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Table of Contents

Page

Preface
Doyle J. Matthews v

Introductory Remarks
Hugh O. La Bounty 1

Keynote Address
New Horizons for International Development: U.S. Universities and the Private Sector in AID Programs
M. Peter McPherson 5

New Horizons for Education in International Development
W. David Hopper 11

New Horizons for International Development: An Enhanced Science and Technology Thrust
Nyle C. Brady 29

New Horizons for International Development: University Involvement
Gerald W. Thomas 41

New Horizons for International Development: The Consortium for International Development
John L. Fischer 49

Concluding Remarks
Hugh O. La Bounty 65

Preface

At the core of institutional performance is executive commitment. As an organization which lives or dies upon the cooperative efforts of 11 great Western institutions, CID feels a need for close and continuing dialogue among the presidents of those institutions. Under the chairmanship of Dr. Ernest J. Briskey of Oregon State University, the CID Board of Trustees planned and sponsored this first Presidential Symposium. The CID trustees have indicated that they desire to have additional counsel and direction on matters of policy from the university presidents. It is anticipated that a presidential symposium such as this one might be held biannually.

This symposium highlights the issues of current concern in international development and brings together an unusually large number of people who have now, and will continue to have, much to contribute toward the future direction of U.S. efforts.

Those assembled represent the broad and diverse areas of interest and the motivations which drive America's massive effort to assist our intraplanetary neighbors expand their resources of human capital and of economic self-sufficiency.

Doyle J. Matthews
Chair, CID Board of Trustees
Dean, College of Agriculture
Utah State University

Introductory Remarks

Hugh O. La Bounty
President
California State Polytechnic University, Pomona

It is my privilege to call to order the Presidential Symposium on New Horizons for International Development. At the outset, I must give recognition to three groups. First, to those CID presidents who took time from their most busy schedules to participate with us:

Dr. Stanford Cazier, Utah State University
Dr. Robert MacVicar, Oregon State University
Dr. Robert D. Phemister, Colorado State University
Dr. Glenn Terrell, Washington State University
Dr. Gerald W. Thomas, New Mexico State University
Dr. William J. Tietz, Montana State University

Our presidential colleagues not in attendance send their regrets:

Dr. Henry Koffler, University of Arizona
Dr. Richard D. Gibb, University of Idaho
Dr. Lauro F. Cavazos, Texas Tech University
Dr. Donald L. Veal, University of Wyoming

Second, I want to thank the chair of the CID Board of Trustees, Dr. Ernest J. Briskey, for developing the notion of this symposium and making the dream a reality. Our thanks to Ernie include the fine CID staff, particularly Dr. John L. Fischer and Ms. Brenda J. Patrick.

Last, but certainly not least, our thanks go to Dr. Stanford Cazier, the presidential host of this conference, and particularly to Dr. Doyle J. Matthews and Dr. Morris Whitaker of the Utah State family.

We honor at this symposium the presidents of those institutions which constitute the Consortium for International Development. Each president, if CID is to continue to flourish, must take an active interest in the organization's activities. Blessedly, the presidents of these CID institutions have demonstrated their interest in the organization and commitment to international development in so many, many different ways. We thank them for that support and we trust that CID will continue to earn it in the years ahead.

The symposium has been able to attract a distinguished group of speakers whom I have the pleasure of introducing at this time:

Mr. M. Peter McPherson, Administrator, U.S. Agency for International Development, "New Horizons for International Development: U.S. Universities and the Private Sector in AID Programs";

Dr. W. David Hopper, Vice President, South Asia Regional Office, World Bank, "New Horizons for Education in International Development";

Dr. Nyle C. Brady, Senior Assistant Administrator for Science and Technology, U.S. Agency for International Development, "New Horizons for International Development: An Enhanced Science and Technology Thrust";

Dr. Gerald W. Thomas, President, New Mexico State University, "New Horizons for International Development: University Involvement"; and

Dr. John L. Fischer, Executive Director, Consortium for International Development, "New Horizons for International Development: The Consortium for International Development."

We give to each of these outstanding contributors to international development our sincere thanks for being with us and for giving to this symposium their views and vision on the new horizons for international development.

Keynote Address

New Horizons for International Development:
U.S. Universities and the Private Sector in AID Programs

M. Peter McPherson
Administrator
U.S. Agency for International Development

Good morning. It is a pleasure to be here to talk to such a distinguished gathering of university presidents and trustees.

In the little more than 2 years that I have been at the Agency for International Development, we have reshaped all facets of the U.S. assistance program. These emerging policies and strategies have already begun to take shape. We have new strategies for every field of activity in which we work. Agricultural research has been elevated to a top priority. In fact, 50 percent of AID programs are now in agricultural development.

Many of you are aware of the emphasis which we have accorded to science and technology. Nyle Brady is the senior assistant administrator for science and technology. His S&T Bureau will review all projects and country strategy statements in terms of science and technology. He has recruited outstanding individuals to head S&T Directorates in AID priority fields. We established S&T Sector Councils to provide an agency-wide base of expertise, including the regional bureaus, to guide our S&T thrust.

AID has established a more intimate association with the Board for International Food and Agricultural Development (BIFAD) and the

university community in general. We have begun to implement several initiatives which I introduced last year. Memoranda of Understanding (MOUs) have been signed with four universities as a basis for long-term planning and continuity of university involvement in AID programs. Now we are refining our criteria for selection of additional universities for MOUs.

The first project using the Joint Enterprise Mode of contracting is under way. This will improve our access to the expertise of smaller institutions. Recently, I announced a major effort to expand the involvement of the historically black colleges and universities in AID programs.

AID and the universities are working together to establish a professional career system to strengthen our S&T capacity. For this Joint Career Corps, we have budgeted for 25 professionals from universities to serve in AID positions, mostly overseas.

Your help and that of the university community is vital to the success of our new programs. We need your intellectual input. The wealth of your experience and knowledge is essential to building better and more effective AID projects.

AID incorporates four basic fundamental principles in all of its development programs: (1) Institutional development; (2) technology transfer and research; (3) policy dialogue; and (4) the private sector. BIFAD has recently taken steps to help AID set in motion university resources to support these four fundamental principles. AID already looks to universities as a major source of expertise in institution-building, technology transfer, and research.

Policy dialogue is in place, and we are relying on the universities to assist AID in policy reform. Now, it is time to engage your talents, and imagination, in working with the private sector. Today, I look to you for guidance and support in order to further link the strengths of the private sector with the wisdom of the university community.

Even though the U.S. private sector and universities often share an interest in Third World development, their motivations are somewhat different. Universities see assistance as part of their service function and a way to strengthen their own research and instructional programs at home. U.S. private enterprise is driven by the dynamic of profits. Can organizations, whose motives are different, work together in the development enterprise? The record shows that they can. While the private sector supports university research, universities train manpower for the private sector. The Cooperative Extension Services assist both farmers and agro-business enterprises.

Overseas, the story is very similar. A university may be engaged by a tractor firm to develop and teach maintenance or by an oil company to manage an educational program. A U.S. business may form joint ventures with small farmers to participate in developing an extension service or experiment station.

In addition, the possibilities for complementary relationships between private voluntary organizations are real and just beginning to be explored. The opportunities seem endless.

The Bureau for Private Enterprise, which I have established in AID, is constantly searching for ways to promote private sector involvement in the development process. Current legislation permits universities to license the technology they develop and earn royalties. This legislation has further stimulated university cooperation with private business to develop research results for the market place.

We are also looking at ways that universities can participate in "Limited Research and Development Partnerships." These partnerships, supported by industry, will promote genetic research in LDCs. AID matching grants--from industry to universities--are still another option. I welcome your input for expansion of these ideas as they evolve.

Perhaps the most common method of cooperation AID supports is the combined efforts of a university and a profit-making firm--one as the prime contractor and the other as the subcontractor; for example, (1) the joint effort for agricultural research between Devres, Inc., and the Midwest Universities Consortium for International Activities or (2) the joint effort on radio education between Southern Illinois University and its subcontractor, the Harris Corporation. We would like to test this model further, and refine it for wider application. In such an arrangement, the university and a business enterprise would jointly prepare a project proposal to AID, with each playing a unique role.

This division of labor emphasizes the special strengths of each party. The universities would provide expertise in teaching and research. Universities also have the in-depth knowledge for specialized S&T programs. Over the years, universities have developed invaluable inter-personal relationships with overseas colleagues in educational institutions and alumni in senior positions. On the other hand, the companies offer a vast experience in production, marketing, and management. They provide a knowledge of joint venture and risk-taking investments. They, too, have their networks of contacts with agro-business people as well as technicians in the private sector.

Meshed together, these diverse talents offer us an exciting challenge. In the months ahead, the Agency for International Development will be experimenting with ways to perfect this interesting concept. We are calling it "Strengthening University-Private Enterprise Relationships."

Our experience is limited--but not our determination to think through what might work. I am asking the Science and Technology Bureau, BIFAD, the Private Enterprise Bureau, and our regional bureaus to work together to develop a pilot project. The forestry and fisheries areas might provide natural opportunities for a joint effort between universities and the private sector. Once again, I welcome any thoughts you have for these joint ventures.

Through BIFAD, we will work with the university community to answer the inevitable questions that will arise, such as:

1. How can we assure joint participation in management and program decisions?

2. What mechanisms are needed to provide fair and equitable compensation for both partners in the project?

3. Are modifications in our contracting procedures needed to enhance cooperation between the university and private enterprise participants?

No doubt there are many such questions. We need to face them squarely, devise the best answers, and continue to refine them.

These are the hallmarks of a pioneer enterprise. Our knowledge will help select projects suitable for joint venture and the means to develop mutual understanding of each others' concerns and strengths. For many years, the knowledge and imagination of U.S. universities have provided a crucial difference to AID programs. I now challenge you to add to this proud record a new dimension--partnership with the private sector. Although this path is still relatively unexplored, I have no doubt that you can make it a highway to new achievements.

New Horizons for Education in International Development

W. David Hopper*
Vice President, South Asia Regional Office
World Bank, Washington, D.C.

Let me begin by expressing my joy at being asked to meet with you today. The work of the Consortium for International Development is well-known to those of us who are concerned with the creation of human capital and its interplay with the processes of economic development.

I will talk today about that interplay. There are many definitions of development. But for all their nuances, there is agreement that at its core, development raises the availability of goods and services for most of a nation's population over a sustained period of time. The distribution of development benefits, the minimum attributes of time and quantity, the nature and composition of output that determines the availability of goods and services, and so on, are all matters that provide sustenance to the study and debate about development. But I will ignore these finer issues in the remarks that follow and hold that the development process is one in which the pile of goods available to a population is increased at a pace much in excess of the traditional rate of growth of output.

Implicit in such a definition of development are the processes of production used by a society to add to its pile of goods. Indeed, my simple definition of development reduces to the enhancement of the efficiency with which factors of production are combined to produce

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*The views and opinions expressed in this paper are entirely the responsibility of the author. They do not necessarily reflect the views or opinions of the World Bank, its officers, or governing bodies.

either traditional or new products. In essence, development involves the introduction of new or changed ways of more efficiently making the goods and providing the services wanted by a society. There are two sources of this increased efficiency: The use of new techniques of production embodied in non-traditional capital goods; and the enhancement of the skills of productive labor. Both these sources of efficiency rest on the application of science and technology to the productive capacity of a nation's economy.

As one reviews the history of the human species, there appear to be three great periods of technological advance. The first was when man came down from the trees and began to walk upright, to develop language and use crude tools to become an efficient hunter and gatherer. For most of man's time on earth, the techniques of the hunter and the lore and skills of the gatherer were the only technologies that the species knew. With them, Homo sapiens thrived and covered the earth. Today, there are still many societies that have not acquired technologies beyond those of hunting and gathering.

The second great transformation in human history was the invention of agriculture. Dr. Norman Borlaug, the Rockefeller Foundation's Nobel Prize winning wheat geneticist, believes that the work and observations of women led to its invention. (He doesn't think men had the patience; and, besides, they enjoyed hunting.) The women who, because they reared the children remained more sedentary, noted that if they planted seeds, they grew and could be harvested, and that if they were skillful, they could domesticate animals--the two ingredients of an efficient agricultural technology. The invention swept most of the world. The development and practice of agriculture provided the economic foundation for the rise of a new manifestation of human culture, the Neolithic civilizations. The productive capacity of cultivated land and domesticated animals generated a large surplus that enabled societies to support classes of individuals who did not need to produce food or other essentials of life--the thinkers, priests, artists, soldiers, kings, and noblemen; indeed, the whole panoply of specialized occupations that are

the attributes of what we now recognize as human civilization. For about 10,000 years, the technologies of agriculture dominated the evolutionary course of human affairs.

The third great advance, ushering in the present era, was the invention of modern industrial technology. It began in the latter half of the 18th century with the harnessing of steam energy, and it has been built upon successive stages of more efficient energy forms and energy use. But, while it has been sustained by ever-improved forms of energy conversion, its vigor arises from a continuous stream of new technologies derived from the application of scientific principles and findings. Never has there been a more powerful instrument of economic progress than the discovery that science can be made to yield productive and efficient technologies. This discovery, a product itself of both the earlier Age of Enlightenment and the needs of this newly found process of industrialization, provided the basis for the Industrial Revolution, transforming the North Atlantic Basin societies and spreading from thence to all parts of the globe.

What is discussed under the heading of "development" today is, in reality, the problem of engendering and supporting the transformation of the technological basis of production for Neolithic peoples, who were primarily dependent upon traditional agriculture and agrarian techniques, to methods based on modern science and technology. This transformation is the core of today's development concern.

Once effected, the transformation opens an untold prosperity. On the basis of traditional agricultural techniques, social output per year in real terms per capita is probably limited to not much more than $200. From the use of science-based technologies, there seems as yet no limit to the size of the pile of goods that can be produced. As I have said, the productivity increase itself is generated from only two sources: Capital goods that embody new technology and improvements in the skills and competence of human beings. These two sources of productivity growth change the relationship between the traditional productive

factors of land, labor, and capital and the outputs from their use in economic activity. Ultimately, the entire package, including the technology and the physical capital that embodies it, rests on inventive and adaptive skills of people, skills that arise from an investment in nontraditional forms of human capital. This is the only source we have for increasing real output--for enhancing the level and standards of living of mankind.

Academic interest and understanding of human capital investment arose after World War II. The United States has long had a tradition focused on the importance of building human capital, of building people. This is seen in the discussions that preceded passage of the Morrill Act, an Act of Congress passed in the midst of a civil war, that responded to the pressures of an electorate to be instructed in agriculture and the mechanical arts. The popular demand for the founding of what are now known as land-grant colleges is an extraordinary piece of unique American history. In no other Western country was there a similar clamor from the people for institutions of education. The great concern on the part of the electorate was to open to them and their children enhanced opportunities for investing in human resource betterment. You can also find the importance of education in the documents and deeds of the Founding Fathers. There is strong evidence that Jefferson took more pride in the founding of the University of Virginia than he did in his role in the founding of the nation. Indeed, from the earliest settlements, this nation was built upon the principle that there should be wide opportunities for education.

In neither the measure nor the extent was it similarly true in other countries and cultures; although, in the latter half of this century, the principles of universal education and more open access for all to higher education has taken on the patina of right that governments must accord to all its citizens. But, despite a long history of concern for educating people, serious study of the causes and consequences of human capital formation really only began after the Second World War. The

seminal work in this area was initiated by Prof. T. W. Schultz at the University of Chicago in the mid-fifties. His work, and that of his students and others, found a high rate of return to investments in education at both the private and social levels. This work shed light on why the German and Japanese economies recovered so rapidly after the end of the war--both countries were built on the prewar investments that left them with highly skilled and trained labor forces that were able to use the capital goods transferred under the Marshall Plan to Europe and through other channels to Japan. Schultz's work on human capital and on the farmer as the critical decision maker in agricultural development earned him the Nobel Prize in Economics in 1979.

Recognition of the importance of human capital was neglected throughout colonial history. The result is evident today. Most of the Subsaharan African nations emerged into independence with an extremely thin layer of competently trained people. In 1960, when Zaire gained its independence from Belgium, there were less than 10 university graduates in the entire country. Africa, in effect, had been left behind the world's advance into the era of science and technology. Not quite the same was true for Asia, where colonial traditions were longer and where Neolithic civilizations had taken greater hold to produce cultures that were wondrous in comparison to those of Europe before the 16th and 17th centuries. These ancient civilizations were well placed to tap some of the new learning of the Age of Enlightenment, and, while colonial self-interest imposed limits on economic advance, education was nurtured by both indigenous tradition and colonial power--which saw it as a bridge between the governed and the governors. Asia had a legacy of substantial educational institutions when independence arrived after World War II.

As one looks 20 to 40 years hence, it seems profoundly likely that the world economy will continue at an accelerating rate the structural transitions that we have seen in the past decades. In textile manufacturing, what began in Britain moved to the United States when

American inventors broke the British monopoly on mill technology. But the U.S. reign has been threatened for many years by the textile industries entrenched in the developing countries. Even the "Gang of Four" (Korea, Taiwan, Singapore, and Hong Kong) are complaining about the competition to their products of cloth and garments from the low-wage developing nations of Asia. What occurred in textiles is occurring in virtually every other low and medium technology industry. Ship building, light and heavy building, light and heavy engineering goods, ordinary hand and machine tools are following the way of textiles, garments, and shoes. In fact, most of the technological activities that underpinned the Industrial Revolution in Europe and America are now being vigorously and efficiently pursued in the developing nations.

The political leaders of the industrial countries are well aware of the impact these structural alterations in the location of global economic activity have on the outmoded skills and employment prospects of labor in "our" world. But, few of us stop to consider the profound impact these changes have on the skill needs of the low-income nations. It creates strong and not always predictable pressures on our own educational systems; but it demands whole new approaches to education in the developing countries.

Science and technology spread first to the "Gang of Four" because Korea, Taiwan, Singapore, and Hong Kong made very high investments in their institutes of technology, their engineering schools, and their colleges of science. They gave a pervasive role to science in the curriculum of primary and secondary schools, and, in doing so, laid the foundation upon which was built their economic development. India and China are struggling to repeat this experience, a struggle made more difficult because of the needs of their huge populations. It is interesting to note that the first World Bank project for Mainland China was for the development of science and technology in Chinese universities, an effort by the present Chinese leadership to fill the void left by the Revolution and period of Chairman Mao. The Chinese are moving

aggressively and quickly to master modern science and to adopt modern science-derived technologies. Africa, for the most part, is still very ill equipped to enter any kind of a modern world. In too many countries, less than 10 percent of the school age population are in secondary schools, and the numbers in post-secondary institutions are miniscule. Resources for education in African nations are a major constraint. Because of the small size of the productive middle and upper class elite, there is a limited tax base for national investment. For virtually all Subsaharan nations, the dream of a vigorous and growing educational establishment is just that--a dream. But, despite these problems, most countries in black Africa have been allocating what little they can to education; in some countries, as much as 50 percent of the government budget goes to education. These are the nations that need assistance most. In Asia, primary and secondary education is slowly becoming universal. Literacy rates have moved from below 20 percent in the early fifties to well over 50 percent in many Asian nations today. In India, close to 30 percent of the population in the secondary-school age group are in school, and university and college enrollment is over 7 million--a vast expansion from the 175,000 students in post-secondary institutions at the time of independence in 1947.

Female education in Asia has lagged badly and unforgivably, but, even here, there are signs of a turnaround. The World Bank has projects in Bangladesh and Pakistan designed to promote the education of girls and women. In both countries, we were told that for cultural reasons, we could not expect much progress in opening opportunities for female education, or much response to these opportunities if opened.

In Bangladesh, the government agreed to provide uniforms to meet the concern of proud parents too poor to clothe their daughters to an acceptable standard for school attendance. A system of subsidizing uniforms was initiated, and there has been a marked increase in the enrollment of girls in primary school.

In Pakistan, we have found that by developing Mosque schools, we can bring the advantages and cost savings of co-educational primary schooling to most villages in the country. Such schools are now a major part of Pakistan's educational plan.

The importance of getting the girls into primary and secondary schools is not just to educate a group of women for their wider social roles, although this is a major benefit. There is evidence that the schooling of girls and women has a large and direct impact on a nation's fertility rate. Girls with at least some education tend to marry later, and, assuming there is an adequate follow-up through a program of population limitation, the educated woman has direct access to the written communication channels through which messages regarding family planning, proper child spacing, proper child care, etc., can be supplied.

In Africa, the institutional base is much more meager at all levels. The most pressing need in the global concern about development is to establish an education infrastructure that will greatly accelerate the rate at which black Africans are trained for a modern world. Parts of Asia, such as Nepal, Bhutan, the Maldives, Laos, and parts of Burma, are as short of the instructional base as the poorest of the African nations. In larger and wealthier Asian nations and in Latin America and North Africa, stress now needs to be placed on the incorporation of more science and technology at all levels of the educational ladder, culminating in an expansion of science-oriented, post-secondary training facilities.

One of the most sensitive considerations for all engaged in pedagogic activities is the question of educational technologies. Too frequently, discussions of education center on issues that stir emotion, but, in fact, are often of little consequence. The language of instruction, the balance in curriculum, teacher-student ratios, administrative procedures, teacher tenure, and so on, are issues that seem to dominate more than enlighten talk among educators. In the developing nations,

these questions couple with issues of seemingly more substantial import, the questions of national aspirations and sovereign control of the social, cultural, and political systems of the country are frequently paramount concerns of the educational bureaucrats. But, there is a more fundamental issue that seems to receive little attention in developed or developing countries--it is the technology we use to teach. Educational technologies, like other technologies, open as many new avenues for the imparting of knowledge as are opened in the rapidly changing techniques we have for the manufacture of goods or the production of food. In essence, both developed and developing countries base their techniques of teaching upon the one-room school, a bit of chalk, and a teacher.

The school house is easy to build. All too often, the people in the developing countries have to be restrained from building too many and placing an intolerable demand on their governments or local authorities to provide teachers. Chalk and even suitable blackboards are simple problems to resolve. The supply of teachers is not simple. Education is one of the most labor intensive industries known, and, in most poor nations, it is the supply of teachers that is the constraining factor in expanding educational opportunities to an eager citizenry. Not too long ago, I was in Bhutan, a small kingdom perched in the magnificent mountains between India and Tibet, a poor country opening now to the outside after years of relative isolation. The royal officials and members of His Majesty's Cabinet are deeply conscious of the importance of education in the future of the nation. Their questions are many, but underlying them all is a severe disquiet about the availability of teachers competent to spark the evolution of a system of modern education. They recognize that they do not presently have an adequate cadre of trained teachers, especially in the sciences and related subjects, nor do they have the capacity to train them in Bhutan. Their source of school masters is India or overseas volunteers.

For Bhutan's leaders, the central educational issues are how to make the instructional process less labor intensive per pupil and how to improve

teacher efficiency so that a few can teach the many. In other words, what has modern technology provided to the process of imparting knowledge and skills.

USAID, among others, has many pioneering activities around the world to make more effective use of presently trained teachers. "Project Impact" was initiated in the primary school system of the Philippines, and has spread to Indonesia, Liberia, and Bangladesh. It is a system of programmed instruction for student self-learning that uses local literate villagers to supplement the work of the regular teacher. Its major benefit to the educational bureaucrat is the increase in the effective student-teacher ratio, raising it from the traditional 25 to 30 per teacher to close to 100 to 1--a ratio that better fits within the educational budget. From the point of view of the pupil, this technique of delivering educational services has measurably increased academic performance and improved work and study habits.

Project Impact was launched a decade ago. Today, there are many newer ideas for improving, supplementing, or altering the traditional relation between teacher and student. Private sector firms are responding to the need of government and corporations for innovative methods of training the large numbers of people now required to operate, maintain, and repair the machines of a high-tech economy. Control Data Corporation has invested more than half a billion dollars in developing its "Plato" computer-based instructional system. Under a World Bank project, Westinghouse is assisting with educational development in Jamaica. Cora Engineering of Switzerland is active in the development of simulation systems for fertilizer plant operations in Bangladesh.

The potential of linking the video disk with the microprocessor is opening exciting opportunities to those concerned with the "how" of training for a modern world. Radio is being used by USAID, with wide effectiveness in Africa and in Nepal and other countries for teacher training, for the teaching of mathematics and language arts. We are at

the edge of a total revolution in communication for both the urbanite and the rural dweller. Cheap satellite receiving disks can open the world to cities, towns, and villages no matter how remote. Combine the advances in telecommunications with that of computers and the stage is set for a truly revolutionary change in the ways and methods of providing instruction to the untaught. Despite these advances, there appears to be little ferment in the centers of education that must lead in discovering how these artifacts and modalities of high-tech promise can be harnessed and utilized for Bhutan and other developing nations. The excitement of working on new hardware overshadows the drudgery of preparing, testing, and debugging the software of interactive instructional programs. Too often, salesmen tout the importance of their hardware, but speak "vaportalk" when the question of software and program availability is mentioned. In fact, if the potential of what science and technology has wrought in the last half of this century is to be saved, it demands that we in the United States, as the premier source of global technical advance, devote the talent of some of our best teachers and scientists and educators to building the knowledge and understanding of how best to use these tools.

A concern about educational technology leads logically to an examination of national educational policy and methods of educational administration. On the question of administration, I have always been impressed with the fact that we have large and prestigious schools of business and financial administration, even schools for medical administration, yet there is no outstanding center for educational administration or even much mention of this critical subject in most of the courses of instruction in our colleges of education. For a nation that gives pride of place to the training of the young as part of its great heritage, this fact must rank with the gross under-compensation of our teachers as one of the more shameful areas of the neglect of education In the developing countries, educational administration is little more than a copy, albeit sometimes scaled-up to virtually unrecognizable proportions, of the colonial patterns of the 19th

century. Yet, it is upon this structure of control and management that developing nations must rely to effect a transformation in the out-turn of their educational establishment. They are in great need of help, and I would like to believe that we can provide that help. But, to do so will require a much more serious study of educational administration than seems currently available.

Building a national educational policy is as important as building a national economic policy, or agricultural or industrial or private sector policy. It's the design for moving into the future. Again, the developing countries need help; again, we seem to have little scholarship to offer, especially from our institutions of higher learning. I have no trouble tapping advice on almost every other area of policy for economic growth; advice that is supported with a wealth of case studies from around the world and a careful analysis of national experiences--the who?, what?, when?, where?, and why's? of success or failure. Global research and the debate among peers that accompanies research on both educational policy and educational administration are two large gaps in the capability of all peoples to create the circumstances conducive to the modernization of world education.

In all of this, what role can the United States and its institutions play in assisting the restructuring of education in the developing nations?

First, we must recognize that it is the inventive genius of this nation that has laid the foundation for what many believe will be the fourth great historical discontinuity. Solid state physics and lasers were discoveries of American scientists. From them has flowed a vast array of applied devices that have brought all of mankind to the edge of another technological era. It is important that this is more completely understood by American scholars. The implications of the microprocessor, the laser disk, the communications satellite, the factory robot for nations struggling to grow beyond their Neolithic traditions

are truly staggering. Scholarship and education can better prepare the world's poorer nations to meet and conquer the uncharted future that man will create with these potent discoveries of science. Only this country can provide the leadership and the scholarly endeavor required to forecast the content and consequences upon the lives of people of what American genius has wrought. Unfortunately, with the exception of a few, American scholars of society and technology seem uninterested in trying to penetrate the mists that surround the changes likely to be engendered in rich lands and poor lands by the widespread use of modern means of meeting the material and personal needs of our planet's dominant species.

Second, is a recognition that the United States is the fountain from which the very best of technical training is available. If the productive foundations of the world's poor nations are to be modernized, people from these nations will, rightly, strive for training at American institutions. It is, therefore, important that all who are engaged in teaching in this country recognize that transforming the traditional basis of production in the developing countries demands the highest level of talent and dedication that our institutions of learning can provide.

I am deeply concerned with the too frequent tending toward the "giving" of degrees. In the words of a TV ad, let us return to the old-fashioned virtue of having the student "earn" his diploma. We do no service either to the individual or to the nation that sent him abroad for training when we rationalize the acceptance of second-rate work on the grounds that the practice of the student's trade will likely be with second-rate people. (And, unspoken but implied, in a second-rate country.) On the contrary, we should demand of our foreign students an even higher standard of performance than we expect from our own nationals. It is important that when we return him (or her) as a certified professional to his country, he be returned as just that--a broadly-trained, fully competent professional. I find little agreement

with those who argue that the content of our instruction should be broadened to embrace more survey-type courses that teach less and less about more and more. There is no room in the leadership of developing nations for Mickey Mouse trained experts. A chemist must be a chemist. If we are going to train a student from a developing nation in chemistry, train him fully as a competent chemist. Let us not worry about whether such training is too advanced for his country. If it is now, it will not be later. Give him a broad and firm foundation in chemistry so that when he returns home and calls himself a chemist, he is indeed a chemist--a chemist who is able to introduce and apply the tools and disciplines of modern chemistry to the development needs of his country. Likewise, an agronomist is an agronomist. Do not try to make him an engineer, and a social scientist, and a lot of other things through a set of delightful, but too often very soft, survey courses. If he or we determine that added competencies are important to this training, hold him longer to his studies to ensure that he leaves our training fold being fully competent in each of his fields of study. There is no substitute for making sure that those we return to the developing countries are sent back as properly trained and educated people.

Third, because the United States is the world's foremost repository of technical competence, analytical skill, and investigative scholarship, this nation could, with little effort, provide the leadership for innovation in the formulation of modern educational policies, of applied techniques for instruction, and of new technologies for administering and managing educational systems. The substantive content of education for a global era of transcendent, science-based technologies is a matter of great current debate in this and other industrial nations. Both the nature of the era mankind is about to enter and how best to prepare for it are matters that seem either to defy or bore present day scholars; the arena has been left to popular writing, most often and often most perceptively, by science fiction authors who cannot resist also scribbling about the prospects for their own planet. In all these

areas, we need good insight, probably good intuition, and certainly front-rank scholarly research and debate. Whatever is done to further global comprehension of the alternative courses the future can and might take in both the high and low income nations will be an investment in study with a large return.

Fourth, it is incumbent on all of us to understand that when we educate a person, or assist in the education of the many, we are engaged in a process of providing the leaven for change. We are touching people and the societies in which they live. Sustain the educational process over time, and whole cultures will be altered. The responsibility on all of us engaged in education is awesome, but if it is discharged with wisdom and understanding, we, collectively, are exercising one of the most potent of global forces for the peaceful transformation and uplift of the human condition.

I have been working on and in India for 35 years. The economic development of India has been the central focus of my professional life. In that time, I have watched the evolution of the Indian educational system from one dedicated to a British-style of classical training suitable to a colonial people, to a system that, despite many grave imperfections, is training generations of free citizens who are prepared to live and work in a world very different from that of their fathers. Foremost in leading this transformation was the development of the agricultural universities and the Indian institutes of technology, the former being almost exclusively built over a sustained period through the support of USAID contracts that mobilized the direct participation of many of the U.S. land grant universities. It has taken more than a generation to effect the change. And, it will take another to remove many of the blemishes that still must be cleansed before India will be able to boast of an educational establishment that is attuned to the latter half of this century. What seems so difficult for donors and educators alike to comprehend is the time that is required to engender the metamorphosis of a traditional educational structure into one that

is science-based. Again and again, donors and development specialists alike seem interested only in what can be done in the short-term. If we are to accept responsibility for assisting world nations in reaching for new goals for enhancing the skills of their peoples, we must recognize that we are looking at the long haul--that it takes one or two or three generations to complete the task.

Probably the most difficult virtue to find among practitioners of development activity is patience. Inside all of us there seems to be an embedded belief that we should be able to find a "royal" road to change, that the process of economic growth should begin and end quickly. The Marshall Plan was over with in a few years; why not a similarly speedy resolution of African or Asian problems? Hopes dies hard; as does a belief that if intelligent people are involved, all should go without a hitch. And it can be done. Bridges can be built quickly and their benefits made available soon; power dams may take a little longer, but they too can yield results within the time span of those who had the first vision. And, economic theory justifies this short perspective by pointing to the importance of the early return on development investment. The "long-gestation" project is one that may take 5 or 8 years to complete, and one should embark on it only with great care because earlier returns are likely to be available from other avenues of investment. Thus, in black Africa today, despite the obvious lack of trained, skilled people to run the affairs of government and to meet the needs of development projects, few agencies of external help and assistance are prepared to commit to a major and sustained program of support for creating an educational underpinning that will provide the black nations of this continent a longer-term hope. It is clear that if heavy investment in a modern educational structure is not made soon in most African countries, there will be no escape from their present level of poverty. It will take several generations to build an effective structure; if it is not built now, 20 years from now black Africa will be in deeper despair; the solution will be the same--education--but it will definitely be harder then to create what should have been created

20 or 40 years ago. The time for a major initiative in building the institutional base of education in Africa is now.

The call for it to be built must come from U.S. institutions which are concerned and able to lead in its creation.

The spectre that haunts all the efforts of the developing nations as they strive to attain a new development plateau is the growth of population. Few demographers in the fifties anticipated that death control techniques would spread as quickly as they have, that a country like Chad would have a current death rate of 25 per 1,000 when it was over 40 per 1,000 in the fifties. In traditional societies, sustained birth and death rates of around 40 to 45 per 1,000 people maintained a growth rate of total population that was small and that could be supported almost indefinitely by the technology and resources available to the society. Modern means of death control have now spread throughout the world. In Nepal, for example, the death rate is now at 20 per 1,000, while the birth rate is 45 per 1,000--an implicit growth in population of 2.5 percent per year. And, in that small kingdom, the population pressure that results has very far reaching implications for everything from the forest environment to the price to be paid for education. The situation in Africa is even worse, with growth rates often close to 3 percent per annum and where more than half the population is below 20. The import of this for educational planning and the implementation of school programs is truly frightful for any government. If the problem has a solution, it demands the best talent of the world to find it and look to its application. No other nation has the skill and wisdom and experience that the United States can bring to bear in deriving that solution and in determining the most effective way to bring about its implementation. The comparative advantage lies with this country, and it's an immense comparative advantage that, for the sake of the future of all mankind, cannot be ignored.

That is the challenge to American educators today. It is also the challenge to those who fund and toil in the quest for global economic

betterment. And, it is the priority summons to those who guide the destinies of poor nations, for it embodies their present opportunities and the future hopes of their peoples and their nations.

New Horizons for International Development: An Enhanced Science and Technology Thrust

Nyle C. Brady
Senior Assistant Administrator for Science and Technology
U.S. Agency for International Development

I am pleased to be invited to discuss with you the science and technology activities of the U.S. Agency for International Development (USAID), particularly as they relate to U.S. universities. It is my pleasure to participate on the same program with two leaders even more dedicated than I am to the use of science and technology in international development. Furthermore, I am delighted to speak to the leaders of universities who, by their actions, have demonstrated their commitment to the development process. You have joined forces to provide scientific and technical assistance to developing nations around the world.

Before turning to the subject of USAID's involvement in science and technology, I must warn you I am biased. I think research is the logical starting point for most of the long-term progress which developing countries have made and are making.

My bias is derived from my experience in the international agricultural development process during the past 30 years. I have seen science at work in the development of medicines which saved the lives of millions of people in the poor nations of the world. I have witnessed the products of agricultural research literally revolutionize food production. I have observed the successful development of many indigenous universities in developing countries through cooperative

efforts with U.S. institutions such as yours. Most importantly, I have witnessed the change in the attitude of the people whom we are striving to help, the farmers and others in Third World nations, as they utilize the products of research in their growth and development process.

I maintain, for example, that the miracle wheats and rices brought about more desired social change than all the world's social planners combined. These new cereal varieties helped leaders of both developing and industrial nations see the critical importance of research and education. U.S. universities played a significant role in this enlightenment process.

Now, I would like to turn our attention to the global contributi ns of science, technology, and education to the economic and social development in Third World countries. Since Mr. McPherson became the USAID administrator, he has consistently insisted that the agency's science and technology portfolio be increased. He has fostered planning and implementation of agency programs designed to promote and enhance research efforts. Although this emphasis is most welcome, it has required a reassessment of the agency's program priorities, particularly those of the regional bureaus and country missions. This reassessment was necessary because it was decided that most of the additional research was to be accomplished in and funded by the missions. I would like to describe what USAID has done to initiate the process of increasing its research portfolio and to indicate some of the changes that have been made within the agency as they relate to U.S. universities.

Mr. McPherson's first step was to authorize the establishment of a Bureau for Science and Technology. This new name for the old Development and Support Bureau reflected the USAID administrator's intent to enhance the science and technology capabilities of the agency. Mr. McPherson invited me to join the USAID team and take the leadership in working with the assistant administrators from the regional bureaus

to initiate research and other science and technology projects. I wish I could carry out orders with the same dispatch with which he can give them.

Agency Directors and Sector Councils

In response to the administrator's focus on science and technology, the first thing we did was to invite four nationally known science administrators to join the USAID team. Two of them are from the area covered by the Consortium for International Development (CID): Jack Robins, former dean of the College of Agriculture at Washington State University, is the agency director for food and agriculture; Jim Sarn, former head of the Health Department in Arizona, is the agency director for population and health. Ruth Zagorin, an experienced international social scientist from the U.S. Department of Agriculture, serves as the agency director for human resources. Jack Vanderryn, formerly involved in the international program of the U.S. Department of Energy, is now the agency director for energy and natural resources. These administrators have line responsibility for programs within the Bureau for Science and Technology (S&T Bureau), and have staff responsibility for working with their counterparts in the regional bureaus as they strive to intensify inputs into USAID science and technology activities.

To assure facile communications between the S&T Bureau and the scientists in the regional bureaus, we established Sector Councils for eight subject areas: (1) Agriculture, (2) nutrition, (3) population, (4) health, (5) energy, (6) natural resources, (7) human resources, and (8) engineering. These councils include technical staff from the regional bureaus as well as from the S&T Bureau. They are chaired by the agency directors. The primary concern of the Sector Councils is with the sector programs and staff of USAID. They have been involved in developing the agency's research priorities, and have focused on the training of scientific staff along with the place of scientists and technical staff in USAID.

Common Themes

In cooperation with the regional bureaus and the USAID missions, we have identified common problems requiring solutions in several developing countries. The goal of this approach is to develop "common theme" projects which will involve collaboration among the missions, the regional bureaus, and the Bureau for Science and Technology. Scientists from your universities and other U.S. universities are participating in the first of these "common theme" projects--Water Management Synthesis II--relating to irrigation management in Asia. Your university engineers and scientists provide technical backstopping for pertinent activities in Asian developing nations. They are also involved, to a degree at least, in research concerned with assessing, monitoring, and improving the efficiency of utilization of irrigation water to increase indigenous food and fiber production in the cooperating developing countries. Irrigation is the life blood of Asian agriculture.

Another "common theme" project recently initiated deals with cropping systems in Subsaharan Africa. The University of Florida is the contractor for this project, and serves as the coordinator among the various cropping systems projects in the USAID missions in Africa. The university is also coupling its activities with other universities concerned with this important subject. Improved farming systems are critical to the future of Africa's food and fiber capabilities. The long-practiced custom of shifting cultivation involves resting the soil for 10 to 15 years before tilling for 2 to 3 years. Unfortunately, the population explosion in most African countries has forced shortening the time interval between "rest periods." The result is a decline in productivity and accelerated soil erosion.

The "common theme" project approach is also being considered for other problem areas of high priority in developing countries: (1) Improved methods of primary education in several countries in Africa; (2) fuelwood research networks in Asia and in Africa; and (3) rainfed agriculture in Asia.

By design, these "common theme" projects require the development of a close working relationship among scientists, engineers, and educators in the developing countries and those in the different USAID bureaus and missions. They also give agency assurance that the research and associated activities it funds will be sharply focused on the major problems of several developing countries in a given geographic area.

U.S. universities have key roles to play in planning and developing "common theme" networks. They are among the contractors selected to provide the technical backstopping for "ribbon" projects; these are projects which foster and improve communication among countries and stimulate international cooperation.

Other New Initiatives

Several other new initiatives championed by Mr. McPherson are also of direct interest and concern to you and other U.S. university leaders. Perhaps the most important of these are the Memoranda of Understanding (MOUs) between universities that have demonstrated their commitment to international development and to USAID's efforts to stimulate that development. The MOUs commit both the agency and the universities to work together. The universities agree to provide a given level of staff involvement in the agency's international programs. In turn, USAID indicates its willingness to try to assure a mutually acceptable level of stability in funding.

Up to now, USAID has negotiated MOUs with five U.S. universities, and is working with the Board for International Food and Agricultural Development (BIFAD) to develop guidelines for additional MOUs--a large university working with a smaller institution. This arrangement will permit smaller institutions to participate on a par with larger ones. The historically black universities will be among those who can contribute to the USAID international development programs.

A second area of cooperation between the agency and U.S. universities is the Joint Career Corp (JCC). This program is designed to provide an organized mechanism through which university professors can be actively engaged in USAID activities. Using the authority of the Intergovernmental Personnel Act (IPA), arrangements are being made for university professors to accept the opportunity to participate with the agency's staff in selected missions in developing countries around the world. Individual missions indicate specific subject areas in which they would like some help. The universities are then contacted to ascertain their interest in having selected faculty members take on such an assignment for a couple of years. Afterward, the professor returns to the university for a period of at least 4 years, after which he or she would then be available for another similar career opportunity within USAID.

Presently, 22 professors from cooperating U.S. universities have joined or are being processed to join this JCC program. The first professor came from this region, the University of Idaho. By the end of calendar year 1983, the agency hopes to place a total of 30 university professors in the JCC program.

This arrangement appears to be mutually beneficial for both AID and the participating university. Through the JCC program, the agency will have the advantage of involving more well-trained scientists and educators in these programs. The universities, in turn, will be giving selected staff an opportunity to gain valuable and needed experience in developing countries. Participation in the JCC program affords these university faculty members an enriching professional experience which, when they return home, they can apply to their teaching, research, and extension responsibilities.

USAID is also using a "reverse IPA process" which permits agency professional staff members to spend a minimum of 1 year as a member of the staff of a participating U.S. university. Here too, the intent of

the program is to permit these AID scientists, engineers, and educators to work alongside university faculty, participating as required in teaching, extension, and research activities. We recognize that such experience will be equivalent to training. However, these campus assignments are considered primarily as opportunities for USAID staff to work as members of university teams.

India-United States Collaboration

Another priority program which USAID is cosponsoring involves the joint desire of the Governments of India and the United States to collaborate in scientific and technological fields of mutual interest. During Prime Minister Ghandi's visit to the United States in September 1982, she and President Reagan initiated plans for this collaborative research program. While much of the research is planned, funded, and managed by domestic agencies, some of the American effort is being funded by USAID, primarily at cooperating U.S. universities. For example, a network of U.S. institutions has been established to work on the biological fixation of nitrogen; this is one of the areas of common interest identified by American and Indian scientific leaders. We have also established a collaborative relationship between India and the United States in forestry research and in investigations of the efficiency of nitrogen utilization. USAID will invite U.S. universities to participate in these international collaborative efforts.

Support to Missions

The relatively new initiatives which we have discussed today are only supplementary to the laudable efforts already being made by U.S. universities to help in the international development process overseas. Some of the most significant inputs to mission programs are being made by individual U.S. institutions and by consortia such as CID. University involvement is not only through Title XII projects but also through projects on health, nutrition, family planning, forestry and

natural resources, and energy. All of these projects emphasize the education and training of indigenous scientists and educators, a role for which U.S. universities are well suited and a function which they have performed for more than 30 years.

Another productive mechanism for U.S. university involvement with research and education programs of the USAID missions are the Collaborative Research Support Programs (CRSPs), focusing on finding solutions to priority agricultural problems. Teams of U.S. university faculty working with professional staff of counterpart institutions of developing countries are jointly tackling such problems as the constraining limitations on the production of sorghum and millet, beans and cowpeas, peanuts, fish products, and small ruminants. The CRSP process was developed jointly by AID and BIFAD. It provides an innovative approach to solving problems impeding progress in international agricultural development in Third World nations.

International Research Centers

USAID is a major supporter of research undertaken at the International Agricultural Research Centers (IARCs) sponsored by the Consultative Group on International Agricultural Research (CGIAR). Research is under way on the major food crops and livestock upon which developing countries depend for their food and fiber supply. Collaboration among these centers and U.S. universities is a mechanism for the planning and implementation of meaningful research and training programs. The older centers, CIMMYT and IRRI, have clearly demonstrated the viability of this international approach. The new strains and varieties of wheats and rices developed at these two IARCs offer a persuasive testament to the success of this international collaboration. New findings at some of the more recently established IARCs suggest similar progress in the foreseeable future on other crops important to developing countries.

The international center approach has been used with equal effectiveness in the health field. A prime example is the International Diarrheal Disease Research Laboratory located in Bangladesh. Established in the late 1960s, this laboratory focused initially on cholera. Through this research, it was a party to the development of Oral Rehydration Therapy (ORT). This involves the use of a simple and inexpensive mixture of sugar sodium plus potassium salts to prevent death from dehydration of cholera victims suffering from diarrhea; a majority of cholera victims are children. Literally millions of lives can be saved by this simple therapy. At a recent International Conference on Oral Rehydration Therapy (ICORT), which was cosponsored by USAID, WHO, and UNESCO, AID Administrator McPherson challenged the participants to double the use of ORT annually for the next 5 years. He depends on us to implement this bold initiative.

Research Priorities

Mr. McPherson requested that the S&T Bureau work with the missions and scientists from outside the agency, particularly from U.S. universities, to develop a set of research priorities for (1) medicine, (2) family planning, (3) agriculture, and (4) fuelwood. Now that this assignment has been completed and research priorities have been established for each of these four critical areas of the international development process, USAID missions are being canvassed to determine their interest in cooperating in these areas.

Once intercountry "common theme" subject areas have been determined and projects developed, USAID will seek help from U.S. universities and other American institutions to implement these action programs. Additionally, we expect private enterprise contributions to these efforts, as Mr. McPherson has described today.

Basically Oriented Research

U.S. universities have made some solid and stellar contributions to USAID's more basically oriented research efforts. Some of this involvement was through global research, a portion of which was carried out in the United States and part undertaken at overseas sites. An excellent example is the research on malaria control which has recently received attention in scientific journals and in the public press. USAID has taken the leadership in establishing a network of U.S. scientists, mostly from universities, to focus on malaria research. A recent breakthrough suggests that a vaccine for malaria is impending. Using modern biotechnology techniques, university scientists supported by USAID, have proven the probability of success in developing such a vaccine. We expect to arrange for field testing to determine the viability and suitability of the newly produced materials.

Continued Collaboration

Before closing, I would like to say how proud USAID is of the support CID and its member universities have given to the agency missions around the world. No other region of the country is providing as much technical assistance, in relation to the size of the institutions involved, as the western part of the United States. Three of the five universities chosen for MOUs are from institutions represented here at this CID meeting. The agency's choice of these institutions was not dictated by political considerations, but by the relative demand for university services by the different regional bureaus within USAID. The fact that your universities were selected by those who are actively involved in overseas programs is clear evidence of the quality of the service and inputs your institutions have given. You have a good track record!

We at the Agency for International Development are looking forward to a continuing, mutually beneficial association with CID and the

universities represented here today. The agency's staff is open to suggestions relative to the policies and programs the agency has charted and is pursuing. USAID and all its staff are depending on you as we jointly strive to improve the science and technology and training capabilities of the developing countries.

It has been a pleasure to meet and speak with you today. Thank you for this opportunity to describe USAID programs and outline future plans.

New Horizons for International Development: University Involvement

Gerald W. Thomas
President*
New Mexico State University

There are several major reasons for the universities to look at new horizons for international involvement.

1. The world is under more tension now than at any time since World War II. The cold war between the two major powers is influencing decisions at all levels of government. In addition, there are many minor conflicts in today's world which could involve the larger world community. There is an increasing concern about the proliferation of nuclear arms. The anti-nuclear movement--right or wrong--cannot be ignored. Some faculty members on some campuses are now involved.

2. The universities have a moral and ethical obligation to assist in the many aspects of international development which lead to world stability and to improvement in the quality of life of people of all nations.

3. The universities have a pool of scientific and technological talent which, with proper planning, can be made available for development assistance.

4. International involvement can increase the quality of our faculty and enrich educational programs for our students.

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*Dr. Thomas became president emeritus on June 30, 1984.

Lastly, we have a selfish motive.

5. The international dimension offers an opportunity for growth in a period when most institutions are facing reductions in traditional sources of revenue. The severe economic crunch has hit many universities--and may last for several more years.

World-Wide Interdependence Grows

We live in a complex, interdependent world--made smaller by improved communications and rapid transportation and high technology. When people in any part of the world are hungry--or lose their freedom--we have to be concerned. Events in even the most remote parts of the world affect our daily lives--sometimes in a major way. Recent examples are the Falkland Islands, Afghanistan, Poland, Iran, and the continuing Mediterranean turbulence.

The United States is dependent upon other countries for many minerals and many raw materials necessary both to keep our defenses strong and to keep our economy healthy. At the same time, we export to other countries many, many items to serve their needs. Perhaps the most important of these is food. We export the equivalent of the production of 1 out of every 3 acres on U.S. farms. Farmers, as well as the general public, now understand we cannot operate in isolation from other nations. But farmers, too, are asking some serious questions--many of them about international aid.

The European Economic Community is subsidizing programs to get agricultural products to markets where we cannot compete. The impact of the Soviet grain embargo still persists. China recently placed a retaliatory ban on cotton and soybean imports, and Japan has limited U.S. beef imports. Everywhere, we see problems with U.S. agriculture because we over-produce, while much of the world faces food deficiencies. The Payment in Commodities (PIC) program has partially

corrected the U.S. problem, but the export market for crops and livestock is critical to U.S. agriculture. Economically, American agriculture is at its lowest ebb since the Great Depression due to the depressed prices for farm products. Our farmers, as they see some of their neighbors declaring bankruptcy, are asking serious questions about our trade policy and our economic aid to foreign countries. They fear that U.S. agricultural policy is set by the State Department rather than by the Department of Agriculture. But farmers are not alone in their request for a better understanding of foreign economic aid. Most U.S. industries are in active competition with foreign countries for both U.S. and foreign markets. Secretary of State S[illegible] recently stated: "The lure of protectionist trade policies must be resisted--whether in the form of overt import restrictions and export subsidies or by more subtle domestic programs."

It has been my privilege, through service on one of the Federal Reserve Bank Boards, to interact with some of the policy makers in the Federal Reserve System. Chairman Volcker has insisted that the number one task of the Fed is to get inflation down. This has been accomplished through a tight "monetary" policy. Interest rates have slowly followed the downward trend in inflation, but the huge national debt and other aspects of "fiscal" policy are preventing a more rapid economic recovery. Also, there is increasing concern about the size of the external debt to many nations--not only Mexico and Brazil, but to many LDCs and Middle-Income Countries (MICs). ". . . the magnitude of the external debt will almost inevitably reduce resources available for future lending for development purposes."

One major effect of the Federal Reserve's tighter monetary policy over the last 3 years has been a much stronger dollar on the foreign exchange markets. Ironically, the strength of the dollar has adversely affected our competitive position--both from the standpoint of increasing U.S. exports and from the standpoint of developing new industries or rejuvenating old industries in the United States. The high technology

shootout is real--and serious. While our own universities, towns, and cities fight over how to attract a few new high tech activities, we stand to lose the bigger battle with foreign countries.

Politics and Policy

I would like to focus the major part of my presentation on several questions in international development which the universities might help answer. Perhaps we can stimulate some discussion about these important issues. Some of these questions have to relate to politics and policy. The Title XII legislation was indeed landmark legislation--forging a new partnership between AID and the universities--but, how much political support do we now have on the hill? Senator Humphrey and Representative Findley, who introduced the original Title XII legislation, are both gone from Congress, although Mr. Findley is now a member of BIFAD. Where is our political base of support? And, how should or how can the universities help? It seems to me we must become more active in the political arena regarding all forms of development assistance.

Should the Title XII legislation be modified? If so, in what way? What are the advantages and disadvantages of change?

Several questions relate to the cold war and nuclear arms:

1. Will the anti-nuclear movement affect our development assistance program? Should we take a position as individuals? Or as universities?

2. How can we separate national defense issues and military aid from economic aid? Or should we? Is world stability better assured by military or economic assistance?

What about competition for high technology and the protection of high technology secrets? Can we assure U.S. agriculture and industry that

our efforts are helpful and that they will not drive U.S. industries out of business? Several aspects of this question deserve research and enlightenment--but we need a good white paper on the competition issue as it relates to support for AID programs.

What is or should be the role of private enterprise? Most of the development assistance to the LDCs by outside governments and universities tends to neglect the potential for private enterprise. International aid usually focuses on land reform, service to the poor majority, and other social issues which emphasize governmental action and thus, indirectly, lead to a socialist approach to the problems. Governments are very efficient in managing many of the food production, processing, and delivery systems in either "developed" or "under-developed" countries. More attention, in my opinion, should be given to assisting in the development of private enterprise activities in the off-farm sectors of the food system as well as stimulation of economically viable, competitive farm and livestock units.

How can we better approach the basic problem--population growth and limited resources? Both increased numbers and increased levels of affluence affect the demand for food. While the most quoted figure of 500 million people facing starvation has been questioned, there is no doubt that the figure is far too low if we consider the number of people in the world facing severe malnutrition or lack of balance in the diet. But, if one examines the world grain supply as a measure of food availability, the per capita situation is improving--thanks to the large grain surpluses in the United States and Canada. Dr. Wheeler of Winrock International projected that, by 1985, about 80 percent of all of the grain moving in the export market would come from the United States and Canada. Furthermore, he stated that in spite of the statements by some authorities that more grain should be diverted from animals directly to human food, the trends have been opposite: "By 1985, worldwide use of grain for livestock feed will surpass that for human use by about 10 million tons" (Wheeler). This statement reflects, in part, the

importance of the world's vast uncultivated land base, where the ruminant animal remains the best converter of forage to a human food product.

A major concern that I have about population pressure and the limited resource base is: "How can we stimulate production without damage to the soil, water, and air resources?" Many of our attempts to increase food production have contributed to deterioration in the resource base. We do not always properly evaluate the environmental consequences of development assistance. How can we create an incentive to conserve at the same time as we stimulate production?

When will we develop a satisfactory Middle-Income Country strategy? Beginning with the early discussion of Title XII, BIFAD and the university community have been harassing AID and the State Department to develop some mechanisms for the U.S. universities to interact with the so-called graduate or Middle-Income Countries. The economic disaster in Mexico helped focus attention on this deficiency. For example, at NMSU, through AID, we could launch a team to help Honduras, as an LDC, but we could not find financial resources to assist our closest and most important neighbor, the great country of Mexico. And yet, we have informal arrangements, none supported by AID, whereby 30 to 40 of our faculty actually conduct studies or cooperative programs with our Mexican counterparts.

As Dr. Woods Thomas pointed out in a recent paper on MICs commissioned by BIFAD and AID:

> This dichotomy between LDCs and MICs is established primarily on the basis of an arbitrary criterion of per capita income. The category into which a particular country falls as well as the basis under which assistance is provided may be influenced by its foreign exchange position, political, security, strategic, and other factors.

This paper by Woods Thomas deserves our careful attention. It proposes

a "U.S. development assistance presence" in each MIC where contact is needed. The concept presented in the policy paper suggests that the Middle-Income Country unit might be identified as the US/MIC Binational Development Institute (BDI). Maybe we don't need another acronym, but the concept makes sense and may provide an opportunity for the U.S. university community to work cooperatively with scientists in the MICs to help them find solutions to their very serious economic troubles. Here again, we have an economic, political, and humanitarian stake in their future. But, as in the case of the LDCs, we should not let national defense objectives dominate our development assistance programs. The university community has long held that our country, perhaps more than any other because of our wealth and prestige, must maintain an abiding interest in the welfare of the poor and less fortunate people of the world, regardless of where they chance to be born. Dr. Wharton, former chairman of the Board for International Food and Agricultural Development, stated it this way:

> World hunger is a greater threat to world stability than the arms race. Yesterday's food riots in Egypt are today's strikes in Poland. The starving child in the Sahel is a ghostly guest at our dinner table . . . courtesy of the CBS evening news.

While I have purposely raised a number of critical questions in this presentation about the directions of development assistance, I want to emphasize that there have been great strides in recent years to facilitate cooperation between Federal agencies, the World Bank, and the university community. This spirit of cooperation will lead to more effective university programs.

New Horizons for International Development: The Consortium for International Development

John L. Fischer
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I commend Dr. Ernest Briskey on his wording of the title for this symposium. A horizon changes, therefore is "new," only when the viewer changes positions (moves) or when the visual environment is altered. My comments are pitched accordingly. Let us think in terms of the "changes" we in the Consortium for International Development (CID) may need to make and, simultaneously, about the changes needed in the international development environment in which CID operates. We in CID do not control the latter, but we can exert some influence on it.

The first question needing attention is whether CID should search for a "new horizon." In many ways, CID is doing very well--so, perhaps we should not rock the boat. Let us look at the record, beginning with the positives. Some are:

1. CID currently has contracts with a face value of $153 million (approximately). The unexpended balance for current contracts is more than $85 million, and several of our contracts are fully funded. This is a good record--I know of no organization doing better.

2. CID currently has eight overseas-based contracts in seven Third World countries; three U.S.-based, centrally-funded contracts, which are worldwide in scope; and one grant. The geographic distribution of our total program is fairly good, and, at the moment, we have

excellent working relationships with people at the grass-roots level and with most of the strategic decision makers in the host-country governments. Again, I know of no organization doing better.

3. In the past 18 months, six of our projects have been evaluated, and the evaluation teams have consistently given our projects excellent ratings on the technical aspects of the programs. Even on those contracts where we have faced severe problems, such as in Bolivia, our projects have accomplished much. The record is good primarily because we have been able to obtain top quality people. In terms of quality of personnel, in my judgment, CID's overseas staff is number one.

4. CID is involved in two of AID's truly pioneering efforts to improve the effectiveness of developmental assistance in agriculture. The Yemen Agricultural Development Support Program is unique because it offers the opportunity for longer-term linkages between CID and its members and their Yemeni counterparts and because it permits a group of U.S. universities to participate in all aspects of a national, sector support to agriculture program. There have been many problems because the approach is new, but many of us who have been involved believe it could be a good model for future AID programs elsewhere. The Water Management Synthesis II contract links the pool of expertise available in CID to AID on a continuing basis. The contract was designed to meet a basic need in AID, while providing appropriate incentives to participating universities. AID gets guaranteed access to the technical expertise it needs, including short-term consulting, and the universities get long-term assurances on involvement and funding. Both of these pioneering efforts are designed to alleviate or avoid serious problems AID and the universities have been facing for many years. We in CID appreciate Administrator McPherson and Dr. Brady's interest in these pioneering approaches.

5. CID's policies provide for the effective management of projects. In the past 3 years, CID has been demonstrating that it can take corrective action quickly when the inevitable problems arise in contracts.

6. CID has learned to keep costs to reasonable levels. For example, in recent years, CID's G&A rate has averaged only 4.6 percent of total contract values. We believe CID is a bargain. For identical services, we can meet and beat our competition.

7. CID has provided training and information which strengthens the members. Examples are the project directors workshops, the business officers conference, the Integrated Range/Livestock Workshop, the Economic Feasibility Analysis Workshop, Women in Development (WID) Advisory Board meetings, contact officers workshops, the Symposium on Range Livestock Development in the People's Republic of China, the forthcoming Project Design and Analysis Workshop, and this symposium--New Horizons. With the exception of the WID meetings, none of the above involved any direct contract/project costs.

8. CID has worked closely with AID and with its member universities in the professional growth and development of personnel through exchange and direct support programs. For example, we have an AID employee serving as a CID deputy executive director under an IPA, we have had two distinguished scholars for international development funded 100 percent by CID, two people on sabbatical have worked in the Executive Office, and five members of the current CID Executive Office staff are provided by member universities.

9. CID has encouraged research and study into the success and failure of developmental efforts. For example, a recent study cast light on improved procedures for chief-of-party selection. All project evaluation team and proposal committee reports are studied with a view to improving future operations.

10. CID has met the requirements and obtained certification for providing consulting services to host countries under funding from the World Bank and several of the regional development banks. Through this mechanism, faculty members from CID members now have greater opportunities for meaningful international service.

The above is not the whole story. Unfortunately, there are some negatives. The record also shows:

1. About 40 percent of the world's hunger and malnutrition prone people live in arid and semi-arid areas under climatic, soil, and general environmental conditions very similar to those of the CID region. Little, if any, progress has been made in recent years in improving the basic human needs of the majority of the people in the arid and semi-arid regions of the Third World. Can we "rest easy" knowing that CID members are stellar in almost all aspects of the sciences and disciplines directly related to the problems of the arid areas and that so little progress is being made?

2. CID members could be doing much more than they are in terms of providing technical assistance. CID contracts are providing only 65 long-term personnel to developing countries, and the programs are almost exclusively in agriculture. And, only about 1 percent of the regular agricultural faculty of CID members are abroad on CID contracts.

3. Four CID members are not serving as the lead university on any project or subproject. All four have strategic human resources readily available, and would like to be more deeply involved in international development activities.

4. The range/livestock subsectors of most developing countries face serious problems. CID has almost a predominant capability in range/livestock, but only two CID contracts have significant

range/livestock components. Not only is CID doing little, but the aid agencies of the world do not seem very anxious to get involved in range/livestock projects.

5. In irrigated agriculture and water use management, where CID members come closest to serving to capacity, there is still unused capability available and much interest. We could be doing even more.

6. The arid and semi-arid regions of the world face serious health problems, and CID members have unique, badly-needed capabilities in health-care delivery for those regions. The faculties of medicine at two CID members would like to work together, and many faculty members on numerous campuses are interested in becoming involved. Unfortunately, we have no contracts calling for CID's health-care expertise.

7. CID members have great strength in natural resource management and environmental concerns in arid and semi-arid regions, but we are not doing much. The need is great.

8. CID members have great capacity in forestry, and the Third World's forests are poorly managed and represent great potential for economic development. CID is not involved anywhere.

9. CID members have unique capabilities in human shelter, housing, and urban development in arid zones, but we have no contracts calling for our expertise.

10. CID members are stellar in rain-fed farming, both winter rain and summer rain where the annual variation in precipitation is great, but we are doing relatively little. In the Third World, there is a tremendous need for our expertise.

11. During the next 18 months, several large CID contracts end, and we will be in the process of "bringing home" about 40 top-notch, experienced people. Many would like to "go out again." Whether we can get contracts and effectively utilize their services remains to be seen.

12. While great progress has been made in terms of CID member universities accepting participation in international development as a legitimate part of their total programs, there is still little incentive in some departments within our universities for the very best faculty members to become involved.

13. While good progress has been made in improving the management of CID projects, there is still much room for improvement. We have learned the hard way that the original plans for most of our projects have not dealt adequately with administration. Occasionally, we have had fairly serious problems in staffing because we do not get in contact with people who are interested.

14. On several of our projects, the major effort is not directed toward solving the biggest problem. We are providing technical assistance when the real constraint to development lies in administration and policy inadequacies in the host country.

In light of the above points, I conclude a "new horizon" is indeed needed. CID should make some changes within, as well as do what we can to improve the overall development environment for the arid and semi-arid regions of the Third World.

In my judgment, the following would do much to create the type of horizon I would like to see.

1. Greater emphasis on meeting the needs of developing countries, with CID members equipping themselves to identify and meet the needs and the aid agencies giving even greater attention to them in their programs.

Developing countries have properly complained that aid donors tend to give (or try to sell on favorable credit terms) what they have, rather than identify and provide for the realistic needs of the developing countries. Unfortunately, we in the university community are not immune to the problem. In university international development programs, the first inclination is usually to try to "sell" the services of the faculty currently on board. Also, some university administrators have been known to get very enthusiastic about international programs only when they think they are an outlet for "dead wood!"

Many developing countries have little choice but to "take what they can get" in contrast to "getting what they need"; therefore they have taken whatever is offered, even when it distorted the priorities in their development programs. Many developing country leaders are now cognizant of the problem, and the credibility of aid agencies in general and the universities in particular, is somewhat tarnished.

Another aspect of the problem is that we sometimes have "one track minds" when we work with developing countries, and this distorts priorities too. Training--near to the heart of most university people--is a case in point. It is a fact that human resources in developing countries are a problem, and investment in them is generally needed. We in the university community love to train--it is what we do best. So, we almost always "push" training very hard. Unfortunately, training is not a panacea. Not long ago, a minister of agriculture told me, "The expatriate advisers criticized my ministry severely, and said we were incapable of doing anything. To help us solve our problems, they offered training opportunities to many of my better people and sent them abroad. Without the better people, indeed, the ministry can't do

anything! The advisers proved they were right!" The advisers may have lacked perspective. Training is but a part of what is required to develop a country. The point is that while training was truly "needed," there is a proper time and place for it. What is true for training is true for other single function activities. None of them are panaceas--each is but a part of the total process of development.

In the years ahead, I urge CID members and the aid agencies to think less about "what we have" and to focus much more attention on understanding the process required for development of the arid and semi-arid areas of the Third World. Let us identify and prioritize the needs of the respective countries and equip ourselves to meet these needs. Let us do "first things first." If we do so, I am confident our programs will be successful, our credibility will improve, and we will have opportunities for service far beyond our current hopes and aspirations.

2. Balance between emphasis on the meeting "basic human needs" approach and the natural desire of many (probably most) of our technical people to concentrate our programs on those in the Third World who possess the managerial skills and have ready access to the resources required to effectively utilize new technology.

The basic human needs approach, which was in vogue a few years ago, is currently in trouble. Efforts by some of the developing countries to use increasing production of basic human needs as an engine for economic development and increasing productivity have not been successful. Many of the technical experts, especially in agriculture, in the aid agencies and on our campuses are not at all unhappy; in fact, some view the situation with glee and want the pendulum to swing far back and the basic needs philosophy to be dealt a mortal blow.

Closely related to the concern over the basic human needs approach is the concern some technical experts advising bilateral and multilateral

aid programs have had about their agencies' emphasis on programs which impact on the poor majority. While a careful review of the basic human needs approach and emphasis on the poor majority is appropriate, there is grave danger in over-reaction. We in CID are vulnerable because so much of our effort involves highly-trained technical people, who naturally like to see maximum results from their work. They have a preference for working with those in society who have the managerial skills and the financial and other resources required to utilize new technology. For example, there are not many agronomists in the universities who are "turned on" by the prospect of working with thousands of poor, illiterate, small, subsistence tenant farmers. It is only logical they would prefer to work with relatively well-to-do farmers, who are good managers, own land, have readily-available financial resources, and are already deeply involved in production for the market economy.

Many of the technical people on our CID member campuses and elsewhere in Title XII universities would like to see the objective of our projects as simple--increase production, do research, train in production, etc. Unfortunately, to accept such simplistic, production-oriented objectives is an invitation to disaster in most developing countries. In the three countries in which I have worked on long-term assignments, increasing aggregate agricultural production would contribute only modestly to solving the critical social and economic problems. In all, it would have been relatively easy to increase production had that been all that was needed. All three were poor countries because, as Dr. Hopper indicated earlier today, the productivity of the majority of their people was extremely low. The key to development and political stability was increasing the productivity of large numbers of people in specific areas. Whose productivity was to be increased was as important as was increasing aggregate production.

As we look to the future, we must remember that in the countries in which CID and its members are likely to be working, the reason we will

be there is because a large share of the population lacks the income to purchase basic human needs. They lack the income because their productivity is low. Technology transfer and development must impact on those in need if it is to be of greatest benefit.

3. Greater involvement by CID and its members in national level planning, formulation of strategies for development, and guidance/counseling on national policies.

CID institutions traditionally have not been very deeply involved in national level planning and policy formulation, and have not played what I feel is our proper role in the developing countries with large arid and semi-arid areas.

There are three problems to be overcome if CID is to be more active. First, we must better inform aid agencies and developing countries about our capabilities. Second, we must "get our own act together." (There is no cohesive force among the people on CID member campuses who have been involved in national level planning and strategy formulation. Few of our CID member universities have deliberately created strong departments with the type of expertise required.) Third, we must inform aid agencies and leaders in developing countries about the pitfalls and risks involved in modeling their institutions after those that have worked well in humid areas.

4. Increasing levels of control by host-country governments and agencies over all aid programs and contractor activities.

In an earlier era, recipients of aid tended to give the aid agencies and their contractors full rein. The expatriates were pretty much "in control." In my experience, aid projects, whatever the mechanism for implementation, have inevitably fallen short of their potential and not left behind viable institutions whenever the expatriate staff members have viewed the projects as "theirs." Today, the aid recipient

countries are demanding and getting more control. The trend will continue, and, in my judgment, it should continue in spite of the fact that it makes life more difficult for CID, the universities, and aid agencies.

All aid agencies are currently stressing institutional development. Institutions capable of operating effectively in the local social, political, and economic environment will not be created if aid agencies or their contractors are in total control. We must be supportive--not domineering. It is difficult for the typical professor from a developed country to adapt to local conditions and play a supporting role. In general, it is difficult for Americans not to try to "run things." These are the burdens we bear from the start. However, if we are to be successful in our projects, we must learn to function effectively in a supporting role.

5. Greater use of the collaborative approach.

The collaborative approach developed by AID and selected by BIFAD as a model for the Title XII programs is almost ideal theoretically. The collaborative approach can solve the control problem discussed above. Unfortunately, there have been problems applying it. We in CID know that it can work, and making it work is worth the effort. I shall not dwell on the problems because they have been discussed elsewhere. We need to fine tune the procedures for making collaborative projects more effective, and aid agencies should make much greater use of them.

6. More projects should directly confront the administrative and managerial problems which are the key constraints to development in so many operating ministries in Third World countries.

In entirely too many aid projects in developing countries, the project design fails to confront the major constraints. The key constraints to agricultural development are all too frequently the inability of the

operating ministries to effectively administer or manage programs and national policies which provide inadequate incentives to producers. Too often, our CID projects stress technology transfer and development when success depends on our people boot-legging activities into the project which are not stressed in the design. We find ourselves trying to improve administration and to change policies under the guise of research, extension, etc.

The argument often given for not attacking the key problems frontally is that they are politically sensitive. I agree that the political environment in some countries will not allow for a frontal attack, but I believe the leadership in most countries is more enlightened and courageous than we give it credit for being. I believe properly designed projects are acceptable and wanted. The sooner we have more projects designed specifically to improve administration and management, the better.

7. <u>More projects in range/livestock and rain-fed agriculture in the arid and semi-arid areas</u>.

The need is so great I cannot believe that increased emphasis will not soon be given to these areas. In range/livestock and dry-land farming in high-risk areas, the pay-off for technically sound programs may require longer than the period for which many aid agencies would like to be committed, but the success rate for well-designed programs can be high. In time, the need must be met.

8. <u>More projects modeled after Water Management Synthesis II</u>.

WMS II is not a panacea, but it is designed to meet several specific needs in AID, and it involves the university community in a meaningful way. If we can manage it properly, it has great potential. We are still searching for the best managerial mechanism. We have learned much in the past year, and, in the next few months, we hope to implement what

has been learned. Some changes will be required within CID and some within AID.

9. Much greater reliance on funding from multiple sources for CID projects.

AID has been the source of funds for 95 percent of CID's contracts. Today, many opportunities in which our faculty members wish to participate are not likely to be funded by AID. We can be of much greater service to developing countries if we are prepared to utilize funds from several sources. We are moving in that direction; in fact, CID is currently staffing its first long-term contract funded by a World Bank loan.

Some significant changes in CID's operations will be required if we are to open the door to new opportunities. For example, the traditional concept of university indirect cost (overhead) does not lend itself to contracting under World Bank financing. Also, in some cases, we will not be able to draw funds in advance of use; therefore, we must revise our financial procedures and, if necessary, borrow money for operating funds. We must review our operations and adjust them to meet the new need.

10. Within CID, constant reevaluation of our operations and improvement in the quality of service we deliver to developing countries.

The CID of 1983 is not the CID of 1972. We have evolved--we have changed. We must continue to change. Evaluation and feed-back are the keys. Our evaluation procedures are now fairly well defined. The next step is to make full use of the findings. A critical issue for CID today is which aspects of project management should be centralized and which aspects decentralized.

CID members have made great progress in terms of institutionalizing international programs on the campuses, but there is still room for improvement. We must search for ways to get the very best people the scientific community has to offer involved in our programs and to maintain their interest. The developing countries deserve our best people--not our castoffs. We cannot rest on our laurels until we are consistently attracting the top talent to our international projects.

11. Greater utilization of CID and similar organizations by aid agencies.

CID meets a great need of the aid agencies, and I remain hopeful they will take ever greater advantage of its services in the years ahead. The aid agencies all have a very limited number of technical and managerial personnel on their staffs. They must use contractors, and, in order to conserve personnel, they need to increase the size of their projects. CID is a "natural" for them. CID provides the opportunity for them to involve many universities and draw personnel from a large pool through a single contract. CID fills the management gap. Since CID universities have a long history of working together harmoniously and the managerial modus operandi is well established, it is a risk minimizer for them. CID makes eminently good sense, and, since it does, I look to the future with great optimism.

12. Greater involvement of returned overseas staff in programs and decision making on our campuses.

Faculty members who have worked abroad on CID and other contracts are a resource which our universities are not fully utilizing. People who have had overseas experiences need to be returned to our campuses and exert greater influence on attitudes and policies there. Our students will be better served when they are taught by international-class professionals, rather than state, regional, or national-class-only professionals. Our people grow professionally when they work abroad. Let us not waste them.

In closing--I hope the day is near at hand when CID university presidents and deans do not have to spend time justifying involvement of their universities and colleges in international development as though it were taking something away from other programs. While it is not always obvious, the benefits far exceed the costs. All CID universities aspire to be stellar. To be stellar, a university's perspective must be worldwide in scope.

Concluding Remarks

Hugh O. La Bounty
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Because the time for adjournment of this symposium passed us 20 minutes ago, I shall be brief in my final remarks. First, I would like to thank once again the distinguished speakers for their illuminating remarks and for taking us all on the path towards new horizons for international development. Mr. McPherson has encouraged us to develop linkages with the private sector, and Dr. Hopper has put us on notice that we must send our international students back to their homelands with an education, not just a degree. Dr. Brady has encouraged us to make our colleagues feel as partners in the development of working relationships to support international collaboration. Drs. Thomas and Fischer have given insightful commentaries on how universities can better relate in their consortial relationships. To each of these distinguished gentlemen, we say thank you.

We stand adjourned.