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ITS IMPACT ON AGRICULTURAL AND RURAL DEVELOPMENT

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Research Report #10

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U.S. Aid to Nigeria:

Its Impact on Agricultural and Rural Development

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GLOSSARY

ABU	Ahmadu Bello University
ACPO	Accelerated Crop Production Officer (SAFGRAD)
AERLS	Agricultural Extension Research Liaison Service (formerly ERLS, ERLU)
AFGRAD	African Graduate Fellowship Program
CCC	Commodity Credit Corporation
CGIAR	Consultative Group for International Agricultural Research
CIMMYT	International Center for Maize and Wheat Development
CIP	International Potato Institute
CNRA	Centre National de Recherches Agronomique, Senegal
CRSP	Cooperative Research Support Program
CSNRD	Consortium for the Study of Nigerian Rural Development
EEC	European Economic Community
FAO	Food and Agriculture Organization
FSU	Farming Systems Unit (of SAFGRAD)
IAR	Institute for Agricultural Research
IARC	International Agricultural Research Center
IBRD	International Bank for Reconstruction and Development
ICA	International Cooperation Agency (AID predecessor)
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IITA	International Institute for Tropical Agriculture
IRAT	Institut de Recherche Agronomique Tropicale
IRRI	International Rice Research Institute
KSU	Kansas State University
MADIA	Managing Agricultural Development in Africa (World Bank study)
MANR	Ministry of Agriculture and Natural Resources
NAFPP	National Accelerated Food Production Program
OAU/STRC	Organization for African Unity, Scientific and Technical Research Commission
PAR	Project Appraisal Report
PASA	Participating Agency Service Agreement (a US Government inter-agency cooperative contract)
SAFGRAD	Semi-Arid Food Grains Research and Development
SODECOTON	Cameroon Cotton Development Authority
UNDP	United Nations Development Program
WARDA	West African Rice Development Association

CHAPTER I. INTRODUCTION

This study examines the effectiveness of the US assistance program in Nigeria. Specifically, it attempts to assess the ways in which AID assistance contributed to Nigeria's agricultural and rural development, and to understand the underlying reasons for the relative success or failure of the various activities in achieving their developmental objectives. In cases where AID's effectiveness was limited, an attempt is made to understand the underlying constraints and endemic problems, and to suggest changes that could improve their performance.

AID documents have been consulted in Washington and extensive interviews were conducted with present and former AID personnel familiar with the Nigeria program. In addition, the author made a ten-day trip to Nigeria in October 1985. The focus of the visit was on two aspects of AID involvement, the International Institute for Tropical Agriculture (IITA) and Ahmadu Bello University (ABU). Also included were discussions with Nigerians knowledgeable about AID's work in their country.

The study covers the period from 1961 to 1984. AID had a mission in Nigeria only until 1977.[1] Since then AID has been

[1] US assistance to Nigeria began in the 1950s under AID's predecessor agency ICA.

indirectly involved in Nigeria through regional and centrally-funded projects such as IITA.

This is one of six country reports on AID's assistance to Africa that, along with a six-country synthesis report (Johnston, Hoben, Dijkerman, and Jaeger, 1987), were commissioned by the World Bank in collaboration with AID.[2] The AID study, in turn, is one of seven donor studies being carried out as part of a larger research project entitled "Managing Agricultural Development in Africa" (MADIA), conducted by the Development Research Department of the World Bank.[3]

In several respects, the Nigeria study is more difficult than the other five country reports because of the time that has elapsed since AID was active in that country. Ninety percent of the program obligations were made between 1961 and 1972, and for many projects very little documentation is available. Also, due to changes in AID's procedures, the project appraisals and evaluations from these early years were much more curt than they are now, making it even more difficult to grasp the full picture of the projects undertaken.

The report includes a detailed description of what AID has done in Nigeria, and an examination of the shifts in functional and sectoral emphasis. The impact of the program is assessed, both in terms of meeting the stated objectives of the project activities,

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[2]The six countries are Cameroon, Senegal, Nigeria, Kenya, Tanzania, and Malawi.

[3]The other donor studies are on Danish, Swedish, West German, EEC, UK, and World Bank assistance programs.

and in terms of their contribution to fostering agricultural and rural development. The evidence on which the study is based is used to form generalizations and to suggest changes that would improve the development impact of AID's programs.

The nature of this study is inherently subjective. The benefits of many of AID's programs are difficult to quantify, and evaluations are often inconsistent in how they attempt to measure impact. To the extent possible, therefore, both objective information and subjective perceptions are combined in making reasonable judgments about the impact of AID's projects.

Conceptual Framework

The development impact of aid-supported activities will be examined within the context of how those activities contribute to agricultural and rural development. It is therefore necessary to establish an understanding of the nature and process of development, to provide a framework within which AID activities are placed. Much progress has been made in the last thirty-five years in understanding how development takes place. It is therefore appropriate to take from this literature a set of general propositions to guide our analysis. AID's effectiveness in furthering agricultural and rural development depends not only on how well its activities have achieved their specific goals, but also on whether the activities it chose to support constitute essential elements of a coherent, well-conceived strategy for agricultural development.

This requires a reasonable and widely-held view of those critical elements of the development process. For this purpose, development is viewed as a "generalized process of capital accumulation" (following H. G. Johnson, 1969), in which capital is viewed broadly as physical capital (plant and equipment, natural resources), human capital (in the form of skills and competence), and social capital (in the form of economically useful knowledge, organizations and organizational competence). This conceptual framework is elaborated in greater detail in the companion six-country synthesis report (Johnston et al. 1987). This view of development includes the establishment of efficient social and economic mechanisms for maintaining and increasing large stocks of capital, including policies and institutions that permit and encourage efficient use of that capital. In order to achieve this, a reasonable balance must be achieved among activities that foster growth in these various types of capital, as well as strengthening the various mechanisms that permit efficient use of those forms of capital. This approach includes recognition of the important contribution that technological change has made to agricultural growth (Hayami and Ruttan 1985, Johnston and Kilby 1975).

This view of development does not ignore the importance many give to judging development by welfare and equity criteria. Rather it incorporates the lessons learned from the "basic needs" approach popularized in the mid-1970s, which demonstrated that while investments in health, nutrition, education, and housing can contribute in important ways to increased human welfare and to

economic growth, it is the growth in the economic base that makes it possible to finance these investments.

This view of the development process is now widely held among development specialists. Definitions of the essential elements of development put forth recently by Krueger (1986) and G. L. Johnson (1986) differ only slightly with the definition presented here. Johnson refers to the four driving forces of rural development as "technical change, institutional improvements, human development, and growth in the biological and physical capital base" (p. 1). Krueger stresses the importance of promoting "accumulation and efficient use of resources, the development of well-functioning markets, efficient governmental provision of infrastructural services, and institutional development in both the private and public sectors" (p. 58) in order to achieve development goals.

Overview of AID's Nigeria Program

The emergence of Nigeria as the focus of US foreign assistance in Africa coincided with the creation of USAID in 1961. The stage had been set during the late 1950s by the predecessor agency ICA through its support of several small but significant activities in agriculture and education. Independent Nigeria was seen as an ideal candidate to demonstrate the potential for achievement through reliance on democratic institutions and ties with the free world.

AID's involvement in Nigeria can be usefully divided into four periods. The first period, from 1962 to 1967, saw an unprecedented

commitment by AID to developing Nigeria in support of Nigeria's First Development Plan, and in collaboration with the World Bank-led consortium. AID made an advance commitment of $225 million primarily for manpower training and agriculture.

But the agency's long term plans were interrupted by civil war in Nigeria. The war years from 1966 to 1969 form the second period. During this time no new projects were proposed; however AID was able to continue most of the activities it had underway, except for those in the Eastern Region. Despite the war's disruptive effects, AID maintained a relatively stable level of resource flows throughout the period.

In the third period, from 1970 to 1972, AID was involved in postwar reconstruction and reestablishment of its program in and commitment to Nigeria. Additional commitments were made to agriculture and education. Agricultural assistance was shifted from extension activities to research.

After 1972 AID began phasing out its Nigeria program. The principal reason for this was the growth of Nigeria's oil industry and the view that the country was capable of financing its own development. Nigeria's GDP quadrupled from 1969 to 1974, and the oil boom diverted attention away from agriculture.

In 1972, AID proposed a plan to develop Nigeria's management and planning capacity so that the government could manage its windfall from oil. The Nigerian Government had misgivings about the plan, and eventually rejected it. Given this, and the opinion of many that Nigeria no longer needed assistance, AID closed its

mission in 1977. Only a small Program Grant continued after 1978.

Nigeria continues, however, to benefit from AID assistance through training programs, regional programs such as SAFGRAD, and AID's support of the CGIAR, which funds the International Institute for Tropical Agriculture (IITA) and other international agricultural research centers (IARCs) active in Nigeria. Currently, AID also has a small health and population program in Nigeria.

The disruptions of the civil war and the growth of its oil economy make Nigeria an exceptional case for AID's program. In some cases, the economic and political turmoil seriously limited the impact of AID activities, while others were much less impaired by these events.

Organization of the paper

Chapter II provides a detailed breakdown of AID's program in Nigeria since 1961. Chapter III seeks to explain why AID chose to do what it did in Nigeria, that is, to explain the forces which resulted in shifts in the volume and distribution of AID resource flows. In Chapter IV seven AID projects are analyzed for specific information both on the appropriateness of what AID chose to do and on how well it was implemented.

Chapter V is an extension of Chapter IV, examining agricultural research in greater detail and going beyond Nigeria's bilateral programs to examine regional and centrally funded activities that overlap and interact with AID's Nigeria program.

In lieu of a separate report on AID's regional and centrally funded accounts, which are an important share of AID's funding for Africa, this chapter is included in the Nigeria country report. The activities examined, while especially important in Nigeria, are relevant not only for that country but to Senegal and Cameroon as well.

Chapter VI examines the impact of AID's program. Chapter VII summarizes the analysis and offers some recommendations for improving AID's effectiveness. Since this is one of three country studies being done by the author, some explicit and implicit comparisons with the experience in the other two countries, Senegal and Cameroon, are incorporated in the last section.

CHAPTER II. VOLUME AND COMPOSITION OF AID'S NIGERIA PROGRAM

Nigeria was the recipient of AID's largest and most important African program in the 1960s. Prior to 1970 total US assistance was over $283 million, of which $210 million was AID project and program obligations. Table 1 reveals that Nigeria received approximately 10 percent of US assistance to Africa during most of the 1960s, rising to 26 percent in 1969 due to the post-war reconstruction and food aid flows. AID annual obligations reached a peak in 1964 of $45 million, then fell to about $20 million annually during the war years. These levels then rebounded, reaching $43 million in 1969, before falling off after 1972.

Figure 1 shows that AID resource flows to Nigeria were relatively stable from 1963 to 1972, except for the decline in new projects during the war and the resurgence immediately after. US assistance, as noted, peaked in 1969.

The magnitude of AID funding in the early years of the program is even greater when expressed in real terms. Table 3 and Figure 2 express these flows in 1983 dollars. AID annual obligations, thus translated reached $145 million in 1964.

US assistance played an important role among donors involved in Nigeria from 1963 to 1975. Although data prior to 1970 are unreliable, AID clearly occupied a leadership role. Even as late

Table 1. Level of US Assistance to Nigeria, 1963-84, in Current Dollars

	Total	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977-80	1981-84
	in thousands of US dollars																
Total US assistance to Nigeria	421,088	30,100	51,000	32,900	30,200	26,800	25,700	87,100	48,300	37,100	25,100	11,000	6,500	9,300	600	(612)	0
AID's project and program assistance to Nigeria	327,488	27,100	45,600	27,600	23,200	21,600	21,300	43,600	39,700	32,600	24,900	10,600	3,500	6,800	0	(612)	0
Food aid and other economic assistance	93,600	3,600	5,400	5,300	7,000	5,200	4,400	43,500	8,600	4,500	200	400	3,000	2,500	600	0	0
Nigeria's share of total US assistance to Africa (percent)	3.8	6.3	14.4	11.0	9.0	7.1	8.1	26.2	17.6	11.4	8.4	4.3	2.2	2.8	0.2	0.0	0.0
Nigeria's GDP (million $US)	414,772	4,124	4,416	4,705	5,060	4,130	4,029	5,391	7,869	9,958	11,709	13,682	27,478	32,444	40,209	239,566	—
Ratio of US assistance to Nigeria's GDP (percent)		0.7	1.2	0.7	0.6	0.6	0.6	1.6	0.6	0.4	0.2	0.1	0.0	0.0	0.0	-0.0	—
US assistance as share of total ODA to Nigeria (percent)		—	—	—	—	—	—	—	36.8	30.4	29.8	13.8	4.8	8.2	0.0	-0.4	—

Source: U.S. Overseas Loans and Grants (CONG-R-0105), IMF International Financial Statistics.

Figure 1
Total US Assistance to Nigeria, 1963-84, in Current Dollars

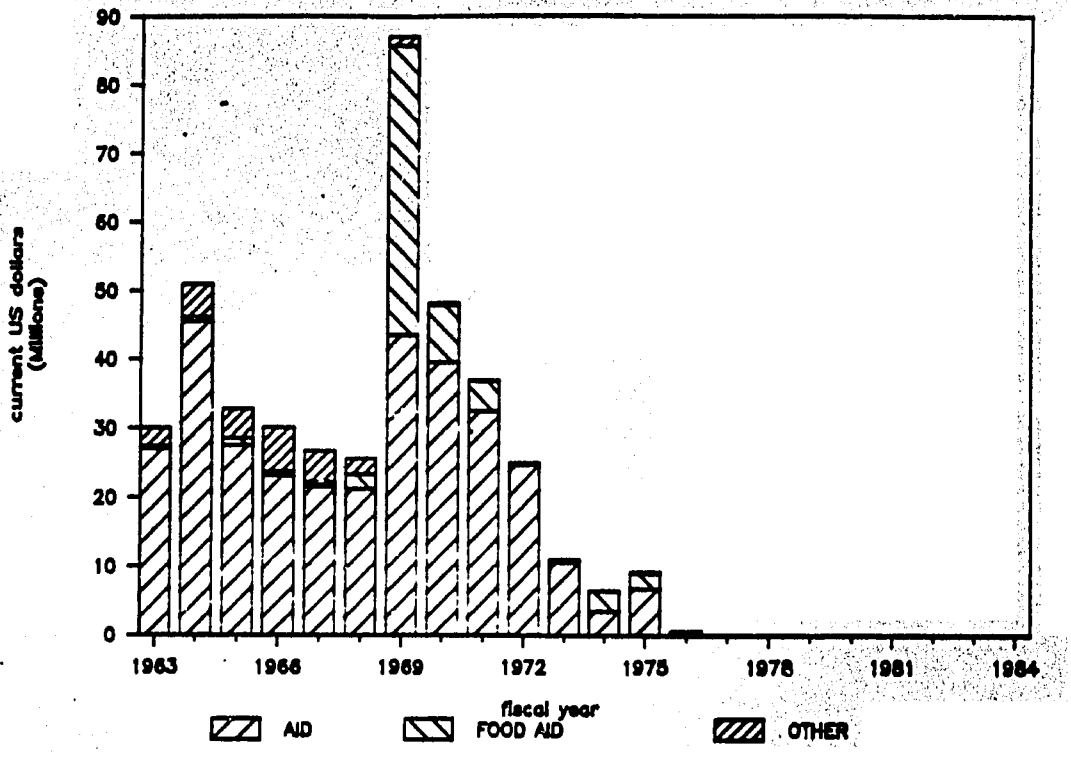
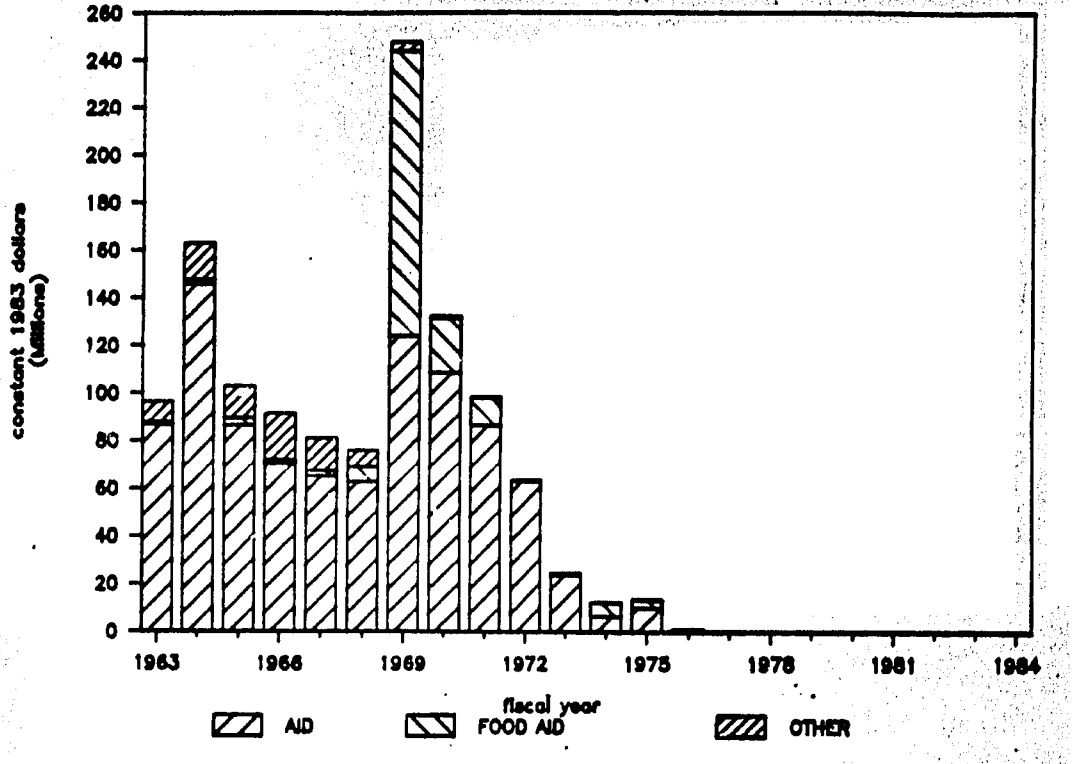


Figure 2
Total US Assistance to Nigeria, 1963-84, in Constant 1983 Dollars



as 1975 US assistance was about 8 percent of total ODA. Relative to Nigeria's GDP, US assistance amounted to about 1 percent of GDP throughout the 1960s.

Sectoral Distribution

US aid flows to Nigeria are broken down by sector and subsector in several tables and figures presented below. The categories were chosen with a view to the focus of this study and to consistency with the other MADIA donor studies. Funds for individual projects are divided among several subsectors when they contain several components. These shares are estimated from end-of-project financial data or project papers, and are invariant between years.

Tables 2 and 3, and Figures 3 and 4 show the sectoral distribution of AID's program in Nigeria. Agriculture and rural development emerge as clearly important. Nevertheless, the share of obligated funds attributable to these sectors account for only about one-fourth of the total. This is because of the large sums included in the "other" category, such as the post war reconstruction and rehabilitation, which included $54 million in Supporting Assistance Funds and a $21 million loan for reconstruction, as well as major AID projects in sectors other than agriculture or rural development, including the Ibadan Water Supply Loans ($21.8 million), telecommunications development, and education and teacher training that was not specifically related to agriculture.

Table 2. Sectoral Breakdown of AID Assistance to Nigeria, 1963-84, in Current Dollars

Sector/subsector	Total	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977-80	1981-84
	in thousands of US dollars																
AID PROJECT AND PROGRAM ASSISTANCE	327,488	27,100	45,600	27,600	23,200	21,600	21,300	43,600	39,700	32,600	24,900	10,600	3,500	6,800	0	(612)	0
AGRICULTURE	95,938	21,955	5,383	24,295	10,645	5,625	5,159	4,179	4,194	3,906	2,957	3,919	1,685	3,568	0	(632)	0
of which:																	
Crop production	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage & processing	1,270	378	97	560	72	56	60	48	0	0	0	0	0	0	0	0	0
Input supply	25	0	0	18	2	5	0	1	0	0	0	0	0	0	0	0	0
Credit	1,106	135	42	162	132	153	96	64	68	109	155	0	0	0	0	0	0
Research	5,430	475	310	787	553	329	286	116	143	197	363	599	258	1,414	0	(399)	0
Extension	11,877	2,766	1,096	2,271	1,202	709	705	1,088	932	669	516	(77)	0	0	0	0	0
Education & training	46,708	11,292	2,251	11,071	4,697	1,804	1,739	1,501	2,049	2,031	1,488	3,437	1,427	2,154	0	(233)	0
Planning & management	8,944	1,029	251	1,502	1,973	1,089	1,053	636	496	613	341	(40)	0	0	0	0	0
Irrigation	7,525	1,443	238	3,100	966	647	518	222	194	104	93	0	0	0	0	0	0
Marketing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Livestock	12,384	3,266	1,084	4,587	983	755	708	504	313	183	1	0	0	0	0	0	0
Forestry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fisheries	669	272	13	237	65	77	5	0	0	0	0	0	0	0	0	0	0
RURAL DEVELOPMENT	12,890	6,350	0	0	0	0	0	2,800	0	0	0	2,500	0	1,220	0	20	0
of which:																	
Infrastructure	9,150	6,350	0	0	0	0	0	2,800	0	0	0	0	0	0	0	0	0
Health & population	3,740	0	0	0	0	0	0	0	0	0	0	2,500	0	1,220	0	20	0
Education	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water supply	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Community development	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER	218,966	0	40,217	3,305	12,555	15,975	16,141	36,621	35,506	28,694	21,943	4,181	1,815	2,012	0	0	0
FOOD AID	66,500	300	600	1,600	600	700	2,100	42,200	8,300	4,400	200	400	3,000	2,300	400	0	0
OTHER ECONOMIC ASSISTANCE	27,100	2,700	4,800	4,300	6,400	4,500	2,300	1,300	300	100	0	0	0	200	200	0	0
GRAND TOTAL	421,088	30,100	51,000	32,900	30,200	26,800	25,700	87,100	48,300	37,100	25,100	11,000	6,500	9,300	600	(612)	0

Source: USAID W-235 and CONG-R-0105 reports and project files.

Figure 3
AID Assistance Levels to Nigeria, 1963-84, in Current Dollars

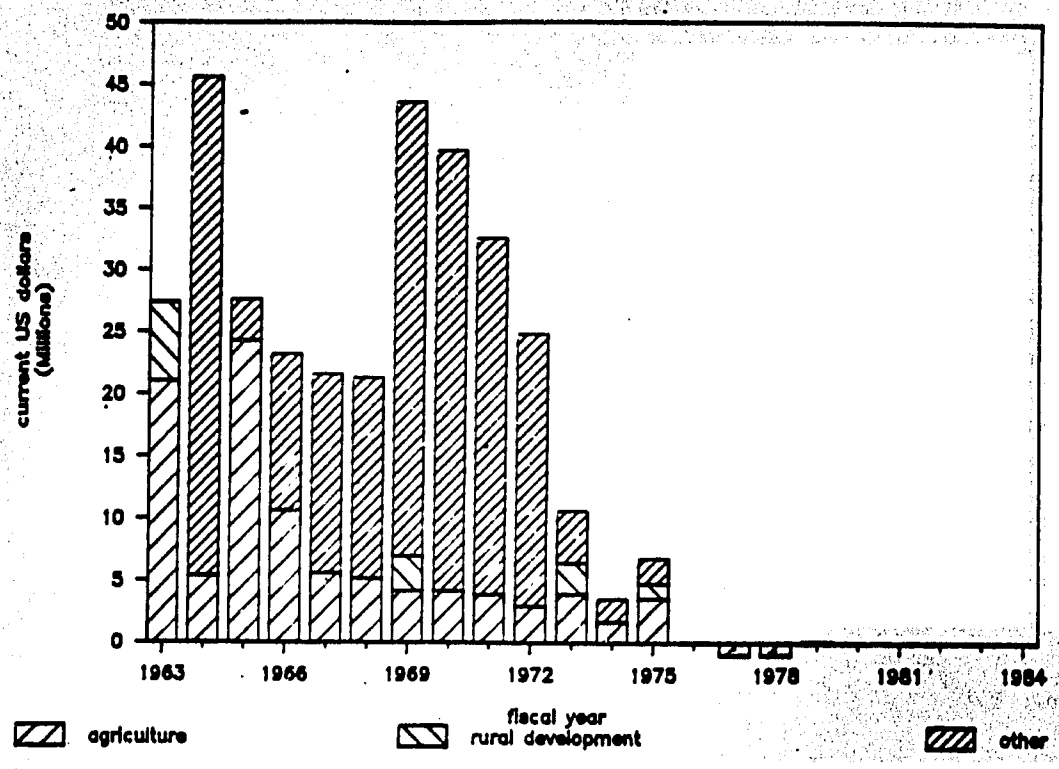
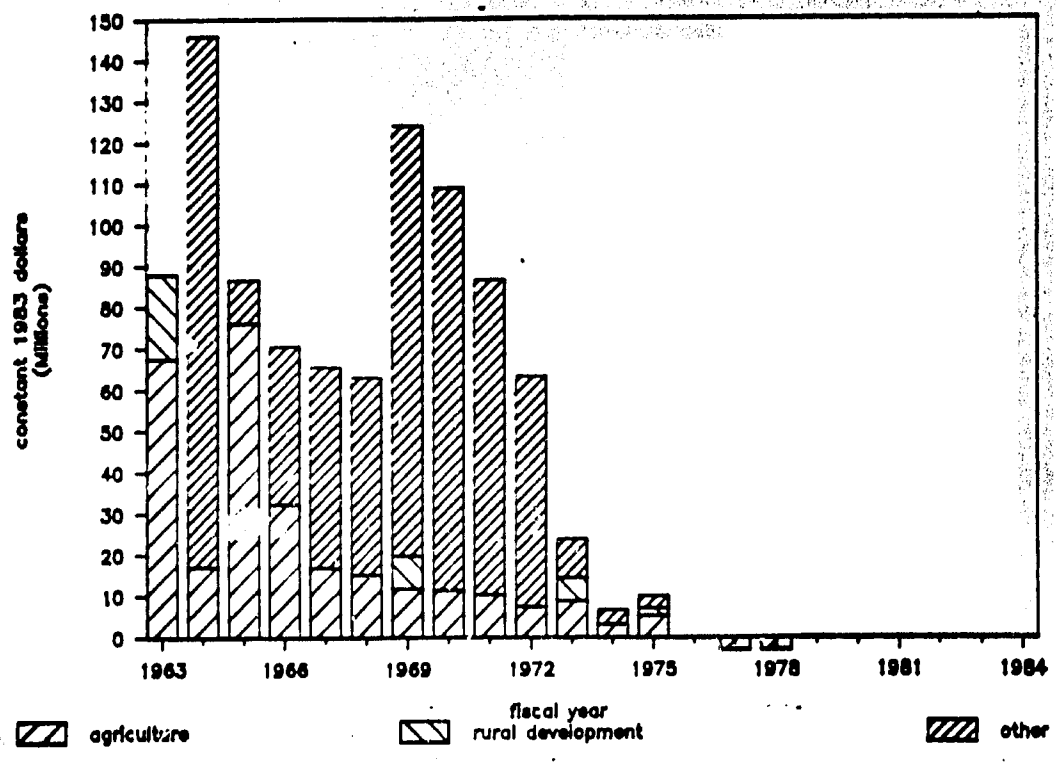


Figure 4
AID Assistance Levels to Nigeria, 1963-84, in Constant 1983 Dollars



Within agriculture, education and training is consistently the largest subsector accounting for about half of agricultural aid (Tables 2 and 4). Both agricultural extension, and management and planning received substantial funding during the 1960s, but declined in the early 1970s as attention shifted to agricultural research. Both livestock and irrigation (including land and water conservation) were important subsectors initially but declined in the late 1960s and disappeared in the 1970s.

Assistance for storage and processing resulted from a component of the earlier ICA project, Agricultural Production and Distribution -- Western Nigeria. Grain storage development was supported in this project and continued later under the spin-off project, Agricultural Engineering -- Western Nigeria.

Rural development was not a significant part of AID's program except for infrastructure development as in the Calabar-Ikom Road projects (1963 and 1969) and the Program Grant that went to Population and Health Programs in the mid- and late 1970s.

When expressed in constant dollar terms (Table 3, Figures 2, 4, and 6) the resource flows for the earlier years become more prominent. The extent of AID's involvement in agricultural education is brought out in Table 3. Project obligations of $36 million were made in 1963 alone. In real terms that year's funding alone equaled the total life-of-project funds currently planned for the development of the agricultural university at Dschang, Cameroon.

Table 3. Sectoral Breakdown of AID Assistance to Nigeria, 1963-84, in Constant 1983 Dollars

Sector/subsector	Total	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977-80	1981-84
		in thousands of US dollars															
AID PROJECT AND PROGRAM ASSISTANCE	941,457	86,943	145,967	86,629	70,474	65,494	62,999	124,110	109,036	86,702	63,391	23,858	6,628	10,046	0	(819)	0
AGRICULTURE	283,452	67,550	17,230	76,255	32,336	17,056	15,259	11,896	11,519	10,388	7,528	8,821	3,191	5,271	0	(846)	0
of which:																	
Crop production	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage & processing	3,981	1,211	312	1,758	217	170	176	137	0	0	0	0	0	0	0	0	0
Input supply	79	0	0	55	7	15	1	2	0	0	0	0	0	0	0	0	0
Credit	3,249	433	134	508	401	464	254	182	187	290	395	0	0	0	0	0	0
Research	14,069	1,523	992	2,470	1,681	998	844	330	391	523	925	1,348	489	2,089	0	(534)	0
Extension	35,972	8,873	3,509	7,127	3,652	2,150	2,085	3,097	2,558	1,780	1,314	(173)	0	0	0	0	0
Education & training	135,462	36,227	7,206	34,750	14,267	5,471	5,143	4,272	5,628	5,402	3,787	7,736	2,702	3,182	0	(312)	0
Planning & management	26,812	3,301	803	4,715	5,994	3,303	3,115	1,810	1,362	1,630	868	(90)	0	0	0	0	0
Irrigation	23,227	4,629	762	9,729	2,934	1,962	1,532	632	533	277	237	0	0	0	0	0	0
Marketing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Livestock	38,499	10,479	3,469	14,397	2,986	2,289	2,094	1,435	860	487	3	0	0	0	0	0	0
Forestry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fisheries	2,104	873	42	744	197	233	15	0	0	0	0	0	0	0	0	0	0
RURAL DEVELOPMENT	35,798	20,372	0	0	0	0	0	7,970	0	0	0	5,627	0	1,802	0	27	0
of which:																	
Infrastructure	28,343	20,372	0	0	0	0	0	7,970	0	0	0	0	0	0	0	0	0
Health & population	7,456	0	0	0	0	0	0	0	0	0	0	5,627	0	1,802	0	27	0
Education	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water supply	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Community development	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER	623,186	0	128,737	10,374	38,138	48,438	47,740	104,244	97,517	76,314	55,863	9,410	3,437	2,972	0	0	0
FOOD AID	181,952	962	1,921	3,139	1,823	2,122	6,211	120,125	22,796	11,702	509	900	5,681	3,398	663	0	0
OTHER ECONOMIC ASSISTANCE	82,829	8,662	15,365	13,497	19,441	13,645	6,803	3,701	824	266	0	0	0	295	331	0	0
GRAND TOTAL	1,206,239	96,567	163,252	103,264	91,738	81,261	76,013	247,936	132,656	98,670	63,900	24,758	12,308	13,739	994	(819)	0

Source: USAID W-235 and CONG-R-0105 reports and project files.

Table 4. Sectoral Breakdown of AID Assistance to Nigeria, 1963-84, in percent

Sector/subsector	Total	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977-80	1981-84
	in thousands of US dollars																
AID PROJECT AND PROGRAM ASSISTANCE	78	90	89	84	77	81	83	50	82	88	99	96	54	73	0	100	—
AGRICULTURE	23	70	11	74	35	21	20	5	9	11	12	36	26	38	0	100	—
of which:																	
Crop production	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
Storage & processing	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	—
Input supply	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
Credit	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	—
Research	1	2	1	2	2	1	1	0	0	1	1	5	4	15	0	65	—
Extension	3	9	2	7	4	3	3	1	2	2	2	(1)	0	0	0	0	—
Education & training	11	38	4	34	16	7	7	2	4	5	6	31	22	23	0	35	—
Planning & management	2	3	0	5	7	4	4	1	1	2	1	(0)	0	0	0	0	—
Irrigation	2	5	0	9	3	2	2	0	0	0	0	0	0	0	0	0	—
Marketing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
Livestock	3	11	2	14	3	3	3	1	1	0	0	0	0	0	0	0	—
Forestry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
Fisheries	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	—
RURAL DEVELOPMENT	3	21	0	0	0	0	0	3	0	0	0	23	0	13	0	—	—
of which:																	
Infrastructure	2	21	0	0	0	0	0	3	0	0	0	0	0	0	0	0	—
Health & population	1	0	0	0	0	0	0	0	0	0	0	23	0	13	0	—	—
Education	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
Water supply	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
Community development	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	—
OTHER	52	0	79	10	42	60	63	42	74	77	87	38	28	22	0	0	—
FOOD AID	16	1	1	3	2	3	8	48	17	12	1	4	44	25	67	0	—
OTHER ECONOMIC ASSISTANCE	6	9	9	13	21	17	9	1	1	0	0	0	0	2	33	0	—
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	—

Source: USAID M-235 and CDMS-R-0105 reports and project files.

Figure 5
Breakdown of AID Agricultural Assistance to Nigeria, 1963-84, in Current Dollars

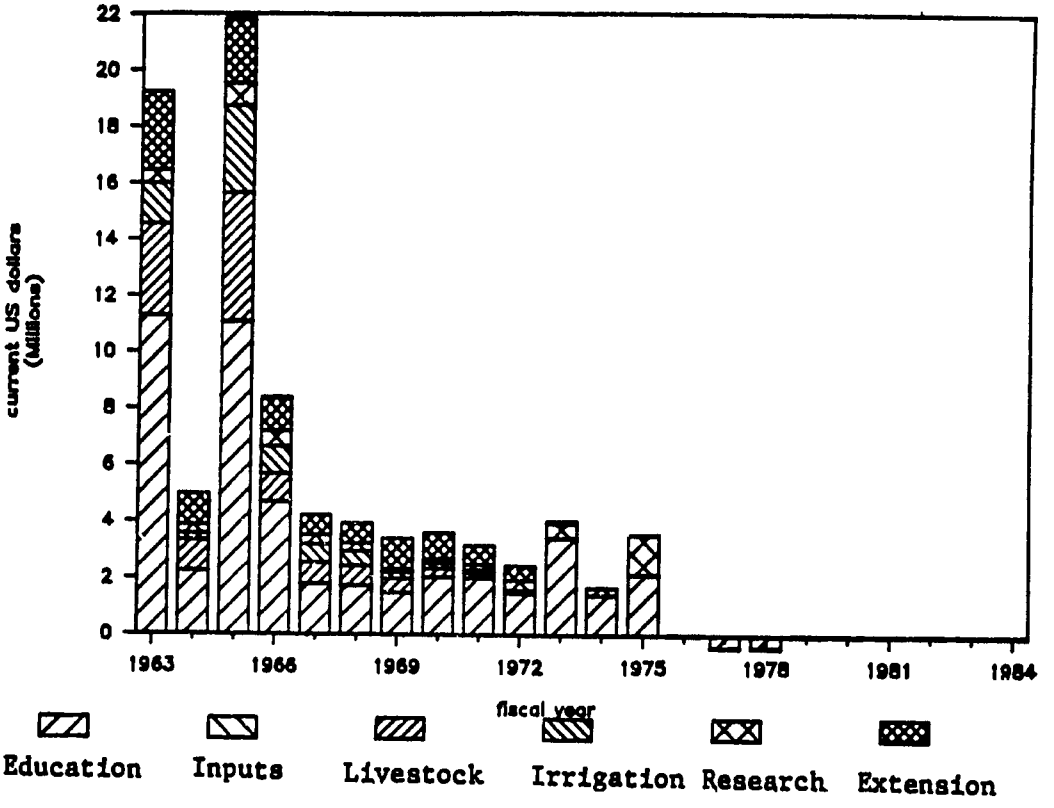
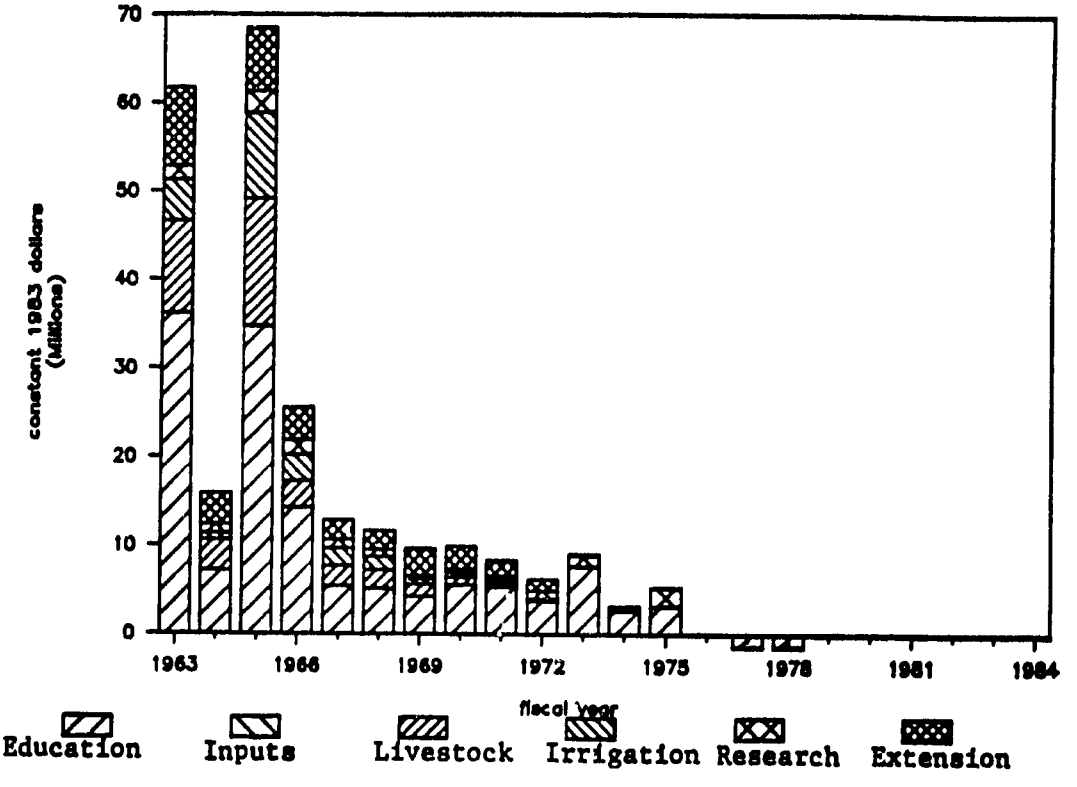


Figure 6
Breakdown of AID Agricultural Assistance to Nigeria, 1963-84, in Constant 1983 Dollars



Obligations versus Expenditures

The preceding analysis uses "obligations" of project funds rather than "expenditures" because they more accurately depict the timing of the initiation of specific activities. For some projects, funds are obligated regularly over the life of the project; for others, the entire project cost is obligated in the first year.

Obligations are incurred when grant or loan agreements (or amendments to them) are signed with a recipient government, university, private voluntary organizations (PVOs), or cooperative development organization. Purchase orders, contracts, and other documents specifically target funds to be spent from obligated amounts. The term "expenditure" is used when funds are actually disbursed against a commitment for goods and services. Accruals occur when goods and services have been delivered but payment has not yet been made. Negative obligations can occur when funds are "de-obligated" as the result of excess funds which the AID mission wishes either to return to AID/Washington or transfer to another project, or when a project is terminated. Negative expenditures can be recorded when adjustments to accruals are made. Figures 7 through 10 demonstrate this distinction for AID resource flows for agriculture, rural development, livestock, and agricultural education.

Figure 7
Obligations versus Expenditures by AID on Agricultural Assistance, 1963-84

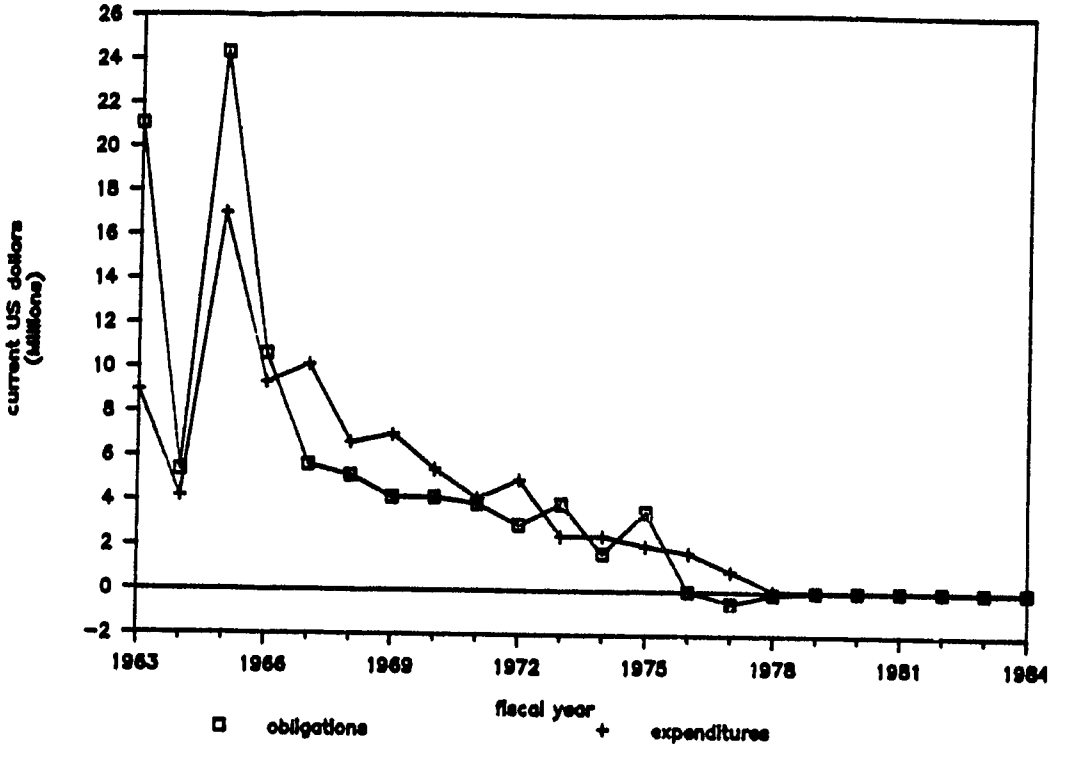


Figure 8
Obligations versus Expenditures by AID on Rural Development, 1963-84

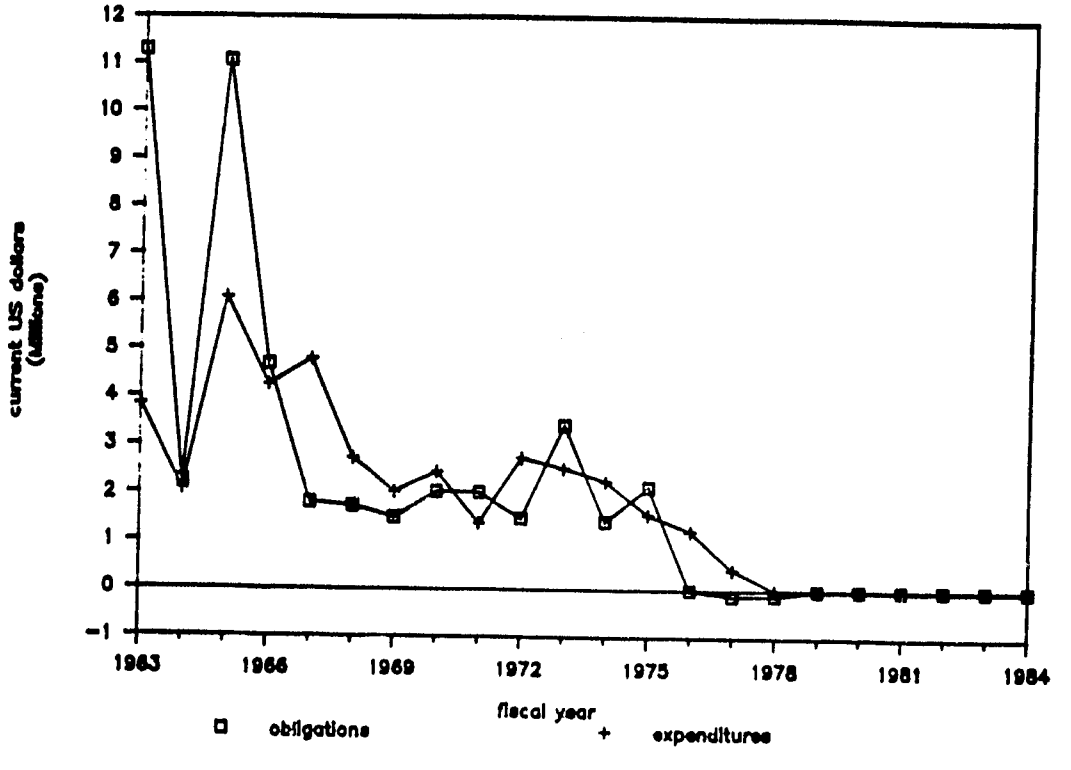


Figure 9
Obligations versus Expenditures by AID on Livestock, 1963-84

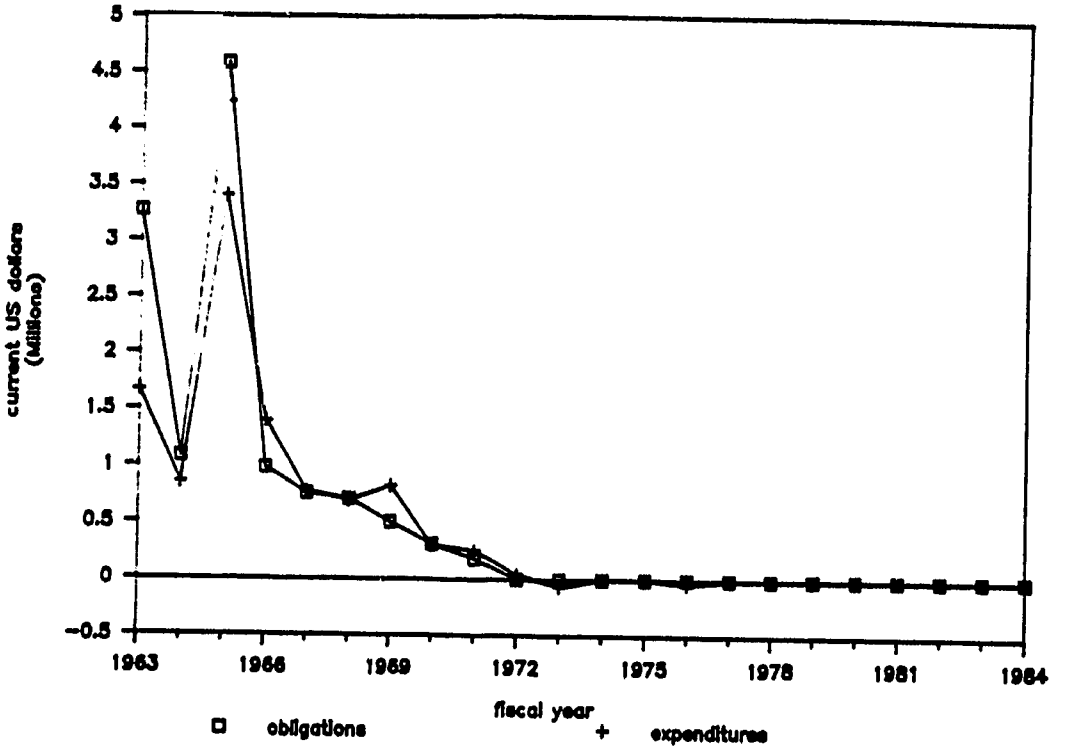
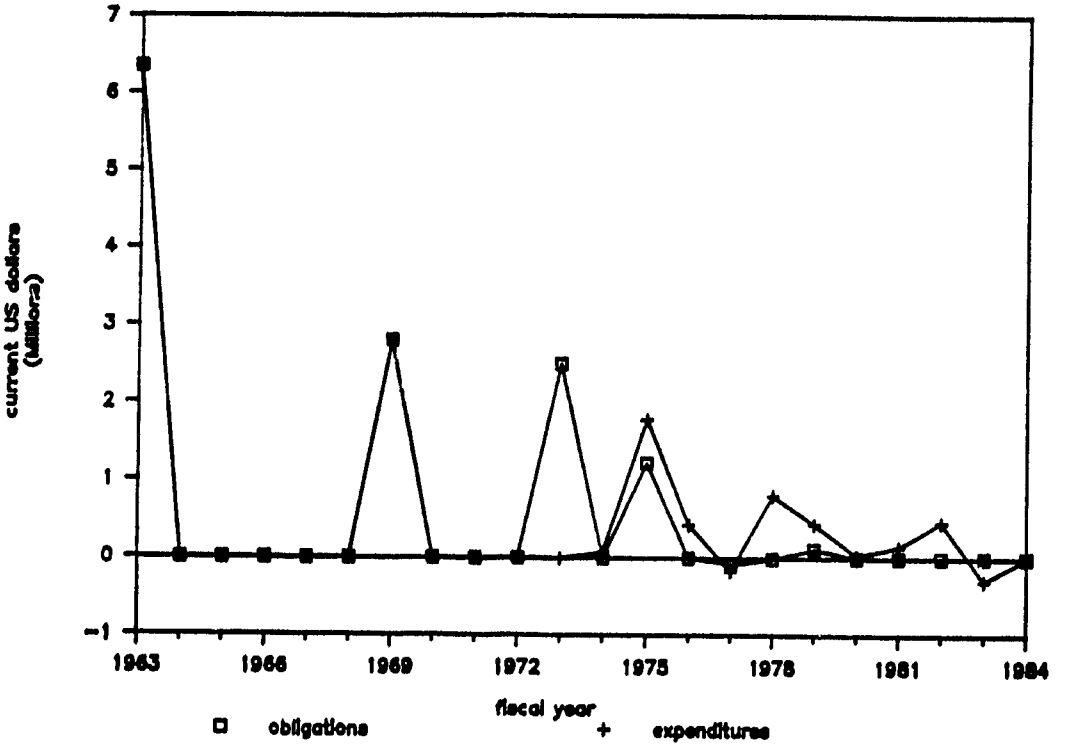


Figure 10
Obligations versus Expenditures by AID on Agricultural Education, 1963-84



Regional Funding for Africa

An important share of AID development assistance is routed through centrally funded and regional accounts. In addition to the centrally funded programs of the Science and Technology Bureau -- which helps support IITA and the CGIAR, to be discussed in detail in chapter 5 -- there are eight separate regional accounts that serve Africa. The largest of these accounts, "Africa Regional," obligated funds as far back as 1963. The accounts for Central and West Africa (later called Sahel Regional), Southern Africa, and Eastern Africa were all created as part of AID's response to the Korry Report. That report recommended that AID concentrate on a small number of high-potential countries in Africa (including Nigeria), while supporting regional activities for the large number of smaller countries that did not yet promise effective results (see Jaeger 1986a, b; Johnston et al. 1987).

Many of these regionally funded projects were intended to take the place of the bilateral programs that were phased out in the late 1960s. Expenditures of these regional accounts totaled $945 million through FY 1984 (Table 5). Several of these accounts administered only minor amounts and three have been abandoned (Table 6). Nigeria has benefited from many regional activities including training programs through the African Graduate Fellowship Program (AFGRAD), and support for Ahmadu Bello University and the associated Institute for Agricultural Research (IAR). Two regional projects affecting northern Nigeria are Rinderpest Eradication and Livestock Corridor Development (in the Lake Chad Basin). And

Table 5. AID Regional Funding for Africa: Total Expenditures through 1984

Acct. No.	Name	Total Expenditure
698	Africa Regional	399,746
625	Central & West Africa (Sahel)	235,403
690	Southern Africa Regional	243,932
618	East Africa Regional	34,300
626	Area Development Office, Niamey	21,825
628	Area Development Office, Dakar	3,037
689	Entente States	12
897	Regional USAID/Africa	6,703
	total	944,958

Source: AID Project History Lists, various years.

Table 6. Annual Levels of AID Regional Funding for Africa, 1963-84, in Constant 1983 Dollars

Account	Total	1963-66 average[a]	1967-70 average[a]	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Africa Regional (698)	677,428	19,691	33,181	41,782	39,613	27,551	21,182	14,237	27,381	38,932	51,289	53,358	41,309	41,087	53,392	54,244	48,255
Central and West Africa Regional/ Sahel (625)	336,915	0	7,921	22,532	25,150	21,947	20,727	17,298	21,420	14,433	19,952	22,976	22,179	20,978	32,507	29,990	36,906
Southern Africa Regional (690)	238,742	0	951	3,646	6,034	8,064	4,348	5,785	8,784	66,631	54,022	6,037	5,295	17,168	16,792	16,522	18,661
East Africa Regional (618)	37,336	9,677	12,770	3,838	3,256	2,165	1,348	839	1,748	1,517	360	(106)	0	0	0	(77)	0
"Regional USAID/Africa" (697)	5,400	1,021	4,378	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Area Development Office, Niamey (626)	33,598	0	0	0	0	0	0	0	6,279	0	25,062	1,223	0	1,035	0	0	0
Area Development Office, Dakar (628)	16,841	0	0	0	0	0	0	0	0	7,337	1,750	7,754	0	0	0	0	0
Total	1,346,260	30,389	59,201	71,798	74,053	59,728	47,605	38,159	65,611	128,851	152,435	91,242	68,783	80,268	102,691	100,679	103,822

a. Annual averages for each four-year period.

Source: USAID, "Project Assistance and Activities by Country and Technical Field; AID Dollar Financed Costs" (various years).

Nigeria has been involved in regional agricultural research through SAFGRAD and its cooperative work with IITA and the IAR.

While many of these regional activities were aimed at countries not receiving bilateral assistance in the period following the Korry Report, it appears that Nigeria has been a beneficiary of these programs from the early 1960s to the present. The extent to which such expenditures can be attributed to a particular country varies. Sometimes attribution is straightforward, as is the case with AFGRAD funds going to Nigerian students. But for the majority of these activities no adequate means of allocation exists. For that reason these data are presented separately to allow the reader to interpret their importance for a particular country. In a few, very clear-cut cases, these data are included in the financial data for Nigeria, such as the regional funds for ABU.

Terms of Assistance

Between 1962 and 1984 one-fourth of AID assistance to Nigeria has been in the form of loans. This share has varied widely from year to year, ranging from over 60 percent of the annual total in 1964, 1971, and 1972, to a negligible percentage in 1970 and 1973. Total loans amount to $83.4 million. The most important were for the Ibadan Water Supply Development, Telecommunications Engineering, Calabar-Ikom Road, Teacher Training Centers, and Reconstruction. Nearly all the loans are for 30 year, and carry interest rates of 2 or 3 percent.

Food Aid

Food aid has been provided to Nigeria under PL 480, the US Agricultural Trade Development and Assistance Act adopted in 1954 and amended by the Food-for-Peace Act in 1966. The amount of food aid distributed between 1963 and 1984 is valued at $66.5 million The large majority of this was distributed during postwar relief efforts between 1969 and 1971 (Table 2). Nigeria's food aid has all been under "Title II" arrangements, as humanitarian assistance grants.

From 1969 to 1971 most of the food aid went through the Emergency Relief and Economic Development Program, distributed by the Commodity Credit Corporation (CCC). For other years, PL 480 assistance is quantified by calculating the cost to the Commodity Credit Corporation of the commodities they donated to voluntary relief agencies for distribution in Nigeria.

CHAPTER III. AID'S PROGRAM EXPLAINED

AID's Nigeria program emerged from that of its predecessor agency the International Cooperation Agency (ICA), which maintained a small but significant program in Nigeria during the late 1950s. With independence and the creation of AID, Nigeria became a focal point of US foreign assistance in Africa. Given Nigeria's size, resource base, and political structure, AID saw it as an ideal candidate for demonstrating "to the newly independent African nations that the best way to achieve their economic and political aspirations lies in democratic institutions and cooperation with the Free World" (USAID Congressional Presentation FY1963).

The stated interest of the United States in these early years was the long-range and complex process of nation building. The allocation of US resources for development assistance to various African nations rested on a number of considerations including: (1) availability of local resources, (2) organization and leadership of the government, (3) amount and type of resources being made available by other donors, (4) compatibility of the country's long-term aims with those of the free world, and (5) ability of the US to provide the type of technical assistance and administrative supervision necessary to ensure effective use of aid funds.

On the basis of these considerations African countries were

grouped into three categories according to their perceived development potential. Nigeria was clearly in the first group which included only those nations possessing most of the prerequisites for development other than adequate external assistance.

With one-sixth of Africa's population, Nigeria was seen as having the greatest development potential in Sub-Saharan Africa as well as a leadership potential among African states. It was believed that Nigeria might achieve self-sustaining growth within a relatively short time.

Nigeria's First Development Plan and AID

As a result, AID selected Nigeria for an advance commitment of $225 million toward the implementation of its first post-independence development plan. After several studies by US and World Bank teams, it was concluded that the Nigerian Development Plan was a good one, but that it would require $900 million in foreign assistance over the plan period. The $225 million was regarded as a start; AID indicated that additional contributions might be forthcoming when further information was available on the commitments of other donors. Assistance to Nigeria was coordinated by a World Bank-led consultative group, created at the request of the Nigerian government -- after some urging by the US.

The priorities of the AID program reflected those set out in the Nigerian Development Plan. The first goal was to help turn out 85,000 professionally and technically trained Nigerians by 1972, as

the minimum to meet essential manpower needs. As a direct result, seven American universities received contracts to develop educational institutions in Nigeria.

The second goal was to increase agricultural production by 45 percent over ten years. AID's agriculture program concentrated on research and extension to improve crop production technologies, improve and open up new lands, and develop agricultural management and rural institutions.

In addition, AID supported Nigeria's stated goal of increased industrial output by establishing industrial development centers. And in the government sector, AID sought to upgrade the qualifications of public servants through establishment of three advanced public administration institutions, as well as through participant training.

To assist in improving the capacity within the Nigerian government for economic policymaking and planning, AID provided advisory personnel to relevant ministries under the Agricultural Planning and Advisory Service Project. By 1967 these organizations were supposed to be able to provide basic data and analyses for planning purposes without outside help.

During the 1960s many of AID's activities were continuations, or spin-offs, of projects initiated under ICA. Three projects begun in the late 1950s, Agricultural Production and Distribution for the East, West, and North -- were continued and expanded. After extending the projects through 1965, AID proposed to expand each of these projects with separate components for livestock,

agricultural engineering, extension, and so on. Instead, these separate components emerged as individual projects in 1965. In the North, five projects emerged: in agricultural engineering, extension, land and water resources, soil and water conservation, and livestock.[1] In the West, four projects resulted: in agricultural research and extension, agricultural engineering, livestock development and agricultural economics and marketing.[2] And in the East, a Land and Water Resources Project resulted.[3]

A project to assist the Federal Ministry of Economic Development in establishing an agricultural statistics service, and another to provide advisors and supervision of agricultural assistance programs, were both begun by ICA in 1960 and funded by AID through the end of the decade.

The dominance of education in AID's program resulted from a number of factors. Nigeria's decision to make education its first priority coincided with AID's advance commitment of $225 million. A

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1. The original ICA project initiated in 1955 was called Agricultural Production and Distribution -- Northern Nigeria (620-11-110-201). The activities of that project were expanded under Agricultural Extension Northern Nigeria (620-0770), Agricultural Engineering Northern Nigeria(620-0771), Land and Water Resources Northern Nigeria (620-0772), Soil and Water Conservation Northern Nigeria (620-0773), and Livestock Development Northern Nigeria (620-0774).

2. The ICA project Agricultural Production and Distribution -- Western Nigeria (620-11-110-094) was followed by Agricultural Research and Extension-West Nigeria (620-0764), Agricultural Engineering-West Nigeria (620-0765), Livestock Development -- West Nigeria (620-0767), and Agricultural Economics and Marketing -- West Nigeria (620-0768).

3. The ICA project Agricultural Production and Distribution -- Eastern Nigeria (620-11-110-094) was followed by Land and Water Resources -- Eastern Nigeria (620-0769).

long-term educational plan was adopted; it was based on several studies of Nigeria's educational system and future needs, studies in which some Americans had participated. In 1958 both the Dean and the President of Michigan State University undertook a survey for ICA of the conditions affecting the establishment of the University of Nigeria in the Eastern Region. This was followed in 1959 by the appointment of the Ashby Commission -- which included Nigerians, Britons, and Americans -- by the Federal Ministry of Education to conduct an investigation into Nigeria's education needs over the next twenty years. The Commission's report resulted in the transformation of Nigeria's educational system, including the expansion of higher education to four universities. The report recommended that agriculture should have a much greater part in university education and that Faculties of Agriculture be established in each region -- in addition to the existing one at University College, Ibadan. Veterinary education was also emphasized. The report concluded that vocational agricultural education should double its output of graduates.

The US sought to play a central role in meeting Nigeria's future manpower needs. There was a great deal of confidence that US educational institutions could be effective, due in part to their recent positive experience in India. By 1962 three projects had been started. The University of Nigeria Project, involving Michigan State University, was intended to help in establishing a high-level university in the Eastern Region, modeled after the US land grant system. The University Agricultural Education Project,

begun 1962 included the initial assistance programs for Ahmadu Bello University (ABU), contracted to Kansas State University, and for the University of Ife, contracted to the University of Wisconsin. By 1965 these were being funded under two separate projects, assisting in the development of the Faculties of Agriculture at the two institutions. In the case of ABU, Kansas State was charged with establishing a Faculty of Veterinary Medicine as well.

Training for agricultural technicians in nondegree programs began under a single project that was later broken up into four projects. The Agricultural Education Project, begun in 1961, sought to develop institutions for training agricultural extension, research, and technical staff in the three regions. By 1965 these activities were transferred to four separate projects -- three of which involved regional support for agricultural training institutions. The fourth project was to sponsor participant training in the US.[4]

The proliferation of spin-offs from the three ICA agriculture projects and the two education projects accounted for the large majority of AID's agriculture and rural development program in the early 1960s. By 1965, that program had grown to nearly $25 million a year.

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[4]. The projects which followed the Agricultural Education Project (620-0606) were: Agricultural Education, Research and Extension-Eastern Nigeria (620-0722) with Colorado State University; Agricultural Education-Western Nigeria (620-0744) with the University of Wisconsin; Agricultural Education-Northern Nigeria (620-0745); and Future Agricultural Leaders (620-0748).

In addition, AID funded projects in Agricultural Cooperatives Fisheries Development, Rubber Development, as well as the Agricultural Development Studies and Evaluations Project (usually referred to by the acronym for the Consortium for the Study of Nigerian Rural Development, CSNRD, involving a number of US institutions with Michigan State University in the lead). AID was also involved in educational support for teacher training, engineering, business, public administration, and secondary schools. In addition, in 1965 over 500 Peace Corps volunteers were teaching in Nigeria.

The World Bank-led consortium appears to have been reasonably effective in coordinating donor involvement in Nigeria during the 1960s. In the Congressional Presentations AID makes explicit reference to the activities of the other donors. The major focus of the World Bank consortium was the Niger Dam involving Italy, the UK, and the US (a $14 million loan). The UK and World bank were the largest donors, followed by the US. In technical assistance, the UK was active in education, communications, and public administration, Germany in health, and Israel in community development. In addition to agriculture and education, AID provided capital assistance for roads, water supplies, and telecommunication systems.

The Civil War Period

With the outbreak of civil disturbances in 1966, AID was forced to reassess its role in Nigeria. US strategy in the early

part of 1967 was "to encourage and support those forces working for political and economic stability and unity" (USAID Congressional Presentation FY 1968). AID would continue its efforts in the hope that a political solution would be worked out. As long as internal security was maintained and resources were devoted to development, AID intended to concentrate on executing its program. The repatriation of Ibos to the Eastern Region caused manpower shortages and inefficiencies in the functioning of many technical and government services, while at the University of Nigeria an influx of refugees and exodus of non-Easterners disrupted the functioning of the MSU project.

In July 1967 war broke out in the Eastern Region. MSU project staff at the University of Nigeria, Nsukka, were evacuated to Enugu. The campus became a battleground and a number of the buildings were damaged. By August, the Enugu campus was abandoned as well. Most project staff returned to the US.

With the escalation of the conflict, AID suspended all activities in the Eastern Region but continued existing programs in other parts of the country. Given the uncertainties at the time, no new projects were proposed, although AID took the position that as conditions permitted additional assistance for reconstruction and development would be considered.

The Conte-Long Amendment of the Foreign Assistance Act mandated a reduction in the AID program. This provision stipulates that US assistance to a developing nation must be reduced by the same amount that the recipient country is spending on sophisticated

weapons. While the mission argued that the weapons were not sophisticated and the Amendment was not intended to apply to civil conflicts of this type, it was eventually decided that the provision did apply. The reduction in assistance was made by eliminating a highway project in the East Central and Rivers States of Nigeria.

Reconstruction in the Postwar Period

By 1969 AID was supporting large-scale relief efforts and at the same time planning for Nigeria's reconstruction and economic recovery. When the war ended in January 1970, AID continued recovery efforts through Supporting Assistance Funds and PL 480.[5]

Reconstruction efforts were largely completed by mid-1972 and attention was once again turned toward Nigeria's long-range development needs. The postwar emphasis of AID's program remained largely the same as before the war: agriculture, manpower training, educational institution building, and economic planning.

AID's project assistance was continued, although at levels which by this time were far below those that had existed when the civil war began. Many of the projects begun in the early 1960s were continued throughout the war, and these made up the majority of the postwar program. Both the University of Ife and Ahmadu Bello University received additional funding through 1975. Many of

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5. US emergency assistance for this period included $54 million in Supporting Assistance Funds during 1969-70, over $50 million in food aid, and a loan of $21 million in 1971 for reconstruction.

the agriculture projects in the North and West also received additional funding, as did Rubber Development, Agricultural Planning and Advisory Services, and Agricultural Credit and Cooperatives. In general, projects in the Eastern Region were not restored.

At this time the AID mission expressed a desire to increase involvement in crop production projects for both food and export crops. A Maize and Rice project was funded beginning in 1971. But two export crop projects -- for groundnuts and oil palm -- were not approved in Washington. In 1972 the groundnut project was again proposed as a Groundnut and Cereals Project, but was again rejected.

The petroleum sector was becoming increasingly important by 1972. Production had increased rapidly since the war and provided 70 percent of the Federal Government's foreign exchange earnings. It was believed that proceeds from oil exports would provide the bulk of additional funds to speed up economic development.

Nigeria's new Four-Year Development Plan (1971-74) was intended to lay the groundwork for self-sustained economic development. Heavy emphasis was placed on improving agriculture, broadening the industrial base, expanding manpower development, and building transport systems. In 1972 and 1973 AID continued its concentration on agriculture and manpower development, while at the same time attempting to shift to a more flexible form of technical assistance.

This was a difficult period for donors in general, and AID in

particular, in Nigeria. Projected oil revenues brought pressure from Washington, where doubts were being raised about the need to continue to offer aid to Nigeria. And at the same time the Nigerian Government was becoming very selective and particular about aid, rejecting any kind of policy conditions and expecting donors simply to pick projects from their "shopping list." The Nigerians saw foreign aid as an exploitative tool which donors used to promote their own interests by selling goods to Nigeria and creating jobs for the donor's technicians. The relationship between AID and the Nigerian Government was also strained by the failure of the US to fulfill the promise of $225 million in aid from 1962 to 1968. Nigerians were also bitter about a number of AID projects that were not completed.

At this time, the US believed that Nigeria's absorptive capacity -- its ability to use available financial resources effectively -- would begin to constrain the development process. Oil was no panacea; US officials pointed out that, except for oil, there had been no net foreign investment in Nigeria for four to five years because potential foreign investors were uncertain about Nigeria's prospects.

AID responded to the situation with an assistance plan that offered Nigeria freer choice and broader management of program activities and technical assistance personnel. The plan, called a "Development Assistance Program", was a package including: a block grant, a program studies loan, and a sector loan that would permit use of its reduced funds and more limited manpower resources

effectively. This plan caused concern among Nigerians, who saw it as signaling decline in US interest in Nigerian development. As for the plan's content, the government objected to the sectoral concentration of the loan on food grain production, primary education, and development administration. Objections were raised within AID as well by those who saw no further need for concessional aid to Nigeria.

The package was eventually rejected by the Nigerians. small, $2.5 million block grant was approved for participant training and operational and short-term advisory personnel selected directly by the Nigerians.

Nigeria's Oil Boom

Nigeria's dependence on external assistance was eliminated with the OPEC oil price shock in late 1973. Nigeria's oil revenues jumped from $2 billion to about $7.5 billion in 1974. As a result AID proposed no new projects or loans in 1975, recognizing that Nigeria was in a position to finance its own development. It was believed, however, that acute shortages of trained personnel to plan and implement development programs would continue to be a serious constraint. The stagnation of the agricultural sector and the Sahel drought raised concerns about Nigeria's ability to feed its people. This concern was amplified within AID as a result of the New Directions legislation and its focus on the rural poor. AID began to phase out its Nigerian program in 1975. A final tranche for the Rice and Maize Production Project was made in 1975

out of concern for the serious effects of the drought. This project was seen as a key element in implementing Nigeria's National Accelerated Food Production Program. Final obligations for support of Ahmadu Bello University were made in 1975. Expenditure for the ABU project ended in 1978, fifteen years after it began.

Additional obligations were made under the Program Grant in 1975 and again in 1979. This became AID's only activity in Nigeria in the 1980s, the focus shifted from public administration to health and family planning; the program has been coordinated with efforts of UNICEF and the World Bank in these areas.

CHAPTER IV. CASE STUDIES OF AID ACTIVITIES

This chapter examines in detail selected AID projects in Nigeria. This case study approach provides a reasonable amount of detail on a sample of AID's project activities, as it would be impossible to examine all of AID's projects in Nigeria.

The purpose here is to illustrate with concrete examples some of the generalizations and conclusions derived, in part, from these case studies, and presented more generally in the last two chapters. Each account will give a concise description of the project, followed by an analysis of the achievements and major problems encountered and an assessment of the development impact.

In the case of Nigeria, the availability of information on projects was a limiting factor. Documentation on many projects implemented in the 1960s is nearly non-existent. That constraint notwithstanding, the choice of projects was guided by several criteria. First, the sample includes the most important projects in AID's portfolio based both on size of the project in financial terms and the length of time over which it received attention. Second, it covers a broad range of the agricultural activities with which AID has been involved. And third, it represents a diverse set of activities in terms of the impact, the problems encountered, and the way they were handled.

The activities examined below include agricultural education and institution building, livestock, extension, soil and water conservation, and crop production. Considerable attention is given to the development of agricultural universities in Nigeria, since that was an important component of AID's strategy throughout the period. AID's support for Ahmadu Bello University, the University of Ife, and the University of Nigeria, Nsukka are each examined below.

Many of AID's activities are regionally or centrally funded. The six-country comparative study of AID of which this is a part would miss an important share of AID's work in Africa if it focused exclusively on bilateral programs. For that reason a separate chapter on agricultural research -- an activity which AID funds through regional and central accounts as well as through bilateral programs -- has been included in this report as a separate chapter following this one.

Ahmadu Bello University

AID's involvement with Ahmadu Bello University spanned seventeen years from 1962 to 1977. Under six separate projects, development assistance was provided for the Faculty of Agriculture, the Faculty of Veterinary Medicine, the Institute for Agricultural Research (IAR), the Agricultural Extension and Research Liaison Services (AERLS, originally called the Extension and Research Liaison Unit), and the "nondegree" agricultural schools at Kabba,

Samaru, Mando Road, and Vom.[1] A total of $21.2 million was obligated for these projects. Kansas State University (KSU) was the primary contractor; it had advisors in Nigeria from 1964 to 1978.

When ABU was established in 1962, there was already a well-established Institute for Agricultural Research (IAR) which had been operating since 1922 in the Northern Region, and a livestock management and breeding program established in 1928. The Ashby Commission Report concluded that "the flow of agricultural graduates is pitifully inadequate for the nation's needs" and recommended that a Faculty of Agriculture be established in the Northern Region and that a working relationship be developed between the university, nondegree schools, and extension services operating in the region.

AID involvement in ABU began with a Project Agreement in 1962 to organize and develop the Faculties of Agriculture and Veterinary Medicine. In 1963 a contract was signed with KSU to provide personnel, commodities, and participant training to carry out the Agreement. In 1964 KSU agricultural staff members arrived with specialties in agricultural economics, animal science, soil science and agronomy. By the end of 1965 six advisors were on the job,

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[1] University Agricultural Education (620-0701) and Agricultural Education (620-0606) were begun in 1962. In 1965 these were split into several regional projects including Faculty of Agriculture and Veterinary Medicine -- ABU (620-0743) and Agricultural Education -- North Nigeria (620-0745). Additional support was begun for the Faculty of Veterinary Medicine under a regional project in 1970 (625-514), but was "bilateralized" in 1971 as Veterinary Faculty -- ABU (620-0817).

including an advisor to the Extension Research Liaison Service (ERLS) of the Institute for Agricultural Research (IAR). The well-established IAR and cattle programs had a positive effect on the university, but posed some problems initially for the AID team because they had their own organizational structure and administration procedures, and were reluctant to be absorbed into a land grant system.

Through 1969, 27 man-years of service were provided under the KSU contract, with as many as seven advisors in Nigeria at one time. AID direct-hire advisors worked in the ERLS from 1963. They were supplemented in 1965 by KSU advisors, and in 1969 by additional direct-hire advisors from a separate agricultural extension project. Bilateral assistance to the IAR began in 1970 with a USDA/PASA team carrying out research on maize, sorghum, and millet. Before that time research carried out by members of the Faculty of Agriculture was under the auspices of the IAR.

US assistance to the nondegree schools in the North began in 1962 at Samaru, in 1964 at Kabba, and in 1966 at Mando Road. Until 1970 this assistance funded AID direct-hire technicians, commodities, construction, and participant trainees. In 1970 these schools were put under the administration of ABU. As a result AID's support through direct-hire personnel was first phased out, then replaced later under the continuation of the KSU Faculty of Agriculture Project.

Several changes were made coinciding with the postwar reconstruction efforts and a renewed commitment by AID to help

develop Nigeria's agricultural education system. First, the continuation and redesign of the KSU Faculty of Agriculture Project called for continued support for the Faculty of Agriculture, increased emphasis for the nondegree programs, and further support for the IAR and ERLS. Second, support for the Faculty of Veterinary Medicine was greatly expanded with a separate project, also with KSU, that began in 1970 under a regional account, but was transferred to the bilateral account in 1971.[2]

These changes were brought about by a growing consensus that the need for well-trained university and sub-university level agriculturalists in the north of Nigeria was great and expanding. Studies by FAO, CSNRD[3], and a group of AID consultants to the non-degree schools recommended increased enrollment and higher quality training for the nondegree schools. It was also observed that the development and "Nigerianization" of the Faculties of Agriculture and Veterinary Medicine had not proceeded as rapidly as expected. This was explained by (a) an initial lack of qualified Nigerian staff, (b) the reduction as a result of the civil war of the pool from which personnel could be recruited, (c) the slow process of adapting instruction materials to Nigeria's needs, (d) the inadequate number of secondary schools in the north, which limited

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[2] Separate funding for the Veterinary Faculty began under regional project 625-0514 in 1970, then was "bilateralized" under Project 620-0817.

[3] The Consortium for the Study of Nigerian Rural Development (1966), one of many studies completed by this AID-funded Consortium of US governmental agencies and universities under the Agricultural Development Studies and Evaluation Project (620-0775).

the number of qualified candidates for admission to the programs and (e) coordination difficulties with the IAR.

The expanded assistance to the Faculty of Veterinary Medicine in 1970 was actually a delayed response to a Requirements Analysis done by the KSU team in 1965 on the future needs for graduates of veterinary medicine and the need for additional physical facilities to achieve the needed increase in enrollment. In addition to the separate Veterinary Medicine Project (620-0817), AID prepared a loan agreement in 1972 to expand the Faculties of Veterinary Medicine and Agriculture. After many delays, the Nigerians became impatient and funded the construction themselves. Additional grant obligations were made to the KSU Projects through 1975.

The Faculty of Veterinary Medicine was begun in 1965 with a class of fifteen students; by 1971 enrollment was 128, which taxed the staff and physical facilities at that time.

The Project expansion foresaw an enrollment of 234 by 1977. A reorganization of the teaching program placed more emphasis on the most urgent needs of Nigeria, such as animal husbandry, nutrition and breeding, and preventative medicine.

Implementation of the ABU projects met with relatively minor difficulties. Delays in getting the first KSU team in place (in 1964) did not seriously slow progress. By the end of 1966, 90 percent of the veterinary buildings had been completed, the Veterinary Clinic had treated over 2,000 cases, four B.Sc. students had graduated in Agriculture and about 90 were newly enrolled in Agriculture and Veterinary Medicine.

Excessive delays did result when equipment and commodities had to be procured from the US. These were required to pass through host country channels; the problem was compounded because of the unavailability of spare parts from US manufacturers. In addition, disagreement between ABU and other Nigerian universities on the national role of the veterinary training disrupted the project. Both the University of Ife and the University of Nigeria at Nsukka planned to develop veterinary programs of their own and did not agree that ABU should have the only advanced national veterinary program. The delays caused by this controversy eroded the morale of the project staff.

The civil war had a relatively small effect on AID's support for ABU. From 1966 to 1968 between five and seven KSU staff members were at ABU. By 1970 the Faculty of Agriculture had awarded 57 B.Sc. degrees and 33 DVM degrees. Commodities provided by the Project had equipped laboratories and classrooms. KSU staff helped to develop courses and curricula and provided advice on university administration. Participant training and "Nigerianization," however, continued to be inadequate and behind schedule.

Delays in approval of a Loan Agreement made it more difficult to expand enrollment and conduct Ph.D. research. Strong support from Federal and State Governments continued; funds were diverted from other sources to permit continuation of the facilities development.

Still a major problem was the lack of suitable candidates for

participant training. The 1973 Project Appraisal Report observed that "counterpart training is only just getting under way," and that the number would have to be doubled. It was clear at that time that Nigerianization of the agricultural complex would not be accomplished until after the Project ended. Approximately three-fourths of the positions were held by expatriates. And few "sixth form" graduates in the sciences could be recruited due to keen competition from other universities.

In spite of the slow progress in Nigerianization, a plan was agreed upon for earlier phase out of the project -- in 1974 rather that 1979. This was a result of AID's policy decision to shift its assistance to program grants in view of their rapidly growing petroleum industry.

KSU received consistently high marks for its contribution. The Project Appraisal Reports in 1972 and 1973 found that the quality of KSU's involvement had been high throughout the project's history. KSU personnel had been especially valuable in curriculum and syllabus development. In some cases, however, the reports felt that more senior people would have served the needs of the university better.

This generally positive appraisal is reinforced by a 1986 impact study which found the KSU effort to be

> effective in terms of staff development, organization, curriculum development, the initiation of a course work system, and the institutionalization of the concept of a university with three functions of teaching, research, and service. Further, the impact of individuals and professional contracts of an institutional and personal nature has been an important and lasting contribution. (Gamble et al. 1986)

The coordination of teaching, research, and extension was judged to be one of the important accomplishments of the Project. The impact study stressed the important effect of the presence of the experienced expatriate staff in the Faculties and IAR, which while it constrained KSU's influence, these people were needed and they played a constructive role in evolving structure and emphases of those institutions. The process of changing the educational system was a slow one involving examination, discussion, and compromise between the KSU team and others in the Faculty who preferred the European design. The incorporation of IAR into ABU, the expanded role of the ERLS, the involvement of IAR researchers in teaching and vice versa, were among the changes that evolved over the course of KSU's involvement.

The training program developed by KSU was designed to enhance research into local problems and to promote faculty development and retention. Nigerian candidates for faculty jobs were sent first as participant trainees to the US for graduate course work and to prepare for their Ph.D. research to be completed at ABU. They were allowed to complete requirements for a M.Sc. degree in the US if they wished. When they returned to ABU, the University Board of Research encouraged and assisted them in writing grant proposals for research funds.

Currently ABU's Faculty of Veterinary Medicine has a reputation for being a vigorous and innovative institution, and for having active teaching and research programs. It had an enrollment of about 300 in 1985. When the KSU contract ended in 1977,

Veterinary Medicine had already awarded 198 DVM's, 1 M.Sc. and 17 Ph.D.s. Only recently have their graduates begun to have difficulties finding employment due to a federal hiring freeze. The reputation of the training and clinical services at the school are excellent. The Faculty of Agriculture had an enrollment in 1982 of 319. Between 1962 and 1982 it awarded 511 B.Sc.'s, 85 M.A.'s, and 8 Ph.D.'s.

The 1986 impact study (Gamble et al. 1986) traces ABU's cumulative impact on northern Nigeria to the well-established research and demonstration work of the IAR dating back to 1922, and to the livestock work dating back to 1928. The interaction and incorporation of these entities with the university, as well as the links with the AERLS and the agricultural economics studies helped to ensure that research would be relevant. Close links were established with the work of the agricultural economics department, supported to a large extent by the Ford Foundation. Improved crop varieties and research and extension on agronomic and livestock problems have been addressed in both research and extension work.

The link between the Faculties and the IAR and ERLS are still important and strong; AID's support through KSU was vital in developing these institutions and linking them with ABU. Ties to IAR's animal science program have been a key factor in the success of the Veterinary Faculty's program according to the current Dean. It is still a very large part of the program and the students continue to take courses in the Animal Science Department. Faculty of Agriculture staff do research under IAR and IAR staff have

responsibilities in teaching and student advising.

Many factors contributed to the success of AID's contribution to the development of Ahmadu Bello University, IAR, AERLS, and the nondegree schools. Those that appear to have been most important include:

1. The caliber and commitment of the team of advisors provided by KSU.
2. The length of time during which assistance was provided.
3. The pervasive recognition in Nigeria at that time that education was the key to national, and individual, success.
4. The cooperation and support of the Nigerian Government because of its commitment to agricultural education.
5. The preexisting and well-established research work of the IAR and livestock programs dating back to the 1920s, permitted a dynamic interchange between the KSU team and numerous British scientists. Through compromise over time this resulted in the evolution of a system that appears to be better suited to northern Nigeria than either the British or "land grant" model.
6. A large expatriate staff remained at ABU after AID's involvement was withdrawn -- somewhat abruptly. So that in spite of the lack of sufficient numbers of well-qualified Nigerians when the project ended, these expatriate staff members, many of whom received "topped-up" salaries from other donors, continued to provide leadership within the university.
7. Flexibility and project revision in response to careful and

continued assessment of changing needs. This is particularly evident in the special Evaluation Report for the Faculty of Veterinary Medicine (Stoddard 1972).

Obviously, it would be difficult to rank these factors in order of importance. A fortunate confluence of circumstances contributed to the successful outcome. The AID project had a considerable impact on the development of the Faculty of Agriculture, Faculty of Veterinary Medicine, Division of Agricultural Colleges, and the AERLS. AID support was probably an essential factor in the rapid progress at ABU, but AID support alone would not have been sufficient to achieve that progress. Substantial support was also provided by the British, Dutch, and the Ford Foundation.

The University of Nigeria at Nsukka

US assistance to develop the new University of Nigeria at Nsukka began in 1960 with an AID/Michigan State University contract to provide advisory services in planning, administration, and organization of the University. The scope of work for this project differed from that of ABU since it called for MSU to become involved in the development of the total university, not just the Faculties of Agriculture and Veterinary Medicine. The project was to support improvements in instruction, research, extension, and administration, as well as planning and procurement of educational and technical materials for the university. It was anticipated

that the ten-year, $11 million project would bring the university to a capacity enrollment of 6,000 by 1970, and that the participant training component of the Project would permit replacing the MSU staff with Nigerian staff beginning in 1967.

The establishment of a University of Nigeria at Nsukka was first proposed in 1955 by Dr. Azikwe, the Premier of the Eastern Region, who had received graduate training at a US land grant university. As an alternative to the British pattern of higher education being established at Ibadan, he proposed a university patterned after the American model. In 1958, President John Hannah and Dean Glenn Taggart of Michigan State University undertook for ICA a survey of what would be needed to establish such a university. Their report, approved by the Government of the Eastern Region, concluded that such a university was desirable. The innovative and controversial plan they presented caused considerable consternation in Nigeria, especially among those associated with the University of Ibadan, whose stature as <u>the</u> national university was jealously guarded.

The University of Nigeria opened in 1960 with a new campus at Nsukka, Premier Azikwe's home village. In the same year, the Ashby Commission Report recommended that the Federal Government support its development. MSU was to provide 51 specialists in a wide range of fields (1) to plan and develop the organizational structure, administration, facilities, curricula, equipment requirements, and staff training necessary for the university; (2) to establish and develop the nondegree programs of the Continuing Education Center;

(3) to establish and develop the program of the Economic Development Institute to study Nigeria's economic growth; and (4) to advise and help operate the Faculties of Engineering, Agriculture, and Education, and the General Studies Program.

Progress was rapid during the first few years of MSU's involvement. The top administrative offices of the university were established, the University Charter was enacted, and the College of Agriculture was established, as were the Faculties of Engineering, Education, and Science. Enrollment grew from 259 in 1960 to 1,800 in 1963, and 2,500 in 1965. By 1964 there were 27 MSU educators at the University.

By 1965 a number of research projects had been undertaken, the Continuing Education Center was completed, and the Economic Development Institute was established and was conducting research in collaboration with other universities. Several teaching, research, and demonstration facilities for the Faculty of Agriculture had been completed and an experimental farm had been established. Contributors to these efforts in addition to the US included the Netherlands, United Kingdom, UNICEF, FAO, the Ford Foundation, and the Peace Corps, which was providing 22 teachers in 1965.

In spite of the excellent advisory group from MSU, problems began to arise in 1966 that were beyond their control. Civil turmoil and regionalism began to interfere with the operation of the University. Initially, this was manifested in controversies over regional versus national mandates, such as the duplicate

development of "national" programs in veterinary medicine in several institutions. By late in 1966 the emergency situation leading up to the civil war resulted in the departure of non-Easterners from the student body and staff, and the arrival of many students and staff that could no longer remain safely in other parts of Nigeria. The net effect was an increase of about 400 students and 73 staff. At the end of 1966 an MSU Progress Report stated that "what had started out as an all-Nigerian University had evolved into one with a strictly Eastern Nigerian orientation" (Michigan State University and University of Nigeria, 1966).

In September 1966, 23 staff and recent graduates were sent to the US for post-graduate programs, another 62 participant trainees were already studying in the US or had already returned to Nigeria. Faculty were participating in a wide variety of conferences in Europe and Africa, symposia were conducted, and twenty-three publications were prepared.

On July 6, 1967 full-scale military action broke out adjacent to the Nsukka campus. MSU/AID advisors were evacuated -- first to the Enugu campus, and then out of the country by October. During the months that followed little was known about the conditions at the University. It was reported that some of the facilities had been damaged.

In spite of the three years of war during which the university was abandoned, the imprint of MSU is still strong in the several agricultural departments according to the recent impact study (Gamble et al., 1986). They found that after 25 years there exists

a group of agricultural scientists with a self-confidence that can be traced back to the formative years with MSU, and with a dedication to meaningful research that is linked to teaching and extension. The land-grant philosophy was "anchored in a burst of academic activity representative of a newly independent country" (Gamble 1986, p. C-17).

After the civil war, however, the university was discriminated against in terms of resources. Few funds have been made available for research, equipment, and supplies. According to the Gamble report, while other universities have also faced similar financial constraints, these do not seem to have been a severe as those at the University of Nigeria. After the war, moreover, leadership of the university was returned to individuals unfamiliar with the land grant system. In terms of the development of the university itself, the report concluded that the impact has been large in terms of organization, curricula, course work, and the desire for continuing contacts.

In terms of impact on agricultural development in general, the evidence is less clear. Some professors at the university serve on government boards and commissions and thus influence policy. According to staff of the Faculty of Agriculture, some of these individuals did much of the analytical work for the 1981-85 Nigerian Development Plan. At the same time, no philosophy exists to propel the university to external achievement (ibid). The heavy teaching load limits what faculty can do on the outside, although one exception noted was a potentially valuable study of yam

production.

Given the disruptive effects of the civil war, the scarcity of resources provided after the war, and the short time during which MSU was directly involved, the evidence suggests that the effort was a partial success.

The University of Ife

AID assisted in developing the Faculty of Agriculture at the University of Ife from 1964 to 1976, primarily through a contract with the University of Wisconsin. During that period nearly $6 million was obligated for the project.

As with ABU, assistance to Ife began via the University Agricultural Education Project in 1961, which commissioned studies to assess the needs of the institutions and the prospects for assisting their development. And although the Ashby Commission did not recommend support for Ife, the Government of Western Nigeria was determined to establish the university and approached AID about the possibility of obtaining financial and advisory assistance for agricultural education and research.[4] A number of feasibility and needs studies were done, followed in 1964 by a contract with the University of Wisconsin to provide thirteen professors over a two-year period.

The university was temporarily located at Ibadan before being

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[4] In retrospect most authorities agree that the Western Region was justified in deciding to open a university to serve its 13 million people, claiming that the Ashby Commission had ignored this need under the mistaken premise that the University College in Ibadan would play that role.

moved to its 13,000 acre site in Ife in 1968, where its agricultural emphasis could thrive. The University grew steadily. Enrollment increases were as planned, the student population rose from 244 in 1962 to 3,982 in 1972, and academic and administrative staff increased from 80 to 415 over the same period. Construction of the Faculty of Agriculture's facilities lagged behind schedule, however. In addition, the project was constrained by the shortage of qualified participants.

In the mid-1960s it became apparent that the Nigerian Government's budget for the university was inadequate to support research activities and purchase of local supplies. In a 1966 Project Evaluation Report this problem was attributed, in part, to the higher costs imposed when restrictions on purchasing "other that American" equipment and publications exhausted the limited resources. The report concludes that eliminating these restriction would have benefited the project. It was also observed that delays in the scheduled progress of the participant training program were partly due to the political situation between 1966 and 1969 -- even though, in general, the impact of the war on the University was much less disruptive than elsewhere.

By 1971 substantial attention was being placed on completing the project. However, due to delays in the participant training program, there was much concern about the short time during which the Wisconsin advisory team and many of the returning trainees would have to work together. The 1971 Project Appraisal Report (PAR) found that the project design had not included a specific

plan to bring about institutional maturity and it called for the development of such a plan.

This same PAR deemed the performance of the Wisconsin team to be outstanding in planning and management, in handling relations with cooperating country personnel, and on organizing and developing curricula and syllabi. The excellence and support of the Nigerian staff of the Faculty of Agriculture, and the role of the Vice-Chancellor of the University, were singled out as key factors in earning the project such high praise.

Today, the Faculty of Agriculture is among the strongest faculties at Ife, with a dedicated and very capable staff in six departments and one institute, according to the impact study. The study found that "the cooperative program with the University of Wisconsin greatly assisted the rapid and quality development of the Faculty of Agriculture through support for postgraduate training for faculty members, the development of curricula relevant to Nigeria, and the land grant university concept of teaching, research, and service" (Gamble et al. 1986, p.C-9). All of the 38 Nigerian faculty sent abroad for postgraduate training returned to Nigeria, and 20 are still on the staff.

The recent study asserts that the most profound impact from the project was perhaps on local staff development. Wisconsin faculty members worked side by side with Nigerians in establishing university farms and livestock enterprises for teaching purposes. The Faculty's program emphasized practical, farm-oriented studies and applied research. There was a great deal of concern for

improving the program to keep it relevant to Nigerian needs. Members of the present agricultural faculty "assert that the hard work, zeal, and mature guidance of the Wisconsin staff during the university's formative years was of immeasurable value" (Gamble et al. 1986, P. C-9).

The impact beyond the university itself has been less dramatic however. The plans made for relevant research to assist small farmers were never institutionalized. And the heavy teaching loads and lack of facilities hampered research during the contract period. The integration of teaching, research, and extension has never been achieved. Although the Institute of Agricultural Research and Training (IAR&T) was incorporated into the university, it is headquartered in Ibadan, with its nondegree school at Akure. The physical separation from the Faculty has been a handicap, and support for IAR&T has been sporadic. Moreover, agricultural extension is now under state ministries of agriculture which have little or no contact with universities.

With respect to the wider impact of the project on agricultural development in Nigeria, the impact study sites a couple of new crop varieties developed at the university (Ife brown cowpea and Ife plum tomato), soil mapping, and studies on such topics as animal nutrition and crossing of tsetse tolerant N'dama cattle with white Fulani breeds. In addition the study points to the impact on state and national policymakers of ideas and advice from faculty members through published articles, talks, and consulting assignments. Ife faculty members serve on boards and

commissions and as consultants to local, state, and federal governments, parastatals, and private firms and thus carry some external impact on important national programs and policies. Impact through the graduates of the program was also cited.

Financial constraints, it was pointed out, have in recent years greatly hindered research work that might have had an impact. Finally, as in the case of ABU, many faculty members felt that the time period for the project was too short and the cutoff too sharp (Gamble et al. 1986, C-10).

Livestock Development -- Northern Nigeria

The Livestock Development -- Northern Nigeria Project (hereafter referred to as Northern Livestock) was originally initiated in 1955 as part of the Agricultural Production and Distribution -- Northern Nigeria Project under the ICA. In 1965 the components of this project were split into five separate activities including Northern Livestock, which obligated $6.2 million from 1965 to 1972.[5]

The stated goals of Northern Livestock were to assist the Ministry of Animal and Forest Resources to develop livestock and poultry industries. Pilot activities were undertaken in range management, ranch management, cattle breeding, cattle fattening and

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[5] Beginning in 1965 the activities of the Agricultural Production and Distribution -- Northern Nigeria Project (620-0201) were split into Agricultural Extension -- Northern Nigeria (620-0770), Agricultural Engineering -- Northern Nigeria (620-0771), Land and Water Resources -- Northern Nigeria (620-0772), Soil and Water Conservation -- Northern Nigeria (620-0773), and Livestock Development -- Northern Nigeria (620-0774).

marketing, processing and meat marketing, poultry development, and nondegree training in veterinary medicine, and livestock production. The major focus was on pilot activities to promote modern methods of large-scale production, processing, and marketing.

For a number of reason, including the poor success of the project, these activities were terminated several years prior to the planned termination date. At that time a professional Nigerian staff had not been adequately developed and many of the long-term trainees were still studying in the US. As a result the project's activities were left in the hands of nonprofessionals.

The 1972 Evaluation concluded that AID "should not have gone into Livestock Development the way (it) did" (USAID 1972c). Poor design and planning were blamed for the lack of success. Subprojects typically did not take sufficient account of the paucity of institutions to support the activities. Little attention seems to have been paid to the project's setting, resulting in problems with the socioeconomic structure of the nomadic peoples of the north. The structure of the regional and local governments did not facilitate project implementation. Activities fell under two ministries and numerous states, and these structures changed during the life of the project.

The Evaluation found that the only aspects of the project that were reasonably successful were those with specific, limited objectives, clearly relevant to local needs, and those that demonstrated flexibility during implementation in adjusting to

Nigerian needs. These relatively more successful activities included strengthening the Federal Department of Veterinary Research and the Livestock Services Training Center.

The Federal Department of Veterinary Research (Vom) received five man-years of support from the project. Although hindered by the Civil War, Vom continued to produce over 22 million doses of twelve different animal and poultry vaccines per year, although its research and laboratory work had been dropped at that time.

The Livestock Services Training Center (Mando Road) provided important training services at the nondegree school, permitting the training of mid-level staff for the Ministry of Agriculture and laying a foundation for the follow-on support taken over as of 1970 by KSU. In 1971 the school turned out 29 livestock assistants and 10 range management assistants. Under continued KSU support the institution was expected to become self-sufficient by 1974.

The range management activities of the project failed to meet their goals according to the 1972 Evaluation. They were inadequately planned, with little attention paid to the project setting. The project technicians tried to transplant an American technology without sufficient adaptation to local conditions. They overemphasized the physical facilities of the range management project and neglected the institutional and managerial aspects (USAID 1972, p.4).

The ranch for selecting improved sires was not well planned and would have required more time, appropriate equipment, and a geneticist. The cattle fattening activity was also poorly planned.

The location was inappropriate and the project was based on the false assumption that Nigerians prefer fat meat to lean. The activity appeared to have been premature by one or more decades in that the market for higher-quality beef had not yet developed (USAID 1972).

A review of this project several years after its completion was conducted under the sponsorship of AID (Bates et al. 1975); it included a visit to the project site. The ex post assessment of the project was mixed. At the time the authors visited the site they found that the deferred rotational grazing had been discontinued, proper stocking rates were no longer maintained, the areas surrounding the water points had been denuded, and much of the heavy equipment provided by AID was no longer operative due to lack of repairs. They observed, however, that effective management still continued on the Kakari-Jangari "grazing reserve." Supplemental feeding and veterinary care continued on the project site, a milk collection and processing station had been established, maintenance on dams, roads, and firebreaks was being continued, and the offices and managerial units of the project were intact.

The team evaluated two additional activities in the region that affected the livestock sector: AID's involvement drilling of boreholes to provide year-around water supplies, and in tsetse fly eradication. These activities were funded under different

projects.[6] The borehole drilling resulted in sedentarization of nomadic herdsmen near the boreholes, which led in turn to complete denuding of the area within several kilometers of the boreholes. AID's attempts at range management in these areas were unsuccessful.

According to the review team the Tsetse Eradication Program demonstrated that tsetse flies can successfully be eliminated from the sub-sudanian zone and that when cleared of tsetse flies, land is quickly inhabited by herders and farmers (Bates et al. 1975, p. 72). Other project reports indicate evidence that tsetse flies will return to the zone after a relatively short period of time.

The final Project Audit Report identified nine Nigerians who had obtained US degrees in livestock-related fields with project funds. All of these were employed with the Nigerian Government or educational institutions.

In 1970 the unsatisfactory performance of this and other livestock projects and the recognition that not enough was known about the existing systems and potential for improvement led AID to develop a plan (a Preliminary Project Paper) calling for the phasing out of most of its current activities in this area and instead concentrating on research to generate knowledge for improving techniques of production. Although the project as presented was never funded, similar research was later carried out

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[6] Tsetse fly eradication was funded under the Hadajia Valley Development Project (620-0703) beginning under ICA in 1958 and continuing until 1968. The borehole drilling was part of Water Supply Investigations (620-0702) from 1962 to 1970.

under the regional Entente States Livestock Project.

Agricultural Extension -- Northern Nigeria

Like most of the agricultural projects in Nigeria, Agricultural Extension -- Northern Nigeria was a spin-off of one of the Agricultural Production and Distribution projects begun under the ICA in the late 1950s. AID's involvement in extension activities began in the different regions between 1960 and 1963. Realizing that these early projects were too inclusive to be efficiently handled, AID split them up in 1964-65 into more manageable components. As was done in the other regions, the extension activities in Northern Nigeria came under a separate project (No. 770) beginning in 1965.

In 1968, as the result of the creation of the twelve states from the former four regions, the extension activities of AID were once again reorganized. Most of AID's extension, agricultural research, and livestock activities in the North, West, and Mid-west were combined along with a new activity in production management under the same project but with a new title, Agricultural Extension and Production Management Project -- Nigeria.[7]

In 1971 activities of this project led to the initiation of commodity-specific production projects, one for maize and rice and

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[7] The projects consolidated under this project (620-0770) included: Agricultural Research and Extension -- West (620-0764), Agricultural Extension -- Mid-west (620-0780), portions of Livestock Development (620-0767), Agricultural Extension -- North (620-0770), and the new activity in production management in the former Northern Region.

one for groundnuts. The Maize and Rice Project began in 1971; the Groundnuts Project was never approved.

A total of $4.7 million was obligated in the Agricultural Extension Project from 1965 to 1972. This followed the obligation of $5.4 million for the Agricultural Production and Distribution -- Northern Nigeria Project. The $4.7 million figure excludes obligations from separate projects that were later merged into the Agricultural Extension and Project Management Project.

Originally the project's objectives were to assist the government to organize, expand, and develop its agricultural extension service, rural youth, technical agricultural information and home economics programs. It was believed that the dissemination of information could result in increased agricultural production. Targets were set to increase extension field workers in the Northern Region from 750 to 2,300 by the end of 1968. AID staff trained Nigerian staff in extension methods and program content and gave advice on the operation of the service.

By 1967 the project had 5,775 demonstration plots in the North being used as testing ground for adaptations for the American-style extension service. These plots had demonstrated significant increases in yield for groundnuts and sorghum, according to AID documents (USAID Congressional Presentation FY 1968, p. 137). AID concentrated on the "package approach," which ties together a group of practices of techniques which will result in dramatic production increases (USAID 1969c).

The basic problem addressed by the project -- as explained in

project documents as late as 1969 -- was that "the major hindrances to agricultural development in Nigeria are primitive and inefficient methods of farming, a scarcity of farm-oriented technological and educational programs, little or no incentive at the farmer level, and a shortage of manpower training to educate the farmer in ways to improve his economic and social position" (USAID 1969c).

With the reorganization of the project in 1968 the activities were enlarged to include advisors to state extension services, the Extension Services Personnel Training Centers, and the Extension Research Liaison Section of Ahmadu Bello University. Economic planners assisted in setting up the state agricultural planning units and organizing participant training. Assistance was also provided to the Kabba School of Agriculture, a training center for new extension workers.

At an organizational level project performance was thought to be highly satisfactory: the structure of the state extension services had been improved; higher-quality, better-trained personnel were on the extension staffs; and program planning, implementation, and evaluation procedures had been implemented. Also, young farmers' clubs were functioning, and the audio-visual aids and demonstrations were widely used. According to the 1969 Project Appraisal Report "approved agricultural practices are carried out by more Nigerian agriculturalists, and the production of certain crops has been stimulated" (USAID 1969d).

The Appraisal report claims that production increased between

35 percent and 159 percent. Fertilizer use doubled each year from 1964 to 1968 (USAID 1969d). Progress was slowed, however, by inadequate operational budgets and the inadequate number and quality of project personnel. A more general problem was the difficulty in measuring project accomplishments due to lack of clearly defined benchmarks, an observation that appears to contradict the report's claims of increased production. No economic analysis of the technologies being promoted had been undertaken directly for the project, and the authors of the report appear to have been unaware of the analysis of Jerome Wells (1969) done at the Nigerian Institute for Social and Economic Research (NISER), and partially funded by AID. Wells used data from the demonstration plots in 1965 and 1966 to estimate the costs and benefits of the techniques being promoted. His analysis indicates that some of the recommended practices offered substantial benefits, that the demonstration approach was less costly than other approaches, and that it represented a transferable means of introducing new inputs and production techniques.[8]

In 1969, however, AID's focus began to change from general extension services to crop-specific production (discussed below). This focus on increased production of export and food crops was recommended by CSNRD, the Consortium for the Study of Nigerian

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[8] The data used were limited, however. Data on productivity gains were available but estimates of inputs, notably labor, were missing. And since the plots were demonstrations, the different tasks -- such as planting and weeding -- were probably done more carefully and timely than would be the case if farmers did them themselves, given the labor bottlenecks and demands on farmers' time in these cropping systems.

Rural Development. The mission felt that the state extension services had developed the capacity to initiate such campaigns.

AID continued to see the extension services as essential, however. Farmers had few sources for the information they needed to increase agricultural productivity, and the private sector was not willing to supply small quantities of fertilizer and other inputs to scattered producers except at prohibitive prices, according to AID documents. The Nigerian Government seemed to agree; at the time the Ministry of Agriculture budgeted the largest share of its funds to extension activities.

By 1970 the project was in a transitional phase; ongoing activities were to be phased out and several "cohesive production-focused projects" emphasized. Production and marketing activities for peanuts, maize, rice, and livestock were in the planning stages.

Both the mission and AID/Washington were concerned about two problems. First, economic evaluations of the project were difficult to make because of the lack of benchmarks against which expected outputs could be planned and results precisely measured. In short, hard data simply did not exist. Second, certain constraints which could stifle growth in agricultural production were outside the control of extension, namely low prices. Both CSNRD's studies and Nigeria's oil revenues highlighted the question of how AID's program addressed the changes in the economic environment that would be necessary to modernize Nigerian agriculture.

The shift in project focus was made explicit in the 1971 Project Amendment, which provided a detailed plan for increasing the emphasis on the Nigerian extension services carrying out crop production campaigns, and for phasing out this project and how its activities would be merged into AID's related efforts in agricultural planning and production. Goals included laying the foundation for the Groundnut and Rice and Maize projects as well as for improving the seed multiplication capability in each state. The Project Amendment was approved, but funding was phased out in 1972. Only one production project continued after that year, the Rice and Maize Production Project discussed below. The Rubber Development Project ended in 1972. The Groundnut and Cereals Project was never approved.

Assessing the impact of the extension project is difficult. In addition to the lack of "hard data" acknowledged in the project documents, the disruptive effects of Nigeria's oil windfalls and the Sahel drought makes ex post analysis of agricultural production in the North virtually impossible. The documentation on the project is itself very limited. The 1971 Project Appraisal report asserts, "we do not have the specific information necessary to compare costs and benefits and make even broad economic evaluations" (USAID 1971, p. 1-c).

Many of the project documents indicate that progress toward the project's objectives was limited. Often this was due to the shortage of trained and experienced Nigerians. As of 1971 few of the state extension services were able to undertake the production

projects AID had hoped to implement. They lacked the statistical base for planning, as well as the capacity for seed multiplication and quality control. The ERLS at Ahmadu Bello University had achieved its target of developing the capacity to produce agricultural information material, but the lack of both Nigerian staff and candidates to be trained as subject matter specialists was ERLS's greatest problem.

Aid tying, or the required use of US-made equipment, caused considerable problems for this project. Some of the equipment was inappropriate for the conditions in Nigeria, and neither spare parts nor trained mechanics were available. The 1971 PAR concluded that

> one of the most frustrating aspects of the USAID assistance in Nigeria is the occurrence, in every state, of the Nigerian Government's inability to keep USAID equipment in running order. In almost every instance it is due to the unavailability of spare parts because of no dealers or because of unwillingness of dealers to order the small quantities of parts required (USAID 1971).

Soil and Water Conservation Project

The Soil and Water Conservation Project began as a component of the Agricultural Production and Distribution -- Northern Nigeria Project in 1960 and was funded separately from 1965 to 1973. During that time $1.3 million was obligated for the project. The motivation for the project was the belief that through erosion and soil degradation agricultural productivity would decline in the face of increasing population pressure and food requirements, and that by promoting soil and water conservation this could be

arrested.

The project included three primary activities: training, demonstration, and establishment of a soil and water conservation service. The demonstration plots amounted to a pilot activity undertaken by a PASA technical assistance team in many locations in Nigeria to demonstrate the benefits of conservation measures. These activities were extensive during the early period of the project; during the later stages the emphasis shifted to the establishment of a Federal Soil Conservation Service.

The training component was hampered by the lack of suitable trained candidates in northern Nigeria. Moreover, many of those who were trained did not remain with the project. The 1966 PAR indicates that only 3 of 11 participant trainees were using their training "almost" as planned, while eight had been "lost to the project" (USAID 1966b).

The 1968 PAR states that the project had little effect on overall production, although demonstration sites have shown the potential for increasing yields by 10-25 percent. The report points out, however, that the adoption of conservation techniques was dependent on government pricing policies for the major crops. The economics of the methods being promoted are not discussed in any of the PARs, except to assert that farmers' prices must be increased, and other institutional changes made, "in order to create the land values and public and private attitude necessary to encourage private conservation measures"(USAID 1968, p. 1-b).

Very little came out of this project. Apparently, the

demonstration plots were never assessed in terms of their being appropriate, or economic, for farmers. The training component had enormous difficulties finding candidates and retaining them after their training was completed. By 1970 the major focus of the project was to persuade Nigeria to establish a fully functioning Federal Soil Conservation Service. This was hampered by the civil war and subsequent reorganization of the government and by the lack of technical staff. In many ways this appeared as a "face saving" effort before the project was phased out in 1972.

A viable Federal Soil Conservation Service was never established, and the project has apparently had no significant impact in Nigeria. Technological optimism and the almost complete lack of attention paid to the economics of the techniques being promoted were responsible. It was believed that conservation was a good thing, period.

In addition to this, AID seems to have downplayed the constraints imposed by the severe shortage of well-trained Nigerians. Given the number of high priority-activities being undertaken simultaneously and the scarcity of qualified people, it should have been clear that soil conservation, with its unproven benefits, would not receive the attention and commitment envisioned by AID.

Maize and Rice Production

The Maize and Rice Production Project (620-0798) resulted in obligations of $2.2 million between 1971 and 1978, covering two

distinct phases of the project. The first phase was a two-year pilot project in the Western State to get a limited number of farmers to adopt improved crops and techniques. In the second phase (referred to as Food Crop Production), the scope of the project was broadened to the national level and to other food crops.

The first phase grew out of several years of collaboration between AID and the Western State's Ministry of Agriculture and Natural Resources (MANR) to develop the State's research and extension programs (Project No. 620-0764). It was motivated by growing concern over Nigeria's ability to produce enough food due to the recent civil war, poor rainfall, and urban migration. Previous AID involvement in the Western State had strengthened institutions for research, extension, and credit services, and it was believed that from those efforts production technology and implementation concepts, as well as cadres of trained supervisors and field agents, were available. The first stage of the project would determine the agronomic feasibility of "packages" of improved seed, fertilizers, and associated management practices. The project paper makes clear, however, that little was known about the economics of these production technologies. In fact, the pilot activity was mainly concerned with providing this information: "as the specifics of this feasibility become known, the project will address broader economic issues related to prices, returns to farmers, market demand, and ecological zones most economic for long-term production" (USAID 1970b, p. 2). Yet the same project

paper also refers to the availability of "tested technology" and states that "at the outset, the profit potential of the 'package' of techniques should be sufficient to induce rather wide-scale farmer participation in the limited geographical areas" (USAID 1970b, p. 4).

The project paper notes that maize and rice have relatively high nutritive value, and that consumer demand for them, compared with demand for yams and cassava, was growing. Of the food crops grown in Nigeria, maize ranks third behind yams and cassava, and rice ranks seventh. Together maize and rice account for about one fifth of total caloric supplies in the region.

The project was designed to "mobilize technology and trained manpower from earlier institution-building activities in the Western State to demonstrate ... the feasibility of lowering cost of producing maize and rice under field conditions" (USAID 1970). In the 1960s, the Agricultural Research and Extension Project had focused on maize and rice -- and had developed a high-yielding, high-lysine white maize, and the Agricultural Engineering Project had focused on mechanization and equipment development. Both of these were important components in the Maize and Rice project. In a more general way, this project was designed to take advantage of the previous investments by AID in research, agricultural education, and extension training.

In part the rationale for the project focus came from the recommendations of the CSNRD report (Johnson et al. 1969), which prescribed a long-run strategy to increase food crop yields and

reduce per-unit costs of food in order to permit Nigeria to develop a cheaper and better food supply system. This could lead to expanded livestock production and possibly exports of food, feed, and beef. This strategy envisioned that increased productivity in food crops would free more land for cultivation of export crops. The CSNRD report specifically recommended promotion of grain crops with high protein content. It called for an immediate expansion of research, to be followed by production campaigns in the mid- and late 1970s when research results were available. Apparently, AID found the timing too slow, or it became convinced that the necessary research results were already available.

The 1971 Draft Interim Evaluation Report seems to have been a premature attempt to assess the project's potential based on partial results from the project's first year. In the rice trials participating farmers obtained higher yields when using the recommended practices, although economic returns were not adequately analyzed. For maize, no data were available and farmers, in general, did not follow the recommended practices; these included abandoning the practice of intercropping and using fertilizer, but none had been made available to the farmers. This maize package had been recommended for several years but had not caught on.

In addition to these problems, the extension effort got off to a bad start due to inadequate training, lack of clear instructions, and confusion about the exact practices to be recommended. Virtually no credit was available for the 1971 growing season, and

improved seed was in short supply. However, the genuine demand was impossible to estimate because the seed was sold for less than the going market price for food. The seed multiplication operation suffered from delays and was scattered over so many installations that surveillance was very difficult. Tractor hire operations were essential to the rice trials and to the seed multiplication effort, yet these services were not dependable.

With respect to MANR's expected role in the project, the Evaluation notes that "available information concerning the operations of government fertilizer distribution, seed multiplication, and mechanization operations does not bode well the success of a purely government run price support, storage, and marketing program" (USAID 1971e, p. 12). The report goes on to point out that this would require specially trained and highly disciplined and motivated staff and very capable management. Although the Western Region could muster the human resources to meet these requirements, doing so would have an exceedingly costly impact on other high-priority programs.

The project was not well integrated into MANR; both sides treated the project as primarily an AID undertaking. Evaluation was basic to this phase of the project, but it was not planned with sufficient lead time and precision. The Draft Evaluation expressed doubt that useful economic data would be forthcoming for 1971.

Phase II was initiated in spite of the concerns expressed in the Draft Evaluation. By 1973 the scope of the project had changed considerably. The Nigerian Federal Military Government had become

increasingly concerned with stagnating agricultural production and was initiating major programs to deal with the problem including creating of the National Accelerated Food Production Program (NAFPP), a long-range effort to maintain food self-sufficiency.

The Federal Ministry of Agriculture and Natural Resources made a request to AID for help and in response the Maize and Rice Project was modified to make it national in scope and to include other important food crops. The project would be tied to the NAFPP. It was viewed at that time as the main emphasis of future US assistance. If successful, it would constitute the payoff from previous AID institution-building efforts.

The focus remained on increasing yields through the use of improved varieties and chemical inputs as well as improved tools and mechanical power. The Nigerian commitment to NAFPP and MANR's interest were key factors in AID's decision to participate. It was believed that beyond the first two-year period new funding would be provided either through an AID Sector Loan, or Bloc Grant, or from Nigeria's own resources.

In the interim, an international team under CIMMYT leadership was asked to advise Nigeria on its long-term food production program. The outcome was a set of recommendations including the launching of a National Accelerated Food Production Project focusing on major cereals and putting together packages of improved technologies that were expected to triple or quadruple traditional yields. The small farmer was the centerpiece, although the project's designers allowed for consideration of large-scale

privately operated farms as well. They recommended that farmers be relied on to do most of the seed multiplication, and that the foundation seed be sold at double the market price. Subsidies were to be phased out. Responsibility for input supplies, it was hoped, would be transferred to the private sector.

Phase II had two parts. The first part included preparing national and state plans, enhancing Nigerian planning capacity, and developing integrated systems approaches for disseminating new crop technologies and for improving availability of inputs, credit, marketing and other supporting services. The second part entailed organizing and implementing production programs for each of the selected crops by (1) establishing the national research, extension, and seed multiplication network for each crop, (2) developing supportive infrastructure, and (3) initiating food production programs. The project paper recognized that a critical constraint on success of the project was the lack of adequate manpower for planning and implementation. That gap would be resolved in the short run by use of foreign experts.

As this project was being extended, however, disagreements arose between the MANR and the Central Planning Ministry. The Third Development Plan (1975-80) was at odds both with both the MANR and AID by basing increased production on cultivating more land rather than on raising yields through the use of inputs and improved varieties. This reflected a lack of coordination between ministries and, perhaps, the intention of the Federal Military Government to promote large mechanized farms.

The project suffered numerous delays in recruiting staff (through an IITA contract) and obtaining commodities. Delays in port clearance and the unavailability of spare parts for US vehicles hampered the staff's mobility, according to the 1975 PAR The roles of the AID contractors, with respect to the federal and state agencies, were not well defined. Participant training was well planned and executed, but shortages of trainees arose when some personnel were promoted out of the program.

The stated goals of the project had remained the same, but in fact actual activities had changed considerably. The development of a National Plan, the development of state integrated programs, and the training of personnel were all cited as progress towards project goals. References to increased production were few. The only mention of farmers in the 1975 PAR was the assertion that "a minimum of 40 farmers around each mini-kit location have been made aware of new technology and would adopt new practices if inputs were made available" (USAID 1975).

Expectations for the project were revised downward for several reasons. AID had become disillusioned with the poor on-farm performance and slow adoption by farmers of the promising technical packages, and it was making a deliberate effort to shift back toward research and planning involving research institutions and state and federal agencies. In addition, it had become clear that the project would not be completed as planned because AID was already preparing to close its mission in Nigeria. The contract agreement for the project had already been reduced from six years

Since funding was terminated in 1978 the NAFPP -- which has become essentially a mechanism for developing and extending crop campaigns from research centers -- has been essentially dormant because of budget cuts. Construction of agro-service centers by the states was halted when federal support was withdrawn in 1979. Data collected by state ministries has suffered as well. Some of the NAFPP agro-service centers were taken over by the commercial sections of more recent Area Development Projects of the World Bank. The Nigerian Government apparently phased out the program in 1985.

CHAPTER V. AID'S SUPPORT FOR AGRICULTURAL RESEARCH: BILATERAL, REGIONAL, AND CENTRALLY FUNDED PROGRAMS

Many of AID's programs in Africa are administered through regionally or centrally funded accounts. The six-country comparative study of AID, of which this is a part, would not lend itself to considering fully this aspect of AID's Africa program. To correct this deficiency, this chapter takes up the subject of AID's support for agricultural research, which is one of the primary activities receiving funding through regional and central accounts. It is included here because of the important interactions and complementarities among bilateral, regional, and national programs in Nigeria, especially in the case of the IITA. Also, a separate report on AID's regional programs is beyond the scope of this study.

The purpose of the chapter is to assess the various types of AID support to agricultural research in Nigeria. The activities to be covered are the Nigeria Rubber Development project, implemented from 1961 to 1972; AID support for the International Institute for Tropical Agriculture (IITA) which is located in Nigeria; the regional SAFGRAD project (Semi-Arid Food Grains Research and Development); and several activities of the centrally funded Collaborative Research Support Project (CRSP).

Rubber Development Project

AID's involvement in rubber development in Nigeria began in 1961 as part of the Agricultural Production and Distribution-Western Nigeria Project ($4.7 million). From 1965 to 1972 it was funded under a separate project, Agricultural Research and Development, Mid-Western Nigeria, later renamed Rubber Development ($0.9 million).

In the late 1950s the Western Regional Government of Nigeria established a Rubber Research Station and requested technical assistance from ICA. The first advisor arrived in 1961 to help set up the research station on a 5,200 acre site. The major focus of AID participation in establishing the physical plant of the Rubber Research Institute, selecting and training staff to execute a research program, and initiating a comprehensive research program suited to Nigeria's needs.

The project was motivated by the belief that the potential for increased rubber production in this region was extremely high, surpassing the potential for any other crop. Current production and processing were regarded as inefficient, and the quality controls were lacking that would ensure a high international price. Productivity was low whether measured per man-day or per hectare. According to AID, the application of techniques already available could guarantee yields three to four times greater than the current 300 pounds per acre. And AID staff were confident that by applying research results from other regions, increases could be as much as six or seven times the current average in Nigeria.

It was believed that "in order to make a break from the locally prevailing subsistence farming pattern, raise standards of living, and allow local capital formation, a good cash crop (was) necessary" (USAID 1967, p. 3). Because rubber production was a labor-intensive activity, the potential for income and employment generation was seen to be high in the Midwest State.

In spite of falling rubber prices up through 1967, AID believed that prices would stabilize. It maintained that costs of production for natural rubber were lower than for synthetic rubber, and that increases in productivity would outpace rising labor costs for many years.

It was recognized that research results from other countries like Liberia were not transferable and that local research was essential. While arguing for the importance of research under local conditions, AID documents point out that the application of existing techniques cannot ensure production that will be competitive on the international market, because of quality considerations.

In 1969 AID reasserted its commitment to promoting rubber production. Production had fallen during the civil war, and the CSNRD recommendations urged AID to focus more of its attention on export crops in the short-run.

With the reorganization of the federal and state governments, serious administrative and financing problems arose. AID wanted the Rubber Research Institute to be federalized. Also, the lack of production increases led to renewed interest in improving the

extension services so that the existing techniques could be passed on to the farmers. It was estimated at the time that a tenfold increase in production was possible.

A 1971 Project Appraisal Report detected no significant impact of the rubber extension program. In spite of over 75,000 rubber tappers being trained, there had been no significant reduction in slaughter tapping.

Staffing had been the project's most serious technical problem, according to AID (USAID 1967). No participants had been sent to the US by the project for training. Both junior and senior agricultural officers were in very short supply. And there was an apparent distaste for jobs involving field work away from town.

By 1971 concern for the project's future led to a Project Appraisal Report. That report recommended the project be phase out unless (a) the Rubber Research Institute was federalized and, (b) some breakthrough was made in increasing the farmgate price for rubber. The project was, in fact, phased out in June of 1972.

The final PAR (June 1972) concluded that the extension portion of the project had been disappointing and that lack of staff and financial support by the Mid-West State had handicapped the research portion. The Institute was federalized, but not until after the AID advisors had departed.

The PAR summarized its general observations and the lessons to be learned in two points. First, the design of the project was based on assumptions that were not proven, namely, "that it is more profitable for Nigeria to maximize production per worker and per

acre using intensive cultivation and high technology aimed at production of a high quality, standardized product rather than the low cost, casual production of a low quality product" and that marketing middlemen did not provide services proportional with their mark-up (USAID 1972d, p.1). Second, a system for collecting and analyzing data concerning project results should have been built into the project from the start.

The 1972 PAR indicated, however, that the project did lay a foundation for an effective rubber research program, established a sound marketing program, and built up a capable extension service.

Projected export targets of 200,000 tons by 1980 have never been achieved, however. Exports peaked in 1964 and 1974 at more than 60,000 tons. Since then exports have fallen to around 30,000 tons a year.

The International Institute for Tropical Agriculture (IITA)

IITA was established in 1967 as an autonomous, nonprofit corporation. Nigeria allotted 1,000 hectares of land and the Ford Foundation provided initial capital for buildings and development. AID has provided support for IITA continuously since 1970. With the establishment of the Consultative Group for International Agricultural Research (CGIAR) in 1971, most IITA funding was channeled through the CGIAR system.[1] AID support to the CGIAR in

[1] The CGIAR was established in 1971 as an informal association of countries, organizations, and private institutions; it is cosponsored by the FAO, UNDP, and the World Bank. Its purpose is to assist developing countries to increase food production through support to agricultural research and the training of scientists.

general, and to IITA specifically, is given in Table 7. AID has consistently been the CGIAR's largest contributor, accounting for roughly one-fourth of core funding. In addition, AID has funded over $14 million in special "extra-core" projects since 1975.

Table 7. AID Support for the CGIAR and IITA
(in thousands of US dollars)

	CGIAR core funding		IITA core funding	
Year	AID funds	Percentage of total	AID funds	Percentage of total
1970	--	--	320	--
1971	--	--	535	24.3
1972	3,770	18.2	725	22.0
1973	5,390	21.6	1,200	26.7
1974	6,810	19.7	1,500	25.0
1975	10,760	22.6	2,080	28.9
1976	14,870	23.6	2,500	29.8
1977	18,140	23.5	2,850	28.5
1978	21,150	24.9	3,500	30.2
1979	24,800	24.9	3,900	29.1
1980	29,000	24.2	3,750	25.0
1981	35,000	26.7	4,700	30.5
1982	40,790	28.4	5,935	31.6
1983	44,550	27.1	6,200	32.6
1984	45,250	26.1	6,300	31.5
1985	--	--	6,240	--
Total	300,280		52,235	

As one of the International Agricultural Research Centers (IARC), that mandate includes the humid and subhumid tropical zones. The areas of concentration for research and training are farming systems and crop improvements, with programs in grain legumes, roots and tubers, and cereals.

IITA has been considered by many to have been slow in

The CGIAR includes 35 donors and supports 13 International Agricultural Research Centers.

developing its capacity for quality research and in producing important research results. One factor contributing to its relatively poor performance has been IITA's mandate, which is far more complex and broader than that of most of the other IARCs in terms of geographical coverage, range of crops, and cooperative activities. Besides having worldwide responsibility for research on cowpeas, soybeans, pigeon peas, yams and sweet potatoes, IITA is expected to take responsibility on the African continent for crops mandated to other IARCs such as maize, rice, and cassava. It is also responsible for maintaining a germplasm collection and for cooperation with national programs in Africa and with the other IARCs.

IITA's mandate has evolved since its inception, shifting many times over the years. And IITA's success has been measured against the performance of other IARCs which focus their research on a single crop -- such as IRRI (rice) and CIP (potatoes). In addition to the greater complexity of its task, IITA's location and Nigeria's exchange rate policies make the costs of conducting research two to three times higher than other centers. Given these differences in number of crops and research costs, one cannot expect results similar to those of centers with similar budgets, lower costs, and more limited mandates, such as IRRI.

The objective of increasing productivity for small farmers is especially difficult in the subhumid and humid tropics because of the fragile, low-fertility soils and the extreme environmental problems caused by pests, diseases, weeds, temperature, and

rainfall intensity. The effectiveness of IITA is limited, too, by the absence of effective national agricultural research systems in many African countries.

The various programs at IITA are at different stages of development. This is due not only to the nature of the problems encountered, but also to the considerable differences in available knowledge and germplasm that existed when IITA started work.

Despite slow progress at IITA during much of the 1970s, in recent years IITA has made progress in fulfilling some of its objectives. The reports of two "external reviews" of IITA (CGIAR/TAC 1978, 1984) indicate that IITA has established "a coherent research strategy, a clear set of objectives, and well integrated programmes based upon a sound multidisciplinary approach." The 1984 External Program Review concluded that IITA is a vigorous institution that is beginning to turn out a series of technologies that are being adopted by farmers. Specifically, outstanding work has been done in breeding resistance to cassava diseases, by developing biological control measures for cassava mealybug and green spider mite; in breeding high-yielding weevil-resistant sweet potatoes; in propagating yams by improved methods; in developing short-duration cowpea varieties that are being adopted by farmers; and in breeding genetic resistance to maize streak virus.

Two varieties of maize, TZB and TZPB, developed by IITA, are now widely grown in Nigeria. In the roots and tubers program, five improved cassava varieties with resistance to mosaic virus and

bacterial blight have been released successively since 1976 through the Nigerian research institutes.

Cassava production in Africa has, however, been adversely affected during the past decade by the introduction of the mealybug and green spider mite, which has spread to nearly all the cassava growing areas. Two varieties resistant to mealybug and green spider mite are currently under multiplication for release to farmers. IITA's work on biological controls and selection of resistant varieties has also made progress. The 1984 Review found the results to be encouraging and indicative that biological control is possible.

Research on cassava had been slow owing partly to quarantines on sending vegetative materials between countries. As a result, only cassava seeds could be received, and they would have to go through lengthy testing and selection. The development of a practical tissue culture technique has now made it possible to certify vegetative materials and thus make it possible to send plant material across national borders. An Anti-Serum Identification Technique was developed at IITA for cassava mosaic virus.

IITA's Farming Systems Program at IITA has not been successful, and has recently been reorganized shifting to component technology development and on-farm adaptive research.

In response to the mandated involvement with national programs, IITA currently has 23 scientists working outside Nigeria on seven cooperative international projects. These include the

National Cereals Research and Extension Project in Cameroon (funded by AID), which is IITA's largest such project, a cassava program in Zaire (USAID/IITA), a Root Crops Program in Cameroon (Belgian), an agronomy program in Rwanda (World Bank), and SAFGRAD. Where these arrangements extend beyond IITA's crop mandate other IARCs are involved as well.

The 1984 Review concluded that IITA was playing an important role in strengthening national programs and in ensuring that technology developed at IITA reaches the potential beneficiaries. They cite IITA's role in the achievements of the Cameroon National Root Crops Improvement Programme, which has developed especially strong staffing due to IITA training activities. Many of these arrangements have been initiated by donors.

When IITA was established it was recognized that the shortage of trained scientists and technicians at national levels was among the most serious impediments to agricultural development in Africa. IITA's training programs are directed not only at manpower development but at diffusing the results of IITA's research. Between 1970 and 1982, IITA provided training for 87 Ph.D. students, 144 M.Sc. students, 200 nondegree students, and 1,895 participants in group courses from 79 countries. The impact of this is difficult to measure but is obviously important especially in Africa where many small countries are not capable of developing a critical mass of scientists that would provide a stimulating and productive research environment. Both the cassava program in Zaire and the root crop program in Cameroon are run by former IITA

trainees. The coordinator of the National Cereals Research and Extension Project in Cameroon is a former IITA post-doctoral fellow.

For Nigeria, collaboration with the IARCs in general, and IITA in particular, has resulted in modest improvements in some areas according to a study commissioned by the CGIAR in 1984. Biological materials have been provided to Nigeria's National Institutes by IITA, CIMMYT, CIP, ICRISAT, WARDA, and IRRI. Collaboration between the IARCs and the nearly twenty National Agricultural Research Institutes has been going on for about fifteen years, making it clear that Nigeria is in a position to benefit from IITA's location, although the weak links and poorly developed national institutes have constrained that potentially beneficial relationship. Nevertheless, collaboration between IITA and the National Institutes has contributed to the control of potentially devastating cassava diseases, namely the mosaic virus, bacterial blight and more recently cassava mealy bug and green spider mite. The transfer of technologies from IITA to farmers is the responsibility of the Agricultural Extension Research Liaison Service (AERLS) arm of each Research Institute, such as the IAR at ABU (see the previous chapter for AID's important role in setting up the AERLS). According to the Impact Study, the Agricultural Extension Services of the State Ministries of Agriculture form the weak link in the chain of transmitting innovations and feedback, and have been largely responsible for the low impact made by the Institutes on farmers.

The Impact Study found, further, that innovations with potential impact have been developed in areas such as improved crop varieties, crop protection, farming systems research, and mechanization. Specifically the report points to improved groundnut varieties that have resulted in expansion of production beyond traditional boundaries, and the yam "minisett" technology that will greatly reduce the cost of seed yam production.

Due to the criticism that IITA's focus has been too concentrated on Nigeria, IITA has begun promoting international programs and opening a substation at the National University of Benin near Cotonou. Participants from Nigerian institutions account for 40 percent of the total trainees at IITA.

Continued criticism of IITA's performance has led, in 1986, to a major Strategic Planning Study to review and establish clearly defined priorities and strategic direction for the future. Under the guidance of a new Director General, the study's objectives are to sharpen IITA's institutional mission and to provide a coherent framework for the allocation of scarce resources within and across its range of program activities. Five operating strategies have emerged from the study: 1) a special focus on the lowland humid and subhumid tropics of Africa; 2) concentration of technology development on "progressive farmers"; 3) reorganization of the Farming Systems Program to be called the Resource and Crop Management Program, which will play an essential role in orienting the four commodity programs (maize, rice, grain legumes, roots and tubers) away from optimizing yields in pure stands and toward the

new objective of raising the productivity of farmers growing IITA commodities in mixed systems; 4) decentralization of research; and 5) strengthening national agricultural research systems using new mechanisms for cooperation and training. Future research will give priority to maize, rice, cassava, and cowpeas.

Semi-Arid Food Grains Research and Development (SAFGRAD)

The SAFGRAD project grew out of AID's involvement in food crop research that began in 1964 with maize, sorghum, and millet research in East and West Africa. A regional project in West Africa (1969-76) was developed in cooperation with the Organization of African Unity's Scientific, Technical and Research Commission (OAU/STRC) at ABU, Samaru, Nigeria. This was the beginning of multidonor research efforts in the region, which continued when SAFGRAD became operational in 1977 with the agreement between AID and OAU/STRC. It involved eighteen participating African countries and six other donors -- UNDP, France, Britain, Netherlands, and EEC. AID originally agreed to provide $13.9 million over the five-year period. This grew to $19.1 million under two amendments that extended the project through March 1987. A project paper for Phase II of SAFGRAD has recently been written.

The SAFGRAD project was planned to support improvements in sorghum, millet, maize, cowpeas, and groundnuts, as well as in cultural practices appropriate for small, semi-arid farming systems, and to promote their adoption and use by farmers. Project activities included regional coordinated research at three African

research centers, support for national research programs, and on-farm trials and outreach programs to develop appropriate improved technologies.

Support was to be provided by research institutions in the region including the IAR at ABU, the Centre National de Recherches Agronomiques (CNRA) at Bambey, Senegal, and the Kamboinse Research Station at Ouagadougou, Burkina Faso. Scientific and technical assistance was to be provided by ICRISAT, IITA, and IRAT.

The project included a Farming System Unit (FSU) to undertake farming systems research and on-farm testing of appropriate improved technologies. The FSU component was contracted to Purdue University. Also, Accelerated Crop Production Officers (ACPOs) were employed to work with national research and extension organizations and to conduct field trials in each of the eighteen participating countries. Regional coordination and administrative support services were provided by a Consultative Committee and a Technical Advisory Committee, both funded by AID grants.

Two evaluations were done of SAFGRAD, in 1981 and 1983. The first of these found that project implementation had been on schedule except for the AID-financed ICRISAT team at Samaru, Nigeria. Weaknesses in project development had been due to inactivity on the part of the Consultative Committee and the Technical Advisory Committee, which caused a "policy vacuum." As a result, the project was not orientated toward work relevant to the target group, the small farmer. Management of the project was complex by design, with involvement of OAU/STRC, the Consultative

Committee, the Technical Advisory Committee, and an AID project officer. The evaluation team concluded that in order to be successful SAFGRAD must marshall all research resources in the SAFGRAD region and strengthen the links between research and extension. The permanence of SAFGRAD was thought to be a central issue; little would be accomplished, it was observed, if the regional centers were to be disbanded when AID support was removed

The evaluation found that the emphasis on regional research was running into problems. The various research programs, such as ICRISAT and IITA, were not well integrated with SAFGRAD. In addition, the research programs were emphasizing development of varieties that required inputs unavailable to farmers to reach their full potential.

The Farming Systems Unit, implemented through a contract with Purdue University, was intended to enable SAFGRAD to base its research on an understanding of the farmers' decision-making environment. Detailed socioeconomic studies were undertaken to provide data for models of production-consumption behavior which would provide the basis for testing technologies and guiding research.

Due to data management problems, poor planning of data collection methodology, lack of computer capacity, inexperienced staff, and staffing problems, no formal analysis was ever done of the data collected during the first two years of the project. Instead, on-farm agronomic trials were undertaken based on the team's "belief" that major short-run impediments to increased

production were due to labor constraints at seeding and weeding time. The evaluation team saw little scope for reorienting the FSU in the time remaining in the project and recommended that they simply continue with their on-farm testing.

This first evaluation was done too early to attempt an assessment of research results.

The second evaluation, in 1983, concluded that the original project paper had ignored the institutional development aspects of the project, resulting in serious management problems. Less than 10 percent of the project funds were managed through the Coordinator's office. An internal audit by AID in 1982 uncovered serious financial mismanagement problems. This resulted in an investigation that essentially brought the project to a standstill for more than a year and resulted in the replacement of the Coordinator. With that problem resolved, the evaluation found that in the (then) final year of the project, the International Coordinator, the Consultative Committee, and the Technical Advisory Committee had "begun to function along the lines planned in the project paper."

The evaluation saw the Accelerated Crop Production Officers (ACPOs) as one of the "bright spots" in the project. They served as a major link between research and national extension programs. Encouraging research results were observed in the case of cowpeas and pest-resistant grain varieties. But IITA was criticized for concentrating on breeding maize for conditions not found in farmers' fields. The ICRISAT/IAR team at Samaru had not performed

well due to high staff turnover. The mandated research on peanuts was never undertaken. Lack of equipment, office space, and the administrative complexities of the SAFGRAD system created obstacles for most of the research components.

According to the second evaluation, the FSU team, "after an ineffective beginning, altered course and [was] providing some valuable information on the national level for [Burkina Faso]." The team's activities, however, had little impact on a regional basis. Turnover of staff on the Purdue/FSU team had resulted in changes in research strategy on an almost annual basis. No standardized methodology was developed since the approach taken changed at least four times during the six years. Participant training to develop the Burkinabé capacity to continue the program was not, in general, undertaken in a systematic way, and some candidates were unable to complete their studies. Establishment of a national farming systems research activity, based on a systematic and proven methodology, was not achieved.

What comes out of this project history is that the lack of an institutional structure, a coherent funding hierarchy, and a sense of permanence made it extremely difficult to pull off the ambitious and complex task of establishing a regional research system. Those components of SAFGRAD that made the most progress were the ones linked to existing institutions, such as cowpea research and ICRISAT. The ACPOs appear to be a way to link national research and extension with regional activities that is much less bureaucratic and more straightforward, relying as it does on a

single individual's initiative to share information and provide feedback.

The complexity of the arrangement -- with OAU, AID, IITA, ICRISAT, IAR, and so on -- invited management problems and conflict among the research components. At the heart of the problem is the fact that SAFGRAD lacks the continuity and financial strength necessary to develop as an influential institution. The current planning for phase II is a case in point; there are real uncertainties whether SAFGRAD will exist, and in what form, next year. An organization with little continuity or security of funding will have difficulty attracting and retaining quality personnel, and it is unlikely to be able to evolve into the effective and productive institution that is required -- the way that IITA has recently, and currently, been making progress.

The possibility of entrusting ICRISAT, already an established and effective institution, with the central role of coordinator for regional research for these countries appears to have advantages over the SAFGRAD arrangement. ICRISAT has recently established a Regional Center near Niamey, Niger.

The Bean and Cowpea Collaborative Research Support Project (CRSP)

The Bean and Cowpea Collaborative Research Support Project (CRSP) is one of a number of CRSPs funded through AID's Science and Technology Bureau in Washington. The goal of the CRSP is to establish active collaborative research efforts which will strengthen health and nutrition by improving the availability of

these legumes. Begun in 1980, the Bean and Cowpea CRSP directs resources to building strong relationships between a host country and US researchers, making resources available for collaborative research and for educational opportunities related to improving research capacity for legumes. The Bean and Cowpea CRSP has obligated funds of $16.7 million from 1980 through May of 1986.

The CRSP is managed through a contracted "management entity" - in this case Michigan State University -- and involves eighteen separate programs with partnerships between US institutions and host countries in Africa and Latin America. The Bean and Cowpea CRSP has projects in all six countries included in the MADIA study.[2]

In Nigeria there have been two CRSP projects. One is "Appropriate Technology for Cowpea Preservation and Processing and a Study of Its Socio-Economic Impact of Rural Populations in Nigeria," undertaken with the University of Georgia. The other is "Medical Aspects of Feeding Cowpeas to Children," with the Universities of Ibadan and Jos collaborating with Michigan State University. It is a study of the relationship between cowpea consumption and gastrointestinal problems in Nigerian children.

In Cameroon, the University of Georgia and the Cameroonian Institute of Agronomic Research (IRA) are collaborating on "Pest Management Strategies for Optimizing Cowpea Yields in Cameroon."

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[2] Project obligations for the Bean and Cowpea CRSP projects in the three West African MADIA countries from 1983 to 1986 are: $1.03 million for Senegal; $0.9 million for Cameroon; and $1.0 million for the two projects in Nigeria.

And in Senegal, the University of California at Riverside and the Senegalese Institute of Agricultural Research have undertaken "A Program to Develop Improved Cowpea Cultivars for Production and Utilization in Semi-arid Zones."

The training component of these projects is sizable. As of September 1985 the Nigeria CRSP projects sponsored 26 completed degrees and 7 in progress. In Senegal there were 10 completed and 6 in progress. The Cameroon Project had only one in progress.

Annual reviews of all the projects are conducted by an External Review Panel. The annual reviews for the Nigeria Project on preservation and processing of cowpeas indicates that it has made considerable progress in developing appropriate technologies for processing cowpeas and preparing them as foods that would be accepted locally. Improved methods of storage have also been developed. However, the need for closer working relationships between the teams is cited as a problem. The other project, on child feeding, has had serious problems and was phased out in 1985. The 1984 review recommended phase out of the project, citing lack of progress, unfavorable events, and poor communication among project participants.

In Cameroon, the Pest Management Strategies Project has had some difficulties because Cameroon had been unable to provide host country investigators for the project prior to 1984. While the project had been achieving its technical objectives, this deficiency precluded effective collaboration. Since that time the situation has improved somewhat. The project has been integrated

into the IRA research program at Maroua, and candidates for long-term training are being identified. Research results are becoming available on a range of cultivars. Tests have been done on date of planting, plant density, and so on. With one cultivar (3236), recommendations have been supplied to SODECOTON as extension material for farmers.

The Senegal project has consistently received praise by the reviewers as a classic example of the handsome benefits which accrue from a CRSP project when the critical elements are in place. The project is fully integrated into the UC-Riverside and receives good back-up support for management, administration, training, and research. The 1984 Review found that "highly satisfactory progress has been achieved" in the areas addressed by the project with results applicable to both the California cowpea and the Senegalese farmer.

In 1985, due to insufficient availability of seed for cowpeas in Senegal, the CRSP initiated the importation of large quantities of a heat-tolerant cowpea developed at Riverside to be distributed to farmers for planting. In that first year the program was successful; the cowpea performed well and was cited by many, including AID, as a success and evidence that "shelf technology" did exist for these agroclimates. In 1986, however, the cowpea has performed poorly and has encountered severe pest problems except in the extreme north of Senegal. While the appropriateness of the particular cowpea for Senegal cannot be determined from one year's good, or bad, performance (rainfall conditions and pest

infestations vary considerably from year to year), the experience was an interesting example of the potential gains from this collaboration.

Continued breeding, crossing, and germplasm collection are taking place and results are being evaluated as potential new cultivars both at Riverside and in Senegal. Cooperative links from the project have been expanded to IITA (Ibadan, Burkina Faso, and Brazil), the Western Sudan Agricultural Research Project and the Botswana/Colorado State Bean and Cowpea CRSP project.

The apparent success of many of these CRSP arrangements appears to stem, in part, from relying on the sound institutional support of US universities and existing host-country institutions instead of creating a project organization that is financially unstable and promises little continuity of employment or career advancement in the long run. In addition, top US scientists appear to be enthusiastic about becoming involved in CRSPs which permit them to continue their research and teaching in the US. This arrangement contrasts with other AID research projects which require US scientists to curtail their research in order to take up residence overseas for two to four years, an arrangement that is widely acknowledged to be costly in terms of career advancement (and in other respects as well). The CRSP is a remarkably straightforward and unbureaucratic way to promote "knowledge transfers."

CHAPTER VI. EVIDENCE OF AID'S IMPACT

This chapter attempts to assess the development impact of AID's activities in Nigeria. A number of difficulties arise in attempting to do this. First and most obvious, "impact" is extremely difficult to measure and even more difficult to comp for very different types of activities such as rural health, farmer credit, or participant training. The lack of sufficient data or consistent end-of-project evaluations prohibits a comparison of economic rates of return, as is the practice at the World Bank and elsewhere -- a practice that is itself controversial and has been shown to rest on very rough estimations and subjective assumptions (Jones 1985). Nevertheless, in many cases sufficient evidence exists upon which informed judgement can be made about impact. So that the approach of this study is to present those judgments, along with supporting evidence.

The long period of time that has elapsed since AID was actively involved in Nigeria poses special problems. Information on many projects is just not available. AID Appraisal Reports and Evaluations prior to the mid-1970s were often ten- or fifteen- page checklists rating the progress of project components on a scale from one to ten. Neither these Appraisal Reports nor the brief Project Papers offer a great deal of detail on which to base a full

understanding of the project.

National statistics are not generally a useful indicator of impact on agriculture in Nigeria. These data are very poor, especially through the mid-1970s. And the volatility of these indicators because of the civil war and the oil boom make it virtually impossible to infer much from them.

The reader should keep in mind that the focus of this study is on the development impact of agricultural aid, and not on other objectives of aid. The importance of political and humanitarian objectives is made clear in the AID Congressional Presentations and elsewhere. Since these other objectives are not considered explicitly in this study, the judgments will tend to understate the effectiveness with which AID attains all its objectives.

Conceptual Framework

In order to assess the effectiveness of AID assistance in promoting agricultural and rural development, a framework is needed to guide the analysis. As described in chapter 1, we take as a basis for analysis a framework derived from the substantial progress that has been made in the last 35 years toward understanding the development process and the critical elements of a development strategy. A set of general propositions guide the analysis, since AID's effectiveness in furthering agricultural and rural development depends not only on how well they achieved their specific goals, but whether the activities they chose to support constitute essential elements of a coherent, well-conceived

strategy for agricultural development.

Thus we postulate a reasonable and widely-held view of the crucial elements of the development process, beginning by viewing development as a "generalized process of capital accumulation" (following H. Johnson, 1969), in which capital is viewed broadly as physical capital (plant and equipment, natural resources), human capital (skills and competence), and social capital in the form of economically useful knowledge, organizations and organizational competence. This definition includes the establishment of efficient social and economic mechanisms for maintaining and increasing large stocks of capital, including policies and institutions which permit and encourage efficient utilization of that capital. And emphasizing that a reasonable balance must be achieved among activities that foster growth in these various types of capital, as well as the various mechanisms that permit their efficient use, and recognition of the important contribution that technological change has made to agricultural growth (Hayami and Ruttan 1985, Johnston and Kilby 1975).

As stated earlier, this view of development does not ignore the importance placed by many on judging development on the basis of welfare and equity criteria, but rather it incorporates the lessons learned from the "basic needs" approach popularized in the mid-1970s which demonstrated that while investments in health, nutrition, education, and housing can contribute importantly to human welfare and to economic growth, it is the growth in the economic base that is needed in order to finance these investments.

Efficiency in Implementation

AID projects in Nigeria were implemented in various ways ranging from close supervision by direct-hire personnel to use of contractors to vesting primary responsibility in an agency of the recipient country. The bulk of AID's Nigeria program took place during a period when direct-hire AID employees were used in many of the technical assistance posts.

A number of AID's projects in Nigeria experienced implementation problems, which in turn impeded progress toward achieving the intended goals. Projects involving participant trainees and counterparts often suffered from the difficulty of identifying candidates for these positions. This was an especially acute problem in the North, where failure to fill posts with acceptable candidates seriously limited success, as in the Agricultural Statistics Project, the Agricultural Credit Project, and the university and technical schools projects. This problem might better be described as a design problem rather than an implementation problem, in that there was a failure from the outset to recognize the severe constraints imposed by the shortage of adequately trained Nigerians.

Implementation delays handicapped a number of projects when staff positions went unfilled or the delivery of commodities was delayed. Getting commodities from the port in Lagos to their final destination was a common obstacle. In a few cases, such problems seem to have caused setbacks from which a project never recovered.

Inability to fill technical assistance posts was a serious problem for the Maize and Rice Production Project, for Agricultural Production and Distribution -- Northern Nigeria, and for SAFGRAD's Farming Systems Unit.

In some cases serious problems arose because of aid-tying -- that is, the requirement that US manufactured goods be used for projects. Long delays resulted from importation of US commodities. In the case of the Maize and Rice Production Project, the Agricultural Extension-Northern Nigeria and Western Nigeria, and the University of Ife Project, the long delays in obtaining vehicles and the unavailability of spare parts limited the mobility of staff and restricted their ability to perform their jobs. A 1971 PAR concluded that US assistance in <u>every state</u> of Nigeria was frustrated by the inability of the Nigerian Government to keep AID equipment in running order, due to the lack of spare parts.

Strong support from the federal Nigerian Government, the State governments, and governmental agencies helped to account for the accomplishments of many projects, especially in education. The Nigerian commitment to educating its people was a key contributing factor in the success of the university projects. In contrast, lack of financial backing by the Mid-Western State handicapped the Rubber Research Project. And both Cooperatives Projects were frustrated by bankrupt cooperative unions at the state and federal levels.

By 1972 a general divergence of views between AID and the Government of Nigeria resulted in reduced funding for ongoing

projects. Disagreements between AID and Nigerians, together with Nigeria's increased access to foreign exchange from petroleum exports, led to the eventual closing of the mission. This decision forced early completion of a number of projects and, as a result, the accomplishments attained in the Rice and Maize Project, the ABU Faculty of Veterinary Medicine Project, the Rubber Development Project, and others were probably less than they would otherwise have been.

Impact on Agricultural Development

The impact of AID's program in Nigeria has been mixed. In a number of cases AID's efforts were successful, and those efforts continue to make a contribution to agricultural development. The clearest evidence of this comes from AID's support for developing institutions for agricultural education and for participant training. In addition, recent evidence suggests that support for agricultural research has made progress recently. Among AID's activities are many, however, which appear not to have had significant lasting impact. These include the early extension projects, livestock development, irrigation, and production projects. For many other activities the results were mixed, and for some, so little information is available that informed judgments are impossible to make.

The reasons for the differences in impact among projects vary. Clearly the disruptive effects of civil war, an oil boom, and AID's withdrawal from Nigeria had a disastrous effect on some projects.

While the extent of these disturbances was exceptional, it is not uncommon for African nations to experience political or economic upheaval. Inasmuch as the effectiveness of donor aid is a function of its sustainability or durability under stressful conditions, it is important to take note of the kinds of activities that survived in Nigeria, and those that did not.

In agricultural education, AID's resources have had a lasting impact on Nigeria both through the development of physical facilities and institutions of higher education, and through the human capital formation due to participant training and scholarship programs. Ahmadu Bello University is perhaps the best example of AID's contribution to institution building in Africa.

Currently ABU is a vigorous, innovative, and well-respected institution. Staff who have been associated with ABU for many years concede that AID's involvement was a key factor in the development of the Faculty of Veterinary Medicine and the Faculty of Agriculture, although the preexisting research programs, dating back to the 1920s, were essential to AID's positive contribution. The current head of the AERLS believes that his organization would not exist today had it not been supported by AID during the critical formative period. Facilities built by AID serve as classrooms and laboratories. Enrollment at the Faculty of Agriculture was 395 in 1985; over 300 are enrolled in the program leading to a Doctor of Veterinary Medicine.

Judgments about the impact of these institutions and their training on agricultural development can only be made by inference.

Many graduates from ABU now hold important positions in the public and private sectors, and the effect has been multiplied since ABU has provided personnel to staff new universities in Nigeria. Demand for graduates from Veterinary Medicine has been high, especially from other states. Only since about 1982 have the graduating DVMs begun to have difficulty finding jobs. This has been primarily due to budget cuts that have reduced government jobs. The emphasis on animal husbandry and animal nutrition built into the curriculum of the Veterinary School by the AID/KSU team is believed by many to have been especially beneficial to the livestock industry in northern Nigeria.

Many of the other institutions built up by AID are still functioning and have benefited from AID's support, although probably not as directly or dramatically as ABU. Both the University of Ife and University of Nigeria, Nsukka were supported for shorter periods of time. The impact of AID on these two schools was constrained because of the short period of assistance and, in the case of Nsukka, because of the abandonment and damage during the civil war. Both institutions are currently functioning.

A number of the nondegree schools supported by AID are currently training technicians. One such school is the Umadike School developed under a contract with Colorado State University.

Direct investments in human capital formation by educating Nigerians in the US and elsewhere have also been quite successful. Participant training and programs like Future Agricultural Leaders have had an impact that is unmistakable, albeit difficult to

measure. Under AFGRAD, ASPAU and INTERAF, 658 Nigerians (more than from any other African country) have received graduate or undergraduate training in the US. Follow-up studies of these programs have shown that almost all of the alumni are using the graduate training they received. Eighty-seven percent are living and working in Africa (USAID 1984, p. 22). Educational and research institutions have employed about half of these graduates, and one-fourth have worked in governmental and parastatal organizations. Roughly one-third of these participants have studied agriculture or agricultural economics.

Many participants in AFGRAD's program in its early years (1963-73) have moved into banks, national and international organizations, and the private sector. Most important, the survey concluded that "over half of the older alumni now have major responsibility for policy formulation and decision-making in their respective places of employment"(USAID 1984, p.22). Among those alumni trained during the first ten years of the program, half of them had attained career positions by 1984 with levels of responsibility ranked as level 1 (university vice-chancellor, minister of state, bank governor, etc.), or level 2 (dean of faculty, head of research center or academic department, or head of major division of non-academic institution).

The rise of graduates to positions of authority and decisionmaking in public and private organizations is indicative of the social and private benefits of their long-term training. While recognizing the limits of this interpretation, the increased income

stream resulting from this training is an indicator of the impact of these human capital investments.

The attrition rate for this program is only about 5 percent. Costs are lowered by US university tuition waivers, resulting in a total cost of approximately $14,000 per student per year.

The formation of social capital, or economically useful knowledge, can be generated through knowledge transfers or through augmenting the recipient's capacity to extract that knowledge themselves, as in the case of research. The impact of AID's support for agricultural research has been mixed. A 1980 study of Nigeria's agricultural research system concluded that "production and yield performances of most crops indicate that Nigerian agricultural research has not succeeded in raising crop yields and output over the years" (Idachaba 1980). But clearly there have been other factors contributing to the lack of productivity gains in agriculture, including the lack of a consistent agricultural policy environment so that farmers could act in accordance with assumptions about prices, input supplies, and product markets.

The Agricultural Research Institute's Review of 1980/81, commissioned by the Nigerian government, concluded that the agricultural research system could not provide effective support to achieve even half the rate of increase in agricultural production stipulated in the Food Strategies Mission for the Green Revolution. However, the outcome of the Review was a proposed reorganization of the research system. This plan called for dividing the country into six ecological zones and providing each with a research

institute affiliated with a nearby university, patterned after the IAR/AERLS system developed by AID. It was proposed that the AERLS at ABU play the key role in assisting in development of other AERLSs.

There is evidence that support for IITA is beginning to pay off with research results that are being adopted by farmers. The indirect effects and potential benefits from IITA's strengthened position is noteworthy. The relationships that IITA has with other IARCs has the potential for being an efficient conduit for the sharing and transfer of research results between IARCs and national programs. In addition, IITA is in a position to effectively develop national programs through arrangements such as the AID/Cameroon National Cereals Research and Extension Program (Jaeger 1986a). The point here is that there are both direct and indirect benefits from AID's funding of the CGIAR in general, and IITA in particular.

Several of AID's agricultural research activities have been less successful. Agricultural research in Western Nigeria, followed by a Maize and Rice Production Project, resulted in disillusionment when farmers failed to adopt the recommended varieties and practices. The Rubber Research Project failed to produce the anticipated increase in rubber exports, and production has declined since the project was completed. However the Rubber Research Institute, established with the urging and support of AID, now has an "international reputation" according to World Bank documents. But again, the apparent contradiction between reputable

research achievements and declining production could be explained by the poor policy environment during this period. In the case of oil palm, G. Johnson (1986) contends that advanced palm oil technology, developed in part at Nigeria's palm oil research center, was not widely adopted due to the adverse conditions resulting from the policies, programs, and institutions in Nigeria In Malaysia, in contrast, the same technology has produced outstanding results and has been widely adopted.

AID projects in the areas of agricultural extension and production, irrigation, and livestock in Nigeria all had serious problems and it is difficult to show evidence of lasting impact. In fact it was the unsatisfactory performance of the early projects in extension and livestock that led AID to shift toward research and studies when it recognized that not enough was known on which to base promotion of crop technologies or range management techniques.

Extension, production, and livestock are activities that attempt to promote the use of specific technologies for agricultural production (in addition to training and research components), with the goal of immediate increased production. The assumption underlying such projects is that existing knowledge is available and that it can be the basis for rapid increases in the stock of useful knowledge for farmers and in the organizational competence of the supporting institutions. Such attempts are often unrealistic, however, because of technological optimism, short time tables, and an emphasis on creating ad hoc organizations that

siphon off scarce expertise from the Ministry of Agriculture and its field services.

In the case of irrigation, AID's involvement could potentially have made a contribution to the productive assets in agriculture. But, in Agricultural Production and Distribution -- Northern Nigeria Project, AID became involved in ill-planned irrigation endeavors that were not economic. While in general the conclusion one draws is that the impact was nil, the picture may be complicated by the fact that one of AID's motivations in this project was its observation that Nigeria was going ahead with irrigation plans without regard to practical considerations. To the extent that AID helped to minimize the number of ill-advised irrigation investments, there may be a more positive conclusion to be drawn. But the information available on this is too scant to permit further speculation.

Poor performance of some of the early projects reinforced growing recognition that in Nigeria "planning without facts" (Stolper 1966) was a fact of life. This led to a number of projects aimed at assembling some facts (or creating economically useful knowledge) that would be valuable in agricultural planning and policymaking. The CSNRD Project, the Agricultural Statistics Project, and the Agricultural Economics and Marketing -- Western Nigeria Project were initiated with this scarcity of knowledge in mind.

The CSNRD Project was by far the most ambitious of these three projects, producing 33 studies over a five-year period.

AID/Washington initiated the project when it recognized that its agriculture program in Nigeria was the largest AID program of its kind in the world, even larger than in India (G. Johnson, 1986). The Consortium (including a number of US universities, US government agencies, and research institutions) was established to evaluate AID Nigerian rural development programs. As the project developed, AID and Nigerian officials soon indicated that the rural development program was so large, and so interwoven with other donor and Nigerian activities, that an overall agricultural sector study was needed. The iterative, multi-disciplinary approach focused on projections using mathematical modeling exercises for different scenarios.

The resulting analysis was not well regarded by disciplinary economists (G. Johnson, 1986). And the CSNRD project as a whole is widely criticized -- especially by Nigerians -- for failing to involve Nigerian scientists and decisionmakers adequately in the study (although several Nigerian students developed graduate research programs at US universities based on parts of the analysis). The results were used by AID, but it is less apparent whether they were used by Nigerians. The model, however, was later computerized and used by S. Olayide (later Vice-Chancellor of the University of Ife) to make projections for 17 policy alternatives. His work provided data and analysis included in Nigeria's prospective agricultural development plan.

The Agricultural Statistics Project ran into many difficulties and was terminated early due to poor management and inability to

find adequately trained Nigerian staff. As a result of this project agricultural statistics are now produced by the Federal Office of Statistics, but the data are not considered reliable. After seven years of funding for the Agricultural Economics and Marketing Project, an annual report concluded that "very little data exists in a usable form" (USAID 1971).

Judgments about impact, however, become especially complicated when considering the secondary and indirect effects of the knowledge that was produced. Given the absence of alternative sources, these data appear to have been widely used. For example, the CSNRD recommendation that Nigeria should focus on export crops in the near term was reflected in the 1971 World Bank sector mission, which resulted in the first World Bank loans promoting cocoa and oil palm (World Bank 1985, p. 57).

Perhaps the clearest example of AID's impact on the welfare of Nigerians is the eradication of smallpox. AID was closely involved in smallpox eradication in Nigeria from the early 1960s to the mid-1970s through a regionally financed program.

AID's Achievements and their Costs

Comparisons of the benefits and costs of AID's projects in Nigeria would ben desirable but is largely impossible. The lack of data, the time that has elapsed, the multitude of complicating factors, and the difficulties of quantifying some benefits makes this approach especially difficult for Nigeria. Some useful observations and judgments can be made, however, about AID's

experience in Nigeria.

Education and the development of educational institutions can be a straightforward form of aid with a high payoff. Costs, especially for long-term training in the US, are not high relative to other forms of aid; it costs only slightly more to send a Nigerian to a US university for graduate training than to educate an American student. Based on surveys of AFGRAD alumni the probability that this training will be used productively is high. Given the scarcity of trained manpower in Africa, it is also likely that the marginal productivity of those individuals will be high.

The returns to investment in agricultural research have been very high in other parts of the world. Recent evidence indicates that there is a high potential for agricultural benefits from AID support of IITA and the CGIAR system in general. The indirect benefits of interaction among IARCs, and between IARCs and national programs; of their training capacity, and of the potentially effective role IITA can play in strengthening other national programs -- like that of Cameroon -- are important as well. The actual and potential benefits from the SAFGRAD program appear to derive more from the involvement of the IARCs than due to SAFGRAD itself. The complex arrangements and instability of funding make this a less effective way to develop agricultural research capacity than through the IARCs. And the CRSP mechanism appears to be a potentially more effective arrangement for ongoing contributions by outstanding agricultural scientists at US universities.

Judgments about <u>expected</u> benefits must include assessments of

sustainability and vulnerability to change and disruption. AID's experience in Nigeria provides a case where disruptions tested how durable or fragile investments were. The civil war was a cruel test, especially in the Eastern Region where AID's University of Nigeria at Nsukka project became, literally, a battlefield. It is important to note, however, that the University was reopened after the war, and that at least some of what AID contributed was restored.

Political and economic changes were the undoing of some investments. Shortages of funds and reorganization of the States eroded the investments in credit, cooperatives, and extension activities. Changes in prices and wages appear to have altered the conditions under which the Rubber Development and Maize and Rice Projects had shown promise.

The creation of new organizations and agencies is slow, difficult, and especially vulnerable to changes in national priorities. The Soil and Water Conservation Project was unable to create a viable Federal Soil Conservation Service in part because it was not sufficiently important to the Nigerian Government at a time when skilled people were scarce and many other priorities demanded attention.

Biases and Distortions Caused by Aid

Aid can have unintended as well as intended effects. Offers of financial assistance by donors can bias the judgments made by recipients about policy and use of revenues. In some cases the

biases introduced are intentional and constructive, as in the case of conditional aid for policy reform, or when aid is used to induce recipients to make long-term investments in agricultural education or research. But aid tying, the excessive recurrent costs, enlarged government bureaucracies, and government involvement in inappropriate activities are distortions that can be costly or counterproductive.

During the 1960s major biases of this type were avoided primarily because the Nigerian Government and AID were in full agreement about the priority of education in fostering Nigerian development. Nevertheless, agricultural education might have received less attention without AID's influence; and the design of several institutions would have benefited less from the experience and faculty of a US land grant university.

The constraints of aid tying have had adverse consequences on the development impact of aid. The Foreign Assistance Act requires that AID projects use US-made commodities except when waivers are obtained. The documentation from Nigeria indicates that in a number of cases this stipulation frustrated and hindered project implementation, reducing impact.

Donors are often able to convince governments to involve themselves in activities that they would not otherwise undertake. Unfortunate examples of this can be found in the Soil and Water Conservation Project, in cooperatives projects, and in livestock projects. In contrast, the creation of IITA and of the link between the IARCs and the Nigerian research system is unlikely to

have occurred without donor influence.

During the early 1970s the attitude of the government toward donors made it difficult for the latter to influence what was done. The government was very selective about aid, rejecting any kind of conditions on the funds being offered. The breakdown of negotiations over AID's "Development Assistance Program" in 1972 was unfortunate because it eliminated AID's ability to have an influence, which almost certainly would have been in Nigeria's long-term interest. AID recognized that Nigeria lacked the "absorptive capacity" to deal effectively with its oil windfalls; acceptance of the Plan could have been beneficial in developing Nigeria's capacity to manage its own development, especially in the agriculture sector.

AID's current program in Nigeria for health, population, and nutrition has been a low-profile attempt at policy reform, but not through conditionality of aid. Working in conjunction with UNICEF and the World Bank, this effort appears to have had an impact in the past two years. The Nigerian Government has recently moved strongly in support of programs such as immunization and oral rehydration throughout the country, with staff training and demonstrations in every state. More important, Nigeria has recently formulated a National Population Strategy -- signed by the President in 1986. In addition, Family Planning Action Programs are being started in every state. This is an important shift since there remains a great deal of pronatal sentiment in West Africa. The new policy calls for lowering the population growth rate by

encouraging the voluntary adoption of birth-control methods in a way that is compatible with attaining economic and social goals. The plan supports adoption of these measures as a code of ethics

CHAPTER VII. CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes the findings of this study. Conclusions and recommendations are based primarily on evidence from AID's experience in Nigeria. But because the author is also examining AID programs in Senegal and Cameroon, it is unavoidable -- and probably desirable -- that these conclusions reflect some of what has been learned from these countries as well. A set of conclusions are presented that reflect generalizations and patterns that emerge from the study. And recommendations are put forth which are believed to be reasonable proposals for improving the effectiveness of AID.

Several matters should be kept in mind when interpreting these conclusions and recommendations. First, the study is focused on the development objectives of aid and therefore will understate its overall effectiveness by ignoring the extent to which other objectives -- such as political or humanitarian ones -- are met. Second, the analysis is based to a large extent on judgment and subjective assessment of impact and success. Different people view the impact of AID's activities differently. Disparate assessments were weighed along with the available evidence in an effort to reach a balanced conclusion. Third, an attempt has been made to be "forward-looking" and practical in drawing conclusions and making

recommendations by focusing on modifications in what AID does and the way it does it that are realistic.

Certain of the recommendations based on AID's Nigeria experience may be less relevant today both because of changes in the way AID operates and because of the time elapsed since the mission was closed. At the same time, comparisons between Nigeria and the other two countries studied permit a longitudinal perspective of AID because the Senegal and Cameroon programs grew in importance in the period after the Nigeria program closed.

Conclusions

1. Agricultural education in general, and Ahmadu Bello University in particular, has been a success for AID in Nigeria. The evidence suggests that these are relatively durable investments and that the potential impact is high. The confluence of favorable circumstances that contributed to the success of ABU include the commitment to education by the Nigerians from the start, the ability of Kansas State University to persuade many of its best and most experienced staff to go to ABU, the fifteen-year involvement by KSU, and the presence of many experienced expatriate staff at ABU both before and after the time that AID was providing assistance. The existence of a crop and livestock research program, dating back to the 1920s, was a critical element and an important foundation for AID's program.

The effort to develop the Faculty of Veterinary Medicine appears to have benefited from the fact that veterinary medicine,

as practiced in the US can be applied in Nigeria with only small modifications. Unlike other specialties, such as agronomy or range management, veterinary medicine is a body of knowledge that is largely transferable. Needless to say, modifications are required to adapt to Nigerian conditions, but the core of scientific knowledge is much the same.

2. Scholarship programs such as AFGRAD and Future Agricultural Leaders are relatively low-cost, effective, and durable investments in human capital. They can obviously have a high return given the scarcity of well-trained individuals in Africa.

3. The lack of adequate monitoring, thorough evaluations and other documentation, has not only limited this study from being more exact, but has also limited AID's ability to learn from its experience. A number of AID's projects in Nigeria left evaluators with no way to measure whether the intended gains for agriculture were being achieved.

4. The prevalence of "technological optimism," or the belief that transfer of available technologies would solve Nigeria's problems, resulted in costly mistakes. Food crop, export crop, and livestock activities were among those that suffered. By the end of the 1960s, disillusionment with these efforts led to a retrenchment and shift toward research, data collection, and analysis since it was recognized that the solutions were more complex than first thought. Often this technological optimism was accompanied by a belief that peasant farmers were inefficient and tradition-bound.

5. In several cases AID has failed to learn from its own

mistakes. Projects that failed in Nigeria in the 1960s (livestock, extension, seed multiplication) were repeated in the late 1970s in Cameroon and Senegal with similarly disappointing results.

6. The tying of aid has limited AID's impact in some cases. The evidence of this is found abundantly in project evaluations and other documents. The most costly effect is the inability to keep US-manufactured equipment and vehicles running for lack of spare parts. This limits the accomplishments of the project and exacerbates the recurrent cost problems faced by recipient governments.

7. IITA has not yet produced research results similar to those of more successful IARCs. But recent achievements, and a reorganization of IITA, indicate progress toward fulfilling its potential role in Africa. The IARCs can provide a means of overcoming some of the "small-country" problems that keep many African countries from developing effective national research systems because they cannot support or develop the "critical mass" of scientific expertise required. Links between the IARCs themselves, and with national programs, are essential and need to be strengthened. Arrangements such as SAFGRAD are complex and show less promise.

Recommendations

1. AID should continue to invest in human capital, both through participant training and through support for educational institutions. These investments must be carefully balanced with

current and future demand for specific skills, but the costs are relatively low and the payoffs can be high.

2. AID should continue its support for agricultural research through IITA and the CGIAR system. Links with national programs can be effective. The complex arrangement by which SAFGRAD was created works against the development of a strong, sustained, and institutionally sound research network. The ICRISAT regional center at Niamey, Niger has advantages over SAFGRAD for performing the needed task of supporting and strengthening research in the semi-arid regions of West Africa.

3. AID should continue to help African countries to develop their pool of economically useful knowledge about their agricultural resources. Evidence from Nigeria and throughout Africa indicates that the lack of sufficient data on agricultural resources and of other agriculturally related statistics is a serious constraint on effective planning and policymaking (Jaeger 1987a; 1987b; Spencer 1986). To be effective, agricultural planning and policy need to be based on the kind of data that is still largely unavailable.

4. AID should view projects based on expected productivity gains from specific technologies with great skepticism. These types of projects do not necessarily contribute to the "generalized process of capital accumulation," and the technologies promoted have often been inappropriate.

5. AID should give a high priority to monitoring, evaluation, and impact measurement. Measuring the impact of AID's activities

as they are being implemented is crucial to making sound decisions about their continuation, and is important in guiding these investments toward more appropriate and effective procedures and designs. AID's procedures for documenting projects have clearly improved since the mid-1970s. However, AID needs to monitor "impact indicators" to produce more consistent and systematic evaluations -- including perhaps "after end-of-project evaluations" to be done on a selective basis two to five years after project completion.

6. Long-term commitments are needed in durable and proven investments. The most positive AID-supported activity, support for Ahmadu Bello University, has received AID support for fifteen years, and both education and research have proven records in other parts of the world. The importance of the length of AID's involvement is underscored by the fact that after fifteen years of support, IITA has only recently begun to show signs of making a significant contribution. And many of those questioned about the KSU association with ABU felt that, after fifteen years, the project was still terminated prematurely and too abruptly.

APPENDIX

Table A1. AID/Nigeria Agricultural Project obligation
(in thousands of dollars)

Project title	Number	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Ag.Prod.& Dist.-West	62011050	3146	812	789	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Prod.& Dist.- East	62011094	1209	396	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.prod.& Dist.-North	62011201	3574	763	1670	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag. education	62011606	3874	1133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
University Ag. Ed.	62011701	2058	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Supply Investig.	62011702	581	21	816	132	130	88	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hadejia Valley	62011703	365	370	428	28	50	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Credit & Co-ops	62011082	135	42	162	132	153	86	64	68	109	155	0	0	0	0	0	0	0	0	0	0	0	0
Ag. Statistics	6200204	310	51	128	5	95	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fisheries Development	6200704	272	13	237	65	77	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Plan.& Advis.Serv.	6200212	719	200	497	541	566	582	561	433	484	18	0	0	0	0	0	0	0	0	0	0	0	0
University of Nigeria	6200602	4868	579	1403	1369	570	679	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calabar-Ikom Road	6200215	350	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Ed.Res.& Ext.-East	6200722	0	1000	1449	1270	218	74	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Faculty of Ag.- Ife	6200742	0	0	1439	295	19	275	639	698	620	521	908	617	0	0	-69	0	0	0	0	0	0	0
Fac.Ag.& Vet.Med.-ABU	6200743	0	0	1728	753	400	402	556	546	564	603	1594	0	0	0	-58	0	0	0	0	0	0	0
Ag.Ed.- West Nigeria	6200744	0	0	1310	527	149	77	266	304	118	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Ed.- North Nigeria	6200745	0	0	1793	199	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future Ag. Leaders	6200748	0	0	2613	1019	454	195	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rubber Development	6200749	0	0	112	123	112	105	75	126	141	100	0	0	0	0	0	0	0	0	0	0	0	0
Ag. Cooperatives	6200750	0	0	88	11	24	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Dev.Studies & Eval.	6200755	0	0	223	1047	337	407	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Econ.Dev.Anal.& Plan.	6200756	0	0	0	300	21	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Special Self-Help	6200757	0	0	40	38	22	34	41	49	31	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Res. & Ext.- West	6200764	0	0	0	403	387	419	161	131	39	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Engineering - West	6200765	0	0	931	143	112	119	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Livestock Devel.-West	6200767	0	0	0	197	220	178	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Econ.& Mkting-West	6200768	0	0	136	2	0	1	22	63	129	323	-40	0	0	0	0	0	0	0	0	0	0	0
Land/Water Resource-E	6200769	0	0	871	264	85	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Extension - North	6200770	0	0	1006	274	241	280	972	839	642	516	-77	0	0	0	0	0	0	0	0	0	0	0
Ag.Engineering -North	6200771	0	0	254	80	80	61	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Land/Water Resource-N	6200772	0	0	931	396	288	253	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Soil/Water Conserv.-N	6200773	0	0	278	174	144	130	169	194	104	93	0	0	0	0	0	0	0	0	0	0	0	0
Livestock Dev.- North	6200774	0	0	3424	758	485	528	484	313	183	1	0	0	0	0	0	0	0	0	0	0	0	0
Faculty Ag.& Vet.Med.	6200783	0	0	0	0	0	60	0	0	300	36	0	0	0	0	0	0	0	0	0	0	0	0
Rice/Maize Production	6200798	0	0	0	0	0	0	0	0	72	277	599	258	1414	0	-399	0	0	0	0	0	0	0
Vet. Faculty, ABU	6200817	0	0	0	0	0	0	0	475	401	306	935	810	2154	0	0	-106	0	0	0	0	0	0
Program Grant	6200818	0	0	0	0	0	0	0	0	0	0	2500	0	1220	0	-81	-9	110	0	0	0	0	0
Ag.Ext-Mid-West	6200780	0	0	0	138	110	102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calabar-Ikom Road	6200005	6000	0	0	0	0	0	2800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Research*CTR Umudike	6200011	0	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table A2. AID/Nigeria Agricultural Project Expenditures
(in thousands of dollars)

Project title	Number	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1978	1979	1980	1981	1982	1983	1984
Ag.Prod.& Dist.-West	62011050	1839	533	1306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Prod.& Dist.- East	62011094	515	495	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.prod.& Dist.-North	62011201	1542	447	1326	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag. education	62011606	1340	866	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
University Ag. Ed.	62011701	36	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Supply Investig.	62011702	274	93	606	183	200	-7	148	11	0	1	0	0	0	0	0	0	0	0	0	0	0
Madejia Valley	62011703	290	316	390	40	58	-3	-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Credit & Co-ops	62011082	127	21	44	28	233	97	86	3	120	221	3	1	0	0	0	0	0	0	0	0	0
Ag. Statistics	6200204	140	57	93	110	119	43	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fisheries Development	6200704	59	42	152	159	121	30	-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Plan.& Advis.Serv.	6200212	647	223	408	543	585	559	589	448	433	71	-10	2	0	-2	0	0	0	0	0	0	0
University of Nigeria	6200602	2178	1116	1584	1649	1452	794	4	161	58	-145	118	160	5	0	0	0	0	0	0	0	0
Calabar-Ikom Road	6200215	343	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Ed.Res.& Ext.-East	6200722	0	0	1127	684	925	493	51	89	-9	2	2	0	0	0	0	0	0	0	0	0	0
Faculty of Ag.- Ife	6200742	0	0	47	321	477	510	534	741	357	924	934	657	357	226	0	0	0	0	0	0	0
Fac.Ag.& Vet.Med.-ABU	6200743	0	0	292	480	1051	736	699	805	376	902	959	735	93	76	0	0	0	0	0	0	0
Ag.Ed.- West Nigeria	6200744	0	0	666	350	256	216	167	572	151	222	0	-28	0	0	0	0	0	0	0	0	0
Ag.Ed.- North Nigeria	6200745	0	0	1170	290	274	-23	121	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Future Ag. Leaders	6200748	0	0	1629	840	891	285	476	111	-64	-3	-11	0	0	0	0	0	0	0	0	0	0
Rubber Development	6200749	0	0	47	327	109	43	84	136	130	158	-8	3	9	1	0	0	0	0	0	0	0
Ag. Cooperatives	6200750	0	0	3	12	70	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Dev.Studies & Eval.	6200755	0	0	3	18	549	642	472	96	-54	-57	0	64	0	0	0	0	0	0	0	0	0
Econ.Dev.Anal.& Plan.	6200756	0	0	0	21	20	-1	0	45	0	0	0	0	0	0	0	0	0	0	0	0	0
Special Self-Help	6200757	0	0	0	46	23	14	32	74	35	5	1	-3	0	0	0	0	0	0	0	0	0
Ag.Res. & Ext.- West	6200764	0	0	0	476	351	374	205	123	66	17	-13	0	0	0	0	0	0	0	0	0	0
Ag.Engineering - West	6200765	0	0	635	255	160	115	186	-12	0	0	0	0	0	0	0	0	0	0	0	0	0
Livestock Devel.-West	6200767	0	0	0	277	240	154	54	-3	-2	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Econ.& Mktng-West	6200768	0	0	136	9	1	0	20	52	113	337	-38	0	0	0	0	0	0	0	0	0	0
Land/Water Resource E	6200769	0	0	665	273	214	62	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Extension - North	6200770	0	0	824	305	323	223	920	867	783	544	-46	0	0	0	0	0	0	0	0	0	0
Ag.Engineering -North	6200771	0	0	824	305	323	223	920	867	783	544	-46	0	0	0	0	0	0	0	0	0	0
Land/Water Resource-N	6200772	0	0	550	234	439	218	198	-1	-11	0	0	0	0	0	0	0	0	0	0	0	0
Soil/Water Conserv.-N	6200773	0	0	146	69	136	157	262	149	144	86	-17	1	-7	0	0	0	0	0	0	0	0
Livestock Dev.- North	6200774	0	0	1933	1000	471	546	774	307	256	42	-60	0	0	-37	0	0	0	0	0	0	0
Faculty Ag.& Vet.Med.	6200783	0	0	0	0	0	0	0	0	42	340	-56	1	0	0	0	0	0	0	0	0	0
Rice/Maize Production	6200798	0	0	0	0	0	0	0	0	44	284	157	130	450	535	37	0	0	0	0	0	0
Vet. Faculty, ABU	6200817	0	0	0	0	0	0	0	0	445	490	595	747	1120	936	8	0	0	0	0	0	0
Program Grant	6200818	0	0	0	0	0	0	0	0	0	0	0	75	1782	425	803	432	28	145	462	-295	0
Ag.Ext-Mid-West	6200780	0	0	0	27	121	92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calibar-Ikom Road	6200805	6000	0	0	0	0	0	2800	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ag.Research CTR Umudike	6200811	0	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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