing so -- in terms of the consequences of isolating the university from third world problems, and, hence,from much of what will be most important to their students in the years ahead. Also, the creation of a small -- but normally highly active -- staff group working on not only strengthening program activities, but also on recruiting staff for proposed technical assistance teams necessary to keep their strengthening program alive, was a new element on many campuses.

In short, the "professional" manpower work has changed from a seller's to a buyer's market in a very few years. Not only have attitudes and interests of university administrators and faculty changed as a result of these programs, however - - so have their levels of experience and competence. Large numbers of faculty have received learning experiences which would make them much more effective as A.I.D. contract workers. There is no adequate basis for quantifying this. But it certainly has been very substantial indeed.

Sadly, the one unfortunate aspect of the entire Title XII effort is that the expected and desirable upsurge in overseas agricultural projects involving U.S. universities did not, in fact, develop.

Title XII had succeeded in creating a definite "sense of Congress" appreciation in A.I.D. of the need for renewed emphasis on agricultural institution-building overseas, and of the need to involve U.S. universities more, and in better ways, than previously in this effort. But it did not mandate the kind or magnitude of effort needed, or enforce reallocation of funds into this effort from other less productive uses - - such as massive support to some countries for domestic U.S. political purposes, or to other countries for short term international policy purposes. Therefore, to an important degree, the university strengthening programs prepared a large number of university brides for weddings they were never a part of. This, if we take the general description and purposes of Title XII as acceptable, was a serious shortcoming. But it was not a shortcoming of the strengthening programs, nor of Title XII itself, but of general U.S. assistance policy as evolved from both Congressional and Executive branches of government. Whatever else the limitations of the strengthening program, the U.S. agricultural colleges, small and large, have had a dramatic reawakening of the significance to U.S. interest of a strong and deep process of economic and social development in the developing countries. This has made them profoundly better prepared for their domestic educational roles. Ignorance may be bliss. But, ignorance of the developing world in our educational processes is a potentially disastrous kind of bliss! U.S. leaders would be well advised to harness this expanded level of U.S. university

knowledge, understanding and appreciation of the U.S. self-interest to the formulation and execution of a progressive and sound foreign policy.

Perhaps never in our national history have the signs been so strongly bent toward a happier tomorrow of foreign relations. And yet, rarely has there been more turbulence, personal insecurities and dangers associated with it. We need, almost desperately, all the resources of competence, scholarship and good will that our higher education institutions can offer, to help us through the perilous but extraordinarily hopeful years ahead, to the realization of the promise of the current situation.

Scholarship preceded experience in finding, among other things, that societies based on free institutions, free markets, and free people are inherently more effective than those based upon central management and control. It found this, specifically, to be true in agriculture. Now, scholarship, to elucidate the technical details on how to continue to translate these facts into development of these kinds of free LDC societies, should be of the highest importance to our national foreign policy agenda. Investments in increasing, even indirectly, this kind of capability on our campuses are worthy investments, indeed.

It should be recalled that huge numbers of LDC people have vastly increased their productivity by the adaptation of modern technologies to small-farm agriculture. This has been the most massive single demonstration of the newly accepted grand principle, of effective economic organization. It should also be understood that this has, in turn, required a myriad of technical, scientific inputs to answer the farmers' centuries old question of "how to farm better?" Strengthening and involving U.S. universities in the kind of work -- much more extensively than presently, not only in agriculture but in all segments of developing economies and societies -- remains our best path to continuing world leadership and national security.

COUNTRY PROGRAMS: Impressions And Conclusions

By intent and by wording, the primary focus of Title XII was on U.S. individual country agricultural assistance programs, particularly on the development within individual LDCs of strong agricultural colleges or universities which integrated effectively the functions of higher education, research and extension. A special "Joint Committee on Agricultural Development (JCAD)" comprised of university and A.I.D. membership was provided for in the legislation as a dependent arm of the Board for International Agricultural Development (BIFAD). In parallel manner, one of the three divisions of the BIFAD support staff had as its function helping establish better and closer linkages between A.I.D. field programs and Title XII-eligible U.S. universities.

Through these instrumentalities, primarily by helping missions recruit consultant advisors or study teams, BIFAD participated frequently in helping missions shape and develop their assistance programs. More routinely, using these same instrumentalities, BIFAD helped A.I.D. achieve the proper "matching" of mission needs with U.S. university resources -- in short, with selecting U.S.universities best suited for specific mission projects. This it did by interweaving four processes.

- It kept a constant eye on country programs as they were being developed, on their possible up-coming needs for professional personnel to be obtained under contract arrangements. In a variety of ways, including annual workshops and regular announcement-like communications, it kept U.S. Title XII-eligible universities up to date on these developments so that if and as the early planning matured into actual requests for proposals (RFPs) the interested universities would be well prepared to respond.

- It examined proposals as they matured to identify those best suited for implementation by a Title XII-eligible university and placed those on a special track to assure effective university bidding on the contract.

- It developed and maintained a "Registry of Institutional Resources (RIR)" which was a computerized listing of university resources, interests and availabilities of specific faculty members. To the extent this is accurate and up to date, it provided useful information for various types of talent hunts for country programs.

- It examined university responses to A.I.D. requests for proposals (RFPs) and from them and other information available, prepared "short lists" for A.I.D.'s use, of those universities suited to each RFP's needs. This "short list" did not rank the universities in order of their suitability. Nor did they often greatly reduce the numbers of proposals for A.I.D. to examine. It was primarily a first screening and was, therefore, far short of maximum BIFAD participation in "matching" decisions.

As may be recalled, Dr. John Gardner in his Report to A.I.D., discussed at length in this book, had indicated that evaluation of university performance (past or prospective) was something on which outside groups can render little assistance as distinct from, for example, research proposal evaluations. A.I.D.'s experience with the Research Advisory Committee had been quite the opposite. One of the significant contributions of that body to A.I.D.'s decision-making was its cogent evaluations of capabilities of a given institutional project proposer to "deliver the goods." The Research Advisory Committee's commentary on this point had continuously proved uncannily accurate.

The wording, and underlying precepts of Title XII had predicated a strong BIFAD hand in selection of universities for specific A.I.D. uses. In fact, early wording of the Findley Bill implied almost a total BIFAD responsibility for this function. But, in practice, BIFAD and its structure was extremely reluctant to bite these particular bullets. This may have been, and certainly was in part, on the very real and practical grounds that it did not have adequate staff resources. But more probably, in line with Dr. Gardner's principle, it found this role too discomfiting to its own relationships to the university community -- and, in fact, with A.I.D. Certain it is that it did not take an aggressive role in the sifting and winnowing necessary to optimize proposal selection. In theory, this is unfortunate, as one of the principal comparative advantages of such a structure is its obviously closer proximity to and familiarity with the universities than is possible for A.I.D. itself to maintain. Very probably, however, this reticence reflected sensitivity and/or inner wisdom. Had BIFAD been more responsive to A.I.D.'s desire that it take a stronger role, this might have aroused antagonisms at the A.I.D. staff level. And, inevitably, universities which failed to win contests would have vocalized their displeasure at BIFAD's recommendations, with perhaps more serious end consequences than those resulting from their complaints about A.I.D.'s selection procedures.

There is no doubt much to be learned about the general phenomenon by deeper examination of this issue than is here possible.[1]

Nevertheless, BIFAD impact on university selections has, in the aggregate, been undoubtedly substantial and can fairly be credited with improving importantly the matching of universities to the tasks. More subtle influences of expanded communications, and the seeming weight of the BIFAD participation mechanisms, probably exert a much more profound impact on this aspect of quality control than would be discerned by actual examination of the process.

Perhaps the strongest and most salutary effect of Title XII on A.I.D.'s individual country agricultural assistance programs has been as a result of the sheer fact of having BIFAD embedded in A.I.D. -- near the decision-making central nerve stem of the Agency -- as a legislatively created, strong, continuous and yet friendly voice of the U.S. universities. The frequent BIFAD meetings with top A.I.D. officials, around a set of usually two or three major agenda items, create the occasion for sober internal A.I.D. soul searching, some dialogue with senior university personnel on important issues, and frequently some unearthing of new evidence on old as well as new issues. BIFAD performs for A.I.D. policy makers much the same mileu as a graduate course provides to a researcher: It performs a place, and almost an imperative to test out new (and more importantly, old and time worn) conception fresh but committed intellects. Out of such intellectual interaction, disciplined but open, are new formulations of issues, and their solutions, usually created.

Economic development is an immensely complicated, inherently experimental process. Administration of external assistance to that development must be formalized, proceduralized to a major degree to be feasible and responsible. But over-routinization and formalization of process is the deadly enemy of achievement. It stultifies creative response to the complexity of the problems and goals. It shifts the weight of both day-to-day and long-term decision-making away from those who understand the technical substance of LDC development to those who have learned the details, and the jargon, of programming and management procedures. It substitutes process for substance. Therefore, constant iteration of challenges, to keep in focus decision-making processes on the continuous unfolding of new development problems and, especially, on new possibilities for their solution created by the evolving state of scientific arts. BIFAD, its subordinate committees and its

support staff provide directly and indirectly a major enhancement of the flow of intellectual resources into A.I.D. technical assistance administration. This was excruciatingly important to the success of its development assistance role.

But these challenges themselves must be competent and effective. To the extent that BIFAD's leadership and membership is strong, its committees and staff support is effective, and A.I.D.'s interaction and responses are high-level, open, intellectually receptive and sincere, the Title XII "machinery" will continue to render an outstanding public service.

It is without doubt true that the country program dimensions of Title XII have fallen far short of early expectations. It is true, also, that it has fallen far short of need. But its accomplishments have nevertheless have been very consequential. "In 1976, before Title XII was initiated, about 11.6% of the (A.I.D. missions") requests for food and nutrition (Sec. 103) funds were for projects of the type authorized in Sec. 297 (a) (2) (of Title XII). . . By 1981, this had nearly quadrupled to 41.4%."[2]

This massive shift of emphasis established, apparently, a new plateau.

But increased costs and reduced appropriations have kept funding of these projects under continuous downward pressure.

One could correctly argue that the A.I.D. agricultural assistance programs at the country level had not deteriorated or failed to develop as badly as would have been the case in the absence of Title XII. This is unquestiuonably true. But as a statement of accomplishment, this argument has a hollow ring. In this sense, one can only agree that Title XII itself has not been at fault. Shortcomings of policy, regarding allocations of foreign assistance funds, deriving from both the Executive and the Legislative branch of government must bear that responsibility. And yet, had the amendment been more precise and more stringent in its provisions regarding such allocations, and thus concerned itself more with substance and less with mechanisms of A.I.D./university cooperation, it might have more nearly hit the mark.

It is also clear that, although BIFAD certainly pressed hard for improvement, cultural teaching, research and extension programs yet remain insufficiently integrated in almost all LDCs -- and is a major cause of the lack-luster performance of these functions in many. To the question as to why this is so, A.I.D. Administrator, the late Allen Woods, responded in 1988:

> A.I.D. experience indicates that organizational barriers in host countries are the basic constraint. These countries are dominated generally by strong, central bureaucracies with sharp, dividing territorial lines among ministries ....Herein lies the problem.

This well states the problem. However, that is exactly how it should be regarded -- as a statement of the problem, not as a statement of the necessary final condition.

As in all other problems impeding development, we should use our resources to help solve the problem, to remove or reduce the constraints -- not to reinforce them by assisting the institutions and ignoring their weaknesses. Higher educational institutions or research institutions, not in continuous contact with their constituencies, find it very difficult to keep their own functions up to date with and relevant to the constantly changing needs of their country's agriculture. And, without operational linkages to the farmers and other elements of their nation's agriculture, their impacts are correspondingly muted. The fact that some of the technical communication of research findings to

farmers is carried by private farm supplies companies is a happy circumstance -- if it is carried out competently and honestly. But it does not necessarily keep the research and education institutions on target nor the technical educational process accurate. Probably few Americans totally accept T.V. or newspaper ads at face value -- even in this country which prides itself on the sophistication of the average citizen. The proposition that private sector firms are by some magical metamorphosis rendered incapable of misrepresentation of their product's value merely because the country is less well developed strains credibility. Yet, it is a popular precept among Americans.

Back to the broader issue!

The United States cannot, of course, force other countries to adopt any particular mode of organization of its public institutions. Any attempt to force anything fails, and often backfires. It can, however, succeed in persuading countries to improve their own performance by reorganizing their institutions and redeploying their resources. We cannot impose, nor should we attempt to impose, our institutions upon them. But we can -- and should much more frequently than we do -- decide what we can and what we cannot afford to do with our very slender assistance resources, i.e., which countries and which approaches to support. It makes no sense to support and therefore reinforce inept institutions when there are always so many available opportunities for effective use of such resources.

This matter of integration of agricultural education functions at the local level -- discussed at such length in the India experience -- becomes increasingly relevant as the great international research networks evolve generalized scientific solutions -- and material such as plant varieties -- for use in numbers of LDCs. It is essential that the further local research adaptations to local use of these basic or generalized products of scientific research be in intimate two-way contact with the farmers, else they will not be fine-tuned to local farmer needs. Nor will the lessons of that fine-tuning be fed back into the great international agricultural research centers and collaborative research networks which generate the basic or generalized research. Lack of effective linkage between research and application is the second most dangerous source of the possible failure of science and technology effectively to create the conditions of international "Famine Prevention and Freedom from Hunger" -- in other words, of Title XII.

The only greater danger may be in the inability of nations to maintain sufficient intellectual and scientific comity to permit the powers of collaborative science and technology to work in their favor. And this, at bottom, is the challenge to educational and research institutions of developed and less developed countries together. Title XII is legislative a pointing of the the way to this objective. It is for the future to determine the extent to which A.I.D.'s programs of agricultural assistance to developing countries capture the opportunities defined in that initiative.

A final observation about future responsibilities and opportunities under the Title XII amendment: the issue of degradation of the environment in less developed countries is extremely important. In its starkest form, it derives from a competition between expanding human populations for land upon which to grow food, and other uses of that land which net happier environmental balances. As long as populations and consumer demands for food increase, deforestation to create more space for food production will expand and end-environmental degradation intensify -- unless, as happened in the United States over the last century, research and education, or science and technology, can increase productivity per acre sufficiently to feed more people from less land. The last five decades in much of the eastern half of the United States has been a period of enormous environmental restoration -- if measured in terms of wild life, land in trees, national forests or parks.

Farm productivity per acre on the better adapted lands is now so high that rough hillsides, shallow soil mountains, plateaus, arid or sandy soils have been largely abandoned as farmland and reinstated as key elements of environmental restoration. Again, the research and development approach exemplified by U.S. Land Grant universities and incorporated into foreign aid policy in Title XII is needed in order to deal properly with the need for greater food production and environmental improvement as a single interrelated problem. Working as part of an organized system which includes the LDC agricultural research and educational institutions and the International Agricultural Research Centers, the U.S. Land Grant and other agriculturally competent universities can continue their emphasis on intensifying food production by increasing yields per acre, and thereby can assist in making possible a systematic, integrated attack on worldwide environmental degradation. In the decades ahead, this may well constitute one of the stongest imperatives for a continuation and enhancement of Title XII.

ENL NOTES

[1] Contrast of the RAC and BIFAD experience suggests one body of experience. Also, the procedures set up for selection of individual universities' participation (including budgetary adjustments and even expulsion) in the Collaborative Research Support Programs involved substantial roles for university and BIFAD participation. These procedures work quite smoothly.

[2] A.I.D. (IDCA), Report to Congress on Title XII (1981), p. 1.

SECTION VI

HISTORICALLY BLACK COLLEGES AND UNIVERSITIES (HBCUs): SPECIAL EFFORTS

A.I.D. PROGRAMS FOR THE HISTORICALLY BLACK COLLEGES AND UNIVERSITIES (THE HBCUs)

There was not a black face in the crowd.[1]

Early Concerns and Attempts

It had been a beautiful day. A.I.D. Administrator Dr. John A. Hannah, at a ceremony on the campus of a southern university, had just signed a five-year, $700,000 211(d) university development grant to the university. The senior U.S. senator of the state had been present as had been the U.S. congressman from the district in which the university was located. The Governor, for reasons every one there could understand and appreciate, was not able to attend the ceremony. He was working out the last details of signing a state grant to the university, exceeding in size but matching in purpose and design, the A.I.D. grant. The pooled funds from the two grants were to finance establishment at the university of an International Research and Training Center focusing on a special kind of agricultural production enterprise important to the developing countries and for which they needed this university's renowned special expertise. The Governor sent by telegram -- to the enthusiastic response by participants in the ceremony -- advice that the state grant had been consummated and his signature affixed.

The university had done excellent work -- truly outstanding work -- overseas for A.I.D. This new international center would assure a continuing resource of American expertise, and training facilities for LDC participants in this specialized but important subject. Dr. Hannah had noticed a picture of himself hanging on a wall, depicting the occasion several years before when the university had granted him an honorary doctorate degree for his U.S. educational leadership. He and the writer even enjoyed a few pleasant but unsuccessful minutes of fishing while awaiting the departure of the return plane to Washington.

Having enjoyed so much the day's pleasant experiences (and perhaps with just a touch of self-satisfaction at having developed the grant and worked with the university on the arrangements), the writer said to Dr. Hannah, as we at last relaxed in our plane seats, "Well, it certainly all came out perfectly, didn't it?" Dr. Hannah was not, however, beaming. Instead, somewhat sad of visage, or so he appeared, he asked simply, "But didn't you notice? There wasn't a black face in the crowd."[2]

Deliberately, this university is not here identified, and details of its program are kept obscure, as there is nothing unusual about the circumstance. True, it was a southern university. But not long before, the writer delivered a similar grant under very similar circumstances to a northeastern U.S. university, and Dr. Hannah's comment, had he been there to make it, would have fit the occasion equally well. Indeed, the writer's chagrin was not embarrassment at the university's performance but at the fact that, hardened by the near uniformity of experiences with U.S. universities, he had been guilty, as Dr. Hannah's question implied, of <u>not</u> noticing the absence of black faces in the crowd. This especially embarrassed him as he had thought of himself as one of the relatively few people in the Agency who had in fact been sensitive to the problem of non-participation by U.S. black professionals in A.I.D. university contract projects. Dr. Hannah's question had highlighted how easily this issue can slip from view.

This experience persuaded the writer to get even more involved in the issue. Some years later President Reagan's strong and forceful efforts on behalf of the historically black colleges and universities, and the adding of an amendment to the Foreign Assistance Act by Congressman Gray of Pennsylvania, together created the opportunity for A.I.D. and the writer to get very actively involved indeed. A.I.D. can be very proud of this chapter in its history. It's a success story that merits the telling, and will here be related. But first a little of the precedents.

In the early years, United States foreign assistance activities had been carried out largely in non-caucasian countries in Asia and Africa. Many of these countries had been for centuries under the dominion of caucasians from European countries. Therefore, it is not surprising that most of them were highly sensitive to matters of discrimination on the basis of color of skin. Indeed, some of the Asian countries have a crisscross of color discrimination problems of their own -- some discrimination against people of partial European ancestry, and reciprocally, discrimination favoring lighter-colored individuals in their own indigenous populations. As these countries were trying to find their way into independence, especially those which tried to base that independence upon free political and social institutions adopted or adapted from the West, these problems of color discrimination became very conspicuous and very important. Therefore, the U.S. would have been well advised to project the best possible image and carry out the best possible practices to demonstrate that color discrimination was in no way an acceptable ingredient of our international diplomacy or foreign aid efforts.

The United States in the early days of the foreign aid effort was not well advanced in its own treatment of color problems. It was while the writer was in India, and before that briefly in Africa, that rampant racial discrimination was coming to a head in the United States as the country's foremost social and political issue. This U.S. transgression was highly publicized by that part of the overseas press which was politically hostile to the United States, and was made much of by other countries which were attempting to propagate ideologies opposing those of the United States.

One of the unfortunate dimensions of the U.S. diplomatic process was the relative paucity of blacks in U.S. teams of professional experts sent to work and to provide technical assistance to the less developed countries. In India, for example, during the period 1955 to 1960, there were, to the writer's observation, only three blacks among some thirty U.S. agricultural technical experts employed directly by the predecessor of A.I.D. ("Direct-hire" is the term usually used to distinguish these individuals from those employed under contract arrangements.) These three represented a very small component of the agricultural technical expertise then provided by the United States. They were, however, somewhat more conspicuous than their numbers suggest, due to their very high competence and the excellence of the work they performed.[3]

Inadequate as was the representation of blacks in the teams of technical experts provided under A.I.D. direct-hire, the situation was much worse among those teams provided by the U.S. universities under contract. The writer was very concerned about this as it applied to his own team in India. He was in the process of attempting to correct this by inducing the University of Tennessee to work out some type of subcontract arrangement with Tennessee State University, a predominantly black institution located in Nashville. However, this was not consummated by the time he left India. During the years in which the writer was in India, there were no black full-time U.S. university employees working on agricultural problems in India.

Following the re-organization of 1961, the foreign aid Agency's shift from providing technical expertise by direct-hire employees to providing it through university and other contracts, aggravated

the exclusion of blacks from the U.S. presence overseas. The growth in agricultural technical assistance was all on the contract side, and direct-hire technical assistance was sharply curtailed. The consequence was that very few blacks indeed participated in the American agricultural technical assistance efforts abroad.

This was unfortunate in many ways. Some of the well trained and competent individuals from the black community had some special and potentially valuable insights gained from years of dealing with problems imposed by various types of external economic domination not unlike, in some respects, those created in the less developed countries by the colonial system. But the primary difficulty, from a U.S. foreign policy point of view, was the simple fact of having, in the less developed countries, strictly caucasian representation of American society. Whereas embassy personnel and other official U.S. representation is largely in the capital cities in the less developed countries, the typical A.I.D. presence and particularly the university contract teams locate at the sites of the work to be done -- which in many cases is in smaller towns and cities scattered throughout the country. Therefore the people-to-people interactions and the general American image are much more broadly conveyed through the university contract programs than through the presence in the capital cities of American A.I.D. or embassy employees. On a proportionate basis, A.I.D. workers, and especially technical assistance workers (direct-hire or contract) are, because of the types of local officials with whom they work and the type of work they do, more important to the U.S. diplomatic process than are those who attend to the routine business of the embassies in the capital cities and the consulates in the larger commercial centers.[4] For this reason it was extremely unfortunate that the shift to university and other contracts as a source of technical expertise should have had this undesirable result.

In the mid-1960s the writer was asked by Mr. William Hall, then A.I.D. Assistant Administrator for Administration,[5] to attempt a determination of the extent to which the larger U.S. universities were sending black faculty members overseas under A.I.D. financed agricultural contracts. This necessarily discreet and therefore not necessarily complete inquiry revealed that only two blacks had been sent on recent overseas agricultural contracts by the U.S. universities contracted, and these two did not happen to be in service at the time the inquiry was made. These inquiries were made of the larger state Land Grant universities.

A small compensatory circumstance was that some of the U.S. historically black colleges and universities, all of them in the southern portion of the country, had small A.I.D. contract operations in a few places, but these activities in agriculture were small and essentially of short-term nature. Furthermore, they added emphasis to the demonstration of our own historical racial segregation, as these teams rarely contained caucasians. The U.S. university contract programs dealt generally with shaping and developing country <u>educational</u> institutions -- the generators of developmentary opportunities for both individual people and for the countries themselves. (And it was with respect to discrimination in educational opportunities, especially, that our own racial struggles were, at that time, most vividly portrayed in the press.) A poor place, indeed, for U.S. diplomatic practice to put its worst foot forward. It was a bad state of affairs.

As part of a general U.S. government process, A.I.D. initiated a formal and thorough process for making certain that its contractors did not discriminate against blacks or other minorities in their hiring, promotional and related personnel policies and practices. Two institutions appeared to be marginally, technically, at fault. They both promptly took the necessary steps to comply with requirements. However, rigorous compliance with these requirements did not appreciably affect

university performance for A.I.D. in this respect. Past university hiring practices -- and a host of other factors -- resulted in the universities having on their faculties very few blacks and other minorities in the scientific or technical subject fields specified in the A.I.D. contracts: too few to permit the universities to spare them for A.I.D. contracts overseas. As distinct from earlier periods, universities were at this time making strenuous efforts to recruit blacks and other minority members into their faculties and administrations. But, owing to past shortcomings in U.S. educational policy, the recruiting field in many technical subjects was relatively limited. And the universities had many other needs for these few black recruits, closer at hand and perhaps more attractive to the persons involved. So A.I.D., while making efforts to attract as many such black faculty members into its university contract teams as possible, had to turn its attention to the only seemly source for solution to the dilemma: the predominantly or more recently historically black colleges and universities (HBCUs).

One might assume that a solution could have been found by manipulating the contracting process to favor the HBCUs, thereby modifying the overall makeup of the American presence abroad. But there were real problems. A.I.D. did not wish, of course, to compromise the quality of its technical assistance effort. Also, host countries had a strong voice -- in many cases a final voice--regarding which U.S. universities should be selected. Technical assistance projects properly set very high standards of highly specialized training and experience. The HBCUs were largely teaching oriented institutions at that time, and had relatively few research experts of the right mix of technical expertise called for by any given contract to spare for overseas contract work. The host countries were anxious to obtain the most highly qualified, experienced, and the most well known of U.S. university scientists possible to help build their own scientific capabilities and reputations. A major obstacle was that the contracts were simply too large for a single HBCU institution to undertake unless that institution itself had a relatively large specialized staff upon which to draw and an extremely strong executive and faculty commitment for participating in these overseas technical assistance programs. Most seriously, there were relatively few new university contract projects started in any one year. The bulk of A.I.D.'s funding of U.S. universities was to continue ongoing projects. Neither A.I.D. nor, especially host countries wished to terminate successful ongoing contracts in favor of a new contractor.

A.I.D. had been making some special efforts to solve this problem. The late Mr. Herbert Reis of A.I.D.'s Near East and South Asia (NESA) Bureau and the writer had considered expanding each of the six university agricultural contracts then active in India each to include a specific component, under a subcontract arrangement, to be undertaken by a historically black college. This would be relatively simple to do because these six contracts were already under way in India, and A.I.D. and the university could add a subcontract component without raising real problems of contractor selection on the part of the Indians. The U.S. universities then working in India had always had difficulty fielding full teams from their own faculties, and several of their positions were usually at any given moment unfilled. One perfectly acceptable way of filling these staff vacancies would be through adding a subcontractor: in each case a historically black university. Mr. Reis, Dr. James Blume, head of the NESA technical staff, and the writer presented the idea to the administrative heads of the six universities working in India, and informally through the A.I.D. mission to the Indian Government. (Formal Government of India agreement was not required as discretion at this level was provided to the universities under the existing cooperative agreement between governments and by the several A.I.D./U.S. university contracts.) An agreement was achieved all around and the information was circulated among the historically black institutions. This arrangement would permit immediate participation of the HBCUs without pitting their limited manpower resources against those of the

larger universities -- and closing out in the bidding! The HBCU would participate fully with its partner institution in all aspects of contract management.[6] Planning was relatively well under way when, unfortunately, for totally unrelated reasons, the U.S. Aid program in India was essentially terminated. By the time the relationships with India had recommenced the agricultural college contract program had completed its sixteenth year of service. However, the idea of teaming up historically black universities with other universities, or teaming them up at time of contractor selection as a device for giving the HBCU's greater competitive force during the bidding process, later became the obvious solution to this decades-old dilemma.

Another major A.I.D. initiative was the 211(d) grants program. This includes some grants to strengthen the capabilities of the agricultural historical black universities to do more effective work overseas. Five-year grants had been made to Virginia State University, North Carolina A&T University, Tuskegee University, Southern University, and the Texas A&M University at Prairie View. A.I.D. made clear to these black universities, and to all other recipients of 211(d) grants, that it would look with favor on informal alliances between historically black and other universities, which would feature their working in partnership in sending technical assistance teams abroad for A.I.D.

However, this was still inadequate to the task. A.I.D., on its part, had decided that it was necessary to direct its university strengthening activities under the 211(d) program to give special emphasis to collaborative arrangements between the historically black colleges and those other universities which undertook major agricultural programs for A.I.D. As a result, three subject areas were selected in which it was believed A.I.D. would be drawing upon universities for special expertise for some time. These three fields were: applied agricultural economics, animal husbandry, and soils. In each field, a set of "211(d)" grants was given to leading U.S. universities and an HBCU for the purpose of strengthening their conjoint development and contracting with A.I.D. The set of grants in soils illustrates the case.

Cornell University had for a long time been a leader in the soils field and had itself worked on tropical soils in several LDCs, notably the Philippines. It had helped the University of Hawaii set up what had become a very strong tropical soils department. It had also worked with the soils Department of the University of Puerto Rico. It would be useful to get this interrelated set of U.S. university expertise and past experience expanded somewhat to include an historically black college.

Accordingly, the writer and his administrative superior, Dr. Joel Bernstein went to Cornell University to visit with Dr. Nyle Brady about the possibilities of such an arrangement. Dr. Brady[7] endorsed it readily. Out of this grew a set of grants to develop special capacities in soils work at Cornell University, North Carolina State University, the University of Puerto Rico, the University of Hawaii, and the Texas A&M University at Prairie View, which is the historically black college of that state. Cornell University already was highly experienced in working for A.I.D., and was a premier institution in soils science. (Dr. Brady was an author of the most widely used text book in this field.)[8] One of Cornell's principal duties in this set of grants was that of assisting the Texas A&M at Prairie View develop its on-campus capabilities for work in the developing countries. North Carolina State University had a strong soils department and abundant experience with soils work in Peru under its institution-building A.I.D. research contracts focusing on Latin America soils problems. The University of Hawaii and the University of Puerto Rico had special competencies of their own in working with tropical agriculture in humid climates. Texas A&M at Prairie View, the historically black college in the group, had specialized in prairie and semi-arid types of soils, of which there were

many in the developing countries. Cornell, of course, had worked on a worldwide basis but within New York State its research was necessarily largely oriented toward temperate zone soils. This combination brought together U.S. universities experienced with highly varied types of agricultural ecologies and provided extremely outstanding scientific capabilities and specializations.

A similar effort was made in the field of animal husbandry with a grant to the Texas A&M University,[9] the University of Florida, Purdue University and Tuskegee University. It was their responsibility under these grants to develop a special capability to make short-term study analyses of the livestock production situation and potentialities of individual less developed countries and to recommend what type of animal policy the country ought to undertake: what types of problems constituted principal limiting factor, what types of research are needed, and what types of institutional development are called for.

One of the serious problems of getting competent technical assistance advice in the livestock field is that the problem is largely seen by the advisors through the particular perspective of their field of training. Animal nutritionists see the problem as inadequate feed supplies; animal breeding experts as poor genetic construction of the LDC animals; animal disease experts as a problem of diseases and pests. All of these are of course important. But countries have to make choices. The real needs were for experts to help LDCs weigh one problem and corrective course of action against the other, and to help them determine which patterns of investments would likely be most important. In all cases, marketing the product and producing for the market require a strong component of economic analysis. Each of the U.S. universities selected had outstanding ability in one or another of these special dimensions of livestock science. The set of 211(d) grants facilitated their working together on these problems in the LDC context, across campuses and particularly across disciplines. This set of grants developed a relationship with the country of Guyana as an accessible field laboratory in which all of these kinds of problems were to be found in abundance.

It was assumed that as this combined analytic competence of these four universities was brought to use in LDCs, follow-on technical assistance projects on correctly formulated livestock development problems would result. This did not, however, prove true. Few A.I.D. missions gave livestock development the attention it deserved -- and fewer still the kind of balanced pre-analysis these grants envisioned. Nonetheless, the competencies of all five universities benefited. And Tuskegee University was strengthened in its overall ability to participate in A.I.D. projects.

A similar special effort to strengthen HBCU capabilities and participation in joint projects with other U.S. universities was undertaken by A.I.D. through a set of 211(d) grants in agricultural economics to six universities, two of them HBCUs: Southern University and Virginia State University. The other participating universities were Cornell, Michigan State, Minnesota and Wisconsin. These institutions participated actively in several cooperative agricultural sector analyses.

Title XII: Strengthening Grants and Joint Memorandums of Understanding

With the passage of Title XII, A.I.D.'s resources for continuing its efforts to involve HBCUs more fully expanded significantly. The Title XII, itself, specifically included the historically black agricultural colleges and universities for participation. Furthermore, it specifically called upon A.I.D. to strengthen the capabilities of U.S. universities to undertake A.I.D. agricultural program assignments. Clearly, this strengthening mandate extended to the historically black agricultural colleges.

Drawing upon experience with 211(d) grants, in long discussion, A.I.D. and the statutory board (BIFAD) established under Title XII set up a major program of strengthening grants. Since its inception in 1979, 58 universities (including nine minority universities) have received Title XII strengthening grants. Of these 56 have been completed and the remaining two will be complete in 1990.

These strengthening grants, as a whole, were extremely cherished by the U.S. universities. This was to be expected, as funds to undertake activities on-campus are always desired -- in contra-distinction with projects overseas. However, these grants imposed some genuine obligations upon the universities:

- They were to be used only for expenditures which demonstratably improved the capabilities to work on A.I.D. projects. (This did not include merely improving technical competence as this was stipulated as a required qualification for receiving the grant.)
- The grants had to be matched, dollar for dollar, by the recipient university.
- All of the funds, A.I.D. and university furnished, were for program purposes only -- i.e., all overhead costs were borne by the university. As overhead costs are real costs, normally about fifty percent of program costs, and occur with respect to university as well as A.I.D. funded portions of the program, an A.I.D. grant of $100,000 would be matched by a $100,000 (minimum) university contribution to program costs, plus 50 % of the total $200,000 program (or another $100,000) of overhead contribution. Therefore, total university contributions to strengthening grants were about twice those of A.I.D. The entire purpose of the undertaking (in this example, $300,000 per year) was to strengthen the university's capability to work A.I.D.

Because of its special interest in increasing HBCU participation, A.I.D., with BIFAD concurrence, waived the matching contribution requirement for the first five years for all HBCU strengthening grantees. It did not, however, waive the overhead contribution requirement for the institutions.

A.I.D. and BIFAD strongly believed that HBCUs should, ultimately, also contribute matching funds to these grants. Otherwise, they would be looked upon as external, rather than organic, to the universities' own mission. This proved to be entirely correct. Therefore, the five-year waiver period was instituted to give the participating HBCUs time to build up legislative and other support for their

participation in A.I.D. programs, and hence matching the A.I.D. strengthening grant. From the beginning, these universities were required, as well all others, to contribute the overhead costs.

Although the strengthening grant program as a whole had significant shortcomings, it was a thorough success in its basic purpose: i.e., rekindling the universities' interests and enhancing their capabilities for participating in A.I.D. overseas programs. The Vietnam experience -- and other university attitude-affecting events -- had dampened university enthusiasm for entanglements in foreign affairs. The strengthening grant program reversed this -- in the agricultural colleges, at least! A.I.D. technical assistance projects did not expand as hoped or anticipated, however. This in combination with the immense outpouring of university interest and expanded capabilities, nurtured by the strengthening program, shifted the situation from a seller's to a buyer's market in the supply of U.S. agricultural technical expertise. Any foreseeable rise in demand for such expertise can now be easily met.

Insofar as expansion of participation of HBCU, the Title XII strengthening grant program improved matters only slightly.

As time unfolded, the fundamental shortcoming of the strengthening program as an instrument of expanding HBCU participation in A.I.D. field projects became evident. This shortcoming was that the university competencies created by the grants were not linked tightly enough with the process of contracting for those competencies for overseas projects. The competencies, for example, acquisition of linguistic skills, were unquestionably relevant overseas. But there was no built in mechanism to adequately link together the two processes of strengthening and utilization. Decisions as to which U.S. universities should be strengthened, in which respects, were in the main well made. But A.I.D. contracting had become increasingly formalized over the years to the extent that contractor selection could only be loosely related to any special competencies of the universities selected.[10] The possibility of having a technically competent mission or Washington A.I.D. employee, such as Dr. Frank Parker in India, simply visit the universities and decide which would be the most dedicated and committed and have the best available resources for the job had long since disappeared and had been replaced by a process of soliciting bids and selecting universities on the basis of those written submissions. It's a necessary process for purchasing services or supplies from private sector sources, but not a proper device for engaging public sector efforts in common public purpose! One could argue long on this subject. But, generally speaking, universities are not specialized in proposal writing; and examination of a piece of paper is very far removed from appraisal of the will and scientific capability of a university. Most importantly the reviewing panels are usually not nearly as knowledgeable about universities as was the case with Dr. Parker. On balance, the writer firmly believes the older system was much more efficient, and effective.

In any event, the university proposals selected on a competitive basis very often were not those with specialized competencies built through 211(d) strengthening grants. Unused, special capabilities built on university campuses tend to wither away. The result of not linking procurement more closely to strengthening activities was the lack of a type of specialization which would have greatly enhanced the competence of the U.S. foreign assistance effort.

This procurement approach militates powerfully against the historically black colleges and universities. Because they are relatively small, they find it very difficult, without special assistance, to compete effectively or to satisfy the requirements of specialized expertise called for in many of the A.I.D. university institution-building contracts. So, steps were taken by A.I.D. to reshape the

strengthening grants to facilitate special joint working relationships between historically black colleges and universities and other universities experienced in A.I.D. contracting. This was formalized later with the development of the Joint Memorandum of Understanding instrument (to which we shall return). In any event, through, first, the 211(d) program, followed by the Title XII strengthening grants and the Joint Memorandum of Understanding, A.I.D. was slowly building a group of historically black institutions with a substantially enhanced capability for and interest in working overseas for A.I.D. -- and with the beginnings of partnership arrangements with other universities which helped greatly to open the doors to such contracts. Furthermore, an increasing number of missions had been exposed to some of their faculty members and saw important roles for them in country assistance programs.

SECID

On a parallel course the HBCUs had taken important steps of their own. They had formed a consortium which included virtually all of the historically black agricultural colleges which had any particular interest or experience in working overseas, and they had added into the mix several other universities which had had a considerable history of working on A.I.D. agricultural projects overseas. This consortium (the "Southeast Consortium for Institutional Development," or "SECID") formed itself into a body which could itself obtain contracts through normal bidding procedures and then put together from members institutions the combination of technical expertise required by the contract. This consortium was moderately successful both in obtaining a relatively large number of contracts and in doing relatively satisfactory work on those contracts. It was, until A.I.D. began to devise special instruments, by far the most successful means through which these HBCUs could get involved in A.I.D. contracts. However, this type of generalized arrangement has some real shortcomings.[11] Chief among them was that given contractors often called for highly specialized expertise not available at the time needed from the member institutions. Hence the special A.I.D. devices were needed.

Initiatives at the Highest Levels of Government

In the meantime, much greater forces were coming to the assistance of the HBCU's participation in A.I.D. (and other federal government programs) -- the President of the United States and the U.S. Congress.

This effort began with President Nixon who indicated quite clearly his concern about the lack of participation of the black U.S. universities in government program activities. He called a meeting on that subject in the White House, which the writer attended, in which his spokesman indicated the President's strong concern. Some formal planning and response was under way when it was overtaken by the so-called "Watergate" affair.

President Carter similarly announced a concern with this problem. Each agency was asked to send a representative to a series of meetings. Most agencies, including A.I.D., have a special office or representative for minority affairs, and these individuals represented their respective agencies. They were advised that Vice President Mondale had been asked to take a special hand in this matter. Officials from several black universities attended the meetings and pressed the point that, in order to

engage in carrying out government programs of whatever type, they needed some direct assistance or enhancing their capacity to participate. The problems most cited were that they were not experts at proposal writing; they had not had experience in working on government contract projects; they had inadequate experience with pooling resources. In short, they needed some kind of special strengthening program.

At one such meeting, a knowledgeable representative from the White House staff referred to A.I.D.'s special experience with HBCUs in the 211(d) grants and in the Title XII strengthening grants programs. As a consequence, the writer (who had not attended the meetings) was asked to speak to the group at its next meeting on this experience. He did so. The interest of all the agencies was very lively. As a result, a small working group -- including the writer -- was informally constituted to identify obstacles to participation by the HBCUs in the regular contract programs of the various agencies of the federal government. The focus of this effort was not on U.S. government support to the regular education programs of the universities, but on their participation in the other activities of the federal government which use personnel and other resources of universities but from which the HBCUs, by reason of their small size or unfamiliarity on both sides, were largely left out. This small group began to develop a strategy to approach this government-wide problem. After a very few months, however, it was announced that this special emphasis on the black colleges and universities was "no longer on." This was unfortunate, as planning for it seemed to be making some real progress.

The situation changed radically for the better with the next administration. In September 1981, President Reagan issued Executive Order #12320. In brief, this Executive Order stated clearly that all agencies of government should take special steps to assure that the historically black colleges and universities were awarded a larger share of participation in the programs for which universities were engaged by those agencies. It specified that obstacles to HBCU participation should be improved, that their infrastructure for such participation should be improved, and that all federal programs which were ongoing should have a larger proportion of participation by the historically black colleges and universities (called throughout "HBCU's"). The President's order went on to stipulate that for expanding programs involving institutions of higher education the HBCU portion should expand more than proportionately; for those which were decreasing, the HBCU portion should increase less than proportionately. The President assigned responsibility to the Department of Education to oversee this government-wide operation. He requested that each year he be provided an annual report on progress in the past year and an annual plan for the next year. Each year, the plan would be examined for the level of effort being proposed and, at the end of the year, the year's accomplishments would be examined against that plan. Each government agency was asked to designate some individual at each of two levels to meet with the special White House staff which was set up in the Department of Education to accomplish the President's objectives in this program.

One year later, President Reagan sent a memorandum to all the agencies reaffirming his support to Executive Order #12320, and stating in firm language that he expected the agencies really to get with this effort and that he would be tracing how well they did with it.

This Executive Order was well received by A.I.D. as support for something which, as the above recital describes, it had been trying for years to accomplish, but which for various reasons had found very difficult to do. The writer, as Director of Research and University Relations, was asked to be in charge of the Agency's HBCU program at the staff level, to represent the Agency at the White House Initiative Staff meetings established under the Executive Order, and to prepare the Agency's annual

plans and reports required by the Executive Order. An Agency-wide committee was established by the Administrator under the writer's chairmanship, which represented all the action elements of A.I.D. whose policies and programs would affect the outcome of the Agency's efforts to comply with the Presidential Directive.

Further emphasis was given to the President's Executive Order by the passage of the so-called "Gray Amendment" to the Foreign Aid Continuing Resolution of 1984.[12] Congressman Gray had amended the Foreign Assistance Act to provide that a greater proportion of all contract work be done by black contractors, and he specifically included the historically black colleges and universities in this provision. This amendment similarly required an annual report, in this case to the Congress. Responsibility for this program, including its annual report, was properly assigned to the Small Business Office in A.I.D. The overlap between the A.I.D. responsibilities under this amendment and under the President's Executive Order was handled through close cooperation of the two offices in all aspects of policies, procedures and reporting. This was facilitated by active participation of the Small Business Office in the Agency's HBCU Committee. The administration of A.I.D. strongly supported both of these initiatives: Administrator McPherson, and most especially the Deputy Administrator, Jay Morris, and the Senior Assistant Administrator, Dr. Nyle Brady. These three top administrators gave all possible support and exerted suasion throughout the structure of the Agency to move its programming of activities in such ways as to achieve the President's and the Congressional objectives of more fully involving the historically black colleges and universities.

It was clear that a strategy was needed. The pressure was on the Agency, of course, from several individual HBCUs anxious to receive a large grant to do something that it felt would be useful. However, an aggregation of discrete, of disparate, activities by a group of contractor grantees--no matter how meritorious each may be -- does not contribute greatly to a strategy for implementation of U.S. foreign policy interests. A.I.D. had learned from 211(d) and Title XII strengthening experiences that a more direct relationship between the creation of U.S. university capabilities and the using of those capabilities was necessary for the process to have meaning. The decisions on which universities were to be called into action overseas was, of course, largely at the hands of the mission staffs and the developing countries themselves. Therefore, the Agency's real goal was not in making grants to universities in this country, except as -- in the spirit of these two mandates -- these grants would help the HBCUs actually get more fully involved in and therefore contribute more to A.I.D.'s overseas assistance projects.

The strategy then was rather simple.

First, it would advise all elements of the Agency, including field missions, that every possible and feasible measure should be taken to assure that HBCUs were fully accessed in the contract procurement process. This meant educating A.I.D. field missions (and Washington support staff) regarding the special interests and competencies of specific HBCUs; and it meant keeping HBCUs as fully informed as possible of prospective A.I.D. program needs.[13] And A.I.D. would attempt certain procedural changes to facilitate accessing HBCU capabilities.

A second component of A.I.D.'s strategy was (building on past and ongoing efforts) to enhance the HBCUs' ability to obtain A.I.D. technical assistance contracts and subcontracts. Two new programs were initiated for this purpose: a program of "Joint Memorandums of Understanding"(MOUs) with accompanying support grants, and a program of special, competitive, HBCU

research grants. Each had a different role; each has performed very well against its objective of stimulating excellent and sharply increased involvement of HBCUs in A.I.D.'s field projects.

Earlier experiences with 211(d) grants and Title XII strengthening grants to HBCUs had shown deficiency in usefulness as a device for getting the grant recipient HBCU involved in A.I.D. field contracts. As stated earlier, most contracts are ongoing and very few new ones are started each year. Furthermore, such new contract proposals as do arise usually call for a greater breadth of highly specialized competencies than are available from any one HBCU at any given time. Therefore, a new instrument was devised, called a Joint Memorandum of Understanding, signed between A.I.D. and "pairs" of U.S. universities, i.e., one university which already had a rather large program activity, and one HBCU with complementary capabilities and resources, which had interest and professional capability but which, because of its relatively small size or other reasons, had not been able to get itself involved appreciably in A.I.D. overseas projects. Under the Memorandum, each university would be given a support grant, to strengthen its own capability for overseas work (e.g., language training) and, especially, to enhance its capabilities for joint responses to new project proposals and for the HBCU's participation in its partner university's ongoing projects.

An example is an A.I.D. Joint MOU with Auburn University and Arkansas A&M University in the field of aquaculture (pond fish production). Each has special capabilities in this field. Auburn has for years been heavily involved in this work overseas and at that time was being called upon frequently by A.I.D. field missions to provide technical assistance and participant training in aquaculture. Under the arrangement, Auburn would be assisting Arkansas A&M to orient its capabilities toward LDC conditions and to provide its services on aquaculture projects. As requests came through normal channels to Auburn, it would share these requests with Arkansas A&M, which would participate freely and by its own choice in supplying either personnel or training facilities.[14]

The Special HBCU Research Program

The second special A.I.D. program designed to enhance the HBCUs' capabilities to acquire special A.I.D. contracts was the initiation of a competitive program of special research grants to HBCUs. These would-be grants were normally of a size which could be undertaken by one or two faculty members, in or on behalf of one or more less developed country. In most cases the research would be done partly overseas and partly on the HBCU campus. Normally, it would be done cooperatively with one or more LDC collaborating scientists. Grant awards were on a competitive basis, evaluated for relevance and importance to LDCs by A.I.D., and for scientific merit by a panel of scientists assembled by the National Academy of Science. This research program has the desirable features -- in addition to its scientific research contributions to LDC development -- of helping identify outstanding research scientists on HBCU campuses and of acquainting A.I.D. field missions and LDC personnel with these HBCU scientists. The special HBCU research grants quickly established many such contacts and demonstrated the high scientific research capabilities of the HBCU researchers. The program produced some startlingly exciting results in several aspects of health and agriculture. Brief discussions of examples of successes -- both in achieving important scientific research contributions and in leading to another HBCU participation in A.I.D. assistance projects -- will be given later.

END NOTES

[1] Dr. John A. Hannah, Administrator of A.I.D.

[2] Dr. Hannah had for many years served on the Civil Rights Advisory Commission of several Presidents. He was a very large-hearted man throughout his career as university president and A.I.D. Administrator, with great sensitivity to human feelings and moral values. Without doubt, the American foreign aid program attracted his special interest (as it had ever since 1949 when he had pledged the Land Grant universities' support to the President's "Point Four Program") largely because it was the country's largest single peacetime endeavor ever directed entirely at assistance to the less economically advantaged people of the world. "It is only the people who count," was his standard pronouncement of the central premise of foreign aid doctrine. And, in a moment of exceptionally dismal prospects for the future of the foreign aid agency, he won an especially warm spot in the hearts of all Agency employees when he told them, simply but strongly, "Your job is to continue, as you have been doing, to do the best you possibly can without wasting your time worrying about keeping your job. It is my job," he said, "to see that you don't lose yours." One of the writer's friends, who had known Dr. Hannah in another work context, once said: "Dr. Hannah has a brilliant mind; but his greatness is that he thinks with his heart." Greatness of spirit distinguishes the great from the good public persons. Dr. Hannah has this greatness of spirit.

[3] One of these men remained in A.I.D. until his retirement. He did extraordinarily good work in India, well recognized and relatively well publicized. Throughout his long career in A.I.D., he was considered one of the Agency's best and upon his retirement was frequently called upon for technical advice through consulting arrangements. Another went into the private sector and rose to a top executive position in a trade association. The third rose within Agency ranks to become a Mission Director and concluded his governmental career as a Deputy Assistant Secretary of State. (The writer takes pride in the fact that this individual was at one time his graduate student at the University of Wisconsin.)

[4] With this conclusion not everyone would agree. Sufficient here to say that A.I.D. technical assistance workers (direct hire or contract) work with the local people on their problems, rather than on the U.S problems of collecting information needed by and reported to the United States, and looking after the concerns of U.S. citizens and businesses. Both are legitimate, but the personal interactions with local officials are totally different.

[5] Later U.S. Ambassador to Ethiopia.

[6] See later in this book the discussion of the cooperation of the Universities of Illinois and Maryland-Eastern Shore for an illustration of how this idea was put into play with extraordinary success, fifteen years later in Zambia.

[7] At that time, Director of the Experiment Station at Cornell University, Chairman of the A.I.D. research advisory committee, previously, Head of Cornell University's Soils Department, and also, Team Leader of Cornell University's technical assistance team to the Philippines.

[8] Nyle C. Brady, The Nature and Properties of Soils, 10th Edition (New York, New York: MacMillan & Co.).

[9] At College Station: not to be confused with Texas A&M University at Prairie View which is a historically black state university.

[10] This was often carried to ridiculous excess. In one instance, where a study had been set up in two phases (a preliminary feasibility study and final phase) after the university had completed the first phase in acknowledged outstanding and efficient manner, it was

held by General Counsel that the second phase had to be "readvertised." Selection of new contractor could only have waste a time, created much greater costs due t duplication of effort and risked the choice of an inferior contractor. Fortunately, th Deputy A.I.D. Administrator at the time -- the outstandingly capable Robert Nooter surfaced the issue in such a way that the ridiculous ruling was reversed. This type c contractor selection made it difficult to develop in the HBCUs the specialized capabilitie necessary to make them competitive with the established A.I.D. contractor suppliers c services.

[11] Discussed elsewhere.

[12] With the delay and problems the Congress had in approving timely budgets in the 1970 and 1980s, it frequently used the "continuing resolution" to carry the prior year budge levels (with or without some modifications) into the new budget year.

[13] In this process A.I.D. was greatly assisted by a special contract with the Nations Association for Equal Opportunities in Education (NAFEO).

[14] One "success story" of such a Joint MOU -- to the University of Illinois and th University of Maryland, Eastern Shore, discussed at length later.

ACCOMPLISHMENTS OF A.I.D's HBCU PROGRAM

An Overall Measure

By any standard of measurement, A.I.D.'s special effort to get historically black college universities involved in its programs has been a huge success. For the first time in its history, . has had a significant degree of broad inter-involvement with these institutions; and their s resources, contributions and potentials have come to be appreciated. The first five years of the s program (FY 1981 through FY 1986) was a period of meteoric rise. In FY 1981, before the s A.I.D. effort began, the Agency obligated some $1.4 million to HBCUs for all purposes. This m considered a fair pre-program "base line." Previous years obligations[1] had of course, v moderately up and down from that level primarily during the earlier 211 (d) grant program years a peak was reached in FY 1986 and a leveling-off is in evidence. This is shown very well i following table, which shows actual levels of total A.I.D. obligations to HBCUs -- under g contracts and subcontracts -- since the inception of the special HBCU program.

Total A.I.D. Obligations by A.I.D. to HBCUs[2]

FY 81	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88
$1.4	$3.7	$5.9	$12.8	$18.9	$20.7	$17.2	$19.7

In brief, by F.Y. 1986, the level of HBCU program activity for A.I.D. had increased by 1200% (12 fold), from its pre-program baseline, and has held about constant since that time.

The leveling-off is understandable. The period since 1987 has been a period of "leveled-off" foreign assistance generally, and, specifically, it has been a period of A.I.D. grants to, and con with, U.S. colleges and universities. So HBCU participation has remained at a relatively cor proportionate level from Fiscal Years 1985 and 1986. However, in constant value dollars, as other foreign assistance efforts, the figures fail to reflect reduction in activity levels caus deflation in the value of money.

The broad base of HBCU participation in some phases of A.I.D. activity is one of the prog salient features, and, from the long-time perspective of U.S. foreign relations, one of its fortunate. A.I.D. had a very hard balance to strike. Its programs were, in the main, highly tech and they usually required substantial aggregations of specialized technical talents to effectively the developing country interest. However, the mix of special programs was specifically desig draw upon HBCU resources and interests in ways which would further rather than deprecate development interests. The special research program identified and tapped outstanding scienti usually only one or two at a place -- and put them to work, with great success, on specific impo LDC problems. The participant training program was re-adapted to place some 750 LDC partici per year in HBCUs, carefully selected to meet the specific participant's training needs. As each these participant's training programs entailed agreement not only of the participant but of his government, this step-up in the use of HBCUs for such training required rather heroic efforts by

-- especially since the "bottom line" was that the training should be excellent and specifically d to fit the trainee's needs. The Joint Memorandums of Understanding (MOUs) helped ind HBCUs not only to develop specialized competencies needed for A.I.D. work, but, also and eve importantly, to blend these competencies in a complementary way with those of their universities, strengthening thereby the capability of the field teams. By these means, discussed, the HBCU involvement in A.I.D. programs -- in spite of the special complexity ass with foreign assistance operations -- has been very broad, as illustrated by the following stat "Of the 117 institutions comprising the HBCU community, 92 have been identified...as a pursuing international development opportunities. Forty-six of the 92 (50%) received A.I.D. support in FY 1988." This, by the way, is a higher proportion than would be true of a institutions of higher learning (colleges and universities) taken as a whole. Fifty-two of t HBCUs in the U.S. had A.I.D. financed arrangements of some kind in 1988. Of the some 3,000 and universities of all types in the United States (excluding HBCUs), some 287 held direct co grants or other funding arrangements with A.I.D. in 1986. (By 1988, the number wa somewhat.) Undoubtedly, some few additional universities participated under some subcontract, subgrant or consortial arrangement, although most such participation was with t 287 that held direct contracts. Generous assumption that 100 additional non-HBCU colle universities might participate through such secondary arrangements suggests the fol conclusion: whereas approximately, at the very most, 45% of all HBCUs of all types partic A.I.D. programs, fewer than 10% of all non-HBCUs so participate. Of course, many of these are very small, but so are many of the HBCUs. This, perhaps more clearly than any other m suggests the success of A.I.D.'s special efforts on behalf of the historically black colleg universities.

In brief, the "special HBCU programs" designed specifically to assist HBCUs achieve participation in all A.I.D. programs and projects, accounted for 22.84% of A.I.D.'s total F obligations to HBCUs, as follows:

Support Grants, in Joint MOUs	$1.9 million	9.64%
Special HBCU Research Grants	$2.6 million	13.20%
Subtotal:	$4.5 million	22.84%[4]

Use of HBCUs in A.I.D.'s regular foreign assistance programs (under grants, contrac grants and subcontracts) accounted for 77.16% of all A.I.D. obligations to HBCUs in FY.1 follows:

Participant training	$ 7.3 million	37.06%
Technical Assistance	$ 5.9 million	29.95%
Research Programs	$ 2.0 million	10.15%
Subtotal:	$15.2 million	77.16%
Grand Total	$19.7 million	100%

In addition to these A.I.D. expenditures, "A.I.D. also manages training programs for developing countries which have resources to pay for such training." Under this program, 120 participants were placed in seven HBCUs. The training costs of this program were $1.33 million in FY 1988 and are not counted as an A.I.D. expenditure to the HBCUs.[5] Nevertheless, in the absence of the special A.I.D. effort, and the special policies and arrangements to implement it, these training arrangements would, undoubtedly, not have materialized.

The involvement in HBCU participant training is, undoubtedly, of deep importance to the involved HBCUs. It involved their faculties, as teachers, in the lives and fortunes of students from many developing countries, and, through them, deepened insights into the character and characteristics of the peoples and the countries of the world in which we live. As the teachers, and indeed the participants themselves, pass the insights and understandings on to the American students of the universities now and in the future -- the education of their strategic element is greatly benefited, to the immense advantage of our country as a whole.

A total of $7.9 million FY 1988 A.I.D. funding of HBCUs was for their participation, directly or under subcontracts or sub grants, in A.I.D.'s programs of technical assistance and/or research[6] of the types discussed throughout this book. Perhaps the one disappointing feature of the HBCU program is the modest growth of this component. Decisions regarding their participation in these programs are, as we have seen, immensely decentralized. Only through continuous pressure of A.I.D. executive policy and process can old bad habits be reversed. Much of the problem arises from the slow erosion of participation of U.S. universities of any sort -- partially as a result of reduction of the types of long-term projects designed to improve the human resource, institutional, and science-technological foundations for LDC growth, and partially from substituting private-sector consulting firms for U.S. universities as suppliers of needed expertise. All are encouraged by the natural but unfortunate human propensities of all officials to get results more quickly (during their own tours of duty so that they can get the credit) than the realities of national development permit. These pressures are normal, persistent and inevitable. Constant vigilance over process and procedures is as important as positive and aggressive executive policy to counter this understandable but destructively counterproductive human tendency. The next Administration will be challenged by events to equal the performance of its predecessor in expanding the opportunities for HBCUs to participate in A.I.D. programs -- and in Federal government programs generally. President Reagan's unprecedented, and unfortunately unheralded, leadership in this respect will be hard to duplicate.

Example of Accomplishments: Partnership of the University of Illinois, and the University of Maryland-Eastern Shore

The Zambia Project: A Study in Collaboration

> The Government of the Republic of Zambia regards this projectas an example of success by which to measure other technical assistance activities.[7]
>
> Our (the University of Maryland-Eastern Shore) involvement with the University of Illinois at Urbana-Champaign began about six months after our Campus received the Title XII Strengthening Grant Program award in June, 1980....The University of Illinois was mature---the University of Maryland-Eastern Shore (had) some strengths already and a capability to enter the international development (assistance effort). The University of Illinois had the (Zambia) contract but the relationship between the University of Illinois and the University of Maryland-Eastern Shore and Southern Illinois University, Carbondale, was based on a partnership among peers.[8]

An excellent example of how A.I.D's special program for the historically black colleges and universities (HBCUs) accomplishes its purposes of getting these institutions involved in A.I.D. programs may be seen in the remarkable experience of the University of Maryland-Eastern Shore (UMES) located at Princess Anne, Maryland. This agricultural college was created under the amended Morrill Act of 1890 -- which established, ultimately, seventeen Land Grant agricultural colleges for black students, -- under the now fortunately outlawed "separate but equal" doctrine. These black agricultural colleges are, because of their origin, known as the "1890 colleges" (now, "1890 universities"). By the time A.I.D. began working with it, the University of Maryland-Eastern Shore had a relatively small but enterprising agricultural research, teaching and extension program and a relatively small but excellent faculty under distinctly outstanding executive leadership.

Some small fraction of its faculty had had experience in less developed countries or were reared and educated in those countries. But the College, itself, had no overseas contracts nor sufficient numbers of staff available for overseas assignments to undertake A.I.D. contracts. It did have interests in developing such capability and applied for and received in June 1980 an A.I.D. Title XII Strengthening Grant of $100,000 per year for five years.

The University of Maryland-Eastern Shore applied to A.I.D. for a special HBCU small research grant project.[9] First steps involved staff attendance in Sri Lanka of an international conference on "winged beans" and the visitation of three African countries enroute for the purpose of developing the local research arrangement. The "winged bean" is a tropical legume seen by many as a potential wonder plant for use in tropical, less developed countries. It was receiving much attention in literature at the time. "A.I.D., responded that the university, new to the development community, might benefit by guidance from some university more established in the development business, especially as to the optimum use of the proposed country visitation."[10]

As the University of Maryland-Eastern Shore had been collaborating, (as the only HBCU) with the University of Illinois and other U.S. universities on a U.S. Department of Agriculture regional research project on soybean pest control, it contacted personnel involved in the University of Illinois International Soybean Center. With assistance from the University of Illinois (at Urbana-

Champaign), and A.I.D., the details of the trip were planned. From this small beginning developed one of the most excellent examples of collaboration of HBCUs and other U.S. universities in work for A.I.D. -- and one of the best technical assistance projects A.I.D. has ever undertaken. It has been praised, as cited earlier by the U.S. Ambassador to Zambia, and described by Zambian Ambassador to the United States, Nalumino Mumbia, as "extremely popular in Zambia... other international programs are told to fit in (with it), to the extent that if the project were interrupted, the other programs would be interrupted as well."[11]

As an outgrowth of these early contacts, the University of Illinois arranged for two of the University of Maryland-Eastern Shore scientists to attend an international soybean research conference in India. While these two scientists were back on the Illinois campus, reporting on that meeting, the University of Illinois suggested that Maryland-Eastern Shore join them, along with Southern Illinois University in Carbondale, in a three-university response to an A.I.D. request for a technical assistance project in Africa: the "Zambia Agricultural Development, Research and Extension Project (ZAMARE)." This project was designed to increase the small farmer production of oilseed crops (sunflower and soybean) and maize (corn) as well as to improve small farmers' farming capabilities generally. This joint proposal was submitted to A.I.D. in July 1981. A.I.D. notified the universities in August that they had been awarded the contract, to become effective in January 1982. The contract would be with the University of Illinois (which served as the business office for the project). The other two universities participated under subcontracts with the University of Illinois.

Personnel clearance and approval processes moved well but took their usual bite of time. During this period, the University of Illinois Chief of Party designate withdrew. A member of the University of Maryland-Eastern Shore group (who had been sent as advance man to make housing and working arrangements for the three-university team of seven who would be living in three separate communities in Zambia) was asked by the University of Illinois to take over as Chief of Party (team leader). He accepted. He was officed next door to the Zambia Director of Agriculture, and very close working relationships were established.[12]

Not surprisingly, when his first tour expired, he was asked by the three-university consortium and the Government of Zambia, to remain as Chief of Party -- in which position he continued to serve for five years. After leaving Zambia and returning to Maryland-Eastern Shore (UMES), he became the campus representative to the Zambia Working Group for the duration of the field operations (through the summer of 1988).[13] The other UMES field team members served two terms (four years). The long-term team members consisted of two each from UMES and from Southern Illinois University,Carbondale, and three from the University of Illinois, Urbana-Champaign.

As it happened, the University of Illinois never did supply the Team Leader. In no way does this speak adversely of that University's dedication to the contract. Quite to the contrary, due to its extraordinary selfless and competent overall management of the project (of which it was the prime contractor), project needs always took priority over other considerations. It was agreed by all parties that the selection of Chiefs of Party, and all other staffing program decisions, should be made solely on the basis of the best interest of the project. This principle prevailed for the duration of the project. Free and continuous discussion among the three universities and the Government of Zambia established consensus on what actions best served the best interest of the project. As prime contractor, the University of Illinois accepted ultimate responsibility to A.I.D. for performance of the project.

In addition to t' seven long-term technical advisors, numerous short-term advisors were sent to Zambia to assist with the project. The project goal of 34 Zambians to attain degree level training in the United States was exceeded. Forty-nine Zambians received such training: 28 selected from the country's research service; 21 selected from its extension service. An additional 85 Zambians were given shorter term training -- most of it in the United States but some in the International Agricultural Research Centers. In addition, innumerable farmers were provided locally with training on a large variety of topics essential to successful small-scale farming. Zambian graduate students working for Masters and Ph.D. degrees in U.S. institutions were able to do their thesis research in Zambia with professional advice and assistance from the project personnel.

This project has been an outstanding success. Improved, higher-yielding varieties of corn, soybeans and sunflowers are being introduced rapidly throughout the country. Yields are increasing; farmers are replacing their centuries' old traditional methods of farming with new, science-based practices, which increase productivity. Consumers will be able to eat better; malnutrition will be conquered. Release of some of the poorest land from farming will follow (as it has in the United States) as the yield per acre on the better lands is sharply increased, representing the only real way, in the face of population growth, to permit natural restoration of over-exploited lands and the re-balancing of natural ecologies.

Zambian Ambassador Mumbia had been a student in India in the late 1950s and was well aware of the "Green Revolution" that had taken place in that country's agriculture -- and of the example it set for the world. He indicated at the cited BIFAD meeting that Zambia's success, with the help of this project, "might become a strategic factor in dialogue among various groups from other countries, and act as a stabilizing influence." He was no doubt right: there is probably no greater destabilizing influence in the poorer countries than the desperation of declining economic prospects, especially of enough food to eat; and no greater influence toward stability than hopes for improvements in those prospects, buttressed by a dramatic demonstration that they can, in fact, be achieved.

Above all, the project demonstrates the immense potentialities for good, of a full and effective collaboration between the larger U.S. universities and the historically black universities when they work together, in a well organized system, as partners with each other and with the U.S. government, in common cause on a well designed project of great importance to humanity. It also demonstrates how the sequence of special efforts by A.I.D. on behalf of HBCUs (the Strengthening Grant, the HBCU Research Grant, the Joint Memorandum of Understanding) contributed to getting this HBCU equipped for, and powerfully involved in, A.I.D.'s assistance effort, greatly to the United States' foreign policy advantage.

The University of Maryland-Eastern Shore is now holding the lead responsibility for a West African research project, centered in Cameroon. Alabama A&M and Florida A&M Universities are collaborating with Maryland-Eastern Shore in this project. "Without the Zambian Project experience, the University of Maryland-Eastern Shore would have neither the inclination nor the fortitude to pursue this technically ambitious project.[14]

END NOTES

[1] "Obligation" is the term used for the transaction by which funds are formally committed from A.I.D.' s budget account to a contractor, grantee or aid-recipient country. For U.S. universities, the obligation instrument is normally a contract, grant or cooperative agreement; for other countries it is normally a Project Agreement (Pro-Ag). The mutual signing of these instruments of commitment constitutes the act of "obligation." After the obligation, the funds remain with the U.S. Treasury until disbursed, either as advances or as reimbursements, to cover the recipient 's expenditures. Obligated funds not used, for whatever reason, by the recipient are de-obligated and returned to the U.S. Treasury -- not to the A.I.D. budget.

[2] Data from A. I.D. Annual Performance Report for Historically Black Colleges and Universities, Fiscal Year 1988. Scholars may wish to see earlier year Reports as well (available from A.I.D.).

[3] A.I.D. Annual Performance Report for Historically Black Colleges and Universities, Fiscal Year 1988, p. 2.

[4] As we shall see, the support grants, and perhaps even more so, the Special HBCU Research Grants, have made contributions of substantial direct value to LDC development in addition to their primary role of building HBCU infrastructure and expanding HBCU involvement in A.I.D. ' s regular technical assistance, research and training programs.

[5] A.I.D. Annual Performance Report for Historically Black Colleges and Universities, Fiscal Year 1988, p.6.

[6] I.e. , CRSPs and other research programs; not to be confused with the $2.6 million under the special HBCU research grants program.

[7] From unclassified cable from U.S. Ambassador Hare to the U.S. Department of State, November 15, 1985.

[8] From a letter of January 5, 1989 to the writer, from Dr. Dennis Ignasius, Director, International Programs Office, University of Maryland-Eastern Shore.

[9] The grant was all for program costs; the University contributed all overhead costs. The "1890 universities" were not required to make other "matching" contributions, whereas all other universities receiving Title XII Strengthening Grants were required to match dollar for dollar the A.I.D. contribution to program costs -- in addition to contribution of all overhead costs. This waiving of the "matching requirement" was one of the A.I.D.'s efforts, supported by the Title XII Board (BIFAD), to assist, in a special way, the 1890 HBCUs.

[10] Letter from Dr. Ignasius to the writer (January 5, 1989).

[11] Minutes from the AID/BIFAD meeting of January 13, 1987.

[12] Minutes from the AID/BIFAD meeting of January 13, 1987.

[13] Letter from Dr. Ignasius to the writer (January 5, 1989).

[14] Letter from Dr. Ignasius to the writer (January 5, 1989). It might be added that, probably, without the Zambian example, A.I.D. would have lacked the confidence to undertake this effort.

SAMPLES OF CONTRIBUTIONS OF THE HBCU SPECIAL COMPETITIVE RESEARCH PROGRAM

Introductory Comment

Given its objectives, this special program has been a distinct success. It has identified a large number of highly competent scientists on HBCU campuses interested in, and capable of, doing outstanding work for A.I.D. -- either as A.I.D. employees or much more commonly as members of contractor teams -- on A.I.D. funded field projects. It has brought the exceptional competencies of many of these HBCU scientists to the attention of field mission and LDC officials. It has, in several cases, established professional and personal linkages between HBCU and LDC researchers which continue and may be expected to endure. As we have seen in the University of Maryland-Eastern Shore example, it has played an important part in getting some HBCUs into the thick of A.I.D. field programs. It has strengthened the capabilities, and familiarities with A.I.D., and with the LDCs of the 28 HBCUs which have carried out research projects under the program.

The program was first initiated in fiscal year 1984. By the end of FY 1988, over 400 proposals had been received from the HBCUs and reviewed by A.I.D.[1] Eighty-six of those proposals, from 28 different HBCUs, had been funded. Approximately 75 different HBCU major investigators had been involved. The research work was done in a total of 26 different developing countries -- usually in collaboration with one or more developing country scientists and research institutions. For many of the projects, a part of the research (particularly laboratory work, replication of LDC field studies, and analytical work) was done in the United States on the HBCU campus. African and Caribbean countries were the most frequently selected localities for field research and cooperating research. In all cases, A.I.D. field missions formally concurred in the project and often participated in working out local arrangements.

African and Caribbean countries were most frequently selected locations, although projects were carried out in Asian, Near Eastern, Central and South American countries.

A total of $7.8 million had been provided during the five-year period, FY 1984 through FY 1988. This was divided almost equally between research on problems in agriculture (including aquaculture) and (human) health.

Twenty-five projects had been completed by the end of FY 1988: thirteen in agriculture and aquaculture; ten in health; two in general education.

Many of these research projects have produced results of outstanding significance and relevance. As the program is relatively new, the results are just now beginning to flow in. As the HBCU scientists and their LDC collaborators, and as other U.S. and LDC scientists, begin to build upon and utilize these research findings, the results of these research investments will become increasingly evident in the greater productivity and improved health of the people in the developing countries. In light of the major role that science and scientists play in conquering the causes of hunger and ill health, certain it is that these excellent projects will contribute greatly. It is not the purpose of

this book to describe or document the contributions of these research instruments. Three examples must suffice: one each from the fields of human health, aquaculture, and agriculture.

The Meharry University Project on Trypanosomiasis (Sleeping Sickness)

The closely related group of diseases of humans and animals, trypanosomiasis (commonly known as sleeping sickness), is caused by a microorganism spread by tsetse flies throughout broad regions of Africa. Most control measures against the disease, among both humans and domesticated animals, have been through efforts at controls of the tsetse fly hosts. These measures have been only variably successful and are, of course, of no avail to persons who have contracted or are in imminent danger of contracting the disease.

This research project focuses on one approach to the needed complementary effort to develop improved drugs against the infecting organism. It attempts to exploit a very unusual characteristic of all members of the family of the infectious microorganisms, trypanosomatida.

All members of this family of microorganisms have a tiny bit of genetic substance (DNA), not of their own but from some exogenous source, possibly some ancient ancestral host upon which they have lived in some host-parasite relationship. In any event, this bit of "foreign" genetic material (as well as the organism's own) must survive, reproduce, and interact properly with the organism's other, and different, genetic materials for the organisms to survive and reproduce. This extremely complex set of requirements opens a port of possible intervention and attack on the organism, and the investigator had, through his previous molecular genetics studies of the organism, identified potential weaknesses in this unusual, dual set of genetic interrelationships. This project was designed to permit the investigator to further explore the possibilities and means of attacking this genetic vulnerability factor through the use of drugs.

As the project moved forward, through its several stages, so successful and exciting to other scientists had it become that the Meharry Medical College established a center for the study of trypansomiasis and received a major National Science Foundation grant. This extremely sophisticated and profoundly significant set of research activities could have vast significance not only in terms of more immediate practical objectives but in its contribution to scientific understandings of microbiological approaches to disease control more generally.

The Morehouse College Project on Producing a Low-Cost Feeding System for Aquaculture

A research project which would enable the developing countries to use locally available inexpensive plants and by-products as sources of excellent, low-cost fish food for aquacultural production was undertaken with Morehouse College.

Protein, calcium and phosphorous deficiencies remain a serious nutritional problem in most developing countries. These deficiencies most severely affect young, growing children.

Fish are excellent sources of all three. Recent revolutions in pond production of such fish a carp, tilapia and catfish have demonstrated their extreme efficiency, surpassing all other domesti animals, including even chickens, in converting feed stuffs into foodstuffs. Increasingly, LDCs ar learning the scientific systems of aquaculture, which appeal to dietary preferences and fit well into th population of dense and humid less developed countries.

But, with all its advantages, fish culture has one major drawback. Fish require high protei diets. If these proteins are provided, as at present, primarily from standard high protein vegetable an animal sources, fish competes with humans either directly for the foodstuffs or indirectly for the lan on which the foodstuffs are grown. Humans could, with still greater efficiency, consume the hig protein foodstuffs themselves, or use the land that produced the fish feeds to produce high protei human foods.

Protein is a nitrogen-based substance. Therefore, these researchers sought for a method o producing high protein fish foods, using nitrogen-fixing microbes and abundant agricultural by products or locally grown grasses as the substratum for the microbes. They set the further criteri that the process must:

- not be energy-intensive, nor dependent upon mechanisms not readily available in th country;
- be highly transferable, easily learned and easily managed by non-technically competen persons.

To achieve these objectives, the researchers adapted an unusual method of creating a type o silage by bacterial action upon grasses in water-tight, open tanks.

This microbial action on the grass clippings, or on by-products, such as crushed sugar can stalks, created what the writers call a "silage-microbe mat." Because the microorganisms use included some with the ability to combine nitrogen in the air with the grass products in the tanks, th "silage-microbe mat" was a relatively high-protein type of biomass. The fish like to eat it.

In the Dominican Republic, where much of the field work was done, this product, "defined as a mixed microbial biomass cultured on silagal grass clippings" turned out to be between 75% and 80% digestible by carp, tilapia and catfish. Protein levels of the feed ranged from 17% to 20%, a thoroughly adequate level. Thus was created, cheaply, an excellent high protein fish food from sources abundan locally and non-competitive with human food. A small, specific contribution? Perhaps! But of grea economic importance, especially to countries with an abundance of grass (or sugar cane by-products and available sun, water and air.

A further, incidental benefit! The researchers discovered that same microorganism als efficiently transported dangerous heavy metals (such as mercury, lead and cadmium) to the surfac mat, where they are stored. These metals can then be removed by draining the pond and reclaimed by hydrolysis. This, of course, has possibilities for water decontamination, sufficient at least to attrac the U.S. Department of Interior Bureau of Mines, which is now supporting further research on th potentialities of the process.

The astounding web of relationships spinning out from these small research projects, to the benefit of the HBCUs, is exemplified in this project by the above-cited research spin-off. It is further illustrated by the following relationships reported by Morehouse College:

- An undergraduate student in the Dominican Republic worked on the Morehouse College field experiment there, and then at the Morehouse College. On her own resources but with Morehouse planning assistance she will be undertaking graduate work at some other U.S. university.

- Two A.I.D. funded participants from the Caribbean worked on the project at Morehouse while studying there, learning research techniques directly applicable to insular LDC conditions.

- Two professors from the Catholic University in the Dominican Republic, who worked on this report, are presently working with Morehouse College in the development of an environmental education program. The United Negro College Fund has awarded a one-year fellowship to a Morehouse faculty member for the development of this educational program in cooperation with the Catholic University in the Dominican Republic.

- A Morehouse student-technician who developed expertise in the system by working on the project at Morehouse College (and in the Dominican Republic) trained a Peace Corps Volunteer on the methods of producing the "silage-microbe mat," and that volunteer is now helping the Dominican Republic establish a major fish production system of aquaculture ponds using this high protein low-cost fish feed production approach.

And so grows, and will continue to grow, this expanding web of scientific and personal relationships in the service of the developing countries and U.S. international relationships. Even above the intermittent rumblings of international political discords, these higher activities of the human mind and spirit find accord and harmony of interest if channels are created and maintained for cooperative interaction of professionals and scientists in collaborative work arrangements among free research and educational institutions.

The University of Maryland-Eastern Shore Project on Nitrogen Fixation by the Bambara Ground Nut

We have just seen fruitful evaluation of the capabilities and contributions of the University of Maryland-Eastern Shore to the A.I.D. agricultural program in Africa. This has evolved into two sets of partnership arrangements, one with two Illinois universities, on a major project in Zambia, and the other with two other historically black universities on a regional project headquartered in Cameroon. In both, Maryland-Eastern Shore has played leadership roles. For both, the University reports that one of the A.I.D. special HBCU competitive research grants and an A.I.D. HBCU strengthening grant were strong factors in getting the University's capabilities expanded, and into action, in A.I.D. assistance programs.

Here is a brief description of that seminal research project.

As we have seen, food legumes (beans, peas, peanuts, etc.) are extremely important sources of protein rich foods, so badly needed, especially by growing children, in the poorest countries where meat or milk are unavailable or too expensive.

All high protein foods require much nitrogen since it is a building block of all proteins. Most LDCs are poor in nitrogen since it is broken down and leaks out rapidly at high temperatures. Nitrogen fertilizer is often difficult to get and always expensive.

Fortunately, legumes are capable, under ideal conditions, of obtaining their nitrogen from the air (which is about 80% nitrogen) by virtue of a happy partnership with a family of bacteria known as rhizobia. These bacteria form little colonies in a cyst-like formation, "nodules," on the roots of the legumes. Parasitizing the legume for all their other nutrients, these bacteria "fix" the nitrogen in the air in such a manner as to make it available to the growing legume. This "symbiotic" relationship (as is usual with close partnerships) is variably productive, as between different species, of varieties and strains of legumes on the one hand, and of bacteria (rhizobia) on the other. Further, the compatibility is affected by soil conditions, temperature, moisture and. especially by the degree of acidity or alkalinity of the soil.[2]

All research in this project was with the "bambara groundnut," a type of peanut widely grown in Togo, Senegal and other areas of Africa. Some 150 varieties and strains of this peanut were narrowed down to the 23 most promising, which were then evaluated, in Togo in 1985, on the basis of yields and response to nitrogen fertilizers.

Similarly, some thrity strains of rhizobia were selected from work previously done in Nigeria, Togo and Senegal, and several exotic strains were imported.

Combinations of varieties of ground nut and varieties of rhizobia bacteria were tried out in three steps: first, in very small numbers of plants grown in totally controlled growth chambers; second, in intermediate size, greenhouse tests; third, in field trials, under humid conditions in Togo and semi- arid conditions in Senegal.

All three levels resulted in the same conclusions as to which proved the best combinations. Yields were, as to be expected, higher under humid rather than under dry land production conditions.

The study evaluated many interrelationships, such as plant material dry weight, amount of "nodulation" by the rhizobia, dry weight of shoots, etc. But the bottom line question was, of course, the yield of the peanuts themselves. Chief findings were:

- The Bambara ground nut makes relatively good use of a rather large number of different rhizobia strains, less fussy in this respect than many legumes.
- The Bambara ground nut works best, however, with local rather than with exotic strains of rhizobia, especially with two selected strains.
- With these selected rhizobia strains, yields were higher than when nitrogen fertilizer was applied at locally recommended fertilization levels. (An unusual phenomenon.)

This information, and all that went with it, is being built into the large research and application efforts by the University of Maryland-Eastern Shore in Zambia and Cameroon and by other U.S. universities and international research centers working on legumes. It is not a spectacular, earth

shaking new scientific breakthrough but an immediately useful set of research findings working its way into the age-old struggle for more and better food production in lands where some of the poorest and worst nourished peoples of the world live. Several African and American graduate students have earned academic degrees working on this project. They can be expected to become part of the continuing scientific task force in the struggle for economic and social betterment of their peoples and will feed back into the continued strengthening of the University of Maryland-Eastern Shore.

Summary

In summary, the competitive HBCU research projects have proved a very useful part of the kit of tools for getting more HBCUs -- and most importantly their faculties -- involved in A.I.D. programs. They have:

- produced much valuable research;
- established close institutional and personal relationships between HBCU, A.I.D. field mission and LDC personnel;
- strengthened HBCU capabilities;
- identified many competent researchers on HBCU campuses and drawn the attention of other sponsoring entities to the capabilities of individual HBCUs, resulting in some instances in substantial additional support to the HBCU.

Most important of all, the program has involved several HBCUs in a web of scientific relationships with persons and institutions in the developing countries, and thereby enriched their normal research and instructional wisdom, to the benefit of all future graduates from these institutions. Any significant contribution to this end, to these campuses so vital to our country's total educational function, is a stellar accomplishment.

END NOTES

[1] A.I.D. sets high standards for these projects, which has been a major factor in thei success. A group within A.I.D. first reviews each proposal for its relevance to A.I.D needs, the feasibility and willingness of specified cooperating LDC institutions t participate, the general likelihood of the project to succeed, the likelihood that th project's results will be utilized if successful, and similar questions of relevance an usefulness. Then a panel of experts in the subject field (arranged in the earlier years b the National Science Foundation, and in later years by the National Academy o Sciences) receives the project proposal with regard to all aspects of scientific worthiness feasibility, originality and significance. The Panel rates the proposals, and only thos judged most worthy by both reviews are funded.

[2] This latter set of relationships is being currently studied under an HBCU research gran to the University of Georgia at Fort Valley, Georgia. This is a broader survey of severa legume crops grown in the Dominican Republic; it does not go into the same depth as doe this study by the University of Maryland-Eastern Shore.

CONCLUSION: What Further Needs To Be Done

A.I.D.'s special effort on behalf of more involvement of the HBCUs has clearly been a record of outstanding accomplishment. As we have seen, however, the growth in that accomplishment has leveled off. In fact, evidence suggests great difficulty in maintaining HBCU participation even at present levels.

President Reagan certainly gave vastly more support to this effort than had any preceding President. Not only did he keep continuous and strong pressure on the various departments and agencies of government, he met with this group of university presidents, as a body, on at least four occasions. The giving of this much personal attention to a relatively small group of representatives from relatively small institutions is without parallel in the history of Presidential-university relations. This does not mean, however, that other things could not have been done which would have made that support even more effective in its accomplishments, as shall be discussed later.

A.I.D. was particularly advantaged in its efforts to expand HBCU participation in its programs, not only by the makeup of its own executive personnel at this historic moment, but also by the fact that both the Executive branch, and the Legislative branch and both political parties, were exerting firm, positive influence in the same direction. It would seem that this top-level support outside the Agency would continue.

The Gray amendment will probably remain in the legislation for some time. President Bush gives every evidence of being equally sympathetic to this cause as evidenced among other things by his selection of Dr. Louis Sullivan to be in his Cabinet, and by his appointment of Dr. Richard Goodwin of Texas A&M University at Prairie View as director of his HBCU "White House Initiatives" staff, and by his support to all other dimensions of the HBCU programs. But A.I.D. has had a virtually complete executive turnover and everything wanes in time as other needs and emphases come along. Therefore, it is essential that analysis be made as to what steps should be taken to assure that this exceptional progress of the middle and late 1980s not be lost.

In pursuit of this program objective, A.I.D. confronts many obstacles inherent in the fact that it is a foreign assistance agency (obstacles that do not equally impinge upon other agencies of government). Since A.I.D. was alone in having to initiate a policy in which other governments' preferences and attitudes had to be taken specifically into account, one would have expected it to lag behind in rate of accomplishment. The fact that it was at the forefront of all government agencies does indicate something of what can be accomplished by aggressive action. It also indicates the great value of having simultaneous and roughly identical support, and indeed pressure, from both the Legislative and Executive branches and from both political parties. However, in spite of all favorable factors, there were genuine barriers to accomplishment of the clear directives of President Reagan's Executive Order and Congressman Gray's Amendment. On the assumption that the goals will persevere in succeeding Administrations, these problems merit some discussion.

The monthly meetings of all government agencies provided opportunities to witness some of the major limitations and obstacles to President Reagan's initiative. Most of these apply government-wide.

These problems are of three types: 1) liaison arrangements between the departments and agencies with the Special White House Initiatives Staff; 2) position, make-up, responsibilities and

powers of the White House Initiative Staff; and 3) general governmental procurement policy a special adaptations of such policies by individual departments and agencies. These will be discusse briefly, in order.

First: Most government agencies have special offices of minority affairs, charged with looki after the general problems of minority participation, discrimination and related matter Representatives from these offices tended to be selected to represent their respective agencies in t government-wide meetings held by the White House special staff. These were certainly able a dedicated individuals. However, most of them had purely staff functions in their agencies and we not so positioned in command channels as to influence heavily the day-by-day decision processes th shape their agency's expenditure patterns. The President's directive would have been much bett served had representation by the various departments and agencies been at high levels in the chain command. (This did not apply directly in to the A.I.D. case. The writer, who represented the Agenc was not at a sufficiently high executive level to have that much influence. But, this deficiency w made up for by the aggressive, positive action taken by all three of his superiors, who did ha ultimate, executive decision-making powers.) With such representation, the government-wi meetings would have been much more planning and action oriented, rather than merely forums f exchanges of information.

Second: Although President Reagan's Executive Order gave great prominence to his intenti to accomplish the results specified, the machinery was not entirely adequate. The greatest proble was that there was too much gap in the administrative echelons between the President and the speci staff that was charged with implementing the Order. The staff was able. But it was positioned in t Department of Education under an Assistant Secretary who had many other responsibilities, and w delegated responsibilities down to a level where it was very difficult systematically to bring to t President's attention the principal obstacles to realization of his directives and to show him how tho obstacles might be overcome. As a result, there was great asymmetry in responsiveness of the vario departments and agencies, and little means for resolving problems that allowed, or encourage unresponsiveness.

The biggest shortcoming seemed to be that there was not a mechanism to analyze a recommend to the President the specific changes needed in other areas of government administration if this particular initiative was to bear full fruit. It was obvious to all the peop working on this initiative that the President, and certainly the Congress in A.I.D.'s case, we extremely forceful in stipulating the goals of increasing the participation of the black universitie However, this effort was being blocked by smaller considerations, particularly in the area procurement policy, which could have been easily resolved had those problems been attacked head-o on a government-wide basis, with the clear support of the President. It was not the lack of will, nor objectives, but of mechanisms for surfacing the questions and the problems that stood in the way of t federal government's more fully achieving the President's goals.

Third: Rigidities in general federal government procurement policies and procedures mak extreme difficulties for accommodating specific objectives such as those outlined in the President Executive Order. On no point was the experience and opinion of the representatives of the vario agencies uniform. This is particularly important in that the degrees of freedom that executi agencies have in contracting have, unfortunately, been lessened, undoubtedly in response to improp contracting practices of some agencies. As we have seen elsewhere, particularly in the discussion the Indian program, much of the A.I.D. program's success was due to the high level profession

judgments made in the selection of institutions on the basis their commitment to the effort. The procurement process has drifted ever more away from this kind of careful professional evaluation toward one of open bidding which has given it the appearance, but certainly not the substance, of greater objectivity and freedom from corruptibility. Where nuances in professional capability and scientific validity are all-important, such formalized procurement processes often stultify the process of competent choice. In the case of the HBCU program, the procurement requirements essentially made it impossible for institutions to select a black school to do all or a portion of a task unless the school was clearly superior to any other choice. This was because of a strong presumption that being small and/or new to the effort, it would probably also be clearly inferior. It is difficult for agencies to make special cases on behalf of the procurement of expertise from black schools because any departure from established habits, no matter how well it might serve broader objectives, would nonetheless be taken at risk by the officer responsible for making the selection decision.[1] This resulted, in many agencies, in the work with the historically black colleges and universities, settling into sorts of special-case activities, not funded out of main-line responsibilities of the agencies, but justified in some more restricted way. Useful as these are, they do not substitute for incorporating the universities into the broader structures of interrelationship between the federal government and the U.S. universities.

Three adaptations should be made in the general machinery for implementing Executive Order #12320 and its successors.

- The staff responsible for coordinating actions by the various agencies should be restructured to enable it to carry out analyses (with inputs by the various agencies) leading to recommendations to the President, rather than, as at present, performing only liaison and reporting functions.

- An overall government-wide plan for the federal government use of, and support for, the HBCUs should be evolved, so that federal grants and contracts with HBCUs are rationalized in terms of their individual resources, specializations and interests. Otherwise, federal government contracts may well hit some institutions with such a mix of demands as to detract greatly from, rather than add to, their viability as educational institutions.

- Above all, a long-range program of enhancing the general educational resources of these institutions, and, especially, of scholarship support to deserving students for both undergraduate and graduate study in the technical fields needed by federal government programs, should be established.

Whatever the reasons, the black segment of U.S. society is still pitifully under-represented in all executive channels in the public sector. The reason for this is not that black students do not fare well, and grow into, and develop the competencies for executive positions. It is simply that not enough of them get into the educational system at a level where such managerial capacities are imparted. This has been a subject of a great deal of study, and it will not be redescribed here. However, it should be recognized clearly that HBCUs do not have much excess capacity of faculty that can be drawn into government programs, such as A.I.D., without diverting them from their desperately needed domestic educational roles.

Finally, with respect to A.I.D., it is clear to the writer that the special effort on the HBCU contracting needs to be justified on a different basis than in the past. There are limitations to the potentialities of using affirmative action justifications for recruiting government procurement

selections and these limitations seem to be increasing. The new source of justification requires some elaboration!

It is important that the basic goal or mission of the Agency for International Development not be compromised, but strengthened, by contractor selection and procurement. This is the ultimate justification for having the HBCUs work in partnership relations with other institutions, so that the emerging contract will not be weakened by, but strengthened by, utilizing the unique resources of HBCUs in the Agency's mix of technical assistance personnel.

But more fundamentally than that, it is essential that the basic purpose, from A.I.D.'s point of view, of involving HBCUs should be highlighted. As indicated in the beginning of this chapter, the U.S. Government does not project itself well by personnel procurement actions which, regardless of how their effects are covered up by words, have the final result of sending abroad teams which exclude blacks from their membership. The basic justification, therefore, for A.I.D. to participate in the HBCU program as aggressively as it has is that it is necessary to U.S. foreign policy.

This thesis was put forward in a broader context by Secretary Schultz, who made clear that procurement actions should be adjusted in those circumstances where the U.S. foreign policy interest is at stake. This is clearly applicable to the procurement of HBCU personnel, particularly in light of the fact that Secretary Schultz had also indicated that Americans from minority segments of society should be included in our diplomatic representation. For various reasons, the representation that A.I.D. should make the necessary findings to establish foreign policy needs of the U.S. as the justifying criterion for taking some special steps on behalf of HBCU procurement, was not accepted in the Agency's legal review. Improved draftsmanship should be engaged to overcome those legal objections, as clearly the Secretary's memorandum provides an adequate basis for such selective procurement. It is doubtful that any successor Secretary of State would be so unwise as to reverse these declarations. It is particularly important that this step be taken in light of the fact that differential preference for minority contractors on the basis of affirmative action justification seems to be losing ground in Supreme Court decisions. Furthermore, it cannot be expected that an agency which has a specific responsibility to carry out a portion of U.S. foreign policy will subordinate that policy in any measure to any domestic objective,[2] even one as important as affirmative action. As indicated, it is not necessary that foreign policy interests be in any way sacrificed for the goal of fellow participation by HBCUs; quite the reverse! Our foreign policy interests require it and should be used as its principal justification.

In summation, it may be anticipated that the utilization of HBCUs in A.I.D. programs may continue to drift downward, at least in proportion to other efforts on behalf of agriculture and health, unless specific measures are taken to prevent that. This would be exceedingly unfortunate from the reference point of U.S. long-range foreign policy needs. Through extraordinarily committed and dedicated executive leadership by McPherson, Morris and Brady, A.I.D. has achieved much. A.I.D.'s brief period of magnificence and leadership in this area should not be lost through inattention. If through example, and if aided in some small measure by the comments in this chapter, this accomplishment in strengthening and more fully involving the historically black colleges and universities can be equally well achieved by other branches of government (where budgets are much larger and real obstacles much fewer) our country's domestic and foreign policy interests will both be very well served.

END NOTES

[1] In fact, federal procurement of services from publicly funded educational institutions generally, quite apart from the special case of the HBCUs, requires a different modus vivendi than procurement from other sources. All agencies of government have probably learned the lesson (or should have), but the trend has been persistently toward bringing them into closer conformance with standard commercial procurement practice.

[2] Unfortunately this has not prevented the United States from doing so. U.S. foreign assistance programs have frequently been reduced, modified, or discontinued in response to such problems as interference with fishing rights, real or seeming market competition for U.S. farm production, and many other domestic goals which have overridden the basic requirements of intelligent foreign policy.

SECTION VII

WRITER'S OBSERVATIONS

THE COLLABORATIVE MODE OF A.I.D./UNIVERSITY CONTRACTING

The Gardner Report and the International Rural Development Conference had each, with great force, highlighted the need for "partnership" between A.I.D. and the U.S. universities insofar as U.S. universities were involved in carrying out technical assistance programs for A.I.D..

This was a concept which went deep into the soul and the spirit of the universities, as it spoke to their perceptions of their role and function in society -- to what, in fact, they were all about.

The Land Grant Universities, and state universities generally, had always thought of themselves as public institutions – created by public legislative action, in service to and financed by the public, dedicated to the public interest and anchored in public purpose as deeply, and subjected to public scrutiny as fully, as could possibly be the case for any federal or state government agency or department. As public bodies, it went totally against the grain of their dignity and status to be treated as if they were private entities, to be bound under contract, to be thought of as "being in business" for profit or other form of financial gain. Many public university leaders were infuriated by A.I.D. referring to them as part of the "private sector" -- a designation often, carelessly, used by A.I.D. personnel to include all entities outside the federal government. Just as federal, state and municipal governments had historically cooperated with each other in carrying out activities in the public interest, so too, believed the public universities, should the federal government cooperate with them, each doing that to which it was best suited, in a partnership relationship, when universities were called upon by the government to assist other countries.

In the early 1960s, the concept of "partnership" between A.I.D. and universities was understood and supported by Administrator Bell -- but by very few other A.I.D. executives and staff. This was in sharp contrast with the U.S. Department of Agriculture where, from Secretary Freeman on down through the executive echelons and staff ranks there was much understanding that the concept of "partnership" well defined the historic relationship which had obtained between the Department and the Land Grant Universities ever since their twin birth in 1862. Faculty, and especially administrators, of these Land Grant Universities, when they undertook work responsibilities for A.I.D., were at first perplexed and then annoyed when they discovered the enormous difference which characterized their working relationships with A.I.D. from those with U.S.D.A. with which they were familiar. To university administrators the term "partnership" became the surrogate for everything that was right, and "contracting," for everything that was wrong, with their working relationship with A.I.D.

As has been mentioned earlier, several efforts had been made to correct this situation. These included the ill-fated McGovern Bill (S.1212) of the mid-1960s and the initiation of a set of grants to U.S. universities under section 211(d), to enhance their capabilities to carry out assistance programs for A.I.D.

These 211(d) grants, later renumbered 122(d), were extremely popular with universities. This was largely, no doubt, for the unfortunate reason that the granted funds were primarily for activities undertaken "on campus" rather than overseas. (There are always many more people happy to take assignments at home -- with only brief trips overseas -- than there are people willing to move their

families overseas for long term assignments with all the attendant discomforts, dislocations and discontinuities to their professional careers.)

But there is no doubt that the 211(d) grants were popular for another (and perhaps more fundamental) reason. Since the purpose of the grants was specifically to promote university self-improvement, it was obvious that the university, rather than A.I.D., was in the better position to make detailed decisions on specifics as to the most effective uses of the funds. This was built into the 211(d) grants procedure. Antecedent to the grant, A.I.D. and the university reached agreement on a plan for use of the grant funds. The university 211(d) project administrator then made allocations of grant funds within the university to achieve the agreed upon plan goals. Except where international travel was involved, A.I.D. did not involve itself in prior approval of these expenditures. It then, however, became incumbent upon the university to demonstrate each year in an annual report exactly how, and how effectively, each expenditure had, in fact, contributed to the achievement of the agreed upon goals and objectives. A.I.D. did at the time of the Annual Review, quite frequently disallow use of grant funds for some expenditures (on grounds that they were not sufficiently, demonstrably, on target or effective). The universities took these disallowances in good grace, covered the expenditures with their own funds -- and remained happy with the 211(d) program. This was fundamentally because they had, in the process, been permitted the dignity of making their own decisions as to how to do their job. They were judged by their effectiveness in achieving results, rather that second guessed each step along the way through prior approval agreements on their selection of people and myriad details of sub-activities. They were, in short, "treated as partners" and as public entities with an ethic of public responsibility. Under the 211(d) program, university administrators familiar with historic working relationships with the U.S.D.A. felt their lost dignity restored.

Quite naturally, university representatives wished to explore the possibility of extending to their overseas technical assistance projects these 211(d) management philosophies, principles, and procedures, insofar as possible. Accordingly, the deans of agriculture arranged, through the writer, to meet with Mr. William S. Gaud who had replaced David Bell as A.I.D. Administrator.

The deans remembered Administrator Gaud very favorably from his participation as Deputy A.I.D. Administrator in the International Rural Development Conference. However, their confidence in him as Administrator had just recently received a severe jolt from his having dismembered the Bureau of Technical Cooperation and Research (which the universities had seen as the channel of open communication with the Agency), robbing it of its professional personnel to create a new bureau for the War on Hunger. As Mr. Gaud freely stated, the agriculture deans laid a very rough hand on him that evening for their long standing and many grievances in the procedures through which A.I.D. dealt with the universities. "Why," one dean asked him, "should this noblest assignment ever given our universities by our national government be caught within a web of the meanest, nastiest, and most unworkable rules and regulations ever foisted upon us by any outfit, public or private?"[1]

Administrator Gaud justifiably prided himself on being a man of quick action. He did not disdain the need for study, evaluation and discussion as a basis for action -- or even on occasion the need for judicious postponement. But he did fret under the circumstances which so often allowed these contemplative processes to substitute for action, often until all point and purpose for the action had long passed. Dr. John R.T. Commons is credited with the observation that the significant ingredients of public action are "strategy and timeliness." Certainly A.I.D. could not be faulted for giving too little time or attention to strategizing. But timeliness of action, seizing the opportunity at that golden

moment when the local host country situation and attitudes are exactly right and U.S. personnel resources are poised and ready, has not been a hallmark of A.I.D.'s style. Administrator Gaud's penchant for "getting off the dime" was applauded within and outside the Agency. If his actions themselves did not always please, his facility for quickly taking such action did.

On this specific action he moved quickly. Within a day or so after his meeting with the agricultural deans, he asked Dr. Joel Bernstein to chair an internal A.I.D. group to work in tandem with a university-selected group to hammer out as expeditiously as possible a set of instruments for A.I.D. overseas technical assistance contracts with universities which would embrace, insofar as possible, the philosophies and procedures of the 211(d) grants.

Dr. Bernstein[2] was in many respects an excellent choice. He had been an outstanding A.I.D. Mission Director in Nigeria and Korea, was currently involved in completing the chairmanship of an A.I.D. task force on evaluation of field projects and, as it happened, was to be selected by Dr. Hannah, Mr. Gaud's successor as Administrator, to be the Assistant Administrator for Technical Assistance -- a new central staff bureau which with the change of administrations was to replace the ill-conceived "Bureau for the War on Hunger" -- and in that new role to become the writer's immediate superior.

Dr. Bernstein was perceptive, analytical, meticulous, patient, even tempered -- and, as all who knew him would agree, extremely thorough and hard working. In fact those last two traits were often both carried to the point of detriment.

The Land Grant Universities, through their national association, appointed Dr. Glen Taggart, then President of Utah State University, and Chairman of the International Committee of the National Association of State Universities and Land Grant Colleges. Previously he had served as Dean for International Programs of Michigan State University after considerable overseas experience. He and Dr. Bernstein served, with much mutual friendship and respect, as co-chairmen of the committee.

On A.I.D.'s side, representatives of the regional bureaus were added to the committee, as was the writer and relevant central staff officers, including, specifically, the Director of the Central Contract Policy Office which had been established consequent to the Gardner Report. A representative of the General Counsel attended most meetings. The university community, in addition to President Taggart, was represented by a Dean of Agriculture, a Dean of International Programs, a Grants and Contract Administrator Officer -- all of whom had extensive experience working overseas for A.I.D.

The meetings could not be properly characterized as "negotiations." All members and the co-chairmen were in basic agreement on the need to develop a better set of instruments than the previous A.I.D./university contract.[3]

Quite naturally there were some differences of view on specific points -- but these reflected individual viewpoints, and did not split along A.I.D./university lines. It was a committee which worked long and hard to put into instrument form the agreements on principle, which had been achieved through time by several other special means -- the Gardner study, the International Rural Development Conference, several meetings of A.I.D.'s University Advisory Committee and less formal A.I.D./university discussions.

With so much common good will, identity of basic A.I.D. and university interest in developing a better instrument, and with such highly competent and experienced Committee membership and strong support at highest levels in A.I.D. and in the universities, a straightforward, accommodating instrument should have been a relatively easy accomplishment and highly pleasing to both sides. This was not, however, to be!

The reason lies in two circumstances: the effort by the Committee to "over-determine the system" -- to create an ideal-type instrument which would attempt to solve too many problems -- and the inherent conflict between central policy and procedures and decentralized decision making. We shall briefly examine each of these circumstances.

The principal criticism by the deans, it will be remembered, was in A.I.D.'s overmanagement of the details of contract implementation. Individual personnel selections for field assignments had to be approved in advance -- not only by the host country, which was probably necessary, but also by A.I.D. (specifically the A.I.D. Mission) which was not necessary. Similarly, this overmanagement was experienced with respect to details of individual work programs, travel, equipment purchases, housing arrangements, furniture rental or purchases.

The Committee unanimously concluded almost immediately upon examination of current practice that the universities' complaints were well founded and that the system in use was fully as contrary to A.I.D.'s purposes as to the universities' comfort. Since the project goals, purposes or objectives in most A.I.D./university contracts could not be postulated in simple, easily measurable terms (as could, on the other hand, specifications for a building) the contracts were drawn in terms of the universities' obligating themselves to "use best efforts" to accomplish broadly defined objectives. A.I.D. monitored this compliance by examining not the results, nor the outputs, of these best efforts, but by examining the inputs. In the main, this monitoring took the form of approving (or disapproving) the candidates recommended to fill field staff positions. At best this was a slow and irksome -- as well as virtually meaningless -- process; at worst, it constituted an insufferable insult to the university's competence and integrity. If a university's professional departmental and administrative echelons in the field, and on campus, couldn't judge well the qualifications of a faculty member known to the university, to carry out a specific role in a university project, how could a better judgment be expected of an A.I.D. project monitor who, presumably, knew the project less well and the candidate perhaps not at all? Thus, placing approval responsibility on the A.I.D. mission constituted, in and of itself, a declaration of distrust of the university's honesty -- as obviously it was better positioned than the mission to make a competent judgment. (There may very well be cases in which universities deserve such an opinion -- but the answer in these cases lies in cancelling the contract, not in trying to repair it.)

This complex of problems went to the heart of the A.I.D./university relationship. Stated differently, how could A.I.D. exercise its responsibility for proper stewardship of public funds when contractors are asked to provide services where the final output is, in large part, beyond the power of either A.I.D. or the contractor to control? The largest and probably the most important use by A.I.D. of U.S. universities has been to help developing countries build research and educational institutions necessary to their own national development. But how much progress is made toward this goal is very largely determined by the host country. Given this fact, how to judge how well the U.S. university has performed in its effort to help the host country toward that objective? A retreat to the trivial and self-

defeating pastime of approving inputs no doubt came quite naturally to A.I.D. as a proper management process -- but it did not work!

The Committee tried a different tack. It recommended a new instrument to replace the old standard university contract, to be called "the Collaborative Assistance Mode" of university contracting. Under this mode there would be developed a system of annual reviews -- to be held in-country, jointly by the A.I.D. Mission and the host country, and including representatives of the U.S. university and the assisted country institution. This annual review presupposes prior development and agreement by A.I.D. and the host government on a life-of-project plan. The U.S. university would have accepted this plan as a basis for its decision to accept the contract. The plan for the current year would include considerable detail on inputs and outputs of all parties, including specifically the host country and institutions as well as the U.S. university and A.I.D.. This detailed current year plan would have been agreed upon by all parties at the beginning of the year, as a basis for project extension. The U.S. university activity is by this means put into context of both the agreed upon objectives and the inputs from other parties -- thus its accomplishments or shortfalls can be more easily and meaningfully identified.[4] In preparation for the Annual Review, the U.S. university would have prepared a detailed narrative and budgetary report which would demonstrate precisely how all funds expended were used for the purposes previously agreed upon in the planning process. Thus the university would use its professional capabilities to make the critical input decisions. A.I.D. -- in the presence of host country participators in the review -- would determine the propriety and efficacy of those decisions by means of evaluating their success or failure in achieving the agreed upon objectives. (If however, for example, an objective was not achieved because the host country or institution -- or the A.I.D. Mission -- had failed to contribute a promised effort, this would be identified in the review process and the university not held at fault as cause of the shortfall.)

This review process had been the essential method of A.I.D.'s monitoring university performance in the 211(d) program. Recommendations of this apprach by the committee were warmly received by the university community. It would no doubt have been well received by most host countries also as it gave them close involvement in the details of planning and assessment of results of technical assistance contracts. It might have worked well and been well received at the mission level also -- although it would have posed quite a large additional work burden on the mission -- had not the proposed new Collaborative Mode approach carried another requirement regarding which, with some real justice, the A.I.D. missions had genuine and deep concern. This was the idea of getting the contracting university deeply involved in early life-of-project planning of the program which it was to be asked by the mission to implement. This would require that the planning of the project itself, even in quite general terms, could not be effected until after the U.S. university had been selected. Here, obviously, was a fundamental internal contradiction in concept -- a true non-sequitur.

Inasmuch as U.S. universities vary substantially, and in fact specialize considerably, in their areas of expertise, they cannot be intelligently selected until the requirements of the task are known and can be specified. This, in turn, cannot be well done in the absence of a joint strategizing and planning process by the host government, host institutions and the donor agency (in this case A.I.D.). Therefore, it is truly getting the buggy before the horse to select a U.S. university and then to develop the project it is supposed to implement. Furthermore, pre-involvement of the university at this early stage ran great risks of having the project shaped to fit the personnel resources of the U.S. university, rather than to the optimum configuration of effort needed to meet the country's development needs. Yet the undaunted Committee felt obligated to accept this intellectual challenge in order to

accommodate the often expressed opinion of universities that they could not implement effectively that which they had had no hand in planning: "If we aren't involved in the takeoff we'll likely have a crash landing," was one succinct expression by a university leader of this persuasion.

The Committee's response was basically one of closing the gap in logic by a series of acts of approximation. The A.I.D. mission expresses in very general terms what it hopes to establish. At least this identifies some general parameters, such as the country, language requirement, broad goals, approximate size, etc. Then "expressions of interest" are made by several universities. These describe again the broad parameters of its interest -- numbers and types of staff persons available, timing of availabilities, degrees of university support for the project as defined by such things as qualification of field staff and team leader, etc. A.I.D. then examines these proposals against its (and the host country's) perception of probable project needs. Then, one or more universities may be asked to send a team to prepare, together with the host country and A.I.D. mission and host government, the project proposal itself. If A.I.D., the host government and, specifically, the U.S. university, feel the project details which emerge indicate a good fit of university to project, and a mutual willingness, A.I.D. and the U.S. university develop the contract itself. If not, the process starts over again.

The obvious delays such a procedure would involve militated against its acceptability to either A.I.D. missions or host governments. Also, it raised the real and legitimate question as to the propriety of U.S. universities having such a major role in shaping U.S. assistance strategies -- and especially of having selected universities to do so when those universities' own interests in, and capabilities for, carrying out the project might weigh heavily in how it was shaped up.

In discussion, Committee members frequently referred to the degree of university participation in planning as a key to the relative success of the Indian/U.S. university collaboration. The writer pressed hard the point that the universities participated only in planning their individual projects against an overall basic pre-agreement between the two governments as to total project goals and objectives. A distinct and all important difference from the proposed "Collaborative Mode." Without doubt, however, the universities' participation in planning details of ongoing projects, once under way, was a genuine key to success. Without a doubt, also, universities are among the best sources for people qualified to assist missions and host governments in doing such planning. A.I.D.'s professional staff resources are extremely limited and, by circumstances of their jobs, not usually highly conversant with the constantly expanding body of scientific knowledge necessary for some aspects of this planning.[5] Without doubt, university professional resources should be built into the planning process. But use of a given university as a part of the process of deciding upon its selection is another matter -- and still in contention.

In any event, the Collaborative Mode was accepted by A.I.D as one method of contracting; it was warmly received by the universities and, after a congressionally required "testing" in two countries, it was built into A.I.D. procedures. It is in use in some countries at the present time. Most Mission Directors think of it as a good idea -- but one which doesn't quite fit their specific circumstances. Universities almost uniformly believe it should be used more widely, and those which have worked under the arrangement (as with Mission Directors who have used it) strongly applaud it.[6]

Interestingly, and unfortunately, almost all the energy and attention has gone to the issue of the universities' participation in pre-planning. The much more important issue of modifying and improving A.I.D.'s project management approach has been almost forgotten as the key element and motivational force behind the initiative. One reason has been that the Central Contract Policy Office,

in constant interaction with central staff officers, and in full understanding of issues raised during Committee discussions leading up to the Collaborative Mode recommendation, has incrementally improved the contracting and selection procedures, so that the worst of the older A.I.D. abuses have withered away. Thus, as with the Gardner report and the International Rural Development Conference, the contribution of the Special Committee study has been more from its indirect improviing of A.I.D. and university understanding of one another's problems and special characteristics than from the overt adoption of the study's explicit recommendations.

END NOTES

[1] The writer thought this sentence summarized the meeting perfectly and copied it in his notes. He needn't have! Mr. Gaud repeated it the next day at his meeting with the Agency's Executive Staff. He added that he wanted to get to the bottom of the problems because he thought it was a very good question. (Those who knew him will know, of course, that he used quite different words to make his point!)

[2] Whom the writer first met in 1947 when both were graduate students in Economics at the University of Chicago.

[3] Dr. Clifford M. Hardin, then Chancellor of the University of Nebraska, related to the writer part of the process by which A.I.D. had started on the university contract format which had served both A.I.D. and the university so poorly. When Governor Stassen became Administrator of the foreign aid agency under President Eisenhower, he initiated a very heavy new emphasis on helping developing countries build agricultural universities and on using U.S. universities for the purpose. He asked Dr. John Hannah, President of Michigan State, who had pledged the support of the National Association of Land Grant Universities to President Truman on his initiation of the Point Four program. Dr. Hannah recommended the services of one of his young staff, Dr. Clifford Hardin, to help Governor Stassen develop a suitable instrument of A.I.D./university agreement. Dr. Hardin said he was asked to adapt or modify existing A.I.D. procurement contracts to the special circumstances of universities working A.I.D. overseas. This, under Hardin's leadership, resulted in the prototype A.I.D./university contract to be used henceforth. "Accepting the assignment in that form was my big mistake," Dr. Hardin said. "Instead, I wish I had recognized that a contract was the wrong kind of instrument to start with." If they had started from scratch, drawing upon their experiences with other funding entities -- such as state government and especially the U.S. Department of Agriculture -- A.I.D./university relationships might have had a much happier and certainly a more productive experience, he felt. He was probably correct in his judgment.

[4] For example, shortcomings in project performance resulting from failures of the host institution to make good on its commitments could be distinguished from those resulting in deficiences of the U.S. university inputs and effort -- thus discouraging escapes from responsibility by blaming the other parties.

[5] Every known study or formal comment from external bodies evaluating A.I.D. since the new Agency was formulated from its predecessor elements in 1961, has noted the need for A.I.D to expand and otherwise strengthen its professional staffs, in Washington and in the field. The term "professional" embraces those from such professions as agriculture, health, education, population, economics.

Although most administrators have, genuinely, agreed to this, the slow attrition in numbers has been disproportionately among these very groups, while the numbers of program, administrative service, and management officers, desk and area officers, etc., have either increased or declined proportionately less. Among other consequences has been an increasing relative reliance on contractors and a decreasing capability to select contractors or monitor their performance wisely. As reported elsewhere in this publication, the "reorganization" of 1961, which created the modern A.I.D., was a cataclysmic destruction of the Agency's professional capabilities from which it has not and probably will not ever totally recover, despite heroic efforts by such outstanding executives as Administrators John Hannah and Peter McPherson, and Assistant Administrators such as Alfred Moseman and Nyle Brady, to bring it about.

[6] On May 26, 1988, Administrator M. Peter McPherson sent all Mission Directors a list of ten questions -- most of which contained several subquestions -- pertaining to performance of Title XII universities. These same questions were sent also to major A.I.D. contracting universities. The questions were designed to elicit information as to changes which might be made to improve such performance. All Mission Directors and universities addressed responded, although not necessarily to every question.

One question asked was: "What has been your experience with Collaborative (Mode) contracts? Should their procedure be used more fully? If so, why? If not, why not?"

The writer analyzed the responses (and updated them in a memo of Sept. 29, 1986). The 29 responses were as follows:

- 10 had used the mode, felt it desirable, should be used more frequently, but with changes;
- 11 felt it had promise but very limited applicability;
- 8 felt the approach was fundamentally wrong in concept, had not worked well, and should be abandoned.

All universities responded favorably to the use of the Collaborative Mode.

In the long discussion of this question in the mission directors responses, virtually all addressed their reservations about the universities involvement too early, or otherwise improperly, in the project planning process. The writer's memo, of analysis of these responses, summarized the discussion as follows:

"The Collaborative Assistance Mode of contracting is [seen by the Mission Directors] as either very good or very bad, depending upon the mission experience. Most see it as a very good idea in concept, but breaking down on two related points: 1) too little mission/host government planning and agreement before the project is initiated; 2) selection of the U.S. university before enough is known about the project to know what types, or even what magnitude, of university resources are needed. The Mode should be retained as an option for missions, but with sharp changes in this aspect.

PROGRAM PARTICIPANT TRAINING

Perhaps in no way did the A.I.D./U.S. university program in India have more lasting impact on the country than through its training, in the United States, of Indian Nationals, primarily at the participating U.S. universities. Selection of the professional positions for which the Indians were to be trained, selection of the specific individual to be trained, working out a specific course of study, orientation activities, and working the returned, trained participant back into professional activities which would effectively use his newly enhanced scientific and/or administrative competencies -- all were the result of intense daily close interaction of the U.S. university field team, the Indian counterpart and the India program coordinators on the U.S. university's home campus. To convey a fuller sense of this process, perhaps a special discussion of some of the details is warranted.

Much concern is often expressed over the possibility that many foreign nationals sent to the United States for training for specific purposes either may not return to their home countries or, if they do return, they may then take jobs in no way related to the purposes for which they have been trained. Although a broad base of U.S.-educated citizenry in a less developed country undoubtedly serves both the U.S. interest and the national economic development interest of the less developed country, this cannot be the governing objective for the participant training component of A.I.D.-funded U.S. university projects.

In India, a study by Drs. John and Ruth Hill Useem, on the experiences of "the western educated man in India,"[1] made before the U.S. university program began, had found that the prevailing idea, that U.S. college-trained Indians upon return to India found themselves engaged in trivial employment, was really a myth: that, in fact, such people were, in overwhelming proportion, engaged in important positions in educational, governmental and private sector employment.

The Government of India was fully as concerned, as was A.I.D., with assuring that participants returned to India, there to pursue work of the type and for the purposes envisioned in the program for which they were trained. Therefore, in implementation of agreement with A.I.D., the Government of India placed severe sanctions against such participants remaining abroad or, upon their return to India, taking employment unrelated to the project goals. In essence, participants had to sign agreements with the government regarding future employment, abrogation of which necessitated their refunding all costs of their participant training. The U.S. visas they were issued precluded the possibility of their remaining in the U.S. routinely after completion of their training tours.

By 1974, shortly after the U.S.university agricultural programs in India ended, somewhat over 1,000 Indian participants had been sent by the six U.S. universities to the U.S. for training. Most of these were trained at the university holding the contract for the state from which the participant came, but there was considerable exchange of participants among the six U.S. universities in order to get the best type of training for the individual participant. In a few rare cases, participants were sent to some U.S. university other than one of the six, for highly specialized training. Of all the participants, about forty percent were trained to the Ph.D. level; forty percent, to the M.S. level; and about twenty percent received no degrees as a result of their U.S. training. (Some of these last already had higher level degrees; some were administrators given shorter term informal training; some were extension workers given non-degree extension training.) Very few participants failed to complete their planned study tours. Very few, if any, failed to return to India.

In the earlier years, participant training covered a variety of functions: in state and centra government administration, college teaching, research and extension. As we have seen, participan training in later years was concentrated, as was the program, on building the state agricultura universities.

In any event, the participant training program, with the sanctions built into it, was extremel successful in returning participants to the Indian institutions and professional positions for whic they were trained. Employment, as of 1974, for participants trained during the entire period fron 1955-73 was as follows:

- Employed by Indian agricultural universities 70%
- Employed by other Indian agricultural colleges 7%
- Employed by state or central governments 8%
- Employed by others 15%

  Total: 100%

Of the above, those who were employed by the agricultural universities spread broadly throug the executive, managerial and professional/scientific staffing of those universities, as follows:

- Administrative/Executive Officers 8%
- Department Heads 7%
- Professors and Associate Professors (or researchers of similar rank) 42%
- Instructors or Assistant Professors (or reseachers of similar rank) 31%
- Staff position unknown or not fitting above categories 12%

  Total: 100%

Participant training was concentrated quite heavily in the applied natural agricultura sciences, and somewhat skimpily in the home sciences and in the social sciences, especiall agricultural economics.

Participants trained by subject field in the U.S.:

- Soils, Crops, Horticulture 26%
- Plant Diseases, Pests 8%
- Animal Sciences: Dairy, Poultry, and Dairy Processing Technology ... 19%
- Veterinary Sciences 15%
- Social Sciences, Statistics, Economics 6%
- Agricultural Engineering 6%
- Home Sciences 2%
- Basic Sciences 4%
- Agricultural Education, Extension, Information 11%
- Administration 3%

  Total: 100%

At its best, participant training carried out under, and as an organic part of, an institution building U.S. university project is by far the most successful format for such training activities. I provides opportunity for the training U.S. institution to become fully acquainted with the technica characteristics of the participant's home area, and of the political-social-institutional milieu withi

which he will work upon his return. It enables the U.S. technical advisor to participate specifically in the participant selection process and in the evaluation of his/her preparation for the study course he/she will be entering. It enables the U.S. advisors to help match the participant's training program specifically to the institutional development requirements of the host institution and to communicate this in detail to the persons on the U.S. campus preparing the participant's course of study. And, perhaps most important of all, it enables the U.S. university team in residence in the host country to assist the participant in getting his work assignment so organized that upon his return to his home institution he can make the maximum use of the new capabilities developed by his training assignment. This is very critical to the participant's future career development and usefulness to his institution and to the country. Otherwise, slipping back into comfortable old habits of thought and work, and old alignments of professional and personal relationsips, could be as easy and alluring to the returned participant as it would be stultifying of new, creative enterprise and significantly improved performance.

The degree and intensity of participation in this process by the particular U.S. university involved is illustrated by the following anecdotes. As the first Group Leader of the University of Tennessee team, the writer was asked by the Mysore State (now Karnataka) Government to serve as chairman of the participant selection committee. Other members were the Director of Agriculture and the Director of Animal Husbandry and Veterinary Science for the State, the Principal of the College of Agriculture, and the Principal of the College of Veterinary Science. The committee first recommended to State Government regarding those positions for which staff should be selected and trained under the Tennessee Project. Upon State Government approval of those positions (which might or might not have been in existence at the time) the committee advertised the position, obtained necessary bio data, including previous work and academic records from the applicants, screened and interviewed the candidates, and recommended to government regarding which should be selected for the training. Some, but not many, of these persons were incumbents in these positions. When the State Government and the Government of India would agree upon this list (usually quite promptly) the participants' transcripts and other biographical data, together with a detailed account of the post-training assignment envisioned for the candidate by his government and/or university, were sent to the University of Tennessee campus coordinator. Very similar arrangements were made in the State of Tamil-Nadu and Kerala (then Travencore-Cochin). Illustrative of the process: during the writer's tour of duty in India, 73 participants were sent from the three States in his region to the U.S. for training, under the following arrangements and procedures: Nine letters per participant, with attachments, were sent by the writer, for the 73 participants, to the University of Tennessee Campus Coordinator; eight letters per participant were sent from the Tennessee Campus Coordinator back to the writer -- an average of 17 communications per participant. Almost exactly half of these participants was assigned to some U.S. campus other than the University of Tennessee, where (as a result of such correspondence and detailed evaluation and recommendation by a group of campus departmental level training committees) the campus best suited to the individual participant had been earlier determined.

(On his last full day in India, on behalf of this selection committee the writer interviewed 23 candidates, and selected two for participant training, for two positions in animal husbandry.)

By the time the participant arrived at Knoxville, he was so well known to the University by means of this correspondence that he was readily recognized at the University. He was met at the airport by a senior official of the University, and his program of study was handed to him. Visitations

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with key guiders of his study program and with other in-residence Indian participants had been arranged. After a few days at the University of Tennessee, if the participant had been assigned to another institution for the bulk of his training, he traveled to the other university, where similar courtesies were shown him upon his arrival. Academic performance requirements were the same as for American students of comparable levels. Although the curriculum was to a degree tailor-made to the participant's requirements, academic standards were not lessened. This was a matter of policy. It need not have been a great concern; the grades of participants averaged in the upper one-fourth of those of graduate students in the Colleges of Agriculture which they attended.

This close attention of the U.S. university to the participants' selection and development was certainly a major contribution by the U.S. university. Especially noteworthy was the work of large numbers of on-campus faculty who had been given various formal and informal assigned responsibilities to make the participant's course of study as productive as possible. Most of the cost of this special attention was borne, without special A.I.D. funding, by the university and its faculty and administrators. It's a function the universities perform for all their students. It defines what it is to be a public university in the United States.

From the personal lives and professional contributions of these and other Indians who studied agricultural sciences in the United States, and from the American professionals who learned so much from their experiences working in India, the long-range (mostly informal) mechanism of professional collaboration and scientific interchanges has developed and contributed, and may be expected to continue to contribute, much toward the betterment of agriculture in both countries.

END NOTES

[1] John and Ruth Hill Useem, The Western Educated Man in India (New York, New York: Dryden Press, 1955).

A NECESSARY CONCLUDING COMMENT BY THE WRITER

Very early in his professional career, the writer's studies and research had brought him to two very firm conclusions about the inherent nature and operative principles of agricultural to economic development. He published these views, some cited elsewhere in this book, before he entered into any form of foreign assistance work and has maintained them steadily since.

The first conclusion was that the rates and limits of economic development (general as well as agricultural) would depend upon, more than anything else, the effective harnessing of the powers of science and technology to the task. As a student of economics he concluded that neo-classical economics, so popular at the time, did economic development theory a disservice by its methodological insistence upon treating, for the purpose of analysis, resources, technology and the "state-of-the-arts" as "givens." Economic analysis, under that formulation, was limited to ascertaining optimum allocations to achieve maximum productivity efficiencies from these "given" parameters. The writer's conclusions were exactly the opposite. To be relevant to development questions, economic policy had to be directed primarily at changing these very factors: at improving the "state-of-the-arts," at advancing technology, at expanding resources. The principal instrument for doing any of these things was science: which is an instrument not of discovery only but one of creation -- an instrument for creating new resources, new technologies and new states of the relevant arts.

In a world of limited resources and unproductive technologies, it follows that the primary source of development dynamics would be science -- to create new resources and technologies necessary for the advance of man's control over his environment and over his own destiny.

Development strategy, therefore, must be concerned primarily with strategies for advancing, directing, and controlling the development and application of science and technology. The writer enunciated this view in 1952 and has held steadfastly to it ever since.[1]

His second conclusion, based largely upon his Ph.D. thesis and related subsequent studies -- and tested and elaborated in his Indian research -- was with respect to the relationship between size of the farm operating unit and economic efficiency. This is a large and complex issue discussed at length earlier in this book. As it pertains to agricultural development in the LDCs, its thesis was simple: that the kind of economic organization based upon family farm operating units is (except in rare occasions) the most efficient in the use of these resources. Hence, the predominantly agrarian LDCs (while awaiting the off-farm growth processes necessary to drain off sufficient farm manpower to permit expansion in size of family-farm operating units) should not, in the false hope for increased economic efficiency, force artificial large-farm systems of farm organization, such as state farms or collective farms. In practical foreign policy terms this meant that the Soviet model of state farms and of collective farms was simply, from the economic development point of view, the wrong model for LDCs to follow.

These two principles gave the United States an enormous long-range advantage over the development concepts of both the Soviet and Chinese in the contests for the minds of men in the new or economically backward nations as to "which way to go" -- which could be explained by "western" practitioners of development assistance if only they could comprehend their importance and steadfastly hold to them as guiding concepts.

This book is no doubt biased toward accord with those A.I.D. policies, programs and personnel which have been in concert with these two natural U.S. advantages. But it is a bias vindicated by the outcomes of development policies in many countries of the world -- especially by the unhappy experiences of the Communist bloc countries, in their efforts to implement the opposite views. Emphasis upon science and technology as instruments for expanding the parameters of economic development, and emphasis upon forms of economic, social and political organization which optimize opportunities for the maximum numbers of people to respond freely, in their own ways, to economic incentives to production, are the twin principles of development which have actually worked.

Research to create the scientific and technological advance, and education to create the scientists and the practitioners -- and especially to create the citizenry capable of both generating and seizing freely upon economic opportunities -- must be the very heart of sound development strategy. The Truman and Eisenhower administrations had reasoned well when they centered attention upon helping LDCs build strong agricultural research and education institutions. This book has been a partial and elective account of the lengthy process by which that early reasoning has, with many fits, starts, and aberrations, come to be a central and strategic (although in relative money costs, rather small) ingredient of U.S. international relationships' history.

We have come now nearly to the end of this account of the experiences of U.S. universities' serving A.I.D. in the spirit pledged to President Truman by Dr. Hannah over forty years ago. For reasons given earlier, the narrative has necessarily been illustrative rather than complete. The writer has chosen to deal with certain selected experiences, and issues, in some depth and detail rather than to skim summarily over the entire length and breadth of the A.I.D./U.S. university cooperative experience on behalf of LDC agriculture. As stated earlier, to illuminate the more relevant and enduring issues and causal relationships, he has chosen the more narrowly focused spotlight over the dimmer floodlight.

For this he has no apology. But he does confess freely to a sadness over the omissions. It comes not easily, for example, to touch so lightly on the contributions of Michigan State University, the most heavily and most broadly involved of U.S. universities, with significant and successful technical assistance and training undertakings over virtually the entire forty-year period, and covering all the continents, plus some island nations in all the oceans, where A.I.D. and its predecessors have had programs. It is almost unforgivable to omit special discussions of Cornell University's role in guiding the agricultural college at Los Banos in the Philippines back from its near-total destruction during World War II, to becoming a significant resource for the reconstruction of a productive Philippine aquaculture.[2] It has carried its prestigious and outstanding scientific competence, through various means, to unmentioned corners of the earth. Similarly unhappily were omitted discussions of the contributions of Utah State, Colorado State, and Washington State Universities which have assisted, from the beginning, in far flung research and educational institution-building in Iran, Pakistan, Thailand, Bangladesh, Bolivia, Nigeria, and a long list of other countries -- and have led the way also to improved LDC irrigation water management and utilization at all levels from national policy, through irrigation district, to on-farm use of water. Oregon State University importantly assisted the International Agricultural Research Institute in Mexico in the development of the high yielding types of wheat upon which the great revolution in Asian wheat production is based. And, in another program effort, it developed methods of effective weed control applicable to LDC farming conditions. Texas A&M University, starting early in Pakistan, left its mark in the form of improved agriculture and human and institutional capabilities in several countries including, notably, the Dominican

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Republic. South Dakota State University, more recently, did yeoman work to help the African nation of Botswana develop an effective agricultural research and education college of agriculture and also assisted Mauritania with its agricultural production programs. The University of Minnesota improved agricultural policies and capabilities in Tunisia and Morocco, among other countries. The University of Kentucky, and later the University of Wisconsin, assisted noteworthily in the development of agricultural institutional capabilities in Indonesia. The University of Georgia has recently provided excellent assistance, warmly appreciated by the government of Burkina Faso. Kenya is displaying an agricultural college level training capability reflecting the efforts by several U.S. universities, notably in the early years by the University of West Virginia whose similar efforts in Uganda were largely mooted (for the time) by what became the bloody turbulence in that country.

And so the list of necessarily but unfortunately omitted U.S. university contributions goes on and on, until the catalogue is complete.

It has pained the writer, also, not to be able to trace out all the cases of U.S. universities which have specialized to a high degree in some selected aspect of LDC agriculture, and then served as a source of assistance, upon request, to LDCs wishing reliable expertise, training for their own professionals, or reliable, applicable and useable literature. Often this type of assistance to individual countries was rendered without specific A.I.D. financial support -- but with its concurrence and appreciation.

As illustrations of this type of activity, the University of Wisconsin Land Tenure Center and the Ohio State University Farm Finance Program were chosen. A similar account could have been given of the services provided since the mid-1950s by Mississippi State University to countries wishing to improve quality controls over their crop seeds production and distribution systems. This is a small part of the total agricultural industry, to be sure. But to farmers unable to obtain predictably good quality seeds (seeds which will germinate, which are reasonably free from weed seed, which are suited for the area in which they will be planted, which are of the species and variety ordered, and which are available when and where needed and at a reasonable cost. To such farmers a good, well functioning and reliable seed supply system is life's blood. Mississippi State University, with modest A.I.D. support, developed such a special competence and has provided advisory help and trained participants on a worldwide basis for countries wishing to establish such a quality seed supply system.

Auburn University has invested heavily of its own resources, and received a series of A.I.D. assistance grants, to develop special competence in LDC production of fish in man-made "ponds" -- i.e., in "Aquaculture." From this International Aquacultural Center has come a steady and large outpouring of information, of advisors, and of training services to developing countries wishing to exploit this special field, so significant to nutrition of protein deficient population groups in inland areas. This industry has, quite literally, gone through a productivity revolution in recent years. Auburn University has been at the forefront, and has spread its expertise upon call to countries in Asia, Africa, Latin America and Oceana.

The University of Florida (among many other of its major contributions) has developed a unique capability with respect to the the characteristics, problems and promise of "tropical agriculture" -- which has given a special relevance and cogency to many of its efforts on behalf of developing countries.

Many U.S. universities, by digging deeply -- and in situs -- into the specific characteristics of the less developed countries, have advanced the frontiers of both basic and applied sciences in many ways especially significant to less developed countries. This, in the long term, may well become one of the most important outcomes of the total experience of A.I.D.'s involvement of the U.S. universities.

It is unfortunate, also, to have had to illustrate so sparingly the fine efforts by many of the historically black universities to make their special contributions to the achievement of A.I.D. objectives. In addition to those already described, many of these universities have contributed substantially. Through their special research projects and training programs and through their partnerships with other U.S. universities in technical assistance projects, Tennessee State University, Lincoln University, Florida A&M University, North Carolina A&T University, Virginia State University, Alabama A&M University, Fort Valley College of Georgia - - and several others previously mentioned as well as still others regrettably unmentioned -- have made significant contributions of competence and of culture, which have given a new and greatly advantageous quality to the U.S. assistance efforts, and to the U.S. presence not only in the larger cities but also in the local communities of many less developed countries.

The story of A.I.D./U.S. university cooperation is, of course, not only one of accomplishment. It is one also of disappointments, frustrations and, in a few cases, recognizable failures. In some instances, for quite unrelated reasons, political relationships between host countries and the United States have so soured as to wash out the footprints of the U.S. universities and of their professors from the fields of their endeavors. But Phoenix-like the residues of these mutual cooperative efforts will rise again to view, as human experience serves more and more to demonstrate the total futility of any approach to international relationships other than those of comity, understanding, accommodation and mutual assistance. For ideas have the longest life-expectancy of any human creation. They are living things which become incorporated into the living tissue of subsequent, systematic, thoughtful efforts to solve human problems. It is the ideas, the precepts, the perceptions and the analytic structures of ancient Greece and Rome which still impact the human mind and spirit, long after all but a few relics of their great stone structures and statuary have broken and crumbled. So, too, may the foundations of concept and institutions, developed by this cooperative work in foreign assistance, influence favorably the future shape and character of all participating countries, including our own -- and influence especially their ability and their inclination to work together in common interest.

Out of this extended period of U.S. government/U.S. university cooperation in the foreign assistance effort there has evolved in the United States truly an institutional arsenal of effective international assault upon lingering problems of human hunger, malnutrition and rural poverty. It is to be hoped that this arsenal will be freely drawn upon. For as with human musculature, it atrophies with disuse and becomes stronger from the using.

Finally, we most strongly regret that we cannot adequately reference the many direct, and subtle, assistances given by many friends in the universities and in A.I.D. to the writing of this book -- especially the warm endorsement of the idea that the effort be made. Most especially, the writer has appreciated the one strong, consistent theme of that advice: "Make the report your own account, your own interpretation; let it speak of your own experiences and to your own convictions and conceptualizations."

He has attempted to follow that advice, not, it is to be hoped, from false immodesty, but from acknowledgement of the need for interpretation, for reflection about the larger meanings of it all.

"Facts without meaning are facts without meaning," said the great American philosopher John Dewey. Major national commitment to assistance to other, poorer countries is an unusual moral and political phenomenon. Many, many different meanings and interpretations may be honestly drawn from this greatest adventure in humanitarianism the world has yet known -- and from the one, important part of it that is the subject of this book. These have been the writer's!

* * * *

The reader might ask the writer one last, personal question: "Has it been worthwhile from a personal point of view?" The reader who has read so far deserves an answer. It is an unequivocal "Yes." The reasons for the firmness of response are two.

First, the mission of foreign assistance is important. It matters profoundly what happens to the countless millions of people in the poorer countries: people born to disadvantage, to poverty, to hunger, to illness, to uncertainty; and born in a world motivated by a seemingly inherent inclination toward mutual self destruction by struggles within as much as between nations. It matters greatly to them; and it matters greatly also to our own country's future prospects for security, peace and prosperity. Never, perhaps, can any conscientious worker for A.I.D. feel entirely satisfied with what he has accomplished. But never need he feel that there is no opportunity to do more or to do better; nor that there is no market in A.I.D. for new or better ideas. And never, never need he feel that what he does is of little account.

The second reason is the quality of people with whom the writer's work has brought him into contact -- workers in A.I.D., in the U.S. universities, and in the less developed countries. A few have been mentioned in this book, most of them, unfortunately, have not - - professional people, dedicated people, all. Often differing widely on specific points of view, on methods, on roles, they nearly all share the same goals and objectives, the same sensitive optimisms. This communion of spirit has over the years made the writer's personal job not work, but pleasure; not a chore, but a challenge. With a wonderful wife to participate fully in every aspect of the adventure, the writer has found it to be a perfect career. He would have desired no other.

As is so often the case, the steeper road has led more surely to the higher plane. The look back down the trail is pleasant, and satisfying.

END NOTES

1 "Some Theoretical Issues in Economic Development," Journal of Farm Economics, Vol. 34, No. 5, (December, 1952).

2 Turk, Kenneth L., The Cornell - Los Banos Story (Cornell University Press, 1974).

APPENDIX A

DIRECTORS OF THE FOREIGN AID PROGRAM; 1942 - 1989

Directors of the Foreign Aid Program

Institute for Inter-American Affairs 3/31/42 -

Nelson A. Rockefeller	
Dillon Myer	

Economic Cooperation Administration (ECA) 4/2/48 - 10/31/51

Paul G. Hoffman	4/9/48 - 9/30/50
William C. Foster	10/1/50 - 9/23/51

Technical Cooperation Administration (TCA) 6/1/1950 - 7/31/53

Henry G. Bennett	6/-/50 - 12/-/51
Stanley Andrews	5/12/52 - 12/-/52

Mutual Security Agency (MSA) 10/31/51 - 7/31/53

W. Averill Harriman	10/31/51 - 1/20/53
Harold E. Stassen	1/28/53 - 7/31/53

Foreign Operations Administration (FOA) 8/1/53 - 6/30/55

Harold E. Stassen	8/3/53 - 6/30/55

International Cooperation Administration (ICA) 7/1/55 - 11/3/61

John Hollister	7/1/55 - 9/14/57
James H. Smith	10/8/57 - 1/31/59
James W. Riddleberger	5/29/59 - 2/28/61
Henry Labouisse	3/1/61 - 11/3/61

Development Loan Fund (DLF) 8/14/57 - 11/3/61

Agency For International Development 11/4/1961 -

Fowler Hamilton	9/30/61 - 12/7/62
David E. Bell	12/21/62 - 7/31/66
William S. Gaud	8/3/66 - 1/20/69
John A. Hannah	4/2/69 - 9/30/73
Daniel S. Parker	10/1/73 - 1/19/77
John J. Gilligan	3/30/77 - 3/30/79
Douglas J. Bennett	8/3/79 - 1/19/81
M. Peter McPherson	2/27/81 - 8/7/87
Allan Woods	11/6/87 - 6/29/89

FRCampbell
7/10/89

APPENDIX B

LIST OF U.S. UNIVERSITIES PARTICIPATING IN A.I.D. BILATERAL TECHNICAL ASSISTANCE PROGRAM (ALL DEVELOPMENT SECTORS)

ASSISTANCE BY UNIVERSITY BY COUNTRY

SECTOR	COUNTERPART	START	END
	Albany Med. College		
GUYANA			
HEALTH	Govt. of Guyana	06/20/66	09/30/68
HEALTH	Min. of Labor & Health	04/01/64	06/30/66
	Auburn Univ.		
RWANDA			
AGRICULTURE	Govt. of Rwanda	03/07/83	03/06/87
INDONESIA			
AGRICULTURE	Min. of Education	09/24/88	09/30/90
AGRICULTURE	Govt. of Indonesia	07/07/76	09/30/80
PHILIPPINES			
AGRICULTURE	Govt. of Philippines	07/23/71	01/31/79
COLOMBIA			
AGRICULTURE	Govt. of Colombia	01/07/77	10/31/81
EL SALVADOR			
AGRICULTURE	Min. of Agriculture	09/27/71	04/30/76
HONDURAS			
AGRICULTURE	Min. of Nat. Res.	10/16/80	08/31/88
PANAMA			
AGRICULTURE	Govt. of Panama	08/18/71	09/30/74
	Berea College		
INDIA			
HUMAN RES.	Govt. of India	01/25/60	02/28/62

Boston College

GUATEMALA			
HUMAN RES.	Govt. of Guatemala	09/25/75	04/30/76

Boston University

GUINEA			
DEV.PLNG.&ECON.	Ntl.School of Admin.	02/01/63	03/31/64

Brigham Young Univ.

IRAN			
HUMAN RES.	Univ. of Tehran	09/05/57	09/04/61

Bryant College

DOMINICAN REPUBLIC			
DEV.PLNG.&ECON.	Inst. of Santo Domingo	04/14/65	06/30/67

Bucknell Univ.

ARGENTINA			
SCI. & ENG.	Catholic Univ.	07/31/63	12/31/66

California State Poly.

AFRICA REGION			
HUMAN RES.	U.Btswna,Lestho,Swazilnd	05/19/69	09/30/71
LIBERIA			
HUMAN RES.	Govt. of Liberia	05/01/62	08/31/72
TANZANIA			
HUMAN RES.	Min. of Education	03/05/65	07/31/72
ZAMBIA			
HUMAN RES.	Col.of Further Education	02/26/63	02/28/71
THAILAND			
AGRICULTURE	Govt. of Thailand	01/01/67	08/31/73

COSTA RICA			
AGRICULTURE	Min. of Agriculture	06/15/73	05/31/75
AGRICULTURE	School of Tropical Ag.	06/28/88	10/30/90
GUATEMALA			
AGRICULTURE	Min. of Agriculture	03/31/67	12/31/70
AGRICULTURE	Min. of Agriculture	01/01/72	12/31/76
AGRICULTURE	Min. of Agriculture	07/20/66	09/30/68
AGRICULTURE	Min. of Agriculture	03/30/67	12/31/70
YEMEN			
AGRICULTURE	Govt. of Yemen	12/01/75	09/30/80
	Carnegie Inst. of Tech.		
INDIA			
HUMAN RES.	Hundustan Steel	02/13/62	12/31/64
	Catholic Univ.		
COLOMBIA			
HEALTH	Ntl. University	08/27/62	08/31/65
	Charles R. Drew Med. Sch.		
AFRICA REGION			
HEALTH		02/01/79	10/15/85
	College of Physicians-Philadelphia		
GHANA			
HEALTH	Min.of Health	03/16/62	07/31/63
HEALTH	Ntl.Medical School	02/01/63	07/31/64
	Colorado School of Mines		
TURKEY			
SCI. & ENG.	Istanbul-Tech. Univ.	04/03/63	09/30/66
	Colorado State Univ.		
KENYA			
AGRICULTURE	Univ. College of Nairobi	01/11/65	06/30/71

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AGRICULTURE	Royal College	01/11/65	12/31/67
AGRICULTURE	Univ. of Nairobi	07/01/71	12/31/78
NIGERIA			
AGRICULTURE	Min. of Agriculture	11/24/64	09/30/69
BANGLADESH			
HUMAN RES.	Univ. of Dacca	11/11/59	10/31/68
PAKISTAN			
AGRICULTURE	Water & Power Authority	08/09/67	06/30/69
HUMAN RES.	Peshawar Univ.	07/18/58	12/31/64
THAILAND			
SCI. & ENG.	Chulalong Univ.	06/09/59	06/30/75
BRAZIL			
SCI. & ENG.	Univ.of Bahia	06/01/64	05/31/66
HONDURAS			
NATURAL RES.	Govt. of Honduras	01/28/76	04/10/76
	Columbia University		
AFRICA REGION			
HEALTH		04/30/84	12/31/85
HUMAN RES.	Makere Univ.	01/26/61	06/30/71
KENYA			
HUMAN RES.	Cent.Teachers College	12/30/63	12/31/67
INDIA			
HUMAN RES.	Central Inst. of Educ.	09/08/58	06/30/67
ARGENTINA			
DEV.PLNG.&ECON.	Univ. of Buenos Aires	11/02/60	09/30/63
COSTA RICA			
POPULATION	Univ. of Costa Rica	05/01/71	04/30/73
MEXICO			

POPULATION	Govt. of Mexico	09/30/77	01/31/81
PERU			
HUMAN RES.	Min. of Education	04/24/63	12/31/68
AFGHANISTAN			
HUMAN RES.	Min.Ed. & Kabul Univ.	04/05/54	06/30/74
HUMAN RES.	Min. Ed. & Kabul Teachers	04/01/74	12/31/77
TURKEY			
HEALTH	Nightingale Foundation	07/01/59	06/30/62

Consortion for International Development

BURKINA FASO			
AGRICULTURE	Govt.of Upper Volta	06/22/77	09/30/80
CAPE VERDE			
NATURAL RES.	Govt.of Cape Verde	04/04/78	11/30/80
CHAD			
AGRICULTURE	Govt.of Chad	09/16/76	10/16/78
KENYA			
AGRICULTURE	Govt. of Kenya	01/01/77	09/30/78
NIGER			
AGRICULTURE	Govt. of Niger	06/01/76	03/31/80
SUDAN			
AGRICULTURE	Govt. of Sudan	08/20/79	12/31/85
TANZANIA			
AGRICULTURE	Govt. of Tanzania	02/20/80	05/31/82
AGRICULTURE	Govt. of Tanzania	03/01/83	09/30/86
EGYPT			
NATURAL RES.	Min. Ag. & Irrigation	05/20/77	12/31/84
YEMEN			

AGRICULTURE	Govt. of Yemen	04/23/79	01/31/81

Cornell University

AFRICA REGION			
DEV.PLNG.&ECON.		08/03/88	06/30/92
LIBERIA			
HUMAN RES.	Univ. of Liberia	03/29/60	10/15/60
HUMAN RES.	Univ. of Liberia	05/28/62	07/31/68
SRI LANKA			
DEV.PLNG.&ECON.	Govt. of Sri Lanka	12/01/81	12/31/85
CHILE			
HUMAN RES.	Univ. of Chile	10/01/59	06/25/64
COSTA RICA			
POPULATION	Ntl.Univ. of Costa Rica	08/30/77	02/19/79
LATAM			
HUMAN RES.		06/30/64	02/28/66
PERU			
HEALTH	Govt. of Peru	04/11/60	04/10/62
HUMAN RES.	Govt. of Peru	05/15/75	01/31/79
TURKEY			
DEV.PLNG.&ECON.	Mideastern Tech. Univ.	09/18/61	09/15/70
YEMEN			
AGRICULTURE	Govt. of Yemen	03/12/80	03/12/82

Delgado Trades Tech. Institute

UGANDA			
HUMAN RES.	Kampala-Tech Inst.	02/06/59	12/31/61
HUMAN RES.	Dept.of Protectorate	06/23/59	06/22/61
MOROCCO			

HUMAN RES.	Govt. of Morocco	08/27/59	07/31/62
TUNISIA			
HUMAN RES.	Govt. of Tunisia	12/17/59	07/31/62

Dunwoody Industrial Institute

SUDAN			
HUMAN RES.	Khatrooum Trade School	06/28/63	05/31/69
INDIA			
SCI. & ENG.	Central Tng. Inst.	08/22/62	12/31/68

Earlham College

KENYA			
HUMAN RES.	Govt. of Kenya	02/13/60	08/31/64

Eastern Michigan University

SOMALIA			
HUMAN RES.	Teacher Inst./AFGOI	08/01/62	08/31/71
SWAZILAND			
HUMAN RES.	Min. of Education	06/30/75	09/30/84
YEMEN			
HUMAN RES.	Min. of Education	04/05/79	10/01/79
HUMAN RES.	Min. of Education	09/10/79	05/15/86

Education Development Center

AFGHANISTAN			
HUMAN RES.	Faculty of Eng.	10/16/62	06/30/73
INDIA			
SCI. & ENG.	Institute of Technology	02/21/62	09/30/72

Florida A&M

KENYA			
AGRICULTURE	Govt. of Kenya	07/15/71	03/31/75

MALAWI

SCI. & ENG.	Govt. of Malawi	01/17/83	08/31/87
SCI. & ENG.	Malawi Poly Tech	04/01/85	12/30/85

Florida State University

KOREA

HUMAN RES.	Govt. of Korea	05/15/70	12/31/72
HUMAN RES.	Min. of Education	04/01/73	03/31/75

Fresno State

SUDAN

HUMAN RES.	Min. of Education	09/01/61	06/30/64

George Washington University

LATAM

POPULATION		02/22/72	08/21/73

Georgetown Univ.

VIETNAM

SCI. & ENG.	Saigon Univ.	11/12/65	12/31/65

PARAGUAY

HUMAN RES.	Catholic Univ.	07/30/70	12/31/74

TURKEY

HUMAN RES.	Univ. of Ankara	11/26/58	06/30/62

Georgia Institute of Tech.

PARAGUAY

DEV.PLNG.&ECON.	Min. of Ind. & Commerce	05/01/70	01/31/71

Georgia Tech.

DOMINICAN REPUBLIC

HEALTH	Govt. of Dom. Rep.	08/01/78	03/30/79

TUNISIA

HEALTH	Govt. of Tunisia	08/30/80	07/30/81
	Hampton Institute		
SIERRA LEONE			
HUMAN RES.	Min. of. Nat. res.	10/20/61	08/31/70
HUMAN RES.	Royal Training Inst.	12/02/60	02/28/61
	Harvard College		
LIBERIA			
HUMAN RES.	Govt. of Liberia	11/29/75	12/31/76
NIGERIA			
HUMAN RES.	Govt. of Nigeria	03/01/62	06/30/69
BOLIVIA			
SCI. & ENG.	Govt. of Bolivia	01/22/87	08/31/89
PANAMA			
DEV.PLNG.&ECON.	Cent. Am. Inst. of Bus.	01/01/67	07/31/70
MOROCCO			
AGRICULTURE	Min. of Agriculture	09/12/86	12/31/89
TUNISIA			
HEALTH	Inst. of Nutrition	09/01/69	08/31/76
	Howard University		
MALAWI			
HUMAN RES.	Govt. of Malawi	07/31/84	12/31/86
	Indiana Univ.		
AFGHANISTAN			
HUMAN RES.	Kabul Univ.	10/22/66	09/30/73
NIGERIA			
HUMAN RES.	Govt. of West Region	11/02/59	12/31/66
SIERRA LEONE			

SCI. & ENG.	Govt. of Sierra Leone	10/25/60	06/30/64
INDONESIA			
DEV.PLNG.&ECON.	Govt. of Indonesia	06/12/59	09/30/63
KOREA			
HEALTH	Min. of Education	09/19/59	06/30/62
PAKISTAN			
HEALTH	Univ-Karachi Med. Inst.	06/27/57	10/31/64
HUMAN RES.	Punjab Univ.	10/26/59	10/31/66
THAILAND			
DEV.PLNG.&ECON.	Thammasat Univ.	04/01/58	10/31/63
HUMAN RES.	Chulalongkorn Univ.	08/29/58	08/31/61
CHILE			
HUMAN RES.	Govt. of Chile	05/01/70	09/30/72
HUMAN RES.	Govt. of Chile	07/18/68	07/31/70
HAITI			
HUMAN RES.	Min. of Education	06/11/79	03/31/80
HUMAN RES.	Min. of Education	06/01/80	08/31/80
HUMAN RES.	Min. of Education	09/25/80	02/28/82
URUGUAY			
HUMAN RES.	Univ. of Trabajo	04/01/64	08/31/66

Iowa State Univ.

THAILAND			
AGRICULTURE	Govt. of Thailand	07/01/73	06/30/78
AGRICULTURE	Min. of Agriculture	06/16/82	07/31/86
GUATEMALA			
AGRICULTURE	Min. of Agriculture	08/07/79	12/31/80
PERU			
AGRICULTURE	Inst. of Reform Ag.	07/01/74	10/31/77
AGRICULTURE	Inst. of Reform Ag.	10/02/62	12/31/75

URUGUAY			
AGRICULTURE	Univ. of East Uruguay	11/29/60	08/31/68
	Johns Hopkins Univ.		
CAMEROON			
HEALTH	Univ.Center of Health	09/30/80	12/31/83
ETHIOPIA			
HEALTH	Govt.of Ethiopia	04/23/63	09/30/68
NIGERIA			
HEALTH	Inst. of Child Health	11/13/73	12/31/76
POPULATION	Govt. of Nigeria	03/22/88	03/14/93
INDONESIA			
HEALTH	Govt. of Indonesia	09/30/81	09/30/87
BRAZIL			
HEALTH	Govt. of Brazil	04/11/60	12/31/60
CHILE			
HEALTH	Ntl. Health Svc.	06/19/67	12/31/71
JAMAICA			
HEALTH	Govt. of Jamaica	11/01/77	04/15/81
	Kansas State Univ.		
NIGERIA			
AGRICULTURE	Ahmadu Bello Univ.	07/01/70	10/01/77
AGRICULTURE	Ahmadu Bello Univ.	10/01/63	06/30/75
INDIA			
AGRICULTURE	Min. of Agriculture	03/23/56	10/31/64
AGRICULTURE	Andhra Pradesh Ag. Univ.	11/01/66	06/30/72
AGRICULTURE	Govt. of India	07/01/69	09/30/72
AGRICULTURE	Min. of Agriculture	11/01/64	09/30/72
PAKISTAN			

AGRICULTURE	Govt. of Pakistan	04/10/86	11/30/90
EGYPT			
SCI. & ENG.	Univ.of Assiut	04/01/64	08/31/68
	Kent State Univ.		
TANZANIA			
HUMAN RES.	Changombe College	09/10/62	06/30/66
	L.A. State College		
BRAZIL			
SCI. & ENG.	Univ. of Paraiba	06/01/64	12/31/68
	Loma Linda Univ.		
TANZANIA			
POPULATION	Govt. of Tanzania	07/05/74	06/30/81
	Louisiana State Univ.		
LIBERIA			
AGRICULTURE	Min. of Agriculture	06/03/81	09/30/85
VIETNAM			
HUMAN RES.	Min. of Justice	01/01/69	08/31/70
COSTA RICA			
HEALTH	Univ. of Costa Rica	08/04/59	02/28/64
NICARAGUA			
AGRICULTURE	Min. of Agriculture	01/01/72	12/31/72
	MEDEX Group		
AFRICA REGION			
HEALTH		03/25/86	03/25/91
	Massachusetts Institute of Technology(MIT)		
PAKISTAN			

HEALTH	Pakastani Plng. Comm.	06/27/75 07/26/77
EGYPT		
DEV.PLNG.&ECON.	Govt. of Egypt	10/02/80 03/31/88
	McHarry Medical Col.	
BOTSWANA		
POPULATION	Govt. of Botswana	03/30/73 09/30/78
	Michigan State Univ.	
BURKINA FASO		
AGRICULTURE	Govt.of Upper Volta	05/01/77 06/30/81
NIGER		
AGRICULTURE	Govt. of Niger	09/29/77 10/16/78
NIGERIA		
AGRICULTURE	Govt. of Nigeria	04/01/65 12/31/70
HUMAN RES.	Govt. of East Region	03/18/60 01/20/64
HUMAN RES.	Univ. of Nigeria	03/18/60 01/31/69
SENEGAL		
AGRICULTURE	Govt. of Senegal	12/15/87 06/30/90
ZIMBABWE		
AGRICULTURE	Univ. of Zimbabwe	03/20/84 03/31/89
INDIA		
SCI. & ENG.	Guindy Col. of Eng.	08/11/60 03/29/65
INDONESIA		
HUMAN RES.	Govt. of Indonesia	01/12/76 01/11/79
KOREA		
AGRICULTURE	Min. of Agriculture	03/01/74 02/28/77
TAIWAN		
AGRICULTURE	Ntl. Taiwan Univ.	07/25/60 07/31/63

THAILAND			
HUMAN RES.	Min. of Education	10/13/64	08/31/68
VIETNAM			
DEV.PLNG.&ECON.	Ntl. Inst. of Admin.	04/19/55	06/30/62
ARGENTINA			
AGRICULTURE	Ntl. Inst. of Ag. Tech.	02/08/65	12/31/70
BRAZIL			
DEV.PLNG.&ECON.	Getudio Vargas Fnd/BA RGS	05/28/59	09/30/64
DEV.PLNG.&ECON.	Getudio Vargas FND/SP	06/29/53	08/31/64
HUMAN RES.	Reg. Education Res. Ctr.	08/11/60	07/31/64
COLOMBIA			
AGRICULTURE	Min. of Agriculture	09/15/69	09/14/70
AGRICULTURE	Govt. of Colombia	09/15/70	09/30/72
AGRICULTURE	Govt. of Colombia	10/29/75	12/31/76
COSTA RICA			
AGRICULTURE	Govt. of Costa Rica	12/01/75	07/31/76
AGRICULTURE	Govt. of Costa Rica	03/29/72	06/30/74
DOMINICAN REPUBLIC			
NATURAL RES.	Govt. of Dom. Rep.	10/28/83	06/30/86
GUATEMALA			
DEV.PLNG.&ECON.	Govt. of Guatemala	07/20/79	04/30/80
LATAM			
HUMAN RES.		06/29/62	06/28/64
TURKEY			
HUMAN RES.	Min. of education	02/27/64	06/30/71
HUMAN RES.	Min. of Education	01/09/68	02/28/74
	Mid. American International Ag. Consortium		
BOTSWANA			
AGRICULTURE	Govt. of Botswana	07/01/82	07/01/87

SRI LANKA

AGRICULTURE	Govt. of Sri Lanka	09/27/79	01/05/80

MOROCCO

AGRICULTURE	Govt. of Morocco	02/15/80	08/30/88
AGRICULTURE	Govt. of Morocco	09/29/88	08/31/93

Midwest Consortium (MUCIA)

BURMA

AGRICULTURE	Govt. of Burma	09/22/82	03/31/88

INDONESIA

AGRICULTURE	Govt. of Indonesia	09/01/69	06/30/71
AGRICULTURE	Govt. of Indonesia	07/01/71	07/31/76

KOREA

HUMAN RES.	Min. of Education	08/01/71	07/31/72
HUMAN RES.	Govt. of Korea	11/01/68	12/31/70

NEPAL

AGRICULTURE	Inst. of Agriculture	03/23/79	05/23/82
AGRICULTURE	Inst. of Agriculture	12/01/75	09/30/84
HUMAN RES.	Govt. of Nepal	05/22/72	11/30/72

BRAZIL

HUMAN RES.	Univ. Ed. Planning	05/11/66	06/30/68

DOMINICAN REPUBLIC

AGRICULTURE	Govt. of Dom. Rep.	09/29/88	01/31/89

LATAM

AGRICULTURE	Univ. of West Indies	03/06/84	07/31/86

Mississippi State Univ.

INDIA

AGRICULTURE	Govt. of India	06/01/68	07/31/72

THAILAND

AGRICULTURE	Govt. of Thailand	09/30/87	10/31/87
BRAZIL			
AGRICULTURE	Min. of Agriculture	03/02/64	06/30/74
GUATEMALA			
AGRICULTURE	Min. of Agriculture	05/31/66	09/30/72
AGRICULTURE	Min. of Agriculture	10/01/72	08/31/74

Montana State Univ.

PARAGUAY			
AGRICULTURE	Ntl. University	09/07/60	06/30/63

New England Center for CE.

KOREA			
AGRICULTURE	Govt. of Korea	08/10/71	10/01/74

New Mexico State Univ.

PARAGUAY			
AGRICULTURE	Min. of Agriculture	07/01/74	09/30/78
AGRICULTURE	Col. of Ag. & Vet. Sci.	06/18/64	09/30/68
AGRICULTURE	Col. of Ag. & Vet. Sci.	07/01/68	03/31/74

New York Univ.

NIGERIA			
DEV.PLNG.&ECON.	Univ. of Lagos	02/15/63	09/01/70
BRAZIL			
DEV.PLNG.&ECON.	Ntl. Dev. Bank	07/07/69	09/30/72

North Carolina State Univ.

PERU			
AGRICULTURE	Min. of Agriclture	11/23/66	12/31/68
AGRICULTURE	Ntl. School of Ag.	01/01/61	06/30/66
AGRICULTURE	Govt. of Peru	11/15/54	12/31/60
AGRICULTURE	Govt. of Peru	03/31/88	03/31/93
AGRICULTURE	Govt. of Peru	01/05/82	12/31/87
AGRICULTURE	Ntl. Ag. Univ.	01/01/61	02/28/73
SCI. & ENG.	Ntl. Eng. and Sci.	12/04/54	12/31/61

Northwestern Univ.

LIBERIA			
DEV.PLNG.&ECON.	Govt. of Liberia	10/19/60	08/31/62
SUDAN			
SCI. & ENG.	Univ. of Khartooum	05/27/65	06/30/69

Ohio State Univ.

UGANDA			
AGRICULTURE	Min. of Agriculture	09/30/84	09/30/88
INDIA			
AGRICULTURE	Min. of Agriculture	09/12/55	10/31/64
AGRICULTURE	Udiapur Ag. Univ.	11/01/64	07/31/72
AGRICULTURE	Punjab Ag. Univ.	11/01/64	07/31/72
HUMAN RES.	Min. of Education	07/16/56	06/30/69
BOLIVIA			
HUMAN RES.	Govt. of Bolivia	02/28/66	08/31/68
BRAZIL			
AGRICULTURE	Univ. of Sao Paulo	03/16/64	12/31/73
DOMINICAN REPUBLIC			
NATURAL RES.	Govt. of Dom. Rep.	12/09/87	07/31/88
ECUADOR			
HUMAN RES.	Govt. of Ecuador	12/31/65	09/30/68

Ohio Univ.

BOTSWANA			
HUMAN RES.	Univ. College	06/19/81	08/31/86
NIGERIA			
HUMAN RES.	Kano State Teacher Col.	09/01/71	08/31/72
HUMAN RES.	Kano State Teacher Col.	09/01/62	08/31/71
HUMAN RES.	Govt. of East Region	10/03/59	10/03/61
HUMAN RES.	Govt. of West Regon	01/01/58	12/31/68

SWAZILAND			
HUMAN RES.	Univ. of Swaziland	03/31/84	12/31/89
VIETNAM			
HUMAN RES.	Univ. of Saigon/Hue	07/20/62	06/30/71
	Oklahoma State Univ.		
ETHIOPIA			
AGRICULTURE	Govt.of Ehtiopia	05/16/52	09/30/68
THAILAND			
HUMAN RES.	Min. of Education	02/01/68	06/30/73
PANAMA			
AGRICULTURE	Univ. of San Carlos	06/23/65	08/31/71
	Oregon State Univ.		
BANGLADESH			
AGRICULTURE	Govt. of Bangladesh	04/17/86	03/31/90
JORDAN			
AGRICULTURE	Min. of Agriculture	06/19/68	09/30/70
AGRICULTURE	Min. of Agriculture	08/27/73	03/31/76
TURKEY			
AGRICULTURE	Govt. of Turkey	06/30/67	11/30/75
	Peabody Teachers College		
KOREA			
HUMAN RES.	Min. of Education	08/26/56	08/31/62
	Pennsylvania State Univ.		
SWAZILAND			
AGRICULTURE	Govt. of Swaziland	03/26/82	03/25/87
INDIA			

AGRICULTURE	Maharashtra Univ.	02/01/67	06/30/73
AGRICULTURE	Min. of Food and Ag.	10/01/67	06/30/73
PANAMA			
HUMAN RES.	Min. of Education	08/09/67	12/31/68
URUGUAY			
AGRICULTURE	Min. of Agriculture	12/08/72	04/30/76

Polytech Inst-Brooklyn

BRAZIL			
SCI. & ENG.	Univ. of Pernambuco	06/11/65	06/10/67

Prairie View A&M

LIBERIA			
HUMAN RES.	Booker Washington Inst.	12/30/54	07/01/61

Princeton Univ.

SENEGAL			
AGRICULTURE	Govt. of Senegal	02/22/82	11/23/84
KOREA			
DEV.PLNG.&ECON.	Govt. of Korea	06/01/71	11/15/72

Purdue Univ.

NIGER			
AGRICULTURE	Govt. of Niger	05/17/88	05/31/92
TAIWAN			
SCI. & ENG.	Taiwan Col of Eng.	06/01/53	12/31/61
BRAZIL			
AGRICULTURE	Univ. of Minas Gerais	06/27/51	12/31/73
DOMINICAN REPUBLIC			
NATURAL RES.	Govt. of Dom. Rep.	06/02/83	08/22/88
PORTUGAL			

HUMAN RES.	Govt. of Portugal	05/25/80	12/31/87

Rutgers Univ.

EL SALVADOR

DEV.PLNG.&ECON.	Govt. of El Salvador	03/09/88	03/11/88

Southeast Consortium for International Development

BURKINA FASO

AGRICULTURE	Govt.of Upper Volta	08/23/82	05/03/85

HAITI

DEV.PLNG.&ECON.	Govt. of Haiti	09/25/87	12/25/89

San Diego State Univ.

BRAZIL

HUMAN RES.	Govt. of Brazil	04/01/74	06/30/76
HUMAN RES.	Govt. of Brazil	11/01/65	03/31/74

JAMAICA

HUMAN RES.	Min. of Education	06/23/66	09/30/68

San Francisco State Univ.

LIBERIA

HUMAN RES.	Govt. of Liberia	05/28/62	02/28/67

San Jose State Univ.

DOMINICAN REPUBLIC

HUMAN RES.	Govt. of Dom. Rep.	09/01/66	08/30/68

South Carolina Univ.

DOMINICAN REPUBLIC

HUMAN RES.	Univ. Catholic M&M	06/28/83	12/31/88

Southern Illinois Univ.

MALI

HUMAN RES.	Min. of Education	09/07/64	08/31/67
NEPAL			
HUMAN RES.	Govt. of Nepal	09/19/78	12/30/83
HUMAN RES.	Ntl. Vo-Tech. Center	07/01/66	08/31/72
VIETNAM			
HUMAN RES.	Phu Tho Poly Tech	11/22/60	01/30/61
HUMAN RES.	Dept. of Ntl. Ed.	05/09/61	06/30/71
HUMAN RES.	Dept. of Ntl. Ed.	09/25/61	06/15/66
AFGHANISTAN			
AGRICULTURE	Min. of Agriculture	10/06/64	01/31/69
HUMAN RES.	Afghan Inst. of Tech.	10/06/66	06/30/72
	South Dakota State Univ.		
BOTSWANA			
AGRICULTURE	Govt. of Botswana	04/15/79	06/30/84
MAURITANIA			
AGRICULTURE	Govt. Of Mauritania	02/20/80	04/30/85
	Southern University		
CAMEROON			
AGRICULTURE	Univ.of Cameroon	11/04/70	12/31/76
	Spring Garden Inst.		
TURKEY			
SCI. & ENG.	Min. of Education	04/01/55	06/30/64
	St. Louis Univ.		
DOMINICAN REPUBLIC			
HUMAN RES.	Univ. Catholic M&M	04/12/66	12/31/70
ECUADOR			
HUMAN RES.	Univ.Catolica of Ecuador	02/28/63	12/31/65

Stanford Univ.

CHILE			
NATURAL RES.	Univ. of Chile	06/15/59	06/30/61
PERU			
DEV.PLNG.&ECON.	School of Bus. Admin.	05/28/63	12/31/70

State U. of New York

NIGERIA			
AGRICULTURE	Univ. of Ife	01/01/71	12/31/74
PHILIPPINES			
AGRICULTURE	Univ. of Philippines	02/16/60	06/19/65
BRAZIL			
HUMAN RES.	Sudene	12/01/65	12/31/70
PARAGUAY			
HEALTH	School of Medicine	04/01/63	03/31/65
HEALTH	School of Medicine	06/01/65	12/31/68
HUMAN RES.	Ntl. University	07/01/66	12/31/70
AFGHANISTAN			
HUMAN RES.	Govt. of Afghanistan	01/14/71	06/30/75
ISRAEL			
AGRICULTURE	Govt. of Israel	12/05/58	06/30/61

Syracuse Univ.

KENYA			
DEV.PLNG.&ECON.	Kenya Inst. of Admin.	11/26/62	10/31/66
MALAWI			
DEV.PLNG.&ECON.	Govt. of Malawi	08/01/66	12/31/68
KOREA			
HUMAN RES.	Off. of Public Info.	07/02/58	12/31/61

HUMAN RES.	Min. of Education	10/29/58 10/31/61
COLOMBIA		
DEV.PLNG.&ECON.	School Admin./Medillin	02/13/62 12/31/64

Temple Univ.

PAKISTAN		
DEV.PLNG.&ECON.	Inst. of Bus. Admin.	01/05/65 09/30/66

Texas A&M Univ.

TANZANIA		
AGRICULTURE	Govt. of Tanzania	12/01/74 06/30/80
BANGLADESH		
AGRICULTURE	Univ. of Dacca	06/24/54 03/31/71
HUMAN RES.	Univ. of Dacca	07/30/58 06/30/64
PHILIPPINES		
AGRICULTURE	Bureau of Fisheries	02/01/80 01/31/84
HEALTH	Govt. of Philippines	03/01/75 02/28/77
SRI LANKA		
AGRICULTURE	Univ. of Ceylon	10/15/58 06/30/62
ARGENTINA		
AGRICULTURE	Ntl. Inst. of Ag. Tech.	02/01/64 08/31/70
DOMINICAN REPUBLIC		
AGRICULTURE	Govt. of Dom. Rep.	04/01/65 03/31/73
HUMAN RES.	Foundation for Ed. Cred.	03/15/82 12/31/83
GUATEMALA		
AGRICULTURE	Govt. of Guatemala	10/15/73 12/31/74
AGRICULTURE	Govt. of Guatemala	01/01/76 06/30/76
HAITI		
AGRICULTURE	Min. of Agriculture	01/01/81 06/30/85
AGRICULTURE	Min. of Agriculture	07/17/81 06/30/85

LATAM			
AGRICULTURE		07/01/71	03/31/74
PARAGUAY			
AGRICULTURE	Min. of Agriculture	01/15/81	01/14/84
TUNISIA			
AGRICULTURE	Govt. of Tunisia	10/26/62	08/31/70
	Texas Tech Univ.		
SENEGAL			
DEV.PLNG.&ECON.	Ntl. Economics School	11/14/83	08/31/87
	Tufts Univ.		
CAMEROON			
DEV.PLNG.&ECON.	Govt.of Cameroon	12/07/79	11/15/83
COUNTRY MALI			
AGRICULTURE	Govt. of Malawi	06/30/83	12/31/83
NIGER			
AGRICULTURE	Min. of Rural Dev.	12/01/82	11/30/83
	Tulane Univ.		
NIGER			
HEALTH	Min. of Public Health	02/22/88	05/18/90
ZAIRE			
POPULATION		08/31/84	09/30/90
COLOMBIA			
HEALTH	Govt. of Colombia	11/14/61	09/30/63
NATURAL RES.	Ntl. University	06/15/59	06/30/61
	Tuskeege Institute		
AFRICA REGION			

AGRICULTURE	Org. of Senegal State	02/01/71	01/31/73
HEALTH	Org. of Senegal States	08/30/79	05/31/86
LIBERIA			
HUMAN RES.	Govt. of Liberia	10/06/60	08/31/68

University of Connecticut

ZAMBIA			
AGRICULTURE	Monze Ag. Tng. Ctr.	05/31/63	12/31/68

University of Akron

HAITI			
HUMAN RES.	Govt. of Haiti	12/01/60	09/30/61
PERU			
AGRICULTURE	Govt. of Peru	06/18/84	08/31/85

University of Arizona

CAPE VERDE			
AGRICULTURE	Inst.of Ag. Research	11/14/83	03/30/90
GHANA			
SCI. & ENG.	Govt.of Ghana	07/30/75	07/31/78
BRAZIL			
AGRICULTURE	Univ. of Ceara	10/25/63	12/31/73
PORTUGAL			
AGRICULTURE	Reg. Dept. of Agriculture	02/18/83	09/30/84
TURKEY			
AGRICULTURE	Min. of Agriculture	11/01/71	08/30/74
YEMEN			
AGRICULTURE	Min. of Agriculture	01/15/77	03/31/81

University of Arkansas

BURUNDI			
AGRICULTURE	Govt.of Burundi	03/25/86	03/25/91

University of Buffalo

PARAGUAY			
HEALTH	Ntl. University	07/15/60	11/14/62

Univ. of California

BENIN			
HEALTH	Govt. of Benin	01/31/77	12/31/79
ETHIOPIA			
HUMAN RES.	Haile Selassie U.	07/27/65	06/30/68
GHANA			
HEALTH	U. of Ghana Med. School	05/01/70	02/28/79
NIGERIA			
HUMAN RES.	Govt. of Nigeria	11/08/61	08/31/68
HUMAN RES.	Govt. of Nigeria	09/15/61	08/31/69
UGANDA			
HEALTH	Makere Univ. Medical	09/23/70	09/22/73
INDONESIA			
HEALTH	Airlanga Univ.	07/08/59	06/30/66
SCI. & ENG.	Gadjahmada Univ.	07/26/57	06/30/65
BRAZIL			
DEV.PLNG.&ECON.	Min. of Planning	06/10/65	05/31/70
DEV.PLNG.&ECON.	Govt. of Brazil	06/10/65	06/09/70
HUMAN RES.	Foundation School	02/15/62	01/31/65
COLOMBIA			
HUMAN RES.	Assn. of Col. Univ.s	10/22/65	12/31/68
HUMAN RES.	Univ. of Antioquia	07/21/69	06/30/71
MEXICO			

HUMAN RES.	Ntl. Poly Tech. Inst.	05/28/64	07/31/68
EGYPT			
AGRICULTURE	Min. of Ag. & Irrigation	09/20/76	11/30/78
	Univ. of Chicago		
PHILIPPINES			
POPULATION	Univ. of Philippines	02/17/70	06/30/74
ARGENTINA			
DEV.PLNG.&ECON.	Ntl. Univ. of Cuyo	07/31/62	08/31/67
CHILE			
DEV.PLNG.&ECON.	Catholic Univ.of Chile	03/30/56	06/30/64
	Univ. of Delaware		
PANAMA			
AGRICULTURE	Univ/Faculty of Ag.	08/02/82	08/30/85
	Univ. of Denver		
INDONESIA			
HUMAN RES.	Govt. of Indonesia	12/15/79	04/12/84
SCI. & ENG.	Govt. of Indonesia	09/01/77	02/28/78
	Univ. of Florida		
CAMEROON			
HUMAN RES.	Govt.of Cameroon	04/12/80	06/30/81
MALAWI			
AGRICULTURE	Dept. of Ag. Research	05/30/80	09/30/87
VIETNAM			
AGRICULTURE	Thu Duc Col. of Ag.	01/01/69	06/30/75
BOLIVIA			
AGRICULTURE	Govt. of Bolivia	02/06/76	02/05/80

COSTA RICA			
AGRICULTURE	Univ. of Costa Rica	04/01/70	12/31/72
AGRICULTURE	Univ. of Costa Rica	04/01/73	12/31/74
AGRICULTURE	Min. of Agriculture	05/21/65	08/31/70
EL SALVADOR			
AGRICULTURE	Ntl. School of Ag.	04/07/69	12/31/74
AGRICULTURE	Ntl. School of Ag.	01/01/75	12/31/79
HAITI			
NATURAL RES.	Govt. of Haiti	10/02/87	09/30/90
JAMAICA			
AGRICULTURE	Govt. of Jamaica	03/15/66	12/31/68
	Univ. of Georgia		
BANGLADESH			
AGRICULTURE	East Pak. Ag. Univ.	06/29/70	12/31/70
AGRICULTURE	East Pak. Ag. Unin.	11/01/70	06/30/76
CAMBODIA			
AGRICULTURE	Ntl. Col. of Agriculture	06/15/60	06/30/65
VIETNAM			
AGRICULTURE	Ntl. Col. of Agriculture	07/13/60	06/30/63
	Univ. of Hawaii		
CAMEROON			
HEALTH	Govt.of Cameroon	09/07/79	07/15/87
LESOTHO			
HEALTH	Min. of Health	01/19/79	05/31/84
INDONESIA			
POPULATION	Univ. of Indonesia	11/23/78	06/20/76
LAOS			
HUMAN RES.	Min. of Education	01/15/67	08/31/74

PAKISTAN		
HUMAN RES.	Min.Health & Labor	12/04/61 10/31/68
PHILIPPINES		
AGRICULTURE	Govt. of Philippines	09/01/75 12/31/78
SOUTH PACIFIC REGION		
AGRICULTURE	Univ. of So. Pacific	09/30/88 12/31/89
AGRICULTURE	Univ. of So. Pacific	03/10/80 09/30/91
THAILAND		
HUMAN RES.	Kasrtsart Univ.	05/21/62 06/30/65
HUMAN RES.	Min. of Education	11/06/58 06/30/64
GUYANA		
HEALTH	Min. of Health	08/26/80 07/31/84
	Univ. of Houston	
INDIA		
HUMAN RES.	Govt. of India	03/11/64 01/31/66
ERAZIL		
SCI. & ENG.	Inst. of Quimica	06/01/64 12/31/70
ECUADOR		
DEV.PLNG.&ECON.	Found. Provada of Ecuador	09/12/85 03/31/86
HUMAN RES.	Univ. of Guayaquill	09/26/60 01/31/66
GUATEMALA		
SCI. & ENG.	Univ. of San Carlos	12/04/67 12/31/68
	Univ. of Idaho	
INDIA		
AGRICULTURE	Govt. of India	09/24/88 09/30/90
AGRICULTURE	Govt. of India	09/30/86 07/31/87
KOREA		
AGRICULTURE	Rep. of Korea	09/12/75 09/30/76

PAKISTAN			
AGRICULTURE	Peshawa Ag. Univ.	07/26/85	10/01/90
THAILAND			
AGRICULTURE	Govt. of Thailand	06/24/88	11/22/88

Univ. of Illinois

AFRICA REGION			
HUMAN RES.	Njala Univ. College	08/16/63	08/31/72
SIERRA LEONE			
HUMAN RES.	Njala Teachers Col.	08/16/63	08/31/69
ZAMBIA			
AGRICULTURE	Govt. of Zambia	12/07/81	12/07/86
BANGLADESH			
AGRICULTURE	Ag. Research Institute	06/01/74	08/31/74
INDIA			
AGRICULTURE	Uttar Pradesh Ag. Univ.	10/30/59	10/31/64
AGRICULTURE	Uttar Pradesh Ag. Univ.	11/01/64	07/31/72
AGRICULTURE	Min. of Food and Ag.	09/01/67	08/31/69
AGRICULTURE	Allahabed Ag. Institute	10/01/55	10/31/64
AGRICULTURE	Govt. of India	07/01/67	06/30/69
AGRICULTURE	Madhya Pradesh	11/01/64	07/31/72
AGRICULTURE	Govt. of India	09/01/71	06/30/73
SCI. & ENG.	Kharagpur Inst. of Tech.	11/03/59	03/29/65
NEPAL			
AGRICULTURE	Min. of Agriculture	04/10/70	07/09/70
PAKISTAN			
AGRICULTURE	NW Province Ag. Univ.	11/21/84	10/31/89
AGRICULTURE	Govt. of Pakistan	04/04/83	04/30/85
THAILAND			
HEALTH	Univ. Med. School	08/02/62	12/31/70
PERU			

AGRICULTURE	Govt. of Peru	11/11/77	08/31/81
JORDAN			
AGRICULTURE	Min. Ag. Extension	09/06/63	06/30/66
TUNISIA			
HUMAN RES.	Govt. of Tunisia	06/01/68	06/30/78
	Univ. of Kansas		
PANAMA			
HUMAN RES.	PCA Council of Ministries	08/21/69	08/31/71
HUMAN RES.	Univ. of Central America	07/01/65	09/30/68
	Univ. of Kentucky		
INDONESIA			
AGRICULTURE	U. of Indonesia-Bangor	07/19/57	06/30/66
AGRICULTURE	Min. of Agriculture	09/29/80	06/30/81
SCI. & ENG.	Bandung Inst. of Tech.	07/02/56	06/30/66
THAILAND			
AGRICULTURE	Govt. of Thailand	08/13/82	09/30/86
AGRICULTURE	Min. of Agriculture	07/01/66	06/30/76
DOMINICAN REPUBLIC			
AGRICULTURE	Govt. of Dom. Rep.	02/01/83	07/31/87
GUATEMALA			
AGRICULTURE	Univ. of San Carlos	09/11/57	06/30/63
VENEZUELA			
HUMAN RES.	Univ. of Orienta	04/01/72	12/31/72
	Univ. of Massachusetts		
MALAWI			
AGRICULTURE	Ag. Training Center	01/17/63	11/30/67
SWAZILAND			
HUMAN RES.	Univ. of Swailand	03/21/80	12/31/84

UGANDA		
HUMAN RES.	Min. of Education	08/07/63 06/30/71
JAPAN		
AGRICULTURE	Hokkaido Univ.	07/18/57 08/31/61
ECUADOR		
HUMAN RES.	Govt. of Ecuador	05/01/75 03/31/76
	Univ. of Michigan	
BURKINA FASO		
DEV.PLNG.&ECON.	Govt.of Upper Volta	04/01/83 05/30/87
NIGER		
AGRICULTURE	Min. of Rural Dev.	10/15/85 09/30/88
INDIA		
DEV.PLNG.&ECON.	Inst. of Public Admin.	08/18/64 09/30/66
NEPAL		
POPULATION	Nepalese FP Board	03/01/71 06/30/73
POPULATION	Govt. of Nepal	08/01/68 08/31/70
BRAZIL		
HUMAN RES.	Univ. of Sao Paulo	05/01/58 08/31/63
SCI. & ENG.	Aeronautical Inst.	12/27/62 12/31/66
PERU		
DEV.PLNG.&ECON.	Govt. of Peru	08/01/64 03/31/72
EGYPT		
POPULATION	Central Agency for Stats	04/03/86 05/31/87
	Univ. of Minnesota	
KOREA		
HUMAN RES.	Seoul Ntl. Univ.	05/28/54 06/30/62
VIETNAM		

AGRICULTURE	Govt. of Vietnam	07/01/69	12/31/72
COLOMBIA			
DEV.PLNG.&ECON.	Univ. of Los Andes	07/22/63	06/30/69
MOROCCO			
AGRICULTURE	Hassan Ag. Institute	06/01/70	09/30/76
TUNISIA			
AGRICULTURE	Govt. of Tunisia	04/01/67	06/30/78

Univ. of Missouri

MALAWI			
HUMAN RES.	Govt. of Malawi	10/08/65	11/05/68
INDIA			
AGRICULTURE	Orrisa Univ.	11/01/64	07/31/72
AGRICULTURE	Orissa Univ.	11/01/66	01/31/73
AGRICULTURE	Bihar State	08/22/67	06/30/73
AGRICULTURE	Orrisa Univ.	03/28/63	10/31/64
AGRICULTURE	Min. of Agriculture	03/07/57	03/27/63
VIETNAM			
SCI. & ENG.	Ntl. Technical Ctr.	07/01/69	12/31/74
BRAZIL			
NATURAL RES.	INCRA	08/26/75	12/15/75

Univ. of Nebraska

COLOMBIA			
AGRICULTURE	Inst.of Agropecuario	03/07/66	06/30/71
AGRICULTURE	Govt. of Colombia	10/01/76	09/30/78
AFGHANISTAN			
HUMAN RES.	Govt. of Afghanistan	08/01/74	12/31/77
TURKEY			
HUMAN RES.	Ataturk Univ.	06/30/54	06/30/66

Univ. of Nevada

DOMINICAN REPUBLIC		
SCI. & ENG.	Univ. Catholic M&M	08/11/86 04/15/89

Univ. of New Mexico

BOLIVIA		
HUMAN RES.	Min. of Education	01/01/77 02/01/79
BRAZIL		
HUMAN RES.	Min. of Ed. & Culture	06/01/70 05/31/71
COLOMBIA		
HUMAN RES.	Govt. of Colombia	06/28/68 06/30/71
HUMAN RES.	Min. of Education	08/25/67 12/31/68
ECUADOR		
HUMAN RES.	Min. of Education	01/01/66 03/31/74
HUMAN RES.	Min. of Education	04/01/74 03/31/75
HUMAN RES.	Min. of Education	11/15/65 01/31/66
GUATEMALA		
HUMAN RES.	Univ. of San Carlos	08/31/87 02/28/89
HONDURAS		
HUMAN RES.	Min. of Education	03/06/84 07/31/86
PARAGUAY		
HUMAN RES.	Min. of Education	11/28/73 12/31/74

Univ. of No. Carolina

GHANA		
POPULATION	Univ.of Ghana	06/30/71 06/30/78
SUDAN		
DEV.PLNG.&ECON.	Govt. of Sudan	07/21/84 01/31/86
PHILIPPINES		

POPULATION	Xavier Univ.	04/01/71	03/31/75
THAILAND			
POPULATION	Mahidol Univ.	04/01/70	06/30/73
CHILE			
POPULATION	Univ. of Chile	05/01/70	10/31/71
COLOMBIA			
POPULATION	Govt. of Colombia	07/31/70	09/30/74
POPULATION	Govt. of Colombia	03/01/75	12/31/76
PANAMA			
SCI. & ENG.	Univ. of San Carlos	08/01/65	03/31/71
EGYPT			
HUMAN RES.	Govt. of Egypt	10/30/78	02/28/82
	Univ. of No. Colorado		
PAKISTAN			
HUMAN RES.	Dir. of Tech. Education	11/20/67	10/31/70
	University of Notre Dame		
LATAM			
POPULATION		06/25/65	08/31/68
PHILIPPINES			
POPULATION	CEBU Inst. of Tech.	08/18/67	08/31/69
	Univ. of Oklahoma		
SIERRA LEONE			
DEV.PLNG.&ECON.	Govt. of Sierra Leone	10/04/60	12/31/60
COLOMBIA			
HUMAN RES.	Min. of Education	07/21/69	06/30/71
PANAMA			
DEV.PLNG.&ECON.	Santa Maria Univ.	01/22/68	08/31/69

Univ. of Oregon

CAMBODIA			
HUMAN RES.	Seam Reap Teachers Col.	04/23/63	07/15/63
KOREA			
DEV.PLNG.&ECON.	Rep. of Korea	05/15/59	05/14/61

Univ. of Pennsylvania

IRAN			
HEALTH	Pahlavi Univ.	08/29/62	07/31/67

Univ. of Pittsburgh

NIGERIA			
HUMAN RES.	Inst. of Administration	05/22/62	06/30/73
CHILE			
SCI. & ENG.	Univ.Tecnica Federico	07/01/64	08/31/68
SCI. & ENG.	Govt. of Chile	07/09/59	06/30/66
ECUADOR			
HUMAN RES.	Univ. Central	02/21/63	12/31/66
GUATEMALA			
HUMAN RES.	Univ. of San Carlos	10/24/66	08/31/68
JAMAICA			
POPULATION	Univ. of West Indies	01/31/71	08/31/72

University of Rhode Island

INDONESIA			
AGRICULTURE	Govt. of Indonesia	06/01/78	08/31/78

Univ. of Southern Cal.

CAMEROON			
HUMAN RES.	Govt.of Cameroon	11/20/84	11/19/89

MALAWI			
HUMAN RES.	Min. of Education	10/01/63	09/30/68
PAKISTAN			
DEV.PLNG.&ECON.	Univ-Karachi Sch. of Bus.	07/08/60	06/30/66
DEV.PLNG.&ECON.	Inst.(S) of Pub. Admin.	07/19/60	10/31/67
BRAZIL			
DEV.PLNG.&ECON.	Getudio Vargas Found.	05/22/59	05/21/63
IRAN			
DEV.PLNG.&ECON.	Univ. of Tehran	09/12/57	09/11/61
	Univ. of Tennessee		
INDIA			
AGRICULTURE	Mysore Ag. Univ.	06/01/67	06/30/73
AGRICULTURE	Min. of Education	08/02/58	06/30/62
AGRICULTURE	Madras Research Institute	10/07/66	06/30/73
AGRICULTURE	Mysore Ag. Univ.	11/01/64	09/30/72
AGRICULTURE	Min. of Agriculture	03/23/56	10/31/64
PANAMA			
DEV.PLNG.&ECON.	Univ. of Panama	09/07/55	07/31/65
	Univ. of Texas		
IRAQ			
HUMAN RES.	Univ. of Baghdad	12/08/61	09/30/64
	Univ. of Utah		
ETHIOPIA			
HUMAN RES.	Haile Selassie U.	05/14/62	07/31/68
PANAMA			
HUMAN RES.	Govt. of Panama	03/27/68	12/31/70
	Univ. of Virginia		
PHILIPPINES			
SCI. & ENG.	Govt. of Philippines	08/24/65	05/31/67

SCI. & ENG.	Govt. of Philippines	01/31/62	04/30/64

Univ. of Washington

INDONESIA

AGRICULTURE	Govt. of Indonesia	10/10/79	04/12/84

Univ. of Wisconsin

GAMBIA

AGRICULTURE	Min.of Agriculture	11/15/84	08/31/85
SCI. & ENG.	Govt.of Gambia	01/06/86	01/07/91

KENYA

HUMAN RES.	Univ. College of Nairobi	04/01/67	03/31/71

NIGERIA

AGRICULTURE	Univ. of Ife	12/15/64	06/30/75
AGRICULTURE	Univ. of West Region	10/01/65	09/30/71
HUMAN RES.	Min. of Northern Nigeria	01/01/67	12/31/68
HUMAN RES.	Min. of Education	08/13/65	01/15/66
HUMAN RES.	Min. of Education	09/28/62	09/01/63

INDONESIA

AGRICULTURE	Govt. of Indonesia	05/01/80	08/14/84

PHILIPPINES

AGRICULTURE	Agrarian Reform Inst.	08/28/73	12/31/78
HUMAN RES.	Govt. of Philippines	05/03/72	07/31/72

BRAZIL

AGRICULTURE	Univ. of RGS	12/23/63	08/31/72
AGRICULTURE	Univ. of Rgs.	09/01/72	12/31/73

VENEZUELA

HUMAN RES.	Govt. of Venezuela	08/29/65	08/28/66

EGYPT

SCI. & ENG.	Sci. Inst. Ctr.	06/14/82	12/31/86

Univ. of Wyoming

SOMALIA

AGRICULTURE	Min. of Agriculture	01/26/65	11/30/71
AFGHANISTAN			
AGRICULTURE	Min. Ag.& Kabul Univ.	09/01/54	06/30/73
	Utah State Univ.		
TANZANIA			
AGRICULTURE	Govt. of Tanzania	01/28/76	04/04/76
AGRICULTURE	Govt. of Tanzania	09/05/79	02/28/84
BOLIVIA			
AGRICULTURE	Min. of Agriculture	03/01/71	03/31/74
AGRICULTURE	Min. of Agriculture	03/01/71	03/31/74
AGRICULTURE	Min. of Agriculture	07/19/65	11/30/70
HUMAN RES.	Min. of Education	09/01/71	08/31/72
BRAZIL			
SCI. & ENG.	Univ. of R.G.N.	06/10/65	12/31/68
DOMINICAN REPUBLIC			
AGRICULTURE	Hydralic Res. Inst.	12/18/84	09/30/88
PERU			
AGRICULTURE	Govt. of Peru	05/01/78	04/30/81
IRAN			
AGRICULTURE	Iran-Karaj College	04/26/58	07/31/64
AGRICULTURE	Min. of Agriculture	03/19/58	06/30/61
	Vanderbilt Univ.		
BRAZIL			
DEV.PLNG.&ECON.	Univ. of Sao Paulo	10/08/65	10/28/65
HUMAN RES.	Univ. of Sao Paulo	02/04/66	12/31/74
HUMAN RES.	Univ. of Pernambuco	07/01/68	08/31/70
	Virginia Poly Tech.		
PHILIPPINES			
HEALTH	Govt. of Philippines	09/01/74	04/30/81
HEALTH	Govt. of Philippines	07/01/68	08/15/74

Washington State Univ.

LESOTHO			
AGRICULTURE	Govt. of Lesotho	03/30/79	10/31/86
AGRICULTURE	Govt. of Lesotho	08/29/77	05/10/78
PAKISTAN			
AGRICULTURE	West Pak. Ag. Univ.	06/24/54	12/31/63
AGRICULTURE	West Pak. Ag. Univ.	07/01/69	08/31/72
HUMAN RES.	Punjab Univ.	05/30/58	08/31/61
HUMAN RES.	Punjab Univ.	06/24/54	06/30/69
JORDAN			
AGRICULTURE	Govt. of Jordan	06/14/82	08/31/88
AGRICULTURE	Univ. of Jordan	06/01/75	12/31/79
SYRIA			
AGRICULTURE	Govt. of Syria	03/18/76	06/15/76

Washington Univ.

KOREA			
DEV.PLNG.&ECON.	Yonsei & Korea Univ.s	01/01/63	06/30/64
DEV.PLNG.&ECON.	Yonsei & Korea Univ.s	03/05/58	06/30/61

West Virginia Univ.

AFRICA REGION			
HUMAN RES.	Makere Univ.	12/15/64	06/30/71
KENYA			
AGRICULTURE	Egerton Ag. College	09/25/62	12/31/72
HUMAN RES.	Min. of Education	06/30/64	06/30/70
TANZANIA			
AGRICULTURE	Govt. of Tanzania	09/01/74	09/30/81
AGRICULTURE	Min. of Education	10/17/66	07/17/68
AGRICULTURE	Morogoro Ag. College	10/10/62	06/30/70
UGANDA			
AGRICULTURE	Ag.Col.Arapai & Entebbe	05/28/63	06/30/71
AGRICULTURE	Makere Univ.	07/01/71	06/30/74

	Western Michigan Univ.		
NIGERIA			
HUMAN RES.	Ibadan Tech. Inst.	04/09/60	10/31/68
	Wisconsin State Univ.		
VIETNAM			
HUMAN RES.	Govt. of Vietnam	12/29/69	09/30/74