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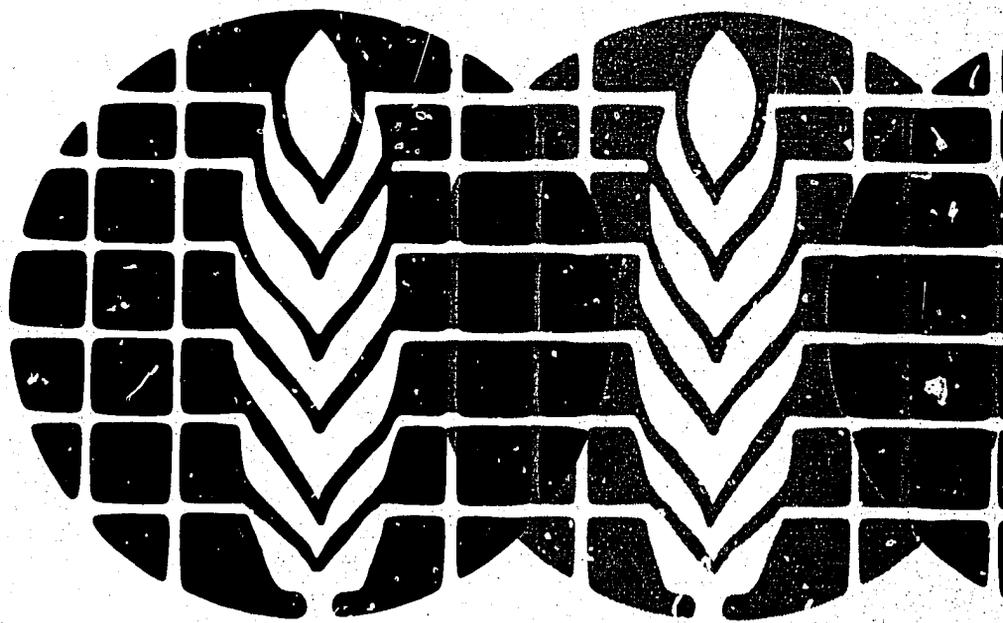


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**Building Colleges of Agriculture in Africa:
U.S. University Experiences and Implications for
Future Projects**



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PREFACE

The Occasional Paper series offers BIFAD an opportunity to circulate papers, reports and studies of interest to those concerned with development issues and the relationship between AID and the broader Title XII community.

As AID and the international donor community embark on a renewed effort to overcome the problems of hunger and under development in Africa, BIFAD concluded that a review of the past experience of AID and the U.S. university community in agricultural institution-building efforts in Africa could prove useful. This study, "Building Colleges of Agriculture in Africa" by David C. Wilcock and George R. McDowell was commissioned by BIFAD.

We believe this examination of prior experience, problems and "lessons learned" may prove useful for those planning and implementing future activities. To the extent that the study can shorten the learning experience and help to avoid some mistakes of the past, it will have served its purpose.

PREVIOUS ISSUES:

- No. 1: Tomorrow's Development Professionals: Where will the Future Come From? December 1980
- No. 2: The World Food Problem and BIFAD: The Need for Production and Research, December 1980
- No. 3: Economic Incentives for University Faculty Serving Overseas, December 1980
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- No. 5: The Implementation of Principles for Effective Participation of Colleges and Universities in International Development Activities, May 1981
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**BUILDING COLLEGES OF AGRICULTURE IN AFRICA:
US UNIVERSITY EXPERIENCES AND IMPLICATIONS FOR FUTURE PROJECTS**

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EXECUTIVE SUMMARY

I. INTRODUCTION: This report is based on interviews with 60 American agriculturalists at 9 U.S. universities that had USAID-funded institution building (IB) contracts with 14 African colleges of agriculture. Most projects began in the early 1960's, near the time of African independence; over 450 US faculty and staff went to Africa on multi-year assignments and over 700 African faculty and graduate students came to the U.S. for advance training. The objective of the research reported here was to synthesize the historical insights of these American scientists and gather some of their suggestions for making African colleges of agriculture more effective than they are at present in helping to generate improved production technologies for African farmers. The institutions studied were:

<u>US University</u>	<u>Number of Interviews</u>	<u>African Country and Institution</u>	<u>Year Contract Began</u>	<u>Number US Personnel Long Term in Africa</u>
Illinois	7	<u>Sierra Leone: Njala University College</u>	1963	30
Kansas St.	16	<u>Nigeria: Ahmadu Bello University</u>	1963	75
Michigan St.	8	<u>Nigeria: University of Nigeria, Nsukka</u>	1960	79
Wisconsin	6	<u>Nigeria: University of Ife</u>	1964	37
Massachusetts	5	<u>Malawi: Bunda College of Agriculture</u>	1963	11
Oklahoma St.	4	<u>Ethiopia: Alemaya Agricultural College</u>	1952	140
Minnesota	6	<u>Morocco: Institut Agronomique (IAV)</u>	1969	15
Texas A&M	2	<u>Tunisia: Chott Maria Agricultural College</u>	1962	20
West Virginia	6	<u>Uganda: Makerere Univ</u>	1964	10
		<u>Arapai Ag. College</u>	1963	8
		<u>Bukalasa Ag. College</u>	1963	9
		<u>Veterinary Training</u>	1963	4
		<u>Kenya: Egerton Coll.</u>	1962	12
		<u>Tanzania: Morogoro Agricultural College</u>	1961	8
TOTALS:	<u>60</u>			<u>458</u>

II. BACKGROUND: Most of the US projects had an explicit or implicit "Land-Grant model" which guided the thinking and expectations of the participants in Africa. In some instances, however, reality involved the application of "land-grant paint" to largely unchanged British colonial institutions in the rapid transition to political independence.

There were many built-in constraints to a quick achievement of the objectives of the land-grant model in Africa: (1) lack of broad-based farmer support and control of these (and most other) institutions; (2) land grant functions residing in various "competitive" ministries; (3) the almost exclusive emphasis on teaching in these new schools; and (4) various other institutional rigidities and colonial behavioral legacies.

These projects occurred in the early 1960's in Africa because this was (1) the period of political independence, (2) the peak of the world-wide AID institution building (IB) era, (3) the dynamic period of the new Kennedy administration, and (4) a time when conditions (funding levels, strong AID field staffs) were most supportive. Most of the US universities which became involved had extensive prior experience in institution building projects in other parts of the world and/or had key administrators with important personal contacts with personnel from the federal government "aid community" dating from the Marshall Plan of the 1940's through TCA in the 1950's and, later, AID in the 1960's.

In classifying the projects, the biggest functional differences among the 14 "colleges of agriculture" were between the 7 university-level, degree-granting "faculties of agriculture" (usually under the ministries of education) and the 7 non-degree certificate or diploma-granting "colleges of agriculture" which were usually under the ministries of agriculture.

III. MAKING THE PROJECTS WORK: US VIEWS In interviewing former university leaders and participants, we focused on a distillation of factors which seemed most to contribute to a perception of project success, both on the campus and in Africa.

On-Campus: At the US institution the most critical element was the degree and nature of the commitment of the university to IB projects. This was due in part to very strong university leadership where presidents and deans could undertake to commit their institution and its faculty to problem-solving projects. In the 1960's this can be partially explained by relatively greater levels of funding available, more faculty willingness to undertake multi-disciplinary applied work, and the expansionary nature of the US university environment in that period.

As the totals on the previous page indicate, large numbers of

faculty and other staff participated in the projects overseas. Strong administrators were often able to "convince" them to participate and then, in return, help guarantee that they would "at least not be disadvantaged" in tenure and promotion considerations in competition with their solely "domestic" colleagues.

In Africa: US participants largely felt that their school's efforts in Africa had been quite successful in meeting the following objectives: (1) "Bricks and mortar" activities, (2) temporary filling of teaching slots, (3) extensive curricula development efforts, (4) production of new instructional materials more closely related to the African environment, (5) developing college farms, particularly for instructional purposes, and (6) promoting a "psychological break" with the traditions of the recent colonial past.

Participant training for African personnel was generally felt to have been well handled in most cases but we observed a great variation in US approaches taken to meeting this objective. The approaches at Amadu Bello in Nigeria and the IAV in Morocco seemed to have been particularly successful in directing degree research towards relevant African topics and towards strengthening the African institution.

The greatest interviewee dissatisfaction was with the achievement of research and extension objectives. This was true whether there were formal project objectives in extension and research or whether the land grant participants in Africa simply felt that the African institution should have been doing more in these areas. While there tended to be somewhat more satisfaction with research output at the 4 year "faculties" than the 2 year schools, there was virtually unanimous feeling that all the colleges should be more directly involved in the critical applied research necessary to develop and disseminate improved agricultural technologies in both the food and cash crop areas.

Relations with USAID in the Field: In general very good relations with local AID missions were reported from the early 1960's. By the end of the decade, however, the quality of the relationship had deteriorated in almost all the countries, and in some, dramatically so. Further, participants decried the lack of continuity in the supervisory mission staff but were most upset over the problems produced by terribly restrictive "buy-American" equipment purchasing policies.

Current Campus Ability to Conduct IB Projects: Over three quarters of persons interviewed felt that there would be less support today on their campuses for this type of institution-building contract activity than there was in the 1960's. One summed things up by saying that interest in development work is now "individualized" instead of being "institutionalized". Among the reasons frequently cited in the declining ability to respond

to contract opportunities are: (1) an increasing gap between cutting-edge US agricultural technology and that required for African resource conditions, (2) increasing control of the faculty "work agenda" by narrow disciplinary interests, (3) incentive structures which are inappropriate to encourage work on multi-disciplinary, problem-solving projects, (4) university leadership which has weaker control over making major institutional commitments to applied work, and (5) weaker individual state economic health which has led to reduced political support.

It must be stressed that most participants felt that there was still a very important and challenging role for US Land-grant universities working with their counterpart institutions in Africa. Given the points above, however, it will be more difficult to gain broader campus support for these programs unless (1) the AID financial commitment is clear and long term, and (2) there are certain structural adjustments made to university procedures to promote the creation of viable "career paths" for those faculty and staff making commitments to increasingly complex and specialized international development work.

IV. IMPLICATIONS FOR FUTURE PROJECTS: Most importantly it is clear that African agricultural colleges should play a more active role in high priority national agricultural research programs. This is because the colleges often contain the largest pools of well-trained scientific manpower and because, in the longer run, this participation will contribute to stronger overall support systems for agriculture. This is consistent with the major thrust of the May, 1985 AID "Plan for Supporting Agricultural Research and Faculties of Agriculture in Africa"; we and the university personnel we spoke with are in strong agreement with this basic strategy. There is a very major planning task which remains to be done to implement the strategy and we conclude that the following points should be given major attention in that process:

- o The adequacy of each country's complement of educational, research and extension institutions to respond to the challenge of generating improved agricultural technology must be carefully assessed within each country context. Thus, the research role of different colleges of agriculture and their relationships to the national research institutions and IARC's will obviously vary across very diverse conditions.

- o Relative over-investment in diploma-level agriculturalists and under-investment in scientists and applied researchers supports the AID strategy of expanding the research and graduate degree programs in African colleges of agriculture.

- o Keeping the "colleges" and "faculties" of agriculture on two separate tracks does not seem to be promoting the type of scientific support systems required for a productive

agriculture. In some cases the two systems have begun to be merged together and investment strategy should support this trend.

o In the process of helping the African institutions, the U.S. training of Africans should be largely limited to graduate degrees (perhaps just PhD's); candidates should already be on the staff of an African institution; dissertation research should be conducted in Africa; and the degrees should be conferred by the African institution.

o Use of "triangular" or other multi-party relationships, that include the African college being enhanced, another stronger African institution, and a U.S. university, hold some promise. International research institutes, other African agricultural colleges or a national research institute might all be candidates for third party participation. Such arrangements appear particularly productive in French and Portuguese speaking Africa where language confounds the problem of U.S. contributions.

o Small amounts of research and graduate education support channeled through resident U.S. scholars, as in the Agricultural Development Council or Fulbright models, may be very productive.

o Linkages with extension services are important in institution building because they are an important means to eliciting and collecting the support generated by new farm level technology.

o Farmer support in response to appropriate new technologies will be necessary to maintain viable national research efforts and to serve as a test of scientific relevance. The promotion of farmer commodity groups and input supply and marketing organizations may be important in articulating that support.

o Multi-university consortia may be useful in support of a lead or primary institution under contract. Good project performance in the institution building efforts needed in Africa will require an institutional commitment from the lead institution.

In Conclusion: The base has been built; now the task is to help enhance the capacity of African agricultural colleges to make a broader contribution to the development of new technologies for farmers. The task is enormous and the colleges often have the biggest pools of highly trained manpower. We are in strong agreement with the major directions of the USAID Plan to facilitate that enhanced role.

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I. INTRODUCTION

Between 1952 and 1969 USAID (previously the Technical Cooperation Administration or TCA in the 1950's) initiated institution building projects to build or upgrade colleges of agriculture in ten African countries. These efforts were a portion of AID's worldwide activities in the "institution building era" which began in the early 1950's and had largely ended by the early 1970's. The projects frequently involved the construction and equipping of facilities, but mainly focused on: (1) the long term assignment of US university personnel to teaching and administrative functions, (2) training of African faculty members and graduate students in the U.S., and (3) a variety of other activities aimed at helping the colleges contribute to the overall improvement of agriculture in their respective countries. Much of this work in Africa involved attempts to explicitly or implicitly employ elements of the US Land-Grant university model.

By the early 1980's there was general agreement that African agriculture was in serious trouble (see Barry, Eicher, and IBRD for a sampling of this consensus). The statistics were dramatic; for example, it was shown that Africa was the only region in the world where per capita food production had declined in the decade of the 1970's. Major reassessments of government policies and donor lending programs resulted; experts pondered why Africa has not enjoyed the same type of progress in its agriculture that characterized the Asian "green revolution".

With institution building as one of the four major stated objectives for USAID in the mid-1980's (USAID/PPC, 1983), there has been recent AID interest in a "second wave" of work with African colleges of agriculture as part of longer term efforts to address the "African food crisis" (see USAID, 1985 and USAID/AF, 1985). It was within this context that USAID/BIFAD felt that it would be good to take a systematic look at the "first wave" of institution building work in Africa that commenced in the 1950's and 1960's and extended into the 1970's.

In mid 1985 BIFAD contracted with the authors of this report to systematically interview a number of the principle actors within the US universities who had been involved in these earlier projects in Africa. In the process of this research interviews were conducted with 60 agricultural scientists most of whom are academics or retired academics. Many have had direct administrative responsibility for project decisions either in Africa or in the US on behalf of their US university. The interviewees represented nine US universities, involved with fourteen African colleges of agriculture in nine different countries, and covered activities in Africa from 1952 until the present. The details of these interviews are contained in the Final Report of that prior contract work (Wilcock and McDowell, 1985).

The purpose of this report is to summarize the results of the earlier work and to provide some interpretive analysis of the ideas, insights, experiences, and even hunches of the interviewees in terms of contemporary strategies for building more productive colleges of agriculture in Africa.

Because of the pressing problems in the agriculture of many African countries, and because of questions about the most effective way to generate greater agricultural scientific output on behalf of the problems of African farmers, we do not assume at the outset any particular role for the colleges of agriculture except that they will, as a minimum, continue to provide diploma or degree training in various specialties in the agricultural sciences.

This report is based on: (1) the 60 participant interviews, (2) the authors' personal knowledge of Africa, (3) the insights gained from earlier, AID-sponsored institution building research, largely done in the period 1968 through 1975 (see Section C. of the attached bibliography), (4) review of documents from AID, US universities, and individuals interviewed, and (5) a review of recent scholarship on research and development strategies for African agriculture. Our work has not been validated by checking it against the impressions and experiences of Africans who are concerned with similar questions or who have had personal experiences with the same African institutions. This remains the major limitation of this study. (That limitation may be partially met by in-country evaluations of 6 of the African colleges and their contribution to national agricultural progress currently underway within AID/PPC.)

The nine US universities and fourteen African colleges of agriculture they worked with are listed below. The number of persons interviewed at each school is in parentheses (interviewees are listed individually in the Appendix to this report):

- o Univ. of Illinois: Njala University College, Sierra Leone (7)
- o Kansas State Univ.: Ahmadu Bello University (Both the Faculties of Ag and Vet Medicine) Nigeria (16)
- o Univ. of Massachusetts: Bunda College of Agricul, Malawi (5)
- o Michigan State Univ.: University of Nigeria, Nsukka (8)
- o Oklahoma State Univ.: Alemaya Agricul. College, Ethiopia (4)
- o Univ. of Minnesota: Institut Agronomique, Rabat, Morocco (6)
- o Texas A&M Univ.: Chott Maria Agricultural College, Tunisia (2)
- o West Virginia University: Uganda: Makerere University (6)
 - Arapai Ag College
 - Bukalasa Ag College
 - Vet. Training Institute
 - Kenya: Egerton Ag College
 - Tanzania: Morogoro Ag College
- o Univ. of Wisconsin: University of Ife, Nigeria (6)

A few summary figures may help put these university projects in some perspective. These projects cost about \$100 million in actual dollars over a twenty year period; about \$300 million in 1985 dollars. That is only about three times the current annual USAID expenditure on agricultural research in all of Africa. Much was accomplished in "bricks and mortar" and in human terms with over 450 US university personnel serving for two years or more in Africa and about 718 African students going for long term degree training in the US under project funding. A strong base was laid in some countries; the challenge is to use that capacity constructively in the 1980's.

Before we examine the interview findings (Section III) and issues and implications for contemporary Africa which derive from those findings (Section IV), we would like to set the stage in the next section by briefly discussing the Land-Grant model and the reasons why Africa at independence was not fertile ground for this model, and provide a history and classification of the projects undertaken in nine countries.

Note on Terminology: In this report we will generally use the term "college of agriculture" to refer to two kinds of post-secondary institutions: (1) those offering two or three year non-BSc, terminal diploma or certificate programs -- Arapai College of Agriculture in Uganda, for example -- and (2) Faculties of Agriculture offering BSc or higher degrees. The faculties are usually part of a larger national university but in two cases are not called "Faculties": in Ethiopia the degree-granting institution has been known (until recently) as Alemaya College of Agriculture; in Morocco the similar institution is called the "Institut Agronomique et Veterinaire" or IAV. This is further confused by standard US usage in which "Colleges of Agriculture" are major administrative subdivisions of Land-Grant universities and these colleges have faculties of professors.

II. BACKGROUND TO THE AGRICULTURAL COLLEGE PROJECTS

A. The US Land-Grant University Model: Strategy for Progress

The American Land-Grant university organized over the period from the Morrill-Wade Act of 1862 through the Hatch and Smith-Lever Acts of 1887 and 1914 respectively, has been viewed by Americans as one of the important institutional models that the United States has to offer the Third World. It is particularly productive, it is argued, in the application of science to the problems of agriculture. For this reason, many if not most, of

the efforts at building colleges of agriculture in the Third World funded by the U.S. Agency for International Development have explicitly utilized some notion of the Land-Grant university as a model to be emulated or copied. Uniformly this was the case for the people interviewed in connection with this research on the experience in building colleges of agriculture in Africa. However, despite the central place that notions about the U.S. Land-Grant universities occupied in the minds of most of the Americans involved in these institution building efforts, there is very little resemblance between any of the African institutions and the model. Further, there has not been much contribution from these African academic institutions to solving the agricultural problems of Africa. We believe that there are several explanations for this divergence between the expectation from the model and the performance on the ground. First, we believe that the image that most people had of the Land-Grant model was over simplified and led them to ineffective strategies. Second, we believe that the colonial heritage and the circumstances of newly emerging nations in Africa created a set of circumstances that were vastly different than those which had given rise to the Land-Grant universities in the U.S. such that the model may simply not be applicable.

The central structural element of the U.S. Land-Grant model was that of having the teaching, research and extension activities administratively combined for a geographic area (state) under the leadership of the university's college of agriculture. Further, the model provides, largely through its extension branch, for outreach and feedback functions. Both of these latter functions are highly political and had, in the U.S. in the hayday of the Land-Grant system, a major role in providing direction for the schools and their faculties and in assuring their political and financial survival. (See Section IV of this paper for further discussion of lessons from the US Land-Grant experience and its relevant application to current African conditions.)

We conclude from a review of the country-specific project literature (see Section B. of the attached bibliography) that those Americans who led and participated in the development of these African colleges of agriculture believed that because the need was so great for any kind of higher education in agriculture, the development of these colleges would contribute ipso facto to an improved African agriculture. We will argue that US personnel, coming out of US Land-Grant universities, were largely "thinking Land-Grant" but often doing something far different. This is understandable! In the rush of setting up totally new institutions, the linkages among institutions in the entire agricultural support system were not fully analyzed and the consequences of a lack of meaningful linkages might not have been completely understood. In most countries the inherited ministerial structures were not changed; ministries of agriculture and their constituent subdivisions, which were designed to be used under a

colonial "command system" to extract high value cash crops, were not the farmer-controlled participatory institutions assumed by the Land-Grant model. "Land-Grant paint" was often applied to largely unchanged British colonial institutional structures as part of a rapid and hopeful transition to independence.

After 20 years African agriculture is in disarray (even in traditional cash crop production); we will argue that this technological failure is not the fault of the colleges of agriculture or of the Land-Grant model. However, Africa's agricultural problems must be solved and finding a means to enhancing and capturing the potential contribution of the colleges -- as part of an integrated, viable system of institutions which delivers improved technologies to farmers -- must be found.

B. Difficulties in Easily Applying the Land-Grant Model to Africa

In order to examine the application of the Land-Grant model to colleges of agriculture in Africa it is useful to characterize the setting of those colleges in terms of the model. A more complete description and classification of the circumstances of the various African institutions at the commencement of the projects is provided later in this section.

1. Lack of Broad-based Farmer Support. For the most part there did not exist, nor does there now exist, in most of Africa a populist base of political support among farmers that is in any way comparable to that which generated and sustained the Land-Grant system in the U.S. This does not necessarily preclude an application of elements of the Land-Grant model. It is however, a basic political-economic difference that would require some accommodation. It is useful in this context to note that in those places in Africa where there were or are powerful political and economic interests engaged in agriculture, usually on a large scale and for export markets, there has been a record of a relatively more productive application of science to the problems of those particular kinds of agriculture.

The major exception in the trend of developing colleges "for the people" rather than "by the people" occurred in the Eastern State of Nigeria. There in 1955, the pre-independence State legislature under the leadership of the great leader Nnamdi Azikiwe, began setting aside large amounts of export cash-crop earnings to pay for the establishment of their own regional university envisioned along populist, Land-Grant lines. The rapid growth and brilliant early success of Nsukka is largely attributable to the eager Ibo population that had a strong base of primary and secondary education and an insatiable thirst for progress.

2. Ministerial Assignments and Higher Education. In most of the countries of Africa, with their British or French colonial heritage, the 'faculties of agriculture' that offered degree training, were established under the authority and supervision of ministries of education and their control over the national university. This was also true in Ethiopia where there was a different colonial experience. "Colleges of agriculture" offering terminal diploma training were under the control of the ministry of agriculture and were the major source of "technical staff" within the ministry. At the same time the responsibility for extension and research are usually within the ministry of agriculture. While this circumstance does not preclude application of the principles of the Land-Grant model, it does and did preclude the application of a simplistic view of the model that requires the administrative combining of research, teaching and extension. In a number of the institution building projects covered by this report efforts were made to impose elements of the US administrative form on the host country. There is little evidence of particular success from these efforts.

3. No Time for Research. For the most part the colleges of agriculture in Africa, that were assisted or developed by AID supported institution building efforts, were started from scratch. In some instances the college of agriculture was to be established as a separate, new Faculty within an established university. In other cases there was no affiliation with any other established academic or scientific institution. In yet other cases, in addition to establishing the college and its program, preparatory schools also had to be established since there were no appropriately qualified students for college level work. Clearly the approaches to introducing the Land-Grant model would need to be different in each setting. However, because of the general absence of a college program in most situations, the earliest years of these projects focused on: 1) bricks and mortar - getting a college campus established; 2) establishing a credible curriculum of instruction; and 3) identifying and training a cadre of African students who could replace U.S. and other expatriate scholars as faculty members. The findings of the survey indicate that the faculties of the colleges of agriculture assisted by these efforts were, for the most part, fully occupied by their instructional duties.

4. Institutional Rigidities. Following from earlier points, it is worth noting that the involvement of African colleges of agriculture with either research or extension have been much less than was envisioned by any understanding of a model of agricultural colleges that Americans brought with them. The non-degree (diploma) institutions were not expected to teach students to apply science to agriculture since those students were not expected to solve scientific problems but only tell farmers what to do. The expectation of their teachers was the equivalent and did not include research.

The degree offering programs in faculties of agriculture were dominated by their elitist traditions and getting ones hands dirty or doing practical things, like solving a real problem in a real farmer's field, was clearly "not done" - that was for the extension workers to do. Such practical applications were also disdained by the traditions of academic scholarship for members of these faculties.

5. French Language and other Non-British Colonial Legacies. Most of the cases examined in our study were in anglophone Africa; we did deliberately include two cases from French speaking North Africa to try and offer some comments that might be relevant to francophone sub-saharan areas as well. If there was only a loose relationship between the "Land-Grant ideal" and reality in the anglophone countries, there was an even smaller similarity between the model and the inherited institutional structures (and operating philosophies) in the French speaking countries. The biggest barrier to US involvement was simply one of language.

In former colonies with French language traditions, (Tunisia, Morocco) many fewer Americans were involved. In the case of Chott Maria College in Tunisia, the language issue appears to have been the basis of considerable problems even in the original conceptualization of the project. The project design called for the establishment of an English medium program in agriculture, initially at an upper secondary-post secondary level. This was in a country with relatively large numbers of French expatriates present and with no English language tradition. Needless to say, this was a disaster. The approach taken in Morocco a decade later was much different and, as we shall see, contributed to a unique Moroccan "hybrid" institution which shows promise for other francophone areas.

In Ethiopia there was a similar lack of language facility among students but considerable English use among government officials. Again there was the necessity of instituting considerable English language instruction. It is likely that for most it was their first European language and that there was some prestige associated with its acquisition.

C. Why did the Projects Occur in the Early 1960's ?

University involvement in institution building contracts in Africa was the product of a number of factors; most important of which was the coming together of a number of strong forces at this juncture in history-- the early 1960's. The African agriculture college projects were in the second half of what accurately can be called the "institution building era". This is an era which saw, in the 15 years between 1951 and 1966,

TCA/AID initiate 68 institution-building contracts with 35 Land-Grant institutions involving 39 countries around the world (Propp, 1968). Of the 68 projects identified in the CIC/AID study, 16 were in Africa and all of them except one (Alemaya Ag college in Ethiopia, begun in 1952) started in the 1960's. In many ways the African projects were simply following what had happened in other parts of the world 5 to 10 years earlier. Table 1, below, demonstrates this point clearly.

One can safely assume that US policy makers felt that work in the other regions (particularly India, Brazil, etc.) was more important in the 1950's than opportunities in Africa, most of which was still under colonial rule. As the fires of independence began to burn brightly in Africa in 1958, this situation began to change.

What came together in Africa in the first years of the 1960's was: (1) independence for most sub-saharan countries, (2) the institution-building "movement" at its peak, (3) the formation of AID out of TCA and the Development Loan fund (thus fusing capital transfers with technical assistance), (4) the enthusiasm of the early Kennedy administration, (5) relatively abundant funding, and (6) very strong AID Mission staffs. These are all threads which were repeated over and over again in many of the 60 personal interviews conducted with University participants.

TABLE 1: AID/UNIVERSITY INSTITUTIONAL DEVELOPMENT CONTRACTS
1951-1966

Region	Total Projects	Projects Started in the 1950's	
		Number	%
Near East/ South Asia	16	15	94%
Far East	12	8	67
Latin America	24	10	42
Africa	16	1	6
TOTAL: ALL REGIONS	68	34	50%

SOURCE: CIC/AID STUDY

Of the nine US institutions we looked at, one -- Oklahoma -- was involved in Africa early on, beginning contract work in 1952. All the others started their work between 1960 and 1963, except

Minnesota in Morocco which got underway on a very small scale near the end of 1969. All six sub-saharan project countries (again excepting Ethiopia) saw work start within one or two years of independence; all six countries (involving 8 colleges of agriculture) were former British colonies. Many participants commented on the fact that US personnel were helping to bridge the gap between British rule and autonomous, independent operations. Of the eight "1960's" US universities, six had had substantial involvements in similar projects on other continents in the 1950's (Source: Propp):

University of Illinois:	India, 1952, 1956
Kansas State University:	India, 1956
Univ. of Massachusetts:	Japan, 1957
Michigan State University:	Colombia, 1951
University of Minnesota:	Korea, 1954
Texas A&M Univer.:	Mexico and Pakistan, 1954; Ceylon, 1957

These previous involvements obviously helped pave the way for being invited to participate in Africa.

Another critical factor involved the men who made commitments on behalf of their universities and colleges in this period; most were farm youth shaped in World War II and many had served in Europe, Washington, or in the developing world immediately after the war. They were bound by these wartime ties, by their experiences on other continents in institution building efforts, and by membership in the very powerful associations of Land-Grant Presidents and Deans of Agriculture. The ties of the 40's and the 50's brought the telephone calls of the 60's. Initial exploratory involvement (a team visit to Africa for example) was often initiated through these calls from colleagues within AID. In contrast to the much more formalized procedures of today, much more reliance was placed on the interpersonal trust of University leaders who could "deliver the goods". To emphasize this point it should be noted that the large Oklahoma/Ethiopia project was initiated in 1952 based on a two page contract agreement.

D. Classification of Projects

Of the 14 college of agriculture projects we examined, seven were "faculty of agriculture" projects at degree-granting institutions, and seven were "college of agriculture" projects not offering the BSc or higher degrees. This seems to have been the most important classification subdivision of the projects since other characteristics follow this split:

Faculty of Agriculture Projects: These tended to be much larger projects in terms of AID budgets and the number of US personnel

serving overseas; all these institutions except Makerere and Alemaya were begun in the early 1960's :

Anglophone Projects:

Nigeria: Ahmadu Bello University
 University of Ife
 University of Nigeria at Nsukka
 Sierra Leone: Njala University College
 Ethiopia: Alemaya College of Agriculture
 Uganda: Makerere Univ. (Formerly: Univ. of East Africa)

Francophone Project:

Morocco: Institut Agronomique et Veterinaire
 of Hassan II University

Non-Degree College Projects: These were mostly smaller projects in terms of AID funding and US staffing; four of the seven were already in existence before independence; they produced certificate and diploma graduates, mostly for MOA employment. Several of these institutions have been given degree granting status in recent years or are active candidates for such a change:

Anglophone: Kenya: Egerton College
 Malawi: Bunda College of Agriculture
 Tanzania: Morogoro College of Agriculture
 Uganda: Arapai College of Agriculture
 Bukalasa College of Agriculture
 Veterinary Training Institute

Francophone: Tunisia: Chott Maria College of Agriculture

III. THE PROJECTS IN PRACTICE: THE US UNIVERSITY VIEW

In this section we have distilled the ideas and opinions of the 60 American agriculturalists who were interviewed. Clearly these results represent some synthesis of their views with our own. We review the interview results with respect to views of how the institution building projects worked on the U.S. campuses, the nature of project impacts in Africa, and on how U.S. campuses might react to new institution building opportunities in Africa today.

A. Making the Contracts Work On-Campus

1. Strong Leadership, High-Level Commitment. The strong university leaders who undertook the institution building contracts of the 1960's provided a very high level of campus commitment to those efforts, even if their methods may be viewed as extremely autocratic by today's standards of power shorn deans and strong faculties. For example, when Dr.'s Glenn Beck and E.E. Leasure returned from an exploratory visit to Nigeria, Dr. Leasure (Dean of the KSU Veterinary College) met with all department heads to seek their approval of the proposed project work. There was general opposition to yet another large institutional project. As noted in our last report (Wilcock and McDowell, p. 15), "Leasure asked for a vote of his department heads on the proposed contract ... and he got a unanimous "no" vote. He replied that they would be doing it anyway."

University commitment and leadership did not arise in the same manner from campus to campus. In one "model" we have very strong university presidents taking an active role in generating projects and even doing some of the rough conceptual design work; John Hannah of Michigan State and Henry Bennett of Oklahoma are two prime examples of this pattern. Secondly, Deans of Agriculture often played the decisive role in getting the university involved in a major overseas project, then making it work; here we can point to the examples of Dr.'s Beck (KSU), Nessius (WVU), Pound (Wisconsin), and Spielman (UMASS) as filling the role of "strong dean", deeply involved in making sure the project was correctly staffed and supported. Finally, we also have the pattern in which the Director of International Programs or International Agricultural Programs (particularly where this position had dean or associate dean level status) plays a pivotal role in mobilizing resources for major institution-building efforts; this case is illustrated by the key roles played by Jugenheimer at Illinois, Taggart at Michigan State and Blackmore at Minnesota.

In most of these cases, leadership and commitment were shared across the campus, with different partners playing larger or smaller roles depending more on alternative administrative

structures and styles than anything else. Where the project seems to have been primarily the initiative of an office of international programs, and thus less than a total university commitment, the project seems to have suffered. Where a university performed best, it had often sent its best people. We observed this in some, but not all, of the African projects we examined. The common thread was the degree of University commitment to the project. Probably the ultimate example of this commitment was that of Michigan State at Nsukka where large numbers of faculty came from across the campus, focusing on the objective of setting up an entire university along Land-Grant lines. Oklahoma's efforts in Ethiopia over 16 years were equally impressive if slightly more narrowly focused.

A number of participants, in commenting on their university's commitment to international work, said that doing this kind of work was important to the University becoming a world class institution. They also felt that it enhanced the university's ability to serve as an advanced training location for students from the third world. (Some felt that if you do not have faculty with experience in tropical agriculture then you should not instruct graduate students from those areas.)

It should be noted that participation in an agricultural college project in Africa involved a great personal commitment on the part of US university personnel. In meeting with 60 of them one was struck by the degree to which the "fires of commitment" still burned brightly after over 20 years in many cases. In speaking about what that involvement had meant to them, many stated that "it was the best thing I ever did". Many spoke of how their experience precipitated a reorientation of career directions, and of very positive family growth experiences. Most returned to the US as consistent advocates for US technical assistance and, since most of them were teachers, this has helped in establishing a constituency for USAID at the grassroots in the US.

One can argue that it was easier for campuses to be committed in those days than it is today: (1) the funding available was relatively greater, (2) the campuses were more "mission-oriented" or "problem solving" (Schuh), and (3) the 1960's represented an expansionary period financially and programmatically at US universities so that it was easier to reintegrate returning faculty.

As we shall discuss below, most persons interviewed did not feel it was possible to generate the same high degree of commitment on today's campuses.

2. Recruiting and Incentives for Personnel: When participants were interviewed, a number of questions were asked about campus administration of long term contracts in Africa. Focus was on

those areas of major difficulty or success. Of greatest importance were two areas: (1) the intertwined subjects of recruitment and incentives and (2) a few key points concerning campus backstopping of field projects.

As we have mentioned above, the level of commitment to these projects was reflected in recruitment of campus personnel to serve overseas. On some campuses the commitment of personnel was very large and would constitute a major activity; on others, the personnel commitment was much lighter and the project was often relatively less dominant an activity within the school. Large universities such as Illinois and Minnesota could absorb these projects relatively easily while the same personnel commitment had a greater impact on smaller schools such as West Virginia. The personnel commitments of the respective universities are described in very summary fashion below:

Oklahoma: A total of 185 faculty and staff served in Ethiopia, approximately 140 for two years or more over the 1952-68 period.

Michigan State: 79 persons served long term at Nsukka from 1960 to 1969; 62 persons went short term.

Kansas State: A total of 75 faculty served KSU in Northern Nigeria long term (both ag and vet faculties).

West Virginia: During the 61-70 period, 63 WVU personnel served long term in 7 ag education projects in the three state East Africa community. While each project was relatively small, the overall impact on the West Virginia campus was very large:

Uganda:		Kenya:		Tanzania:	
Makerere	10	Egerton	12	Morogoro	8
Arapai	8	Vo-Ag	12		
Bukalasa	9				
VTI	4				

Illinois: 30 long term staff (an estimate; 80 person years were reported)

Wisconsin: 37 persons served 2 year terms

Texas A&M: A total of 20 staff served in Tunisia -- not clear if all were long term.

Massachusetts: 11 UMASS personnel served in Malawi, not all at Bunda College

Minnesota: Perhaps 15 to 20 have served in Morocco on a long term basis.

The recruitment of personnel was usually the responsibility of deans of agriculture or department heads although, in some cases, international program personnel and even university presidents played a role too. It is fair to say that in the era of strong university administrators and strong institutional commitments, that participants felt that there was a fair amount of "arm twisting" used to meet long term overseas personnel needs in the bigger university projects. At the height of this period, participation in this type of project was almost a condition of employment or promotion at a few schools. This was sometimes compensated for by the guarantees of high level administrators that faculty would not be disadvantaged in terms of promotion or tenure decisions because of their service overseas. Across a number of projects we observed that higher level staff (people filling deanships or COP roles) were often recruited by being given short term consulting opportunities to visit the African setting before they took longer-term positions; this was generally not the case for regular teaching faculty personnel.

Most participants felt they had at least some financial incentive to participate under standard AID contract regulations (10 to 15% salary increase, free housing, educational allowances for kids, up to 25 % hardship allowance, etc.). In addition, many saw some obligation to serve overseas and indicated that such service was positively viewed by superiors. Some participants acknowledged that they sought out these opportunities out of a sense of adventure, wanting to have tropical experience in their agricultural field, or from a sense to moral or religious obligation to contribute to LDC development.

In today's faculties, most international work is done by persons with at least a partial specialization in "development work". In contrast, the recruiting and incentive structures of the 1960's were focused more toward all personnel. Indeed there was a need for greater numbers at that time and disciplinary specialization in international agriculture was not yet greatly developed.

Despite the assurances of supportive administrators, many of the interviewees felt that participation in African projects constituted a disadvantage to them in terms of professional advancement and reputation. If a faculty member had an extensive research program under way in the US, taking two or three years off to teach in Africa constituted a major interruption of his career unless one wanted to specialize in tropical agriculture or "development". Dean Glen Pound of Wisconsin pointed out that there would be "undeniable professional slippage" for top university researchers and that this would be more acute for mid-career people than junior or "twilight" researchers. (Wilcock and McDowell, p. 82). In fact, serving in Africa was often a way of making a major career shift for many individuals. A few faculty were offered special incentives geared to giving them a chance to reestablish themselves in the American academic scene.

As we will see below, most participants feel that this situation -- of losing ground in a main-stream disciplinary career -- has only become worse in the past 20 years.

3. Project On-campus Backstopping. On-campus backstopping was a more important concern for smaller institution building projects that did not have project support personnel in the field. In the larger projects, travel, shipping, health and housing concerns were often routinized and of little concern to most personnel, particularly those whose tours of service came later in the life of the project.

Most of the institutions examined in our study had fairly well established support infrastructure in Offices of International Programs or International Agricultural Programs. Many of these had been established in the 1950's and were able to pick up African projects with no great difficulty. On some of the smaller campuses these support structures had to be developed from scratch and this often lead to some early difficulties.

In smaller projects where personnel dealt mostly with the home campus on administrative and support matters, two elements were seen as being quite critical. The first was an adequate means of communications to the home campus, particularly for emergency situations. The second and more important factor was having a good campus coordinator; someone field staff could rely on to protect their interests, solve personal problems, and be there to answer the phone or promptly and intelligently respond to telex messages. At least half the participants interviewed mentioned the great comfort of having someone back on the campus you could count on if you needed support.

B. The Projects in Africa

1. Perceptions of Project Objectives and Success in Meeting Them. Most participants interviewed had strong opinions about what had been attempted in these projects in Africa, the problems encountered, and the relative degree of success in meeting objectives.

Most persons said that there had been an explicit attempt to incorporate Land-Grant structures and attitudes into their work with the African Colleges. One can see this most strongly when institutions were being built from scratch as was the case in Ethiopia, the three Nigeria's, Sierra Leone and (to a much lesser degree) in Malawi. There was often an attempt made to follow the American model in getting control over teaching, research and extension within the college -- this was attempted explicitly in Sierra Leone and at Ife and, to a lesser extent, at ABU in Nigeria. While these attempts did not succeed struc-

turally in any of the nine African countries, most participants were quite concerned about linkages with research and extension or the lack of them.

Where the AID project was assisting an existing institution, there was usually much less of an opportunity to transplant ideas from the American Land-Grant model. In these cases (WVa in Uganda, Kenya and Tanzania, and Texas A&M in Tunisia) there was much more emphasis on helping to support the transition from the colonial institution to an independent one which would adopt its own style of functioning.

Finally, the Minnesota project started so small and low key in Morocco (with two native French speakers as the first TA), that there was no real thought that the project could sway institutional design one way or another. Later on when the project was larger and large numbers of Moroccan faculty were being trained in US Land-Grant institutions, it was felt that the "Land-Grant philosophy" was "coming in the back door" (Wilcock and McDowell, p. 52). This also occurred at other locations where there was a large, continuing training component in the US.

There were common threads running through participants views of project objectives. The following are the generalized institutional objectives that applied to most projects:

1. "Bricks and Mortar": Build, expand or enhance institution physical facilities;
2. Teach much of the course program while local teachers are away (often in the US) for advanced training (often referred to as "Africanizing" the faculty);
3. Curriculum and material development and modification;
4. Develop specialized school farms and training facilities and (to some extent) promote their use in a research program;
5. Help create at least a "psychological break" with the colonial past through new ways of doing things, dropping certain colonial customs (eg., "tea time"), etc.; and
6. Promote closer functional ties with other ag related institutions such as extension and research organizations.

When addressing these objectives, most participants felt that their project had done a good job, particularly given the situations they found upon arrival and the relatively short period of time some projects had to accomplish anything as complex as major institution building. Again, we are able to "evaluate" the meeting of objectives only through the somewhat rose-colored glasses of participants looking back twenty years on

average. AID/PPC is currently in the process of conducting in-country evaluations of these efforts in four countries: Malawi, Sierra Leone, Morocco and Nigeria. Although the first three studies are currently complete in the field, we have not seen any of these reports.

o **Bricks and Mortar.** The "bricks and mortar" facets were often achieved without problems which could be clearly recalled twenty years later. Construction, even if paid for by AID, was often under separate contract funding or was the responsibility of the host government. Equipping new facilities, such as labs, libraries, etc. often left a bigger impression in the minds of participants; probably the biggest problems encountered were due to the fairly outlandish "buy American" rules in force at the time which, apparently, even specified the brand names of equipment to be used. (More on this below).

o **Teaching and Curriculum.** All participants felt that their project had done very well in meeting teaching objectives and in fact most spent the majority of their time teaching classes, developing materials and revising curricula. The presence of American teachers usually permitted the departure of African staff and staff candidates for advanced graduate training in the US. The replacement of Americans by recently trained Africans seemed to proceed at a very rapid pace in most of the institutions examined.

In the area of curriculum development, a great deal of work was done in these areas in the five projects which were building new institutions; again, there was more room for innovation and reform. Often totally new areas of study, modeled on American approaches, were introduced into the new college's program. For example, this was true in:

o Ethiopia, where a agricultural high school was first set up to feed students into the new agricultural college. Here the entire scientific study of agriculture was a result of this USAID institution building project.

o In Sierra Leone three new teacher-training curricula in the areas of agricultural education, home economics, and science education were the first ones of their kind in English speaking Africa.

o Michigan State's massive efforts at Nsukka included two totally new concepts in University training: a general education curriculum and setting up a Center for Continuing Education which brought groups of civil servants and farmers onto the campus for training.

In sum, there was a great deal of innovation in most of these projects; the American presence was catalytic or it provided a

new, "legitimized" way of viewing the natural environment and man's efforts to organize himself to use that environment.

o Instructional Materials Development and Pedagogical Approach.

In the area of materials development, a number of the efforts involved developing new course approaches to replace European texts which were being used in Africa. Curiously the use of European materials was often the result of intense European concerns for curriculum uniformity, standardized exams and degree equivalency. Such issues dominated many disputes in the formative years of several of the new institutions, usually resulting in compromises which involved a mixture of American style pedagogy and maintaining standardized exams, external examiners, etc.

Several of the faculty groups, but particularly those from West Virginia, were very disappointed that they were not able to receive from USAID the relatively small amounts of additional funding which would have been required to publish these new teaching materials for the benefit of agricultural students across Africa.

o Development of the College Farm. In virtually every project we

looked at, the development of a college farm was an important objective. It was one which often gave American staff, many of whom came from farming backgrounds, a chance to show their students that they knew what they were talking about and that they "were not afraid to get their hands dirty" -- a taunt usually directed at their European colleagues and some students with elitist attitudes already well formed. In most instances these farm facilities were used for instructional purposes and were not the site for a consistent program of faculty-directed research. Where some research was undertaken it was usually at the university or university college institutions (Makerere, Njala, the 3 Nigeria's, Morocco, and Ethiopia).

o Promoting "Attitude Changes". The above point is an illustration of a strongly recurring theme, that of the informal objective of "attitude changes" away from those instilled by the colonial past. Part of these shifts reflected the influence of the more democratic, class-neutral American culture, and partly the differences in educational philosophy between Land-Grant pragmatism and European elitism in university-level education. Some of these changes were reflected in a practical shift to "popular education": cost saving measures such as putting two students in every dorm room and using dining commons rather than separate facilities in every living area. Others, such as continuing education, simply reflected the fundamentally populist nature of the American Land-Grant tradition. Finally, some changes reflected different social patterns of behavior such as faculty mixing socially with their students, and sponsoring student social and pre-professional clubs and activities.

2. Dissatisfaction in Meeting Research and Extension Objectives.

It is fair to say that the greatest dissatisfaction that participants expressed concerned the degree of their ability to establish institutional involvement or linkage with research and extension activities in the country.

As one would expect the non-degree colleges of agriculture (in Uganda, Tanzania, Kenya, Malawi, and Tunisia) had virtually no research program of their own and very little contact with the national research program within the ministries of agriculture. Even if much of their mission was the training of extension personnel at the certificate or diploma levels, many of the US faculty who were involved in these efforts were disturbed by being so cut off from the research process.

Faculty at the degree-granting institutions (Sierra Leone, the 3 Nigeria's, Ethiopia, and Morocco) also felt frustrated by their inability to be more involved in needed agricultural research. In every case most formal responsibility for doing this research lay with other institutions, usually in the separate Ministry of Agriculture (this was true except in Morocco where the three functions are all in the Ministry of Agriculture).

In the anglophone countries the English model of ministerial assignments was generally followed: extension, research and non-degree agricultural training institutions are all in the MOA. Degree-granting agricultural faculties, however, are located within the ministry of education as part of the larger national university system. In Nigeria, with a strong regional government, the pattern was even more complex. In the East, Extension was under the control of the government of the Eastern State, research under the national MOA and the new University at Nsukka under the national MOE. We would not argue that just because these different units were under different governmental jurisdictions that they could not cooperate. However, when one deals with the top-down "command systems" so characteristic of the inherited colonial traditions of sub-saharan Africa, it is sometimes difficult to cross boundaries between parallel governmental hierarchies and coordination suffers or does not occur at all; many of the participants referred to this fact. This phenomenon is enhanced by resource scarcity which causes personnel to shrink back to their primary "hierarchical allegiances".

Since most of the degree-granting institutions were new, one of the major reasons that research suffered was because of the enormous task of getting the schools built and operational. With teacher shortages, curricula to develop, exams to give, college farms to establish, etc. it is little wonder that there was not a great deal of high-powered research going on. Research, in a university setting, is usually the product of a graduate degree program and most of the African institutions were largely concentrating on getting their BSc degrees awarded first.

In sum, it turns out that expectations of research involvement were probably premature at best. At the non-degree colleges research was not part of the inherited British system; at the degree institutions faculties had their hands full in building the school and granting their first series of undergraduate degrees. Unfortunately, just as the projects reached the point where they would logically begin to do more research (as graduate degree programs were being set up), AID funding ended as did the technical assistance that might have helped facilitate this transition. The new college of agriculture, now on the national budget, generally had all it could do just to keep the teaching program alive. Morocco -- since the project has extended up to the present day -- is a big exception. In the early days the IAV too had its hands full keeping up with the teaching program; but with the graduate training of large numbers of its faculty it began to perfect its own graduate degree program with a very heavy research component. What we have seen is that this is largely a question of institutional maturation; the sub-saharan institutions, we will argue, now need help in more fully playing their role as mature institutions. In addition, their countries' national research programs need the help that these pools of highly trained manpower can provide.

When the relationship with extension services is examined, the situation is a little different but the basic pattern of concern (on the part of US participants) over the lack of a strong functional relationship is the same. All of the institutions had a stronger relationship with extension than with research in one sense since most extension personnel were receiving their training at these colleges of agriculture. For example, virtually the entire upper level of the Sierra Leonian extension field staff has received either a certificate or a degree from Njala. This creates strong personal ties among these institutions but it has not led to the college making a programmatic contribution to the extension services.

A number of the colleges had fairly elaborate experimental extension programs operating in the geographical areas immediately around the colleges (Sierra Leone and ABU, Nigeria particularly), but participants again complained of the lack of a systematic connection with extension.

3. Different Approaches to U.S. Training of Nationals. In most of the institution building projects covered by this research one of the central project activities was to rapidly increase the numbers of trained Africans who could take roles as leaders, faculty members or instructors within the institution being developed. Thus it was that large numbers of African students were sent to the US under project financing for training at the Bachelor, Master, and PhD levels. Table 2 on the next page indicates approximate numbers of participants trained under the

respective institution building projects.

TABLE 2: TOTAL NUMBER OF LONG TERM PARTICIPANT TRAINEES IN THE US

<u>Institution</u>	<u>Level of Training</u>	<u>Number</u>
Illinois - Njala, Sierra Leone	MS & PhD	30
Kansas State U. - ABU, Nigeria	MS & PhD	78
UMass - Bunda, Malawi	BS & MS	9
Michigan State U - Nsukka, Nigeria	MS & PhD	92
Minnesota - Rabat, Morocco	MS & PhD	253
Oklahoma State U - Alemaya, Ethiopia	MS & PhD	57
Texas A & M - Chott Maria, Tunisia	BS	44
West Va. Univ. - East Africa	BS, MS & PhD	117
Univ. of Wisconsin - Ife, Nigeria	MS & PhD	38
Total		718

There are several issues that surfaced, with regard to the effectiveness of the training of the African participants in the U.S., which fall under the following questions:

1. Do the participants return to their own nation after receiving training and credentials in the U.S.?
2. Given that in most cases the motivation for the participant training activity was so that Africans could more rapidly take over control and operation of the institution being developed, do the participants return to the institution being developed on their return from the U.S.?
3. Does the training that the participants receive in the U.S. prepare them for the work that needs to be done in their own country?

While the failure of African nationals to return to work in their own country was identified as a potential problem in the process of participant training, no one particularly acknowledged that there had been any or many "ship jumpers" in their projects.

An examination of end of contract reports indicates that the largest number appear to have been from the Texas A&M - Tunisia project that provided undergraduate training in the U.S.

A subject of considerable discussion was related to the return of participants to the college of agriculture on whose behalf they were ostensibly trained. For some there was considerable

frustration that a well trained African, usually at the Masters or PhD level, would return and promptly be snapped up for a senior post in a ministry or some other such responsibility, sometimes only vaguely related to their scientific specialty. Others felt that it was naive to expect a person to accept an academic post when there was a great dearth of qualified people throughout the newly independent government and that AID should have been more understanding about how many participants would have to be trained to fill the ranks of the college staff.

There were several circumstances that appeared to give rise to a higher rate of return of participants to work in the developing institution. One was the degree to which the individual had had an identification with the program of the institution before leaving for training. Where the person sent for study had already been serving in a staff or faculty role in the institution prior to overseas study, it appeared to several observers that there was a higher rate of return to the academic assignment. Conversely, where promising students of the college were selected and sent to the U.S. upon graduation, without having any experience or responsibility with the institution beyond the status of student, there appears to have been a larger proportion who found other things to do on their return.

The other situation that appears to have contributed to students returning to positions in the institution is where dissertation or thesis research for advanced degrees was actually conducted at the African institution under the guidance or supervision of project staff. The two situations where this appears to have been particularly successful are in the Ahmadu Bello Faculty of Veterinary Medicine, Nigeria and in the Institut Agronomique, Rabat, Morocco. In both of these cases the participants were also already involved in staff roles in the institution prior the overseas study.

In the case of the Ahmadu Bello Veterinary Faculty overseas participants, there was yet an additional tie to the African parent institution. The approach that was used for training PhD scientists in various aspects of Veterinary Medicine was to send the participants to the U.S. for course work and preparation for dissertation research after first framing in some degree a research problem to be carried out in Africa. On concluding their course work and literature review they returned to Ahmadu Bello University to implement their research under the supervision of a member of the project team in the field. On completion of the research and dissertation, the PhD degree was conferred by Ahmadu Bello University and NOT the U.S. institution. What that means is that the students had the best training that the U.S. could offer, but had a credential that was somewhat more limiting until they established themselves as productive scientists in their own right from the work they did as faculty members at Ahmadu Bello University.

Both the ABU, Nigeria (Kansas State University) and Rabat, Morocco (University of Minnesota) approaches appear to have been particularly successful in training participants to carry out research in Africa on African problems. In both cases the dissertation research was/is carried out in Africa after course work in the U.S. In the Minnesota/Rabat approach U.S. based dissertation supervisors are given at least two supervisory trips to Morocco. On completion the student is qualified for both the U.S. Masters or PhD (if an English thesis/dissertation is prepared) and the equivalent Third Cycle or other qualification in the French/Morocco system. People involved in both projects spoke of the high level of research output from both the dissertation work and subsequently. Given the great difficulty in getting science applied to agricultural problems of Africa by Africans these experiences appear to be significant.

The experience in the training of African students at the BSc level as was undertaken in the Texas A & M - Tunisia project appears to have been problematic if not an outright disaster. One of the project staff members who spent 5 years in the field indicated that because of the youth and inexperience of the students they experienced major adjustment problems both in coming to the U.S. and on their return to Tunisia. He indicated that his efforts in the counselling of returning students ended up being a major portion of his contribution to the project.

It should be noted that while there was substantial US degree training provided for under these IB projects, this often was only the beginning of a continued flow of students from that country who would follow their older brothers to the same US institution. For example, UMASS, which trained 9 Malawians under Bunda contract provisions, has gone on over 24 years to receive a total of 43 Malawians on the campus, 30 sponsored by the Government of Malawi. This type of loyalty to the US institution can be found in many of the African countries studied here.

4. Higher Education Traditions. Many of the individuals interviewed in connection with this research report significant conflicts between the efforts to introduce U.S. approaches and views of agricultural higher education and those of the colonial traditions within the host country. In addition to the clear separation of the research and extension functions from the academic, there were a variety of other issues that Americans felt were important influences and in some cases impediments.

One aspect identified in former British colonies is the distinction made in the British tradition between those institutions of higher education called "colleges" and those which are in association with universities and called either "faculty" or "university college". The latter offer university degrees, the

former do not (for the most part) regardless of the quality or length of the program of study.

One of the important distinctions sometimes identified between the two is the standards of admissions to the respective institutions - the university criteria are presumed to be distinctly superior. There are several problems that this creates. First, where there is in a country both a college of agriculture and a faculty of agriculture, it is generally true that only the university can offer a degree and thus access to even further study. Secondly, for the most part, students whose performance is superior in the college cannot transfer to the university. Third, in a college of agriculture that does not have university faculty status, there is a major barrier to the development of a degree program that would be available to the type of students that are being served by the college.

Related to the issue of the distinction between universities and colleges and the relative value of their credentials in the society, is the observation that students will take any opportunity for a place within the university whether they are interested in the subject matter or not. Some identified this image of the university as a place for the training of elites as an impediment. In a number of the institutions where Americans dominated the faculty a variety of efforts were explicitly taken to institute social and study situations that would challenge that view and instill the view that being a professional agriculturalist was hard work and carried with it considerable responsibility. Whether those efforts were productive or not cannot be determined from our research.

A related problem occurred in Tunisia where the program of study (2-3 years post secondary) left students without a meaningful credential that was understood within the French tradition. Specifically, they were not qualified as "Ingénieur d'Agronomie". This same problem was faced in the Tunisia project by those who had been sent to the U.S. for B.Sc. level training and were still "unqualified" within the French system.

5. Relations with USAID in the Field. The participants interviewed reported a wide variation in the relationships between their projects and the AID missions in Africa. It should be pointed out that the decade of the sixties saw enormous changes within AID (York) as within the larger world society; some of the changes in contractor/ AID mission relations are more a reflection of the changes of a turbulent decade in the US than any changes that might have occurred in the African country.

The following is a generalized picture of AID/University relations in Africa during the 1960's. At the beginning of the decade strong AID field staffs took a very active role in instigating and designing most of the agricultural college

projects. When US university personnel arrived in Africa to begin implementing these projects they generally felt strongly supported by these same missions. For example, many of the MSU staff interviewed had high praise for AID Mission Director, Dr. Joel Bernstein, and other members of a large, competent mission staff in Nigeria at that time. This was true in other countries as well, particularly in the early 1960's.

Participants felt that later in the decade, however, the mission staffs began to decline in number of personnel, in quality and in supportiveness. By the late sixties a number of the smaller missions, Malawi and Sierra Leone in particular, had been closed down entirely and the Institution building contracts in both of those countries were ended two years earlier than anticipated in both cases. In Malawi this resulted in the contractor, UMASS, only having three years of implementation contact with the new institution at its Bunda location. In Sierra Leone too this meant the abandonment of a number of project components in mid-stream. The personnel of other university projects also reported on the steady decline in AID mission support over time.

The explanation of this decline or elimination of AID field support seems to be a combination of factors: the late sixties saw the height of the Vietnam conflict when a new administration seems to have massively redeployed AID resources and to have ended the "institution building era". An analysis of this policy shift is beyond the scope of this paper, but it is clear that it had a strong negative effect on the ag college projects and on US personnel.

In terms of living with USAID contract regulations, project participants most frequently cited the difficulties produced by inflexible "buy-American" procurement rules. Very often, when it came to obtaining farm machinery, laboratory equipment, and office machines, US contractors were forced to import American goods which were often inappropriate for the job and for which there was no local dealer network or source of spare parts. In some cases, contractors were required to purchase clearly inferior goods from US suppliers, even very shoddy office furniture. As one participant angrily put it, "We shouldn't ship crap."

Another regulation which was felt to be totally inappropriate was requiring contractor personnel to take their R&R leaves outside of the African continent when many wanted to spend more time exploring Africa.

All three contractors in Nigeria were disappointed in the type of support they received from the AID mission in terms of shipping of effects or clearing project materials through customs -- services that AID/Embassy personnel were expert in doing. Two

of the university contractors were forced to band together to get their own customs broker due to lack of mission support. Michigan State faced a very different kind of problem at the outbreak of the Nigerian civil war in which the US was officially neutral. When MSU was forced to evacuate its personnel from a campus which had literally become a battlefield, it learned how little the embassy/AID would or could do to help them.

Against this picture should be contrasted the OSU relationship with TCA in Ethiopia in the 1950's. Under the broad scope of the agreement between the two parties TCA could and did ask OSU to perform a very wide range of smaller activities which had little or nothing to do with their larger mission in building the college of agriculture. The impression given is one of a very close, cost-effective means of collaboration which was not mired in paperwork and mutual suspicion. Indeed the mission used the contract with OSU to bypass some of the more cumbersome AID/- Washington policies in order to expedite activities in the field.

Perhaps the aspect of AID/University relationships which was most disturbing to participants was the seeming lack of understanding on the part of many AID personnel of the nature of the institution-building task. Once the bricks and mortar phase was over, many participants found AID personnel rather impatient with the time required to develop teaching programs, train students, etc. This tendency had two manifestations. One, it caused AID missions to be quite eager (or under outside pressure) to close out the ag college projects, often before the date anticipated in the project design. Second, it resulted in an almost total lack of continuity of relationship between the African institution and the US institution. There seems to have been almost no use of small sums of money to carefully and selectively foster continued contacts which could have proved particularly valuable to the new African institutions and their new faculties. We note in contrast the Minnesota/Morocco relationship which has continued to grow over time. Personnel from virtually every US institution spoke of the tremendous, low-cost opportunities for scientific exchange and low-cost methods of African faculty enrichment which have been passed up due to the lack of "marginal funding" which can be used to derive great supplemental rewards from the underlying investment of the 1960's.

One of the most important lessons that can be learned in Africa is the very great importance that Africans (as many other 3rd world peoples) place on the continuity of predictable, long term relationships on both the personal and professional levels. Malawians speak very fondly of UMASS personnel who left their country more than twenty years ago. Many political leaders in the East African community states speak highly of time they spent with West Virginians both in Morgantown and in East Africa and they find it hard to fathom why those relationships can not be continued. Instead, institutional contracts are given to a

new, inexperienced contractors with none of these personal ties. US "distributional equity" politics and "contractsmanship" are often seen as producing less than optimal results.

C. The US Campus Today: Participant Views

In concluding our interviews with participants we asked them to reflect on the changes which had occurred on their campuses with respect to undertaking long term institutional development work. Was there still the same level of support for this type of project work? What incentive factors would play a dominant role in the attractiveness of this work for faculty? What institutional arrangements would foster this type of work?

Seventy-five to 80% of the persons interviewed felt that overall there currently would be less support for this type of institution building project work on their campus than there was during the 1960's. There was a weaker counter-trend at some universities, where a tradition of some faculty specialization in international work has grown up and where International Agricultural Programs Offices may be better institutionalized than they were before. However, the dominant impression we received from interviewees was that major involvement in large scale institution-building efforts was less likely and less feasible on their campuses. We should hasten to add that this does not mean that US Land-Grants cannot or should not be involved in this type of activity, just that the nature and degree of the involvement will probably have to be much different than in the past. Many of the reasons for this decline in capacity have been mentioned or alluded to already; to explicitly summarize them, however, they are:

* A Growing Technology Gap: The gap between the cutting edge of US agricultural technology and that which is required to address African agricultural needs is growing. The needed African technology research is not necessarily less complex or sophisticated; it is simply different;

* Disciplinary Narrowness: Participants largely supported the contentions of Ed Schuh, Glenn Johnson and others that US academic agricultural disciplines have become increasingly narrow in their focus and that they have lost much of their interest and/or capacity to respond to problem-solving tasks. As one person pointed out, much of institution building is a service activity;

* Inappropriate Incentive Structures: Related to the above point many participants voiced concern that the university tenure and promotion policies do not provide appropriate incentives to do international work. Numerous interviewees stated bluntly that younger, non-tenured faculty simply were committing academic suicide to get involved in international work;

* Weaker University Leadership: University presidents and deans simply do not have as much control and power as they used to and are thus not as able to guarantee long term institutional commitment to international projects. This is a two-way street, of course, and universities have been known to be quite flexible if serious, long term resource commitments are available;

* Weak State Economies: In a number of areas it was pointed out that it is politically difficult to sustain a high-visibility, large scale international program when economic conditions in a state's agricultural or industrial sector are less than robust. This is true even if the international activity can be shown to be financially self-sustaining or even generating a small overhead surplus; and

* Changes in Popular Perceptions of Foreign Aid: Since the early 1970's there has been an erosion in public interest in and support for development work. There is also less of a clear national consensus on the correct approach to development issues as compared with the situation in previous decades.

One comment made at KSU tends to cut through the somewhat contradictory points of view on these issues that we observed on nine campuses. That is the contention that, on US Land-Grant campuses, "Interest (in the practical problems of African agriculture) is individualized today and not institutionalized." (Wilcock and McDowell, p. 23). University presidents are no longer able to mobilize their faculty members into "Marshall Plan" type efforts to become massively involved overseas. At the same time, the number of persons with sophisticated overseas experience on US campuses has definitely increased across the US. (The authors proudly count themselves in that category!)

What to do about this situation produced a very wide range of opinion (including some persons steadfastly maintaining that there was no problem, particularly at their institution!) since the new model or models of internal university restructuring and modifications to incentive structures are only beginning to emerge at US Land-Grants. We will attempt to give some of the flavor of that opinion and summarize common themes in the concluding "Issues and Implications" portion of this paper which follows.

IV. ISSUES AND IMPLICATIONS OF FINDINGS FOR AFRICA IN THE 1980'S

There are two major questions which emerge from this retrospective study: First, what role should African colleges (or faculties) of agriculture play in helping to get improved agricultural technological packages to African farmers? Second, what roles should US Land-Grant universities take in helping the counterpart African institutions play that enhanced role?

A. The Role for African Colleges of Agriculture in the Generation and Dissemination of Improved Agricultural Technology

We believe, as a general proposition, that it makes sense for the African colleges of agriculture to be heavily involved in the production and dissemination of new technology for the farmers of their country. Because the agro-climatic conditions, the institutional heritages, and levels of development vary widely across that vast continent, the appropriate roles for the colleges and the nature of their linkages to other institutions (research stations, extension services, private sector firms, etc.) must be analyzed for each unique national environment.

This is generally consistent with the major thrust of the recent AID "Plan for Supporting Agricultural Research and Faculties of Agriculture in Africa" (USAID, 1985). We feel that some of the findings of our study offer insights into specific methods which might be employed in implementing the rather general guidelines outlined by the above planning document.

So far in this paper we have made extensive reference to the US "Land-Grant model" and how it was used in the 1960's projects or at least how it affected the expectations of US participants in Africa. While replication of the US pattern of institutionalizing the model has not occurred in Africa (and perhaps rightly so), we will argue that the lessons of the US model are important and instructive for Africa today. At the risk of being called "Land-Grant fundamentalists", which we are not, we review some of those lessons briefly in the next few paragraphs.

1. Lessons from the Land-Grant Model. In looking for the lessons which can be derived from the US experience we are seeking an understanding of the process of improving and distributing better agricultural technology and not for historical details which were conditioned by the resource richness of the US in the late 1800's. We feel that some of the most important lessons are:

- o The Democratic Experiment in Higher Education. The underlying principle of the Land-Grant colleges, as an experiment in democracy, needs to be stressed. The system was established in contrast to the elitism of existing colleges

and universities in the belief that any aspect of human endeavor was legitimate subject for scholarship. They were committed to the notion that the respectful examination of the problems of ordinary people could lead to worthwhile scientific advancements. Thus the scientific and scholarly agenda was democratized and itself contributed to the further democratization of the society. From the outset the Land-Grant colleges were to do more than instruct students in the classroom and even in that function they were to be more than vocational schools. More importantly they were to undertake the application of science to agriculture and the mechanical arts and that meant that their students were not just those in the classroom. The system, most importantly, was designed to be a democratically-controlled engine of rural development.

o Viabile Institutions are Designed by the Political Process.

The adjustments in the program and structural form of American Land-Grant colleges -- namely of combining teaching, research and extension within a single academic institution -- was accomplished by the political action of agricultural interests of the day. Since this constituency had also been instrumental in the creation of the earlier versions, the Land-Grant colleges are thus a product of the American political process. In the latter part of the 1800's as many of America's people were working the land as small farmers as is the case today in many parts of Africa. The key question to be asked is about the way in which the interests of African farmers are being represented in the process that is shaping and controlling the institutions charged with producing improved agricultural technology for them.

o Generating and Maintaining Popular Support. Complex institutions, like colleges of agriculture, require sustained political support for their growth and vitality. That support must come from the constituency that the institution intends to serve. The program of the institution will in turn be influenced by that support. An analysis of this important topic is beyond the scope of this paper but general principles are outlined by McDowell (1985). Sustained political support for an agricultural college from farmers and other rural people requires that there be a sustained flow of useful information for those non-student clients. That requires that there be some institutionalized test of the relevance of the research agenda to agricultural practice in the country and an opportunity for users to influence it. In other words, farmers groups must receive significant benefits from the research program and be able to keep the scientists' "feet to the fire" in order for them, in turn, to provide critical support for the overall technology-improvement system.

o Institution Building Takes Time. Even when a country is well endowed with human and physical resources, institution

building takes time. In the US Land-Grant model, the first legislation came in 1862 (setting up the teaching part of the system), the second component came in 1887 (the Hatch Act to increase the research output of the new institutions on a formalized, legal basis) and the last major block was not put into place until 1914 when the Smith-Lever Act established federal extension. This was a period of 52 years to get the system "right". African countries, we will argue, are at the level of needing "Hatch Act's", defined by Africans with a serious concern for agriculture in today's conditions.

2. Implications to African Colleges of Agriculture.

The finding reported earlier that for the most part African colleges of agriculture are overwhelmed with instructional loads and do not contribute significantly to either research or extension efforts is important. It is important even though it is quite understandable given the colonial traditions of Africa's colleges and universities, the separation of responsibilities, and the short history of these institutions. It is perhaps useful to remind ourselves that it took at least 52 years to craft the U.S. Land-Grant institutions and that few of the African institutions are even half that old.

Agricultural Research - The Central Issue and Major Dilemma

The barriers to instituting a major shift in program toward research are formidable and do indeed explain why so little research is accomplished. Besides the instructional loads, the separation of responsibilities, the incentives to produce diploma and first degree graduates, the barriers to sending college graduates at the diploma level for advanced training, and the limited resources available for research, there has been a general belief system that says that there is an abundance of applicable technology for much of Africa if farmers will only adopt it and governments will only get farmers introduced to it.

Indeed there is growing evidence that Africa has over invested in extension workers and under invested in researchers as compared to other parts of the world (Judd, Boyce, and Evenson).

As we have pointed out, having faculties of agriculture more involved in research usually implies an increased focus on a graduate degree program (these used to be appropriately referred to as "research degrees" in the US). The experience and approaches to graduate training we have described in this report are relevant in this regard. However, it is important to remember that an incentive system that mitigates against the pursuit of relevant research can defeat even the most dedicated scientist, trained in the most relevant way for research in Africa.

Why The Colleges of Agriculture?

The obvious problems to be overcome in getting research instituted as a major part of the program within the colleges and faculties of agriculture begs the question about having these academic institutions involved in that activity at all. This is particularly true since the general principles set forth above could be equally applied to the research and extension activities located in the ministries of agriculture. We believe the analysis must be made on a country by country basis and it may be reasonable to expect little scientific contribution from some academic institutions in some places.

One general rationale for looking to African colleges of agriculture for greater contributions through research lies in the practical fact that for many countries the greatest pool of scientific human capital in agriculture is resident within those colleges and faculties. Over time, that core of scientific manpower will have to play a central role in the creation of a self-sustaining national agricultural science and research capacity capable of improving agricultural practice, particularly in food crop production. The enormity of the task requires that the best scientific minds have some direct role in the national research system even if a majority of the research is not carried out by the academic institutions.

Furthermore, in most countries, those scholars with faculty status in agricultural colleges do influence research standards as well as the national research agenda; they do so indirectly through their participation within the community of scholars, and directly as advisors. Failure to institutionalize a test of relevance makes them more susceptible to influence by agendas developed by their international colleagues than by the needs of their own country.

As efforts are made to introduce research as a major part of the program of agricultural colleges, it is not necessary that there be a major shift in responsibility for the overall research program of the country. However, the college must accomplish enough research of a sufficiently applied nature to be a credible source of information in the extension function to generate grass roots or some other type of political support for the college. That farmer level support will become an institutionalized test of research relevance.

Extension's Role

In assessing the performance and programs of these African institutions, it is important to understand the institutional maintenance aspect of the extension role, especially where there is an established extension service within the ministry of agriculture. Such a situation does not negate the importance to

the college of participating at some level in the extension activity nor does it imply that the nation-wide extension function must be taken over by the college. However, it does suggest that there must be explicit mechanisms whereby the agricultural college both contributes in an identifiable way to the extension function and through which it can collect grass roots credit for doing so. The Extension/Research Liaison Section at Ahmadu Bello University and other efforts at explicit investments in extension support activity deserve closer attention in this context. It also seems clear that those efforts to have administrative responsibility for extension transferred to the college of agriculture as was attempted at Njala in Sierra Leone were ill advised and do not represent a productive path for the future. In contrast, the subsequent "ACRES Project" at Njala, which involved doing combined research/extension work on an experimental basis in the area immediately around the college, seems to have been a much greater success.

3. Implications for Training of African Scholars/Scientists

The discussion of participant training approaches reported earlier is highly suggestive about a number of practical aspects of AID and other donor agency strategies aimed at improving African colleges of agriculture in the direction advocated here. First, the evidence from Ahmadu Bello University and Rabat, Morocco is highly suggestive that the act of carrying out graduate degree research in Africa is much better preparation for a career in that endeavor than other approaches to graduate training. A second value to both of those approaches, is that even though the "graduate study" was accomplished in the U.S. institution and under U.S. institutional supervision, the research product - the new information - was African, by Africans, and could be claimed by the African institution. Indeed, after some publishable exploitation of the research by the scholar in some journal somewhere, the only remaining place to collect on it is within the country where the research was carried out. A third benefit from the approach is that where the graduate degree is given by the African institution, there is established de facto, a graduate program.

We believe that the implications of this for future strategies at improving African colleges of agriculture are the following:

a. The only candidates for U.S. participant training (funded under projects to strengthen agricultural colleges) should be individuals who are already on the staff of an African institution unless there is a serious manpower analysis which can demonstrate compelling reasons to the contrary.

b. Only graduate training should be supported and perhaps only PhD level training; most masters level training should be manageable in Africa at lower cost and with greater relevance.

c. All AID-funded dissertation research should be carried out in Africa in conjunction with the home institution of the degree candidate.

d. The degree earned should be conferred by the home institution in consultation with the U.S. institution that supervises the individuals graduate program - the approach generally used by the Ahmadu Bello Vet project and the Morocco project.

e. As much as possible the field supervision of the research of degree candidates should be accomplished by a long term resident U.S. scholar or by an appropriately qualified African scholar. The multiple short term visits of U.S. supervisors, as in the Morocco situation, appear to be unduly expensive and of little scholarly value, particularly when the U.S. supervisor has no prior African experience.

Our focus on Ph.D. training assumes that these higher degree training decisions would be made carefully within the context of an overall national agricultural manpower assessment. Ph.D. training should be focused on filling specific, critical manpower needs and does not imply that most of a country's agricultural research manpower can not appropriately be trained to the BS or MS levels. These considerations go far beyond the scope of this paper but are consistent with our contention that the precise agricultural research role of a college of agriculture needs to be carefully determined by nationals within an overall assessment of all relevant institutions in the "agricultural technological support system".

4. Implications To Donor Funding Strategies and International Agencies

This analysis and policy recommendation for research funding as a strategy to enhance the vitality of African agricultural colleges may appear to be in conflict with the funding of international agricultural research centers and of national research efforts that are separate from the colleges of agriculture. Consistent with the current USAID Plan, we believe that there is much potential for increased performance from collaboration between the national/international research structures and African agricultural colleges. Such might be the case when a separate institute is funded to assist in developing a graduate research program within an agricultural college that has limited research capability. Some of the greatest potential for creativity is to be found at the boundaries between institutions just as it is at the boundaries between the traditional scholarly disciplines.

The international agricultural research institutions and the multinational research efforts such as the AID supported CRSP's,

play an important role in agricultural research in Africa and the Third World generally. However, unless an institution is established within the political fabric of a society, there will not be much long term vitality to them. Because there is no body politic that transcends national borders, it is unlikely that such international and multinational efforts will enjoy much direct farmer level support in Africa. In fact the basis of continued Third World support for such institutions will be a strong nationally-based constituency of researchers and scholars within research organizations and colleges who individually and collectively benefit from the international and multinational efforts. This is not an argument against continued donor support for the international efforts, but rather an argument for getting on with institutionalizing the capacity for locally relevant agricultural science within the nations of Africa whose people are so needful of the best that science can produce. Africa's agricultural colleges should play a central role in that process.

5. Implications For Investments in Other Rural Institutions

In examining the evidence on the development and character of some of the most important colleges of agriculture in Africa one is struck with the degree to which in many ways they are inadequate to address the most pressing needs of their respective countries. This is true despite the fact that they are staffed by many dedicated and well trained people who work hard and have reasonably good insights about what needs to be done. It is our view that this is just a part of the overall problem of making all of the institutions that serve agriculture more effective. In that regard the role that rural and farming political interests played in the institutionalization of the American Land-Grant university is highly suggestive. We wonder if greater political pressure from African farmers would not help to make agricultural institutions more effective.

One can certainly argue that the effectiveness of the Camilla Institute in Bangladesh was in part related to its support to and from farmers cooperatives in the area it served. It is simply a fact that there, as in much of the rest of Asia, farmers have more of a political voice through their own organizations than is true in Africa. This factor must be examined carefully in assessing the potential effectiveness of any strategy based on the participation of African Universities which, so far, have shown alarming tendencies towards elitism and irrelevance to farmers (see Hanson for a fuller examination of this question).

In this context then, the role of farmer level economic institutions, such as cooperatives and farmer associations, may be an important issue to examine as strategies are developed to improve the productivity of African agricultural research and of agricultural colleges' capacity to contribute to that research. One

wonders, for example, about the degree to which farmers organizations in other parts of the world provide effective support to their agricultural institutions. Relationships with agricultural commodity groups certainly represent one of the major activities of the deans and presidents of U.S. Land-Grant universities.

B. Issues Concerning US University/AID Involvement

In this section we will offer some observations on issues relating to the types of roles that the US university/AID partnership can play in supporting the greater involvement of African faculties of agriculture in critical research relating to improved food and cash crop production. These observations will be rooted in the retrospective research reported in this paper but the synthesis is our own and conclusions are not to be blamed on the "institution building pioneers" we interviewed.

1. Strong Agreement with Overall Direction of the AID Plan. We spent substantial time in our interviews with the 60 participants on ideas they might have concerning how US universities could help with "the food crisis" in Africa today. Our interpretation of those ideas is that they are in strong agreement with the major directions outlined in the recent USAID Plan for agricultural research and faculties of agriculture (USAID, 1985). From this perspective the plan's most salient points are:

- o Emphasis on the basic need for more research on improved agricultural technologies for farmers;
- o Greater involvement of faculties of agriculture in that research task;
- o Concentrating part of that research development assistance funds at 4 to 6 key regional ag faculties with specific linkages foreseen into neighboring countries;
- o Maintaining that resource commitment for the appropriate "institution building" time period of 20 to 25 years; and
- o Concentrating supporting resources at a smaller number of key US "partner" universities.

Our findings indicate virtually unanimous support for the need for more appropriate agricultural technology research in Africa, for faculties playing a greater research role, and for the substantially longer periods of time required to get the institutional development job done. Further, most participants would probably strongly support the idea of concentrating scarce resources both in Africa and in the US. Concerning the latter point there was widespread dissatisfaction on the US campuses with perceived current "democratic" distribution of USAID resources, partly under the Title 12 banner. Most US scientists

felt that resources should be concentrated at a smaller number of key US institutions in order to be able to sustain a critical mass of involvement and to address some of the knotty university incentive problems which are increasingly hampering individual faculty from getting or staying involved in overseas work. Most would then half-humorously add that they felt that their institution, with its long past involvement, knowledgeable personnel and current contacts, etc., of course, would logically be one of those few key institutions.

2. Making US Universities More Attractive Partners. The biggest worries that some donor officials seem to have about the potential involvement of today's US universities is high cost and the "risk of irrelevance". As we reported above these views are shared by many within the university community. They worry that if the projects are "captured" by narrow disciplinary scholars, the result could be spreading the "contagion" of sophisticated, but irrelevant output which diverts resources from more pressing problem-solving research. What follows is a distillation of ideas on how these pitfalls may be avoided:

- o If USAID were willing to concentrate substantial resources overtime with a smaller number of US institutions, those institutions in turn should be willing to make long term institutional commitments to a major development involvement in Africa which may be defined along geographic or language lines (south central Africa, Portuguese Africa, etc.) That commitment might be from the whole University, the college of agriculture or even a large department. A good number of participants felt that the department was where the commitment should be.

- o It is clear that such commitments will be much more credible if US universities can deal with some of the problems revealed in their internal incentive systems. This would recognize that there are both service and research dimensions to long term institution building efforts. It also recognizes that if a US scientist is going to make an effective contribution in Africa, he will have to devote substantial time to keeping current with a different scientific environment which will most likely also involve some long term residence in Africa.

Unless there is reform within US agricultural disciplines which encourages at least some faculty to return to a heavy focus on problem-solving work (a somewhat unlikely prospect), university international career paths should probably be separated from the disciplinary mainstream. This could be done by separate tenure and promotion rules, abandonment of the tenure track in favor of renewable, rolling employment contracts (a practice followed by a number of Land-Grants in order to keep their extension faculty focused on applied

work), the creation of separate, internally-governing units within universities, eg. Institutes of International Agriculture with non-tenured but long term faculty appointments. We would suggest that USAID use this as a criterion in considering US institutions for long term funding: "Is University X structured so as to provide meaningful career paths for its personnel specializing in African agricultural development?"

- o Most US participants were skeptical about the use of multi-university consortia as the principle means of involvement in long-term institution building work. Most felt strongly that good project performance dictated a strong US lead institution (institutionally committed), which could be backed up by any one of a number of methods of obtaining a full complement of faculty or of having appropriate locations for Africans to do graduate work (eg., irrigation training in Utah not Michigan). We should stress that virtually everyone felt that a multi-university approach should be taken but that the partners should be chosen to fit the individual project circumstances and the effort should have a clear lead institution.

3. Types of Relationships between US and African Universities.

When interviewees were asked to speculate on the types of long term institutional arrangements that could be forged between US and African universities, the answers were as varied as the past African institutional projects were varied. Some common threads do emerge, however:

- o The relationships between the African institution and US institution(s) will and should be more complex than those of the sixties. This could include triangular or multi-sided relationships between a US institution, a more developed African faculty and a less developed faculty struggling to establish a graduate research program. An example might be the IAV in Morocco working with a US university to help develop the new Faculty of Agriculture at the University of Dakar in Senegal. A number of persons suggested that these multilateral coalitions might include cooperative arrangements with appropriate European research institutions.

- o The following operating principles may apply to many of the new partnership arrangements: (a.) They will probably require fewer US personnel to be in the field but those that are will have to be more specialized or experienced in order to play productive roles; (b.) Field personnel should be focused on promoting the creation or enhancement of the research program and the collaborative identification of African personnel for participant training (also see our thoughts concerning participant training earlier in this section); (c.) Short term US personnel should be used sparing-

ly since interviewees felt -- in general -- that they have had a low level of cost-effectiveness. This is a difficult issue since many argued that short term consulting (or degree research supervision) trips expanded the pool of US academics familiar with or interested in African problems. Short term visits by highly seasoned veterans may be quite productive; three week plunges into Africa by "green faculty" probably are not; and (d.) It may be good to have USAID's proposed "20 year relationship" start small and, as the Morocco case has done, expand in size in phases once viable mechanisms of cooperation have been found.

o A real challenge is to build into this process methods by which AID missions or regional AID support offices in Africa (in consultation with some type of professional review panel) can effectively meter out small amounts of extra funding to support critical needs in getting a more effective collaborative research program underway. This should be done, when possible, on a "performance basis" involving "locally-sanctioned tests of relevance". In other words, an NSF type process with "ground level verification" or local feedback. This might be done by allocating some funds to a regional research grant function which would be open to proposals for collaborative work between faculty members and personnel at national research stations or IRAC's. Alternatively, AID could fund a focused Agricultural Development Council (ADC) or Fullbright visiting scholar type program where selected US faculty in Africa, in collaboration with African colleagues, would have some access to training or research funding.

o Making the USAID "research/faculties plan" operational in French and Portuguese Africa will present some unique challenges and opportunities. Responding effectively in francophone West and Central Africa will require a major concentrating of resources in the US in order to maintain a "critical mass" of US personnel with the necessary language and disciplinary skills if effective partnership relationships are needed. This would be even more true with respect to Portuguese-speaking Africa if involvement in those countries becomes more politically acceptable.

o Finally, "designing success" into the "regional outreach strategy" of the AID Plan will be a major institutional design challenge. The Plan correctly notes the high degree of failure of regional educational projects. We would agree with that assessment and simply point out that success will probably come in proportion to the perceptions of the "junior partners" in a region that level of benefits is high enough to warrant serious participation on their part. In that sense, the availability of smaller scale, flexible funding mechanisms as we have described above will probably be quite useful.

IV. BIBLIOGRAPHY OF MATERIALS CONSULTED

NOTE: This is a bibliography of materials consulted during this study; it is not intended to be a comprehensive treatment of an even larger body of documentation. In order to increase its usefulness, this bibliography of 71 items has been grouped into the following sections (with entries listed alphabetically within each section):

A. African Agricultural Development, General

B. Country-Specific Documents

1. Ethiopia
2. Kenya
3. Malawi
4. Morocco
5. Nigeria
6. Sierra Leone
7. Tanzania
8. Tunisia
9. Uganda

C. Institution Building "Literature"

D. USAID Documents

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VI. APPENDIX

U.S. UNIVERSITY PERSONNEL INVOLVED IN INSTITUTION BUILDING PROJECTS IN AFRICA WHO WERE INTERVIEWED IN CONNECTION WITH THIS RESEARCH.

University of Illinois:

Dr. Karl E. Gardner
 Dr. Russell Odell
 Dr. William Thompson
 Mr. Robert Long
 Mr. Tom McCowen
 Mr. Jack Claar
 Mr. Joseph Abdulai

Kansas State University:

Dr. Vernon Larson
 Dr. Stan Dennis
 Dr. Berl Koch
 Dr. John Sjo
 Mr. Marvin Thompson
 Mr. Floyd Sloat
 Mr. Walter Smith
 Dr. Embert Coles
 Dr. Lee Railsback
 Dr. Len Harpers
 Dr. Robert Johnson
 Dr. John Wheat
 Dr. L. Van Withee
 Dr. Wayne Bailey
 Dr. Donald Weinman
 Dr. Glenn Beck

University of Massachusetts:

Mr. Francis Mentzer
Dr. Constantine Gilgut
Mr. Joseph Keohan
Mr. Clarence Parsons
Dr. Arless Spielman

Michigan State University:

Dr. Glenn Johnson
Dr. Jack M. Bain
Dr. Kenyon Payne
Dr. Robert J. Deans
Dr. Melvin Buschman
Dean Ralph Smuckler
Dr. Irving Wyeth
Dr. Eldon Johnson

University of Minnesota:

Dr. M'hamed Sedrati
Dr. Jean-Alex Molina
Dr. James Sentz
Dr. Edward Schmidt
Dr. Roy Wilcoxson
Dr. Delane Welsch

Oklahoma State University:

Mr. William Abbott
Mr. Conrad Evans
Dr. Luther Brannon
Dr. Leonard Miller

Texas A & M University:

Mr. Marshal Crouch
Mr. Paul Creech

West Virginia University:

Dr. Charles Sperow
Mr. Vernon Armbruster
Dr. Ernest Nesius
Dr. Edward Collins
Dr. Robert Maxwell
Dr. James Welch

University of Wisconsin:

Dr. Glenn Pound
Dr. John Murdock
Dr. J.D. Moore
Dr. Richard Corey
Dr. James Kuntz
Dr. Fred Bliss
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