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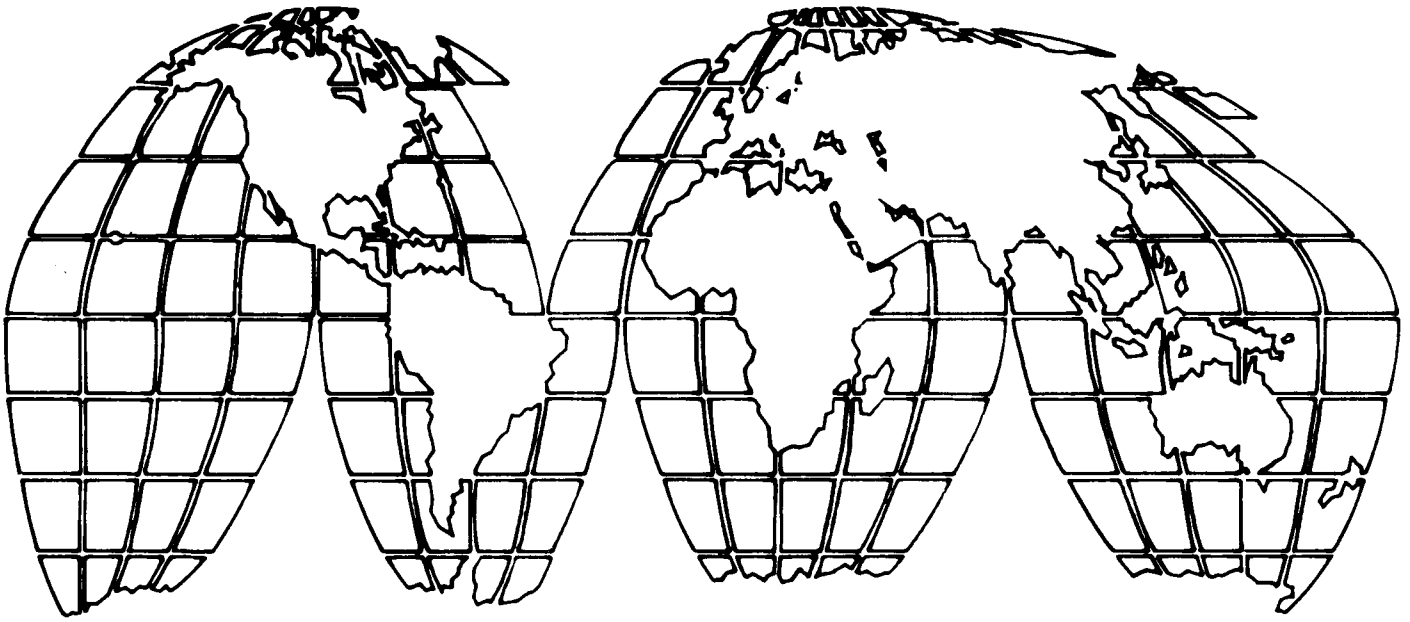

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AN ASSESSMENT OF A.I.D. ACTIVITIES TO PROMOTE AGRICULTURAL AND RURAL DEVELOPMENT IN SUB-SAHARAN AFRICA

A.I.D. EVALUATION SPECIAL STUDY NO. 54

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April 1987

The views and interpretations expressed in this report are those of the authors and should not be attributed to the Agency for International Development.

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FOREWORD

Following the change in the U.S. Administration in 1981, a new cadre of managers joined the Agency for International Development (A.I.D.). They challenged conventional development thinking, asking hard questions about the slow pace of Africa's development. Policies in many African countries were seen as hindering rather than promoting development. The new managers changed the focus of U.S. assistance. They emphasized a more prominent role for the private sector as the key to economic growth and urged a reduced role for the state.

In the same year, the World Bank issued its report Accelerated Development in Sub-Saharan Africa: An Agenda for Action. Referred to as the Berg Report (after one of its principal authors), it also questioned the direction and progress of development in Africa. It cited inappropriate policies as a key factor impeding economic growth. In the wake of this report, donors more critically examined the effectiveness of their policies and programs in Africa. Evaluation took on new importance.

In 1984, under the leadership of the World Bank, eight donors joined in an effort to learn from the past. The United States, the Federal Republic of Germany, France, Sweden, Norway, Great Britain, the European Economic Community, and the Bank agreed to take a comparative and retrospective look at their assistance to African agricultural development. The period covered was to be from 1970-1984, but this was ultimately extended to encompass the past 25 years.

Six countries were selected as the focus of the effort. They represent different development philosophies, span three ecological zones, and include both anglophone and francophone Africa. Chosen were Kenya, Malawi, and Tanzania in east Africa and Cameroon, Nigeria, and Senegal in the west.

Under the management of Uma Lele of the World Bank, the study had three components: the relation between domestic policies and agricultural development, the politics of agricultural policy, and the effectiveness of donor assistance.

In 1985 a multidisciplinary team of American experts began their assessment of A.I.D. programs in the six countries. Authors Bruce Johnston, Allan Hoben, William Jaeger, and Dirk Dijkerman focused on the lasting effectiveness of A.I.D.'s work. The team produced six individual country reports. The substance of the six country documents was synthesized and resulted in the present study.

The findings and conclusions are highly important. Some readers may be surprised to learn that many of the constraints to African development cited here are not technical. Rather, they are social, institutional, political, and economic--the "people part" of development. These are sometimes the most difficult constraints to identify because documentary reviews--the analytical method usually employed--do not always bring them to light. Further, these constraints are often the most difficult to overcome because they can seldom be rectified by a technical solution.

The authors conclude that "human capital accumulation"--knowledge, skills, competence, confidence--is perhaps the finest contribution of U.S. assistance. They suggest that A.I.D. needs to achieve a balance between the "bottom up" thrust of the New Directions era and the "top down" approach that seems to characterize current macro policy reform efforts. Yet, citing the diversity of Africa's political, cultural, and economic systems, the authors rightfully warn us that their recommendations should be seen as broad guidelines rather than rigid prescriptions. Africa's diversity, they tell us, requires customized development plans for individual countries based on each country's specific needs.

Results of the overall Managing Agricultural Development in Africa (MADIA) effort (the World Bank study of which this report is a part) should be in by mid-1988. Researchers and policymakers from Africa, Europe, and North America will join to review the findings. Their implications will be discussed at a meeting planned for the summer of 1988. As the studies are completed and published, the benefits from this work should find practical applications. New directions for the development of agriculture in Africa are likely to emerge. This retrospective look at the development experience will be a valuable tool to help us plot these new directions with our partners in Africa.

Gerald Cashion
Office of Development Planning
Bureau for Africa
Agency for International Development

GLOSSARY

AFGRAD	-	African Graduate Fellowship Program
A.I.D.	-	Agency for International Development
CCC	-	Commodity Credit Corporation
CDSS	-	Country Development Strategy Statement, the current USAID Mission planning document
CGIAR	-	Consultative Group for International Agricultural Research
CILSS	-	Permanent Committee for Drought Prevention in the Sahel (Comite Inter-Etats pour la Lutte contre la Secheresse dans le Sahel)
CIMMYT	-	International Center for the Improvement of Maize and Wheat
CIMMYT/EA	-	East Africa office of the International Center for the Improvement of Maize and Wheat
CIP	-	commodity import program
CNRA	-	National Center for Agricultural Research, Senegal (Centre National de Recherches Agronomique)
CSNRD	-	Consortium for the Study of Nigerian Rural Development
Development Assistance	-	One of the categories of funding A.I.D. receives from Congress. Development Assistance is further broken down by functional account (see below).
DAC	-	Development Assistance Committee
Danida	-	Danish Aid Organization
DAP	-	Development Assistance Plan, the USAID Mission planning document that preceded the Country Development Strategy Statement
EAC	-	East Africa Community
EEC	-	European Economic Community

GLOSSARY (cont.)

EPRP	-	Economic Policy Reform Program. Now referred to as the Africa Economic Policy Reform Program (AEPRP).
functional accounts	-	The functional accounts are the subaccounts of Development Assistance. Examples of functional accounts include Health and Population, Agriculture, Rural Development and Nutrition, and Child Survival. Congress sets the levels of the various functional accounts to direct the A.I.D. program to certain areas.
FAA	-	Foreign Assistance Act. This legislation guides A.I.D., but not food aid, which is guided by PL 480.
FAO	-	Food and Agriculture Organization
FAR	-	Federal Acquisition Regulations
FSR	-	farming systems research
IAR	-	Institute for Agricultural Research (Nigeria)
IBRD	-	International Bank for Reconstruction and Development (World Bank)
ICA	-	International Cooperation Agency, one of A.I.D.'s predecessors
ICRISAT	-	International Crops Research Institute for the Semi-Arid Tropics
IDA	-	International Development Association (World Bank)
IFAD	-	International Fund for Agricultural Development
IFDC	-	International Fertilizer Development Center
IFPRI	-	International Food Policy Research Institute
IMF	-	International Monetary Fund
IITA	-	International Institute for Tropical Agriculture
INADES	-	Regional Agricultural Training in Africa Project

GLOSSARY (cont.)

INTERAF	-	The Inter-African Fellowship Program, an African higher education program (scholarships)
IRRI	-	International Rice Research Institute
KARI	-	Kenya Agricultural Research Institute
MADIA	-	Managing Agricultural Development in Africa; the World Bank study of which this report is a part
MARE	-	Malawi Agricultural Research and Extension project
MSP	-	Mutual Security Program. The umbrella term given to the various programs and agencies that were A.I.D.'s predecessors.
NCRE	-	National Cereals Research and Extension, Cameroon
OAU/STRC	-	Organization for African Unity, Scientific and Technical Research Commission
ODA	-	official development assistance
OECD	-	Organization for Economic Cooperation and Development
OMB	-	Office of Management and Budget
Project Identification Document	-	A short paper outlining the essentials of the proposed project and preliminary in nature.
Project Paper	-	A.I.D.'s project planning document on which A.I.D./Washington approval is based.
PRE	-	Private Enterprise Bureau. One of the A.I.D. bureaus with worldwide responsibilities.
PROSEM	-	Seed Multiplication project, Cameroon (Projet Semencier)
PVO	-	private voluntary organization. PVOs are synonymous with nongovernmental organizations and voluntary agencies.

GLOSSARY (cont.)

REDSO/ESA	-	Regional Economic Development Support Offices for Eastern and Southern Africa. REDSO/ESA is based in Kenya.
S&T	-	Science and Technology Bureau. One of the A.I.D. bureaus with worldwide responsibilities.
SAFGRAD	-	Semi-Arid Food Grains Research and Development
SAP	-	USAID/Kenya's Structural Adjustment Program
SECID	-	South East Consortium for International Development
TAP	-	Technical Assistance Pool, Kenya
UNDP	-	United Nations Development Program
USAID	-	U.S. Agency for International Development. The term commonly used to refer to Agency's field Missions.
USDA	-	U.S. Department of Agriculture
WARDA	-	West African Rice Development Authority
WHO	-	World Health Organization

1. INTRODUCTION

The Agency for International Development (A.I.D.) has been providing a substantial though fluctuating level of assistance to Sub-Saharan Africa for agricultural and rural development since the early 1960s. The objective of this study is to improve our understanding of A.I.D.'s role in Sub-Saharan Africa generally. Such understanding is essential in order to recommend feasible changes--both in program content and in organizational procedures--that can make future A.I.D. efforts in Sub-Saharan Africa more effective. The study also seeks to identify the types of activities in which A.I.D. has a comparative advantage.

A distinctive feature of this study is its emphasis on how A.I.D.'s activities have contributed to achieving the long-run goals of agricultural and rural development. This is a much more difficult task than evaluating projects in terms of specific inputs and outputs, such as providing technical assistance or building a road. In carrying out this task the study team has

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lectic approach that is comparative, empirical, historical, and contextual. Both objective and subjective evidence are used to make judgments about the effectiveness and developmental impact of A.I.D.'s activities. To make the study manageable and as well founded on facts as possible, it is limited to A.I.D.'s experience in six countries--Cameroon, Kenya, Malawi, Nigeria, Senegal, and Tanzania. Focusing on these countries has permitted the study team to closely examine that experience while at the same time forcing the team to reckon with a considerable range of variation. Similarities and differences among the six countries have suggested a number of generalizations that are derived from the detailed studies of A.I.D.'s projects and programs in the six countries (see Dijkerman 1987a, b, c; Jaeger 1987a, b, c).

The study is based on A.I.D. records in Washington and in the six countries, including Congressional Presentations, Annual Budget Submissions, Country Development Strategy Statements, Project Papers, evaluations, audits, and end-of-tour reports. Considerable reliance has also been placed on interviews with A.I.D. and former A.I.D. employees and contractors, host country nationals, and other individuals with relevant knowledge of the countries. The work has been iterative. Team members have shared their knowledge in the process of preparing successive drafts of the country studies and this synthesis report. The drafts have elicited invaluable comments and suggestions from past and present A.I.D. officials and others familiar with various phases of A.I.D.'s experience, and these have been taken into account in subsequent revisions.

The study is institutional in that it seeks to understand how A.I.D.'s decisions about resource allocation and implementation have been shaped by their environment, both in Washington

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and in country Missions. In addition to internal organizational constraints, attention is paid to the influence of Congressional directives and oversight and other aspects of the Agency's external environment.

Finally, the approach is historical and contextual in that it attempts to place A.I.D.'s activities in a broader historical and foreign policy setting and in the context of conditions prevailing in each of the study countries. Given the few "success stories" and the relatively short period during which countries in Sub-Saharan Africa have been pursuing development goals as independent nations, we have felt it important to broaden the inquiry. Thus we have drawn on lessons learned from experience in other regions, while also being careful to recognize significant differences between conditions in Sub-Saharan Africa and in other developing regions.

This study of A.I.D.'s activities is being carried out as part of the broader World Bank study of Managing Agricultural Development in Africa (MADIA), which has been of great value to the study team. For example, before this A.I.D. study began, draft studies commissioned by the World Bank had been completed on the political economy of agricultural development for each of the six MADIA countries: Cameroon, Kenya, Malawi, Nigeria, Senegal, and Tanzania. These monographs provided an up-to-date and valuable summary of government agricultural policies and programs in each study country. Similarly, the substantial amount of work that had been and is being done to assess the effectiveness of the World Bank's agricultural activities in the MADIA countries provided useful guidance for working out the methodology for this study. Interaction with members of the World Bank MADIA team engaged in other components of the Bank study--markets and prices, research and technology, factor markets, macroeconomic policies, and "external shocks"--has also been extremely helpful. Opportunities to interact with the teams carrying out the studies of the bilateral assistance programs of the United Kingdom, Sweden, Denmark, France, and West Germany and of the activities of the European Economic Community (EEC) in the study countries has been more limited but nevertheless of considerable value.

The six MADIA countries covered in this study are quite diverse. For example, their resource endowments range from good to mediocre; their population concentrations range from relatively dense to relatively sparse; some are in East Africa and some in West Africa; and some are anglophone whereas others are francophone. Their inclusion in the MADIA study was influenced by the fact that they have experienced more stable political and policy environments than countries such as Zaire, Ethiopia, or Uganda. Only Zaire and Sudan have received more assistance from the United States than has Nigeria. Kenya, Tanzania, and Senegal also rank among the top 11 African countries that have received

assistance from the United States between 1946 and 1985 (Copson et al. 1986, Table 8).

To assess the effectiveness of A.I.D.'s activities, it is necessary to try to answer four questions that are crucial to determining whether various types of activities can be expected to make a significant and lasting contribution to a country's agricultural and rural development. First, should the project or other activity be undertaken? (Is it a critical element of well-conceived strategies for agricultural and rural development? Is it capable of having a catalytic effect in the recipient country?) Second, is the country environment favorable? (Is there local political support for the activity? Does the activity fit into a reasonable sequence among important and complementary activities?) Third, does the United States have a comparative advantage for a particular type of activity in terms of experience, technical expertise, and institutional models appropriate to the host country's needs and context? And fourth, what are the prospects for effective design and implementation of the project considering the constraints imposed by A.I.D.'s procedures and its bureaucratic and policy environment? Given the modest levels of A.I.D. funding currently available and in prospect, the need is particularly acute to determine priorities based on the responses to those four questions (and consideration of the assistance being provided by other donors).

The first question is especially difficult to answer because of the lack of a consensus about the type of development strategies A.I.D. should promote. For example, a recent survey of U.S. aid to Africa carried out by the Congressional Research Service (Copson et al. 1986, xi) argues that there is a continuing "tension in the debate over U.S. assistance for African development between 'top-down' and 'bottom-up' strategies of economic growth."

A main thesis of the present study, deriving from its historical perspective, is that this common polarization of the debate is based on an unfortunate and misleading dichotomy between growth and equity.

Over the past 35 years a good deal of cumulative progress has been made in our understanding of the complex processes of agricultural and rural development. Asian experience especially has emphasized that the trade-offs between growth and equity objectives can be minimized if serious attention is given to devising and implementing development strategies that are well balanced and effective in furthering multiple objectives.

Therefore, the present study seeks to draw on the most important lessons of the past to outline an analytical framework for assessing A.I.D.'s effectiveness in supporting agricultural and rural development. Despite the continuing controversy, a

consensus is emerging among development specialists that policies and programs should be effective in attaining multiple objectives. In particular, agricultural strategies are needed that are effective in simultaneously accelerating the growth of agricultural output and generating opportunities for productive employment for a large and growing labor force. Most development specialists would also agree that programs to complete the half-completed demographic transition by reducing fertility are essential components of rural development strategies. A consensus is also emerging that expanding access of the rural population to basic health services, aimed especially at reducing excessively high rates of infant and child mortality, merits priority as an end in itself as well as an essential complement to effective family planning programs.

The exciting challenge of this study and of the overall MADIA study is that they might actually have a positive impact on the design and implementation of future programs to promote agricultural and rural development. The need to make progress toward more coherent and effective strategies for external assistance in Sub-Saharan Africa seems especially crucial for several reasons.[1] First is the obvious fact that the current food and agricultural situation in Sub-Saharan Africa is, in general, so unacceptable. It is probable that conditions will continue to deteriorate in most countries unless there is a shift to more effective policies and programs on the part of donors and national governments. Second is the great importance of external assistance in total investment and development expenditure in all but a few African countries; foreign aid from all sources typically accounts for roughly half of such expenditure. Third is the large aggregate amounts of foreign aid provided by a large number of donors--bilateral and multilateral. The second and third factors underscore the need to coordinate external assistance activities so that they support coherent, well-balanced, and feasible strategies for agricultural and rural development. But such coordination is very difficult to achieve because of the multiplicity of donors and the lack of consensus concerning the critical elements to be given priority in strategies for agricultural and rural development.

In principle, the government of a recipient country should coordinate the foreign assistance that it accepts. But the very countries for which coordination is most important are the ones

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[1]A very thoughtful end-of-career report by Martin Billings (1985) concludes that at least a third of all A.I.D. agricultural projects have had no lasting impact and that very few have operated after the end of donor support at more than 75 percent of installed capacity. That sobering conclusion would probably apply to most of the agricultural projects supported by donors in tropical Africa.

that tend to be least capable of being selective about accepting foreign aid and most lacking in the administrative capacity required to coordinate a large number of aid projects supported by numerous donors. Indeed, the time that the limited number of experienced and competent policymakers in a developing country must spend in discussions and negotiations with numerous delegations from donor agencies is one of the obstacles to ministries of agriculture being able to design, implement, supervise, evaluate, and redesign their agricultural policies and programs. One senior government official in a planning ministry, where these problems are equally serious, stressed "the incredibly high opportunity cost of the time of senior policymakers that is devoted to so many meetings with donor representatives."

1.1 Overview of the Report

Section 2 summarizes the evolution of A.I.D. policy and strategy in Sub-Saharan Africa from the early 1960s to the present. The emphasis is on examining the influence of evolving U.S. policy interests in that area and the ways in which African programs have been shaped by the broader context of U.S. foreign assistance programs since World War II. Section 3 presents an analysis of the level and content of A.I.D. assistance to Sub-Saharan Africa and the six study countries. In the preparation of the country reports, a great deal of time was devoted to using available documentation to estimate a sectoral breakdown of U.S. assistance and a breakdown of assistance to the agricultural sector by subsector--agricultural education and training, livestock, agricultural research, and so on. Comparative data for all of Sub-Saharan Africa are also presented, but aggregate figures obscure the importance of differences and changes over time in A.I.D.'s country focus and in the priority given to different sectors and subsectors.

Section 4 presents the analytical framework that guided the assessment of A.I.D.'s effectiveness in supporting agricultural and rural development. The framework is based on a conceptualization of development as a generalized process of capital accumulation in which "capital" is broadly defined to include human capital, capital in the form of economically useful knowledge, institutional capital, physical capital, and productive natural resources. Thus the central issue is not whether emphasis should be placed on "capital accumulation" or on "basic human needs" and human resources. What is critical and inherently difficult is to achieve balanced increases in the per capita availability of those various forms of capital in the proportions most appropriate for augmenting the productivity of human labor, for enhancing the well-being of the rural population, and for fostering overall economic and social progress. As previously noted, drawing on the progress of the past three or four decades is essential to an

understanding of these issues in order to move beyond current controversy toward the consensus required for more consistent and effective efforts by national governments and by the United States and other donors.

Particular attention is given in Section 5 to the ways in which the effectiveness of U.S. assistance is conditioned by A.I.D.'s decision-making processes and programming procedures. The study argues that the way in which the Agency has evolved has created a career system and numerous incentives, constraints, and procedures that militate against good programming, design, and implementation.

The evidence from the six countries with respect to the impact of the major categories of agricultural activities supported by A.I.D. is summarized in Section 6. A.I.D.'s support for rural infrastructure projects and for rural health and population-related activities is also examined. The conclusions presented in Section 7 integrate the discussion in Section 4 on the types of activities that merit priority in well-conceived strategies for agricultural and rural development with the analysis in Section 5 of A.I.D.'s institutional constraints and the assessment in Section 6 of the impact of the major types of activities carried out in the six countries. Those conclusions lead to recommendations that take into account the constraints and opportunities that determine the possibilities for action to improve the future effectiveness of A.I.D.'s efforts to support agricultural and rural development in Africa.

1.2 The Challenge Confronting A.I.D. in Sub-Saharan Africa

Certain distinctive conditions in Sub-Saharan Africa have limited the impact of efforts by A.I.D. and other donors to foster agricultural and rural development. In addition to the difficulties that result from lack of infrastructure and other types of physical capital and from an environment that is extremely heterogeneous and frequently harsh, these countries suffered from exceptionally severe shortages of human and social capital and very limited administrative capacity when they began their development efforts as independent nations. Moreover, problems related to "technological optimism" and unrealistic expectations engendered by the remarkable success of the Marshall Plan have affected countries in Africa as they have all other developing countries.

The challenge of development has been much more formidable than was the task of reconstruction in Western Europe, where human capital and institutions were basically intact despite the wartime destruction of physical capital.

The contrast is especially stark in Sub-Saharan Africa, where the lack of educational and other institutions and the deficiencies in trained and experienced administrators and technicians and in prior research and knowledge were so great. Changes in the foreign policy environment, such as the New Directions legislation of the early 1970s, also gave rise to problems that were much more severe than in Asian countries.

We conclude, however, on a note of guarded optimism. A.I.D. has demonstrated considerable ability to learn from experience. Unfortunately, the evidence also reveals a tendency to repeat mistakes. Certainly there is scope for increasing the effectiveness of future efforts by A.I.D. and other donors. Still, there are no magic formulas for overcoming the formidable problems that confront the countries of Sub-Saharan Africa.

2. HISTORICAL OVERVIEW OF A.I.D.'S POLICY AND STRATEGY IN AFRICA

The involvement of A.I.D. and its predecessor agencies in Sub-Saharan Africa must be understood in the context of U.S. foreign policy interests and dominant paradigms of development. These have varied over the years, influencing the thrust and content of U.S. assistance to Africa. Indeed, one of the most striking characteristics of this assistance has been its instability. Continuity has been lacking in country focus, program size, development policy, strategy, bilateral or regional organization of assistance, modes of programming (projects and sector loans), and target groups. Nor has there been continuity in support for agricultural production, higher agricultural education, institution building in general, infrastructure and major capital projects, or agricultural research. The effects of this instability on the way A.I.D. operates and on the impact of its programs are traced in the later sections of this report. This section provides a brief and necessarily oversimplified outline of the major shifts in U.S. foreign and development policy that have affected assistance to Africa. For convenience, the discussion is organized by presidential administration.

2.1 The Truman Years: 1945-1953

The basic paradigm for American foreign assistance crystallized during the Truman years with the success of the Marshall Plan. That success seemed to demonstrate that in a relatively short time aid could secure the political health of a region, help ordinary people, and promote U.S. commercial interests.

Encouraged by the success of the Marshall Plan, U.S. involvement in foreign assistance spread rapidly. It was widely assumed that the process of modernization would be easy and rapid and that it could be triggered by an infusion of Western technology and American know-how and, as something of an afterthought, by the installation of American democratic and participatory principles through community development. In 1947 the United States assumed the responsibility of "stopping communism" in Greece and Turkey, and over the next 2 years the model was extended to East and Southeast Asia through the new Economic Cooperation Administration. By 1950 Truman's Point Four program had been established through the Act for International Development. Subsumed under the Mutual Security Act of 1951 after the outbreak of the Korean War, the Point Four program had little impact on Africa during Truman's Administration, although some assistance was channeled to British and French territories through the colonial powers.

2.2 The Eisenhower Years: 1954-1960

During the Eisenhower years foreign assistance was characterized by a strong concern with security. Increasing criticism of the ineffectiveness of aid led to a number of legislative and administrative responses; most significant was the emergence of the Development Loan Fund.

The Cold War cast its shadow over U.S. assistance to Africa in these years. References to potential communist influence in Africa recur throughout the programming documents of the International Cooperation Agency (ICA), A.I.D.'s predecessor (see, for example, ICA 1958, 195; ICA 1960, 83). The few activities that the United States undertook in Sub-Saharan Africa were managed by a "desk" in the Europe bureau of ICA.

Early U.S. interests in Sub-Saharan Africa were shaped by the British presence on the continent. Assistance grew as British dependencies moved toward independence because it was expected that "British assistance... [to its territories would] not be available at... current levels following independence" (ICA 1958, 195). Thus, the United States stepped in to ensure a peaceful transition to governments oriented to the Western point of view. Noticeably absent in the documents of this period are comments pertaining to French-speaking areas of Africa.

At this time technical assistance to Africa was still informed by the conviction that the United States knew what had to be done and that the assistance effort was only temporary, requiring annual approval for its continuation. Regarding agriculture, it was assumed uncritically that available technologies were appropriate to African conditions and that they would

diffuse rapidly if seeded thorough agricultural extension services.

2.3 The Kennedy Years: 1961-1963

Under the Kennedy Administration, emphasis was put on pursuing political security and mutually beneficial economic growth through new developmental initiatives to foster economic "take-off." The launching of the Decade of Development was given impetus in 1961 with the passage of the Foreign Assistance Act establishing the Agency for International Development (A.I.D.), which combined and supplanted the ICA and the Development Loan Fund.

Other organizational changes were also made, including the creation of functionally specific funding categories. Among them were development loans and grants for long-range economic and social development, support for "urgent strategic and political requirements," and contributions to multilateral organizations (A.I.D. 1961, 19). Four regional bureaus were also created, including one for Africa. The large technical offices, such as the Food and Agriculture Office, were dissolved and the functions included in the bureaus.

Two significant operational changes were also made. One was the creation of the "no-year funding" category. This was intended to correct the several "major disadvantages" of annual funding levels, particularly "the pressure on A.I.D. personnel to enter into hasty obligations of funds prior to the end of the fiscal year or face the loss of funds, with future funding in subsequent fiscal years being uncertain" (A.I.D. 1962, 19). No-year funding was also intended to reduce the significance of any particular annual aid level as a sign of U.S. political approval. Finally, it was hoped that no-year funding would enable officials of A.I.D. and the recipient country to negotiate projects and programs in good faith. The other operational change was the creation of a research budget to be used to address issues of worldwide development importance. Agricultural research was one of several topics addressed.

The Kennedy Administration was faced with growing concern over the economic effects of foreign aid on the U.S. economy. The central issue was the effect of aid on U.S. trade, competition, and balance of payments. Because foreign aid is not a good whose supply and demand is regulated by the market, a political equilibrium had to be sought. In response to this problem, procurement was increasingly tied to U.S. sources. Already in 1959, about 47 percent of ICA monies had been spent in the United States. By FY 1962, tied aid had risen to 73 percent of obliga-

tions and was projected to increase further (A.I.D. 1962, 47-48).

In Africa the Kennedy Administration identified an urgent need to assist with the "long-range process of nation building" in the newly independent nations (A.I.D. 1962, 145). Continuing concern with East-West relations is evident in A.I.D. program documents, which noted that "the African peoples are preoccupied with their own problems and are not as aware of or concerned about the conflict between the free world and the Communist bloc as ...[the United States] might wish. Nor do they always have a full understanding of the real nature and the crucial seriousness of this conflict" (A.I.D. 1962, 145). U.S. assistance, it was argued, would help them remain free of other influences until they became aware of the political situation.

Countries were divided into three categories, which determined the type and amount of assistance they received. The first group included nations that had most of the "prerequisites for development other than adequate external assistance" (A.I.D. 1962, 146). These prerequisites were a public administration that was relatively well advanced, or at least the strong nucleus of one; long-term prospects for political stability; and, by implication, an adequate planning capability. Countries in this category "would generally receive priority attention in the allocation of U.S. development assistance" (A.I.D. 1962, 146). Under these criteria, Tanzania and Nigeria were judged to be qualified and were given access to flexible no-year funds.

Countries in the second category lacked some of the prerequisites for development, including adequate leadership, trained manpower, and planning capability. "Assurances of financial assistance over an extended period of time would be considered premature" for these countries (A.I.D. 1962, 146). Assistance was to be directed to activities in which the country itself was making an effort. It could also be directed to improving manpower and basic economic facilities.

The third category consisted of "newly independent countries and dependent territories which are not likely to reach a point of becoming self-sustaining for some time to come" (A.I.D. 1962, 147). Aid to these countries would have to be flexible, experimental in nature, and unlikely to create an obligation for increased support by the United States or other donors.

During the Kennedy years A.I.D. bilateral programs expanded exponentially. By 1965 the Agency had field Missions and programs in the great majority of the newly independent Sub-Saharan nations.

The dominant development paradigm retained its emphasis on the need to spread existing technologies. The transfer and

extension of U.S. agricultural technology continued to be regarded as the best way to ensure that the rural sector could contribute more to development. The assumption that available technology was relevant to situations in developing countries was only beginning to be questioned.

At the same time, the development paradigm was broadened and further articulated by a line of reasoning developed in W.W. Rostow's influential work on the "stages of development." Rostow himself served during the Kennedy Administration in the Department of State, of which A.I.D. was a part. His work suggested specific objectives concerning what had to be done to achieve development and presented targets and a rough timetable for this to take place. Rostow's assessment of the nature of development helped to sustain the optimistic belief among Americans and Africans alike that it would take about 10 years to achieve self-sustained "take-off" in Africa.

Although there is not necessarily a bias against agriculture in Rostow's thesis, his emphasis on increased savings, investment, and productivity through industrialization may have led to the neglect of the role of agriculture. Taxing agriculture to finance industrialization, a pattern already established in Africa, was encouraged under this approach. The Rostowian ethos also appears to have reinforced the bias of many African leaders and planners in favor of capital-intensive agricultural development.

Agricultural research received little support, not only because of the optimistic extension bias already noted but also because A.I.D. personnel believed that funding research would violate the spirit of A.I.D.'s restriction on supporting food-grain production that conflicted with U.S. interests. A.I.D. did, however, try to strengthen higher education, including agricultural education, and to foster cooperation and coordination at the subregional level.

2.4 The Johnson Years: 1964-1968

Shifts in A.I.D.'s African assistance program during the Johnson years reflected the growing skepticism concerning the effectiveness of aid, as well as the increasing scale of the Vietnam War.

The traditional security arguments for giving assistance to Africa remained essentially unchanged. A.I.D. documents from the period note that "Communist attempts to gain footholds in Africa continued in 1965... but suffered setbacks" (A.I.D. 1966, 184). The following year, A.I.D. documents claim that the "Soviet bloc and Chinese Communists are making a determined bid for influence

in East Africa" (A.I.D. 1967a, 265). Other references to the communist threat are scattered throughout A.I.D. budget requests to Congress (A.I.D. 1965, 180, 183, 191; A.I.D. 1967a, 259); but the argument appears to have lost some of its influence with the Congress in light of the events in Vietnam. The undeclared war was making increasingly large fiscal demands, while A.I.D.'s growing association with the Central Intelligence Agency (CIA) and "public safety" programs (i.e., police training) were undermining its public image.

During the first half of the Johnson period there was little change in A.I.D.'s Africa strategy. But as the Vietnam War became an increasing burden on the U.S. Government budget, A.I.D. felt the impact. The central question was how foreign aid could be made more effective. The Administration responded to these concerns by making two major changes in the way A.I.D. operated. The first change, the introduction of program loans, was Agency-wide. The second, retrenchment to fewer bilateral programs complemented by regional and multilateral modes of funding, was specific to Africa.

The introduction of program loans in 1965 was intended to increase the effectiveness of aid without increasing funding levels. Donor policies and funding biases had been creating problems for aid recipients. The "preference of many aid donors for financing specific large projects...[had] reinforced the tendency in many less developed countries to over-emphasize large-scale public sector projects and to neglect small investment and the private sector" (A.I.D. 1965, 19). Program loans would correct this tendency, it was hoped, by "providing incentive for major improvement in self-help...reforms and improved development policies... [they would also] provide the logical opportunity for review and agreement on the countries' general economic policies, often in conjunction with the IMF [International Monetary Fund] and IBRD [International Bank for Reconstruction and Development]" (A.I.D. 1965, 20). Initially, the focus of the discussion was on the Near East, Asia, and Latin America rather than on Africa.

The following year A.I.D. presented a more comprehensive statement of its change in emphasis to Congress. The major components were greater attention to policy formulation, promotion of the private sector, institution building, and technology.

A.I.D. began to regard small farmers as more "rational" than it had previously. The Agency noted that agriculture was "the largest private sector in the less developed world... [and that] no farmer [would] adopt new technology unless [conditions made it] rational for him to do so" (A.I.D. 1966, 14-15). A.I.D. proposed to address this problem by providing and training experts to help create good policies for farm progress. Among the

elements considered essential for success were land reform and credit.

It was argued that "by making [program] loans conditional on adoption of more liberal policies, A.I.D. [could] double their ... effect" (A.I.D. 1966, 29). Once again, the United States was claiming to know what the problems were and how to solve them. U.S. technology was still perceived to be appropriate, and the poor policy environment was blamed for preventing large-scale adoption of improved techniques. In FY 1967, about one-third of A.I.D.'s agricultural assistance supported this program loan concept by financing the exportation of fertilizer and of U.S. equipment and engineering skills to build plant capacity in the countries themselves (A.I.D. 1966, 19).

The U.S. private sector was involved through an expansion of the investment guarantee program. Cooley loans (based on local currency generated through the sale of PL 480 commodities) and investment survey programs were already available. The August 1965 report by the Advisory Committee on Private Sector Investment in Foreign Aid helped formulate this policy thrust. A.I.D. also supported and encouraged nongovernmental organizations to expand their development activities (A.I.D. 1966, 33). Moreover, it gave "increased assistance...to help create or expand extension systems, cooperative and farm credit associations, agricultural training schools, marketing outlets, and rural transport systems" through greater involvement of land grant colleges, crop associations, and specialized Federal agencies. In part these new thrusts were an attempt to broaden the base of support for foreign aid. The strategy was not an unqualified success. Assistance to agricultural research remained a small component--perhaps, as one study suggests, because the Administration was still grappling with periodic problems of surplus production at home.

The institutional development of agricultural colleges in Africa was less controversial than was directly productive research. In any case the impact on production would be long in coming, thus less threatening to U.S. interest groups.

The second major change in A.I.D.'s activities in Africa was based on the recommendations of a report by Ambassador Edward Korry, which was commissioned by President Johnson. The report, which is still classified, recommended three main changes in U.S. assistance policy for Africa:

-- A shift toward a multilateral and regional framework. Multilateral organizations would take the lead, and A.I.D. would fill in with specific activities (A.I.D. 1967b, 3).

-- Substantive emphasis on education and training, food, population, health, private sector, and physical infrastructure.

-- A change in A.I.D.'s organizational structure in Africa. Only 10 of the 33 Missions and field offices were allowed to stay in operation. The remaining 22 were phased out as projects underway were completed. A.I.D. would "make no new bilateral development loan or technical cooperation starts [new projects] in these countries" (A.I.D. 1967a, 261).

2.5 The Nixon-Ford Years: 1969-1976

During the first years of this period the foreign aid program was increasingly criticized in Congress. Its support eroded badly. Although the foreign assistance bill had been defeated in 1971, the foreign aid program survived by slim margins on continuing resolutions until the passage of the New Directions legislation in 1973.

Disillusionment with A.I.D.'s effectiveness was based in part on a growing body of studies showing that low-income groups were not benefiting from economic development efforts. Unhappiness with the conduct of the Vietnam War and the problems of the Nixon Administration were undoubtedly also contributing factors to the disillusionment.

The substantive changes introduced by the New Directions legislation in 1973 included the following: a greater emphasis on project aid directly targeted to low-income groups; an emphasis on greater participation of intended beneficiaries in identifying their needs, designing solutions, and evaluating results; and a redefinition of authorization and appropriation categories as functional sectors (food and agriculture, health and population, and education and human resources). The legislation also had the effect of greatly reducing support for agricultural research, higher education, infrastructure, and large capital projects. The unfortunate impact of this interpretation of the New Directions legislation on A.I.D. programs in Africa is discussed at greater length in Section 6.

A.I.D.'s task of coping with the major policy shifts of the New Directions legislation were exacerbated by personnel and management changes that had also been set in motion by Congressional unhappiness with A.I.D.'s performance and with its role in Vietnam. The most important of these were as follows:

-- A reduction in A.I.D.'s work force and operating budget.

-- A deliberate decision to retain and recruit development "generalists" as direct-hire employees and to hire experts and technicians as needed on fixed-term contracts. A.I.D. thus suffered attrition and aging in the ranks of its economists, agriculturalists, and others.

-- Changes in the way A.I.D. managed its program cycle, which had the net effect of greatly centralizing control in Washington. The amount of bureaucratic paperwork was increased exponentially by introducing a three-tiered system of complex and detailed project documentation and a more time-consuming and repetitious system of project review. The effects of these changes are discussed in Section 5.

At the same time that A.I.D. was being stretched thin by the need to increase its "bureaucratic productivity" with reduced personnel resources, unforeseen circumstances were leading it to quietly abandon the policy of retrenchment that it had adopted in response to the Korry Report. With the growth of assistance in the aftermath of the Sahelian drought in the early 1970s, the regional approach was gradually replaced once again by a steadily increasing number of bilateral programs and Missions. The combination of rapid expansion in country coverage, seemingly unworkable new policy guidelines, and a reduced work force did little to improve the morale of A.I.D.'s employees or the integrity of its work.

2.6 The Carter Years: 1977-1980

There were no dramatic developments in A.I.D.'s African program during the Carter years. The Carter Administration and the Congress continued to support the New Directions policies, with somewhat more emphasis on human rights and some hair-splitting rhetoric on the "meaning of basic human needs." Modifications in PL 480 (Title III) enabled A.I.D. to program food aid for up to 5 years and to convert the loan to a grant if agreed-upon policy reforms were made by the recipient government.

Initially, A.I.D.'s budget increased moderately; the number of full Missions in Africa continued to rise and personnel ceilings in the field began to creep upward in grudging recognition by the State Department that small, targeted projects were labor-intensive. A.I.D. staff in Kenya and Tanzania, for example, which had declined by 53 percent and 22 percent, respectively, as a result of the Korry Report, had grown by 65 percent and 43 percent by the end of 1979. By the close of Carter's term, however, the U.S. Government's fiscal health was becoming a major

national issue. The planned expansion of foreign assistance was checked, and the theme in Congress and A.I.D./Washington was to "do more with less." Tighter money and personnel levels were being planned.

Tension between A.I.D./Washington and the field continued to engender bureaucratic maneuvering. The Missions sought and attained increased authority for project approval, while Washington added new country-level analytical reporting requirements and review procedures.

Toward the end of the Carter years the limitations of the New Directions projects became more and more evident. Problems of project proliferation, recurrent costs, and excessive state control of markets and input supplies could not be ignored. These factors, and the looming economic crisis brought on by structural adjustment, world economic recession, and the renewal of the Cold War all harbingered the changes that were to come to A.I.D. under the Reagan Administration.

2.7 The Reagan Years: 1981 to the Present

In several important respects the Reagan years have seen A.I.D. return to earlier approaches to assisting Africa. Leadership in foreign aid has shifted once again from the Congress to the White House. There is renewed concern with the spread of communism, the role of private enterprise, and the development of trade and commercial links between the United States and the developing nations. Once again, A.I.D. is giving program assistance in hopes that African governments will make policy reforms. Institution building, particularly in connection with agricultural research and higher agricultural education, are once again in favor.[2]

The rationale for these changes was familiar. Against the background of concern with growing fiscal problems at home and skepticism about foreign aid, the Administration developed a "new" initiative to increase the effectiveness of A.I.D. The "do more with less" theme, started under Carter, was modified to "we can do more with less because we will pursue a different approach." New Directions lost favor as the dominant philosophy, supplanted by policy dialogue, the private sector, technological transfer, and institution building.

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[2]The need for increased spending on agricultural research and higher agricultural education and for policy changes by African governments was recognized to some extent even before the Reagan Administration took office.

To a considerable extent A.I.D.'s "new" approach, however correct it may ultimately prove to be, was born of necessity. With personnel levels cut back still further, the Agency could not continue its labor-intensive targeted project approach. Focusing on policy reforms through nonproject assistance (similar to the program loans of an earlier period) would enable A.I.D. to concentrate its remaining technical resources on the macroeconomic problems of developing countries. The expected policy improvements would create an environment more conducive to private-sector investment, hence development. Technology transfer and institution building would enable this process to proceed more rapidly and efficiently. Money was shifted into the faster disbursing Economic Support Fund account to increase the flexibility of U.S. response to these needs--and to political needs as well.

This shift from project to program aid also coincided with the growing recognition by the donor community of problems involving absorptive capacity and recurrent costs, particularly in Africa. The fast-disbursing Economic Support Fund would address the short-term fiscal needs of the recipient, show U.S. support, and maintain aid levels with fewer personnel.

Judgments concerning the merit of what A.I.D. has accomplished need to be tempered with an appreciation of the extraordinarily fluid and difficult foreign policy environment in which the Agency has had to operate. The next section reviews the instability in the funding for Africa that accompanied the various policy shifts.

3. VOLUME AND COMPOSITION OF ASSISTANCE

The amount and type of assistance provided by A.I.D. to the six countries included in this study shifted in response to changes in U.S. foreign policy, attitudes toward foreign assistance, and the prevailing views of how best to assist Africa. This section provides information on A.I.D.'s activities in each country--levels, breakdown, and evolution--as background to the assessment of A.I.D.'s effectiveness in the following sections.

The countries chosen for the overall MADIA project exhibit both similarities and differences in their resource endowments, their agricultural performance, and their agriculture-related policies. The countries also reflect similarities and differences in A.I.D.'s approach to supporting agricultural and rural development. The types of A.I.D. support in these countries are representative of A.I.D. assistance in Africa in general. For example, the share of A.I.D. funding for education and agriculture in the six countries is similar to that for Africa as a

whole, and food aid represents one-fourth to one-third of U.S. assistance for the six countries and for all of Africa.

This section begins with an overview of aggregate funding levels for U.S. assistance to Sub-Saharan Africa, followed by an overview of the levels, and changes over time, of assistance to the six countries. A synopsis of each country program, drawn from the individual country studies (Dijkerman 1987a, b, c; Jaeger 1987a, b, c) summarizes the evolution of A.I.D.'s activities. Next, a detailed breakdown is given of each A.I.D. country program by sector and subsector, with the focus on the shifts in emphasis over time and the differences among the six countries. Finally, regional and centrally funded activities are considered.

3.1 Overview of U.S. Assistance to Sub-Saharan Africa

U.S. assistance to Africa has been primarily economic, with less than 10 percent going to military support. The economic aid has been provided primarily for development programs, for food aid, and for budgetary support under the Economic Support Fund. Traditionally, Africa has not been the focus of U.S. economic aid, receiving only about 5 percent of the worldwide total before 1978. Since that time Africa's share has risen above 10 percent.

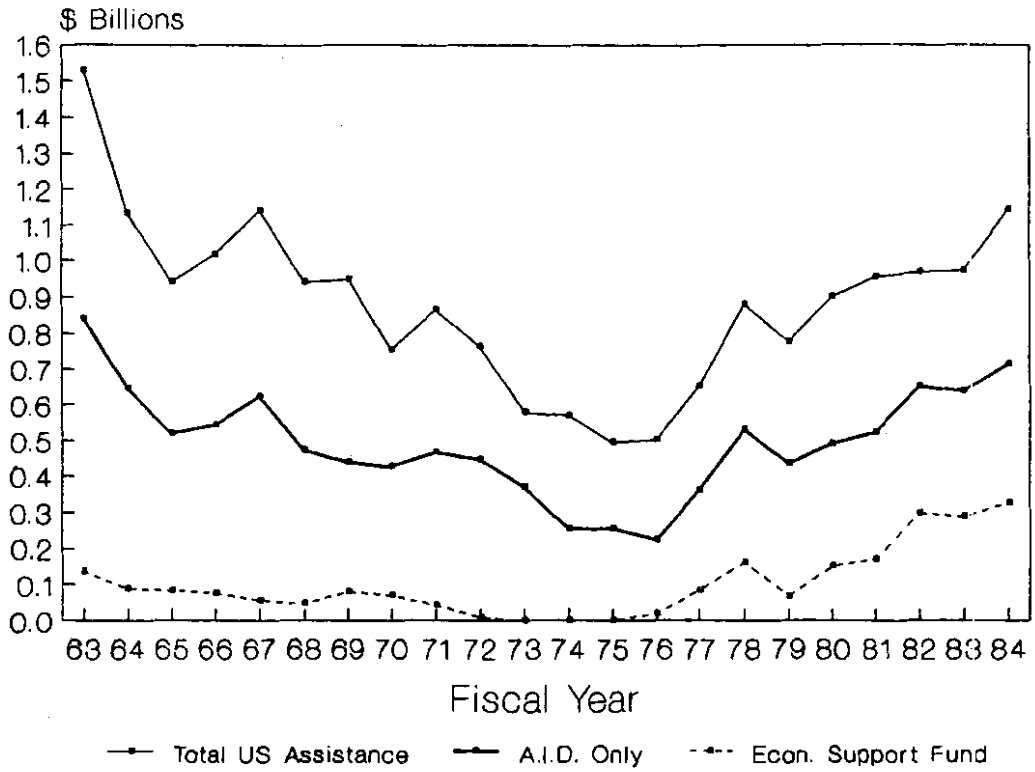
In constant 1983 dollars, U.S. assistance to Africa was more than $1 billion a year in the early 1960s. After declining for over a decade, U.S. assistance to Africa began to rise again in the mid-1970s. Only in the past 3 years has U.S. assistance reached levels similar to those of the early 1960s (Figure 1). The increased U.S. assistance to Africa since 1975 corresponds to the growth in Economic Support Fund programs; economic aid from other sources has remained relatively constant. A.I.D. funding has consistently accounted for between one-half and two-thirds of total U.S. economic assistance in Africa, which also includes food aid, the Peace Corps, and several minor programs.

The main funding sources of U.S. assistance to Africa have changed dramatically since the 1960s, when development programs dominated. Since the mid-1970s, both food aid and Economic Support Fund programs have grown in relative and absolute terms. Since 1980 the two together have constituted more than half of all U.S. economic assistance to Africa: of the total $1.1 billion in aid to Africa in 1984, $333 million was food aid and $346 million was Economic Support Fund assistance.

Economic Support Fund programs, intended to serve U.S. political, security, and economic objectives, provide a rapid-disbursement instrument that is more flexible than other forms of economic assistance. Assistance can take the form of commodity

import programs, cash/budgetary support, or project aid. Economic Support Fund assistance was used in Africa for a brief period in the early 1960s; in the mid-1970s it reemerged as an important part of the aid program. Commodity import programs have accounted for most Economic Support Fund assistance since 1975, although cash/budgetary support has risen since 1983. Project aid has accounted for about 20 percent of Africa's Economic Support Fund programs since 1980 (Copson et al. 1986).

Figure 1. U.S. Economic Assistance to Africa, 1963-1984 (in constant 1983 dollars)



3.2 Assistance Programs in the Six Study Countries

3.2.1 Overview

The amount and the type of U.S. assistance to the six countries in the study differ considerably (see Table 1). Nigeria had the largest program, with a total of $1,208 million in U.S. assistance in constant 1983 dollars between 1963 and 1984. Kenya had the second largest program ($836 million), followed by Tanzania ($645 million), Senegal ($429 million), Cameroon ($278

Table 1. Total U.S. Assistance to the Six Study Countries, 1963-1984
(in thousands of constant 1983 dollars)

	Cameroon	Kenya	Malawi	Nigeria	Senegal	Tanzania
Total U.S. Assistance[a]	277,657	835,673[a]	190,884	1,208,439	428,569	645,309
AID Projects and Programs	213,839	519,418	146,732	943,020	174,311	341,474
Agriculture	85,218	269,296	25,517	284,233	114,716	126,292
Rural Development	90,681	135,855	84,114	36,087	13,385	157,636
Other	37,940	114,267	37,101	623,680	46,210	57,547
PL 480 Food Aid	19,655	181,184	12,168	182,541	192,713	247,723
Other Economic Assistance	44,163	135,071	31,984	82,878	61,545[b]	56,112
Total U.S. Assistance per Capita (average)	$1.36	$2.10	$1.33	$0.61	$3.25	$1.48
Per Capita GNP	$890	$390	$210	$860	$490	$280
Average Ratio of Total U.S. Assistance to GDP (%)	0.17	0.77	0.65	0.09	0.76	0.64
Share of Total U.S. Assistance for Africa 1963-1984 (%)	1.43	4.31	0.98	6.23	2.21	3.33
Share of A.I.D. Assistance for Africa 1963-1984 (%)	1.97	4.78	1.35	8.68	1.61	3.14
U.S. Share of Total ODA[c] for 1970-1984 (%)	6.10	15.40	8.50	22.00	10.40	7.30

[a]Excludes military aid ($245 million for Kenya).
[b]Includes Peace Corps.
[c]ODA is official development assistance.

million), and Malawi ($191 million). (Military aid went only to Kenya and is excluded from these figures.) Of total U.S. assistance to Africa, Nigeria has received more than 6 percent while Malawi has received just under 1 percent. Their shares of A.I.D. funds differ slightly from the shares of total U.S. assistance; of A.I.D. funds, Nigeria received 8.7 percent and Malawi 1.4 percent.[3]

The ranking of the six countries is quite different when the measure used is per capita aid averaged over the 22-year period. With a population of only 6 million, Senegal's average annual assistance was by far the highest: $3.25 per capita. Kenya ranks second with an annual average of $2.10 per capita. Nigeria, with 90 million people (a population 50-percent larger than that of the other five countries combined) is lowest, with an annual average of $0.61 per capita.

As a share of each country's gross domestic product (GDP), U.S. aid to Senegal and Kenya has averaged 0.77 percent, followed closely by Tanzania and Malawi at about 0.65 percent. Cameroon and Nigeria, both petroleum exporters, received much smaller amounts relative to their GDP.

3.2.2 Changes Over Time

The levels of U.S. assistance to these six countries have fluctuated widely over the past 25 years, in part because of changes in U.S. funding levels for Africa as a whole. Figures 2A-3B depict the large year-to-year variation in obligated

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[3]A recent report of the Congressional Research Service (Copson et al. 1986) provides a convenient summary of A.I.D. assistance to Sub-Saharan Africa for the period 1946 to 1985. The following table, in millions of 1985 dollars (rather than in the 1983 dollars used in this chapter) shows the ranking of four of the six countries in this study:

1	Zaire	$1,895	7	Kenya	$951
2	Sudan	$1,687	8	Somalia	$812
3	Nigeria	$1,305	9	Tanzania	$665
4	Ethiopia	$1,298	10	Zambia	$537
5	Liberia	$1,181	11	Senegal	$508
6	Ghana	$1,128			

A breakdown by 5-year periods from 1960 to 1985, also included in the report, shows the sharp changes over time in country emphasis.

funds.[4] Figures 2A and 2B include total U.S. assistance for all six countries; Figures 3A and 3B show A.I.D. funding for the three largest and the three smallest programs, respectively. Only those obligations that are clearly attributable to a specific country are represented in the figures and tables. Regional accounts are discussed below.

As the focus of U.S. foreign assistance in Africa in the 1960s, Nigeria enjoyed annual levels of aid that were by far the highest of the six until 1973 (see Figures 2A-3B). Tanzania also got special attention, receiving "no-year funding" during that period. But since the mid-1970s A.I.D. programs in Nigeria, and more recently in Tanzania, have been curtailed. Kenya is the only country in which U.S. economic assistance has gradually grown over the entire period, a trend explained by Kenya's increased political importance to the United States. Malawi, Cameroon, and Senegal all experienced low and somewhat erratic funding levels until the mid-1970s (see Figure 3B). Since that time each country has had an A.I.D. Mission and a growing program.

The share of U.S. aid in total official development assistance varies considerably for each of the six countries and over time, but is generally small (see Table 2 and Figures 4A and 4B). This means that national economic indicators cannot be used to

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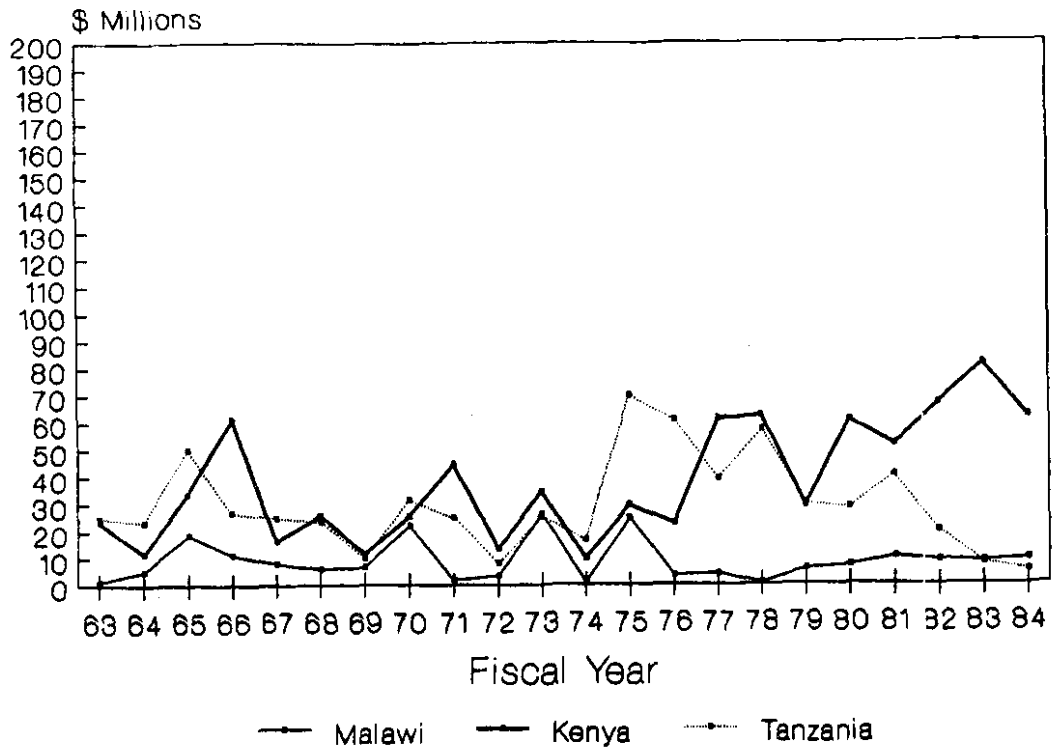
[4]A.I.D. financial data are recorded in two forms, obligations and expenditures. Obligations are incurred when grant or loan agreements (or amendments to them) are signed with a recipient government, university, private voluntary organization, or cooperative development organization. Purchase orders, 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 arise when goods and services have been delivered but payment has not yet been made. Negative obligations can occur when excess funds are "deobligated" and either returned by the USAID Mission to A.I.D./Washington or transferred to another project, or when a project is terminated. Negative expenditures can be recorded when adjustments to accruals are made.

Obligations are used here because they more accurately indicate the timing of decisions, as well as shifts in A.I.D.'s strategy or focus in a country. Expenditures are prone to exhibit a lagged responsiveness to these shifts. How much expenditures and obligations diverge depends on the project. In some cases funds are obligated regularly over the life of the project; in other cases the entire project cost is obligated in the first year of the project. As a result, the year-to-year variation in funding for particular projects or sectors may be exaggerated when obligation data are used.

Figure 2A. U.S. Economic Assistance to Malawi, Kenya,* and Tanzania, 1963-1984 (in constant 1983 dollars)



*Excludes military assistance.

Figure 2B. U.S. Economic Assistance to Senegal, Cameroon, and Nigeria, 1963-1984 (in constant 1983 dollars)

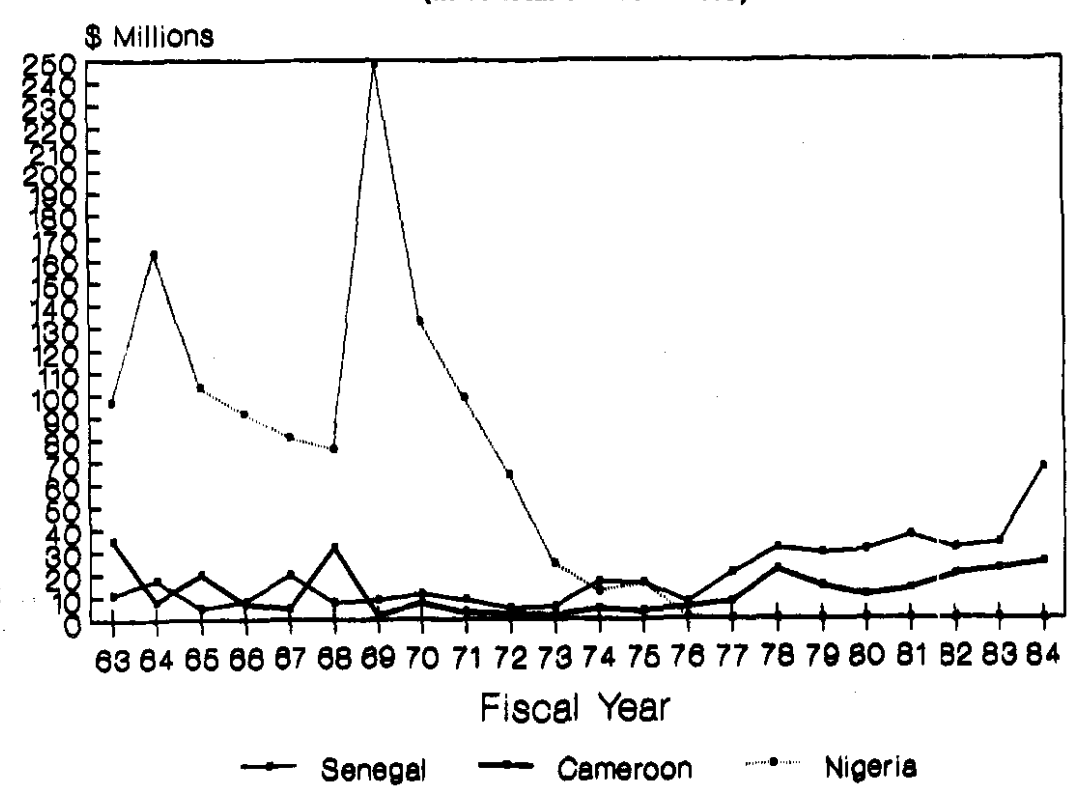


Figure 3A. A.I.D. Project and Program Assistance to Nigeria, Kenya, and Tanzania, 1963-1984 (in constant 1983 dollars)

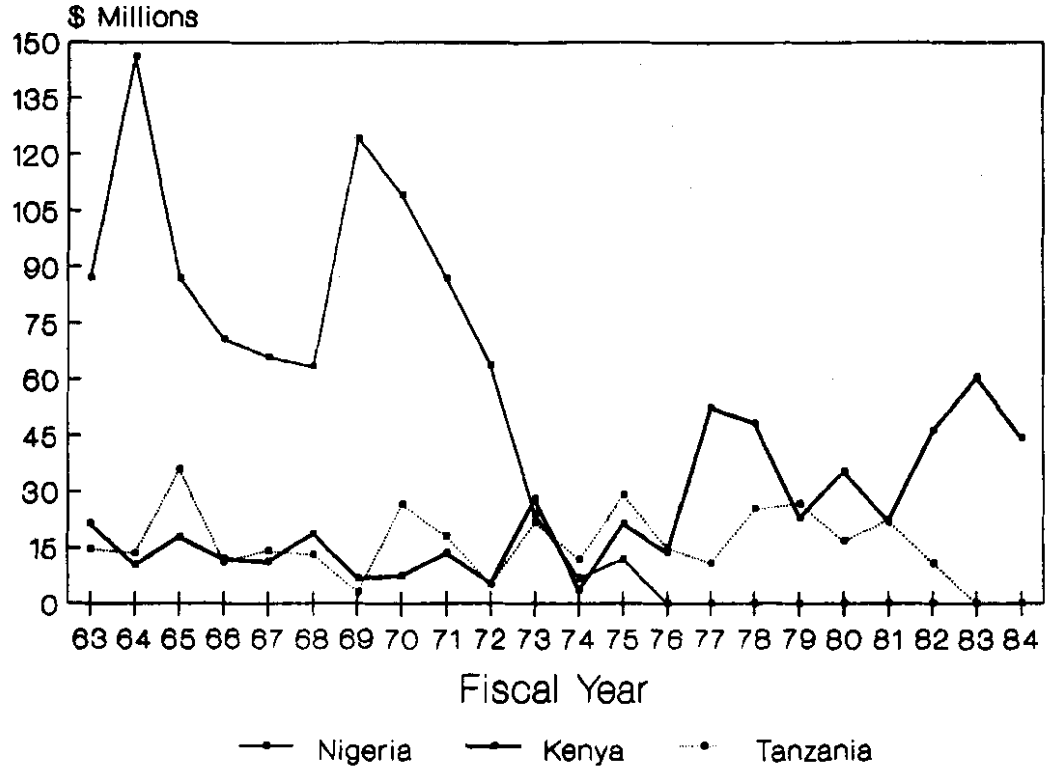


Figure 3B. A.I.D. Project and Program Assistance to Senegal, Cameroon, and Malawi, 1963-1984 (in constant 1983 dollars)

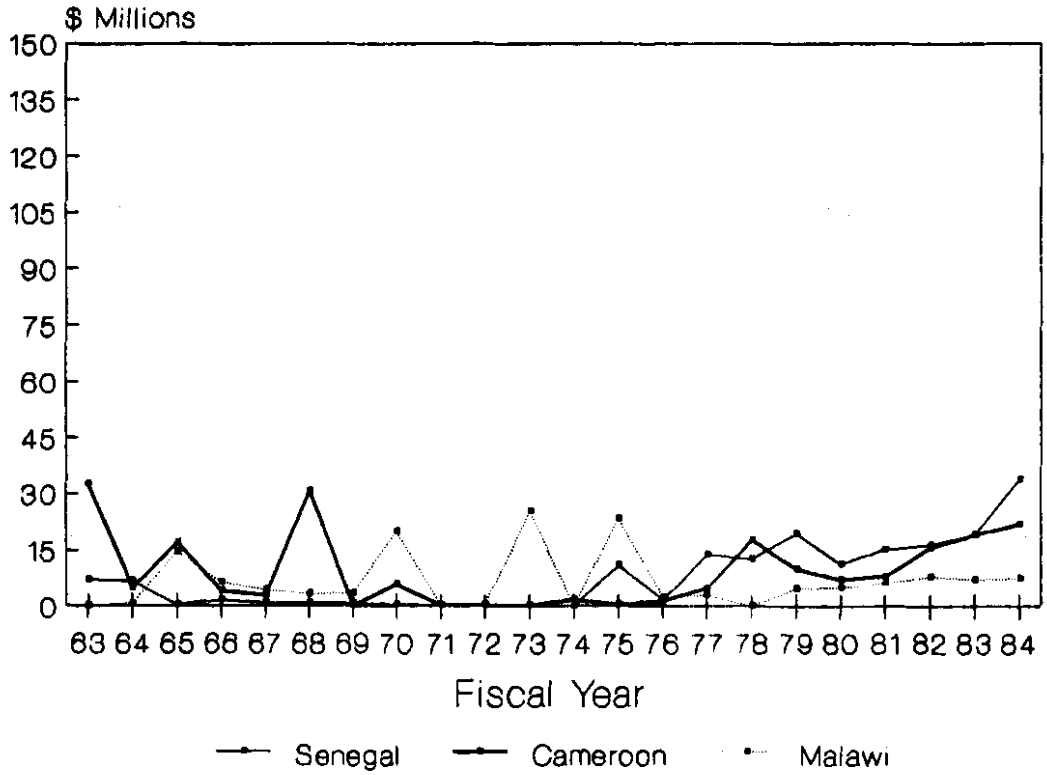


Table 2. U.S. Share of Total Official Development Assistance for the Six Study Countries, 1970-1984
(percentages)

Country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Cameroon	4.3	2.5	1.7	1.6	4.5	2.0	2.9	3.4	11.2	5.4	4.4	6.9	9.5	16.7	13.6
Kenya	15.2	24.8	7.6	17.7	5.0	15.7	9.9	29.1	22.8	8.4	16.7	12.0	14.2	20.2	14.9
Malawi	20.5	1.9	4.0	43.8	1.2	26.9	3.9	3.7	0.4	4.0	5.1	7.5	7.5	6.9	6.1
Nigeria	42.7	34.7	31.6	15.9	10.4	13.6	1.3	-1.7	-0.4	0.5	0.0	0.0	0.0	0.0	0.0
Senegal	9.4	6.2	4.1	3.5	7.4	8.6	4.2	12.9	12.6	9.6	12.7	9.7	11.2	10.3	20.8
Tanzania	21.1	14.9	5.4	12.4	6.3	16.6	16.2	8.9	12.2	5.1	4.6	6.0	3.0	1.2	0.9

Figure 4A. U.S. Share of Total Official Development Assistance in Malawi, Kenya, and Tanzania, 1963-1984

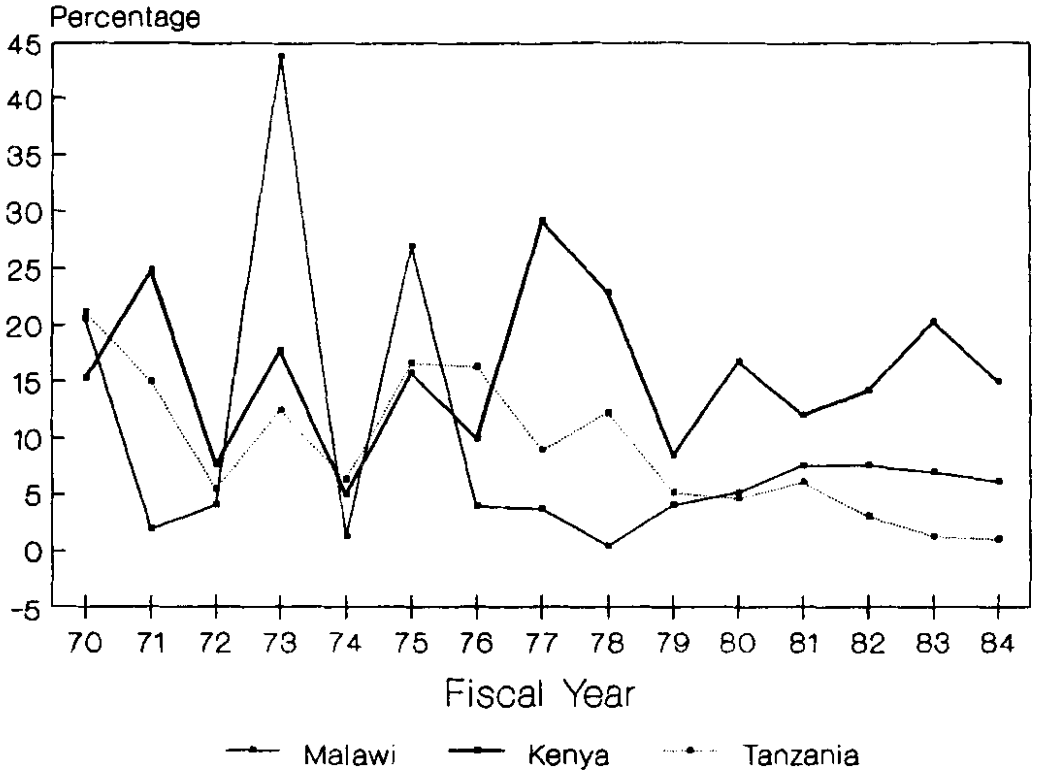
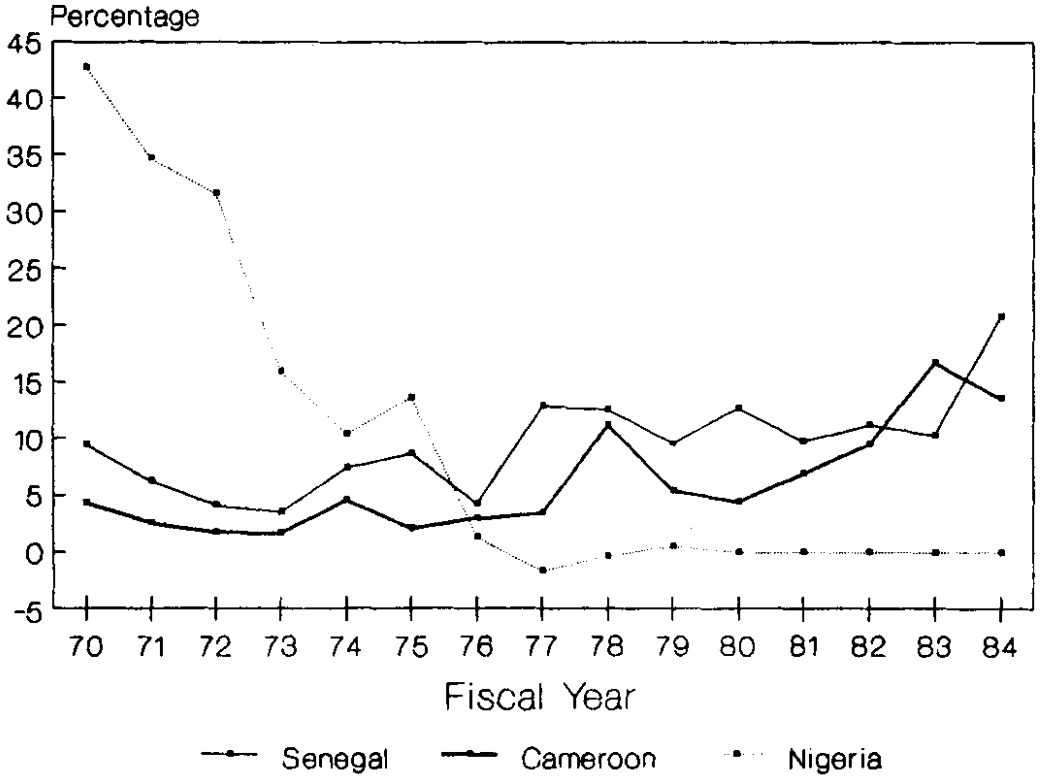


Figure 4B. U.S. Share of Total Official Development Assistance in Senegal, Cameroon, and Nigeria, 1963-1984



help measure the effectiveness or the impact of U.S. aid. Only in Nigeria did U.S. assistance for the period 1970 to 1984 exceed 20 percent of total official development assistance--yet Nigeria has received almost no aid since the mid-1970s. In Kenya, the U.S. share of total official development assistance has remained relatively stable, averaging about 15 percent. In Senegal, the share for the 15-year period is 10 percent, resulting from large food aid commitments in the early 1970s and the growth of the A.I.D. program in the late 1970s. Tanzania received between 5 and 20 percent of its official development assistance from the United States until the late 1970s. The average U.S. shares for Malawi and Cameroon during this period are small, except for large spikes that represent multiyear infrastructure development projects: highway construction in Malawi and railroads in Cameroon.

In general, the leading source of aid has been the former metropolitan country. This is true with respect to Kenya and Malawi (the United Kingdom) and Senegal and Cameroon (France). However, the United States has been the leading source of aid for Nigeria for the period under observation, and Tanzania has attracted an unusual set of major contributors headed by Sweden and including the World Bank, West Germany, and the Netherlands.

3.3 Country Synopses

The following synopses are drawn from the individual country studies carried out by Dijkerman (1987a, b, c) and Jaeger (1987a, b, c) as part of the MADIA study. The A.I.D. program in each country is first described and then assessed.

3.3.1 Nigeria

The emergence of Nigeria as the focus of U.S. foreign assistance in Africa coincided with Nigerian independence and the creation of A.I.D. in 1961. The stage had been set during the late 1950s by A.I.D.'s predecessor, the International Cooperation Agency, which supported several small but significant activities in agriculture and education. Independent Nigeria was viewed as an ideal candidate to demonstrate the potential for achievements in nation building and economic progress through reliance on democratic institutions and ties with the free world.

The first period of A.I.D. involvement in Nigeria, from 1962 to 1966, saw an unprecedented commitment to Nigeria's development in support of Nigeria's First Development Plan and in collaboration with a consortium led by the International Bank for Reconstruction and Development (IBRD). A.I.D. made an advance commit-

ment of $225 million for manpower training and agricultural development. Its long-term plans, however, were interrupted by the outbreak of civil war in Nigeria in 1966.

During the war years, from 1966 to 1969, no new projects were proposed, but A.I.D. was able to continue most of its ongoing activities, except for those in the eastern region. Despite the war's disruptive effects, A.I.D. kept its resource flows at a relatively stable level.

From 1970 to 1972 A.I.D. was concerned with postwar reconstruction and with reestablishing its program in Nigeria. Additional commitments were made to agriculture and education. In agriculture, support shifted from extension to research activities.

After 1972 A.I.D. began phasing out its Nigeria program, primarily because of the growth of Nigeria's oil industry and the widespread view in the United States that the country was now capable of financing its own development. Nigeria's GDP quadrupled from 1969 to 1974. The oil boom diverted the Government's attention from agriculture. In 1972, A.I.D. proposed a plan to develop Nigeria's management and planning capacity, particularly in agriculture, so that the Government could better manage its oil revenues. But Nigerians were reluctant to agree to the plan and eventually rejected it. Believing that Nigeria no longer wanted or needed assistance, A.I.D. closed its Mission in 1977, and only a small Program Grant continued after 1978.

Nigeria has continued, however, to benefit from A.I.D. assistance through training programs, regional programs such as the Semi-Arid Food Grains Research and Development (SAFGRAD) program, and A.I.D. support of the Consultative Group for International Agricultural Research (CGIAR), which funds the International Institute for Tropical Agriculture (IITA) and other international agricultural research centers active in Nigeria. In addition, A.I.D. is currently supporting a small, centrally funded health and population program.

A.I.D.'s Nigeria program was hindered greatly by the disruptive civil war, the surge in Nigeria's oil revenues, and the effects of policy changes and economic turmoil on the agricultural sector. Nevertheless, A.I.D. appears to have made a significant contribution to Nigeria's agricultural development by providing long-term support for agricultural education, including sustained support over a 16-year period for Ahmadu Bello University and support over shorter periods for the University of Nigeria at Nsukka and the University of Ife. Moreover, through participant training and scholarship programs more than 650 Nigerians have received a college education in the United States.

A number of agricultural activities in the 1960s and early 1970s that sought to expand the production of food crops, export crops, and livestock were less successful. A tendency toward "technological optimism" resulted in some costly mistakes, and a failure to adequately monitor the ongoing projects limited the extent to which A.I.D. was able to learn from those mistakes. In the early 1970s disillusionment with several of these production activities led to retrenchment. A.I.D., recognizing that the solutions were more complex than it first thought, shifted its efforts to research, data collection, and analysis.

3.3.2 Kenya

U.S. assistance to Kenya began in the late 1950s and increased in the early 1960s as A.I.D. activity grew worldwide. The program in Kenya can be divided into three periods: 1960-1972, 1973-1979, and 1980 to the present. In each period, U.S. assistance rose both in nominal and real terms over the previous period, reflecting growing U.S. political interest in Kenya.

In the first period, assistance was low ($4 million a year) and it funded primarily technical assistance personnel. Responding to the country's lack of skilled manpower and narrow export base, the USAID Mission sought to help raise the educational level of Kenyans and to diversify agriculture. Aid to education was directed at strengthening institutional capacity by training Government employees and teachers. In agricultural education, A.I.D. helped to establish a new agricultural school to train extension workers and to expand the University of Nairobi's agricultural, engineering, and veterinary schools. To promote greater diversity in agriculture, A.I.D. implemented a series of livestock projects designed to transfer ranch and rangeland technology to pastoralists in the semiarid parts of Kenya.

The second period began in 1973, coinciding with the introduction of A.I.D.'s New Directions development strategy, a strong Mission effort to increase the size of the A.I.D. program in Kenya, and growing instability in the East Africa region. Building on analyses by the World Bank and the International Labor Organization, the Mission concluded that Kenya was entering a new phase of development in which inadequate resources would be the most serious overall development constraint.

In 1975 the United States increased its economic and military assistance to Kenya because it was one of the few stable countries in the region and it maintained close relations with

the West.[5] To absorb the increased A.I.D. assistance, projects became larger (averaging more than four times the value of projects in the previous period.) The New Directions strategy was in keeping with the Mission's existing emphasis on livestock; it encouraged the Mission to focus on the poor smallholders in arid and semiarid areas and to expand activities in densely populated, high-potential agricultural areas. Besides continuing to finance technical assistance personnel, A.I.D. began to finance the construction of roads and buildings and to provide capital for agricultural credit and fertilizer. Despite the Africa Bureau's reluctance to finance major infrastructure projects during the New Directions period, the Mission managed to gain approval for two large rural road projects and a large umbrella project to finance postsecondary agricultural education at Kenya's main agricultural college.

The beginning of the third period in 1980 was signaled by Kenya's growing economic difficulties and by a military agreement allowing U.S. access to Kenya's major ocean port. U.S. assistance to Kenya rose sharply, not only in return for this military access but also in response to food shortages, which triggered large shipments of food aid. A.I.D. became the largest donor--multilateral or bilateral--in Kenya. A shift in the Agency's strategy, combined with the Kenyan Government's growing management problems and its limited absorptive capacity, led to a new emphasis on policy reform initiatives and support for the private sector.

In agriculture, policy reform issues taken up by A.I.D. after 1980 included liberalization of the maize and fertilizer markets. Efforts to reform the politically sensitive maize market have now dwindled; efforts to reform the fertilizer subsector have continued, but in a more collaborative fashion than had been the case initially. A.I.D. has also pushed for private credit to small and medium-size businesses with links to the rural economy.

The impact of A.I.D.'s activities to increase Kenya's institutional capabilities in agricultural education, planning, research, and livestock has been mixed. When the outcome has been disappointing, the shortfalls seem to have been attributable not only to the common difficulties of institution building, but also to overly optimistic assumptions in the project's design about the ease of changing social and economic relationships. And when an institution's capabilities have improved, as in agricultural education, the contribution of Kenyans to the design

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[5]Military assistance began in 1975 and averaged $18 million a year between 1975 and 1979 (in current dollars). A.I.D. assistance increased from an average of $4.6 million a year in 1963-1974 to an average of $21 million a year in 1975-1979.

and implementation of the A.I.D. project was found to be important.

A number of the activities undertaken by A.I.D. appear to have added to Kenya's stock of physical capital by providing roads (trunk and rural), buildings, and equipment--even though problems of inappropriate equipment and weak maintenance have sometimes limited the impact. A.I.D. has also added to Kenya's stock of human capital. Through participant training components of projects and through regional training programs more than 1,800 Kenyans have been trained overseas by A.I.D.

3.3.3 Tanzania

In the early 1960s U.S. assistance to Tanzania grew as part of the general expansion of A.I.D. activities under President Kennedy's Decade of Development. Throughout the 1960s, A.I.D.'s agricultural strategy for the country was to support education and rural infrastructure projects and to undertake surveys that would provide the basis for future agricultural projects. Education and infrastructure projects accounted for over half of the approximately 60 projects started during this decade. As a result of the USAID Mission's information gathering and analysis, changes were made in the program. Thus a major extension project, started in 1955, was phased out in 1967, when it became evident that appropriate extension themes were lacking and that there were few trained agents with whom to work.

As the 1970s began, the Mission proposed 15 or so crop, livestock, and agricultural education projects based on the results of the earlier surveys. The goal of these projects was to build on the previous efforts in education and infrastructure by creating research, seed multiplication, marketing, and credit institutions to service Tanzania's smallholders. During the early 1970s roughly two-thirds of the projects were approved.

The start of this decade also coincided with the Tanzanian Government's adoption of a number of policy changes designed to implement its new development strategy--a strategy intended to expand state control and broaden the Government's responsibilities. A.I.D. projects ran into difficulties because of the Government's new policies, its lack of commitment to some projects, and its inability to support others. Yet throughout the 1970s few substantive revisions were made in the A.I.D. program, partly because of the similarities between the development rhetoric of Tanzania's President Nyerere and A.I.D.'s own New Directions approach (as well as the approach of the other donors). In addition, the United States had an interest in maintaining a good relationship with Tanzania in the wider context of the political situation in southern Africa.

Beginning about 1980, the USAID Mission adopted a new approach aimed at correcting the distortions caused by Tanzania's development policies. This change was encouraged by A.I.D./Washington and, more generally, by a growing recognition of the importance of a conducive policy environment for development. Although some of these issues--such as Tanzania's agricultural pricing and marketing policies--had been raised in the 1960s, they had been dropped in the 1970s. In the 1980s, A.I.D. undertook a detailed analysis of the impact of Tanzania's domestic policies on the agricultural sector in order to develop a consensus, within the Government and among donors, on the specific causes of the sector's difficulties and possible solutions. The strategy that evolved sought to reduce the role of government and augment the role of market forces in the economy, particularly in the agricultural sector. In part, this shift reflected A.I.D.'s general concern with policy reform and reliance on market forces.

Implementation of the new strategy ceased in 1983 after Tanzania failed to repay part of earlier A.I.D. development loans. A gradual phasing out of the A.I.D. program was set in motion.

The evidence reveals that A.I.D.'s contribution to agricultural and rural development in Tanzania has been limited by the country's chosen development strategy and the resulting general deterioration of the economy, as well as by A.I.D.'s failure to adjust adequately to mounting implementation difficulties. Under these circumstances, A.I.D.'s clearest contribution to long-term development has been to add to the country's stock of human capital. The sustainability of A.I.D.'s contributions to Tanzania's stock of physical capital--roads, buildings, and commodities--and to its institutional capabilities has suffered from a lack of resources for maintenance.

3.3.4 Senegal

A.I.D.'s early program in Senegal was small and focused on technical advice on education, health, and agriculture. A full Mission was originally established but was reduced to two program officers by 1965. In 1968 the USAID Mission was phased out, as were the Missions in many other Sub-Saharan African countries, as a result of the Korry Report recommendations. No new bilateral obligations were made with Senegal during this period; only through regional activities did A.I.D.'s work there continue.

The Sahel drought had an enormous impact on A.I.D.'s activities in West Africa. In 1975 bilateral projects reemerged in Senegal. The first new projects approved were attempts to restore the losses in crops and livestock resulting from the

drought; they included two range management and cattle fattening projects and a cereals production project with a large extension component. Within a few years the program grew to encompass such major long-term efforts as integrated rural development, irrigation, research, and planning.

A.I.D.'s strategy in Senegal was disrupted, beginning in 1978, when an economic crisis left the country near bankruptcy. Shifting its attention away from projects, A.I.D. became involved in the structural adjustment and policy reform initiatives launched by the World Bank and the International Monetary Fund (IMF) in Senegal. Increasingly since 1983, A.I.D. has played an important role, along with these multilateral agencies and the French, in a coordinated effort to bring about reforms that will resolve Senegal's fiscal crisis and stimulate a more productive economy.

An assessment of the Senegal program supports the view that A.I.D., responding to the compelling post-drought situation in Senegal, undertook a set of agricultural production projects--cereals production, livestock management, integrated rural development--that were complex, unproven, and overly ambitious and that did not, in fact, offer the benefits intended. Because of the lack of success of these activities, and in response to the structural problems facing Senegal, A.I.D. began shifting in 1983 to a mix of project and nonproject assistance. These efforts, undertaken in conjunction with the World Bank and IMF, have led to significant progress toward several policy reform objectives.

3.3.5 Cameroon

The A.I.D. program in Cameroon has had four distinct periods. The first period, from 1963 to 1967, was characterized by low levels of aid and no concentration on any particular type of activity. Projects were initiated on their own merits and not necessarily as components of an overall strategy for development. Specific needs of the newly independent nation were addressed: roads, manpower training, and control of cacoa tree disease. Total economic assistance averaged less than $5 million a year.

The second period, 1968 to 1974, brought important changes in the way A.I.D. operated, largely as a result of the Korry Report. As in many Sub-Saharan African countries, so in Cameroon the USAID Mission was phased out. It was only through regional activities, spread over several countries, that A.I.D.'s work in Cameroon continued.

The third period of A.I.D.'s involvement in Cameroon was shaped by two nearly simultaneous events: the adoption of the

New Directions legislation in 1973 and the Sahel drought. Bilateral programs reemerged in most of the countries abandoned after 1967, and aid flows grew. Emphasis was on helping the rural poor (especially in the poorest regions of the country) with programs in food, health and population, education, and human resource development. At about the same time, the Sahel drought brought a great deal of attention to the plight of African countries and mobilized support for alleviating the situation.

Both these events led to a program in Cameroon focusing on the northern part of the country, the poorest region and also the one most seriously affected by the drought. Among the projects launched were ones directed to seed multiplication and cereal research, livestock management, rural water supplies, and the training of young farmers.

The fourth period began with a change in Mission leadership and a "taking stock" of the experience of the late 1970s. In the early 1980s, the overall number of projects was greatly reduced. Fewer but larger projects made up A.I.D.'s program. Agriculture was emphasized--especially research, management, and human resource development. Most of the changes came about not by starting new projects, but by phasing out some activities and enlarging others. Mid-term and end-of-project evaluations conducted prior to 1980 were instrumental in the decisions to abandon, renew, or expand specific activities. The result has been a more consolidated and focused A.I.D. program. Obligations for project and program assistance soared from $7.1 million in 1980 to $22.0 million in 1984. And the agriculture sector's share in total U.S. economic assistance grew from 25 percent in 1977 to 80 percent in 1982.

A review of A.I.D.'s experience in Cameroon leads to several conclusions. Among the specific initiatives of the 1960s, several have resulted in significant contributions: the Trans-Cameroon Railroad still provides an important rail link to the port of Douala, and recipients of A.I.D. scholarships and participant trainees can be found in high positions in both the public and private sectors. In contrast, many of the projects begun in the 1970s after the Sahel drought were less successful. Projects were launched under pressure to act swiftly and to focus on the very poor; thus they often proved of limited effectiveness because of their unrealistic design and short time horizon. In addition, projects were sometimes based on assumed benefits about specific technologies that were not borne out by experience.

A.I.D.'s current Cameroon program includes complementary components in agricultural education, research, management, and planning (including work on an agricultural census and other statistics). For the most part, the result appears to be a coherent strategy for development focused on agriculture. Having a focused program has gained A.I.D. greater influence with the

Cameroonian Government than the size of its program might otherwise warrant.

3.3.6 Malawi

Although U.S. assistance to Malawi began in the late 1950s, it was insignificant until the early 1960s. At that time, A.I.D./Washington guidelines to the Mission in Malawi were to develop a program that would be flexible and experimental and that would not involve long-term commitments for future support. A.I.D. had concluded that Malawi was not likely to reach a stage of self-sustaining economic growth for some time, and U.S. resources were to be channeled to countries with greater development potential or political importance. The small program put together by the USAID Mission in Malawi focused on education--a high priority of the Malawian Government and an obvious need in the newly independent country. During the 1960s, the Mission developed an average of nearly three new projects a year; these included activities to train artisans, teachers, and government employees and a project to establish an agricultural college in cooperation with the United Kingdom. That institution appears to have had a continuing impact in Malawi. A.I.D. also supported information gathering and analysis as well as other types of educational activities.

The second period of A.I.D. assistance began with the closing of the Mission in Malawi in 1969. This action was part of a U.S. effort, spurred by the Korry Report, to reduce costs in Africa and to focus assistance even more on those African countries with the most development potential. In fact, levels of A.I.D. assistance to Malawi did not decline during this period but actually rose through regional programs spawned by U.S. political interests in the region. Malawi was one of the few countries whose position on the conflicts in southern Africa paralleled that of the United States. A.I.D. implemented two large road projects; justified on regional political grounds, they constituted the bulk of A.I.D. assistance to Malawi in the 1970s. In addition, in response to the Government's continued request for assistance with agricultural education, A.I.D. funded a small education project. Later, it initiated plans to launch major new projects in agricultural education and research and to reopen the Mission. At the end of the 1970s, A.I.D. started two projects that resumed assistance to institutions it had helped establish in the early 1960s and another project that involved agricultural research.

The New Directions strategy of the 1970s, which had a great impact on A.I.D.'s programs throughout Africa, largely bypassed Malawi. The A.I.D. program there was regional, with no country

Mission to implement the strategy. In addition, the program in Malawi had a political justification.

The Mission in Malawi was reopened in 1980, at a time when A.I.D.'s general development priorities began to shift toward promoting free markets, private sector investment, and policy reform. It was also a time when Malawi's standing with the donor community improved. The country was increasingly viewed as one of the few in Africa with relatively little serious economic distortion and with a government that exercised effective macroeconomic management. As a result, A.I.D.'s assistance to Malawi has risen rapidly in recent years.

Since 1980 the Mission has begun to pursue an agricultural strategy that focuses on expanding Malawi's ability to conduct agricultural research relevant to smallholders. In addition, the Mission seeks to reduce the role of the Government and to promote a greater reliance on market forces, particularly in the agricultural sector. These efforts are being coordinated with those of the World Bank and other donors. Recently approved activities include programs aimed at diversifying agriculture, increasing private-sector involvement in commercial transport, providing management assistance to rural traders, removing the fertilizer subsidy, and encouraging the Government to divest assets of the principal agricultural parastatal. A new agricultural research project that builds on the experience of the earlier one has also been undertaken.

Overall, A.I.D. activities in Malawi have added to the country's infrastructure (roads and buildings), skilled manpower, and institutional base. The types of activity A.I.D. has chosen to support (roads and education) and the participation of Malawians in the selection, design, and implementation process are factors that account for the positive aspects of U.S. development assistance in Malawi.

3.4 Sectoral Distribution of A.I.D. Funds

For each of the six country programs described, A.I.D. funding has been broken down by sector and subsector.[6] (See

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[6]For the period 1978-1984 extensive use was made of the study, "Agriculture and Rural Development: Functional Review FY 1978-1984," prepared by A.I.D.'s Africa Bureau. For Senegal, Cameroon, and Nigeria, funds for individual projects with several types of components were distributed among the relevant subsectors; the shares were estimated from Project Papers and end-of-project financial data and remain constant from year to year. For Kenya, Tanzania, and Malawi, each project was assigned to the dominant subsector. See the country studies by Dijkerman and Jaeger for a detailed examination of these data.

appendix for complete tables.) The particular set of categories was chosen to reflect the purpose of this study and to facilitate comparisons with the other MADIA donor studies. Assigning annual project funds to specific categories was a time-consuming task, one that could not have been attempted for all of Sub-Saharan Africa. Missing or contradictory data, especially for the earlier years, complicated the task.

The share of A.I.D. funds allocated to agriculture in these countries has fluctuated enormously from year to year, although the amounts tended to increase during the 1970s. This trend is apparent from the dollar amounts shown in Figures 5A and 5B, except of course for Nigeria.

With total assistance for all six countries combined, as shown in Table 3, the average share of A.I.D. obligations for agriculture and rural development comes to 60 percent. Within those two sectors, the largest subsectors have been agricultural education and training and rural infrastructure, each with about 13 percent. These two are followed by input supply (6.7 percent) --which includes both delivery systems such as seed multiplication farms and fertilizer import programs--and livestock (5.3 percent). Agricultural extension, research, planning and management, and health and population have all received from 2 to 3.5 percent of the total A.I.D. funds.

Table 3 also shows that individual countries sometimes diverge from this average profile considerably. For example, agricultural education is not a predominant subsector in Senegal. Rural infrastructure has been of only minor importance in Nigeria and Senegal, but has been the largest subsector in Malawi, Cameroon, and Tanzania. In Kenya, funding levels have been highest for input supply, and in Senegal funding has been highest for agricultural extension. The patterns of emphasis over time for several of these subsectors are shown in Figures 6A through 7B and in the appendix tables. Figures 6A and 6B show that the high share of agricultural education in total obligations results from the program in Nigeria in the 1960s and early 1970s and from the programs in Kenya and Cameroon in the late 1970s. And Figures 7A and 7B show that agricultural extension activities became less important at the end of the 1960s than they had been earlier, but that after the Sahel drought they were expanded in both Senegal and Cameroon.

A.I.D. bilateral support for agricultural research is recent; earlier assistance to this subsector was through regional and centrally funded accounts. The support for agricultural research in Nigeria in the 1960s, for example, amounted to less than 2 percent of the total A.I.D. program in Nigeria at that time. As the tables in the appendix indicate, by 1979 four of the five existing Missions had expanded their support in this area. But the levels have been relatively low. It should be

Figure 5A. A.I.D. Agricultural Assistance to Malawi, Kenya, and Tanzania, 1963-1984 (in constant 1983 dollars)

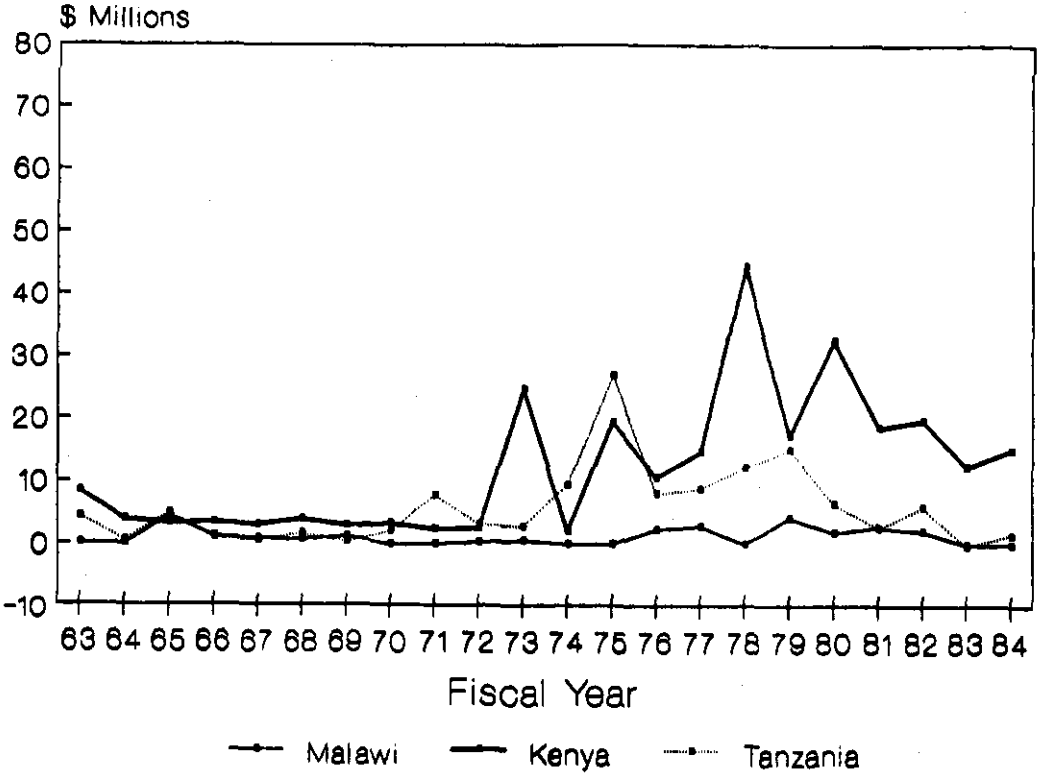


Figure 5B. A.I.D. Agricultural Assistance to Senegal, Cameroon, and Nigeria, 1963-1984 (in constant 1983 dollars)

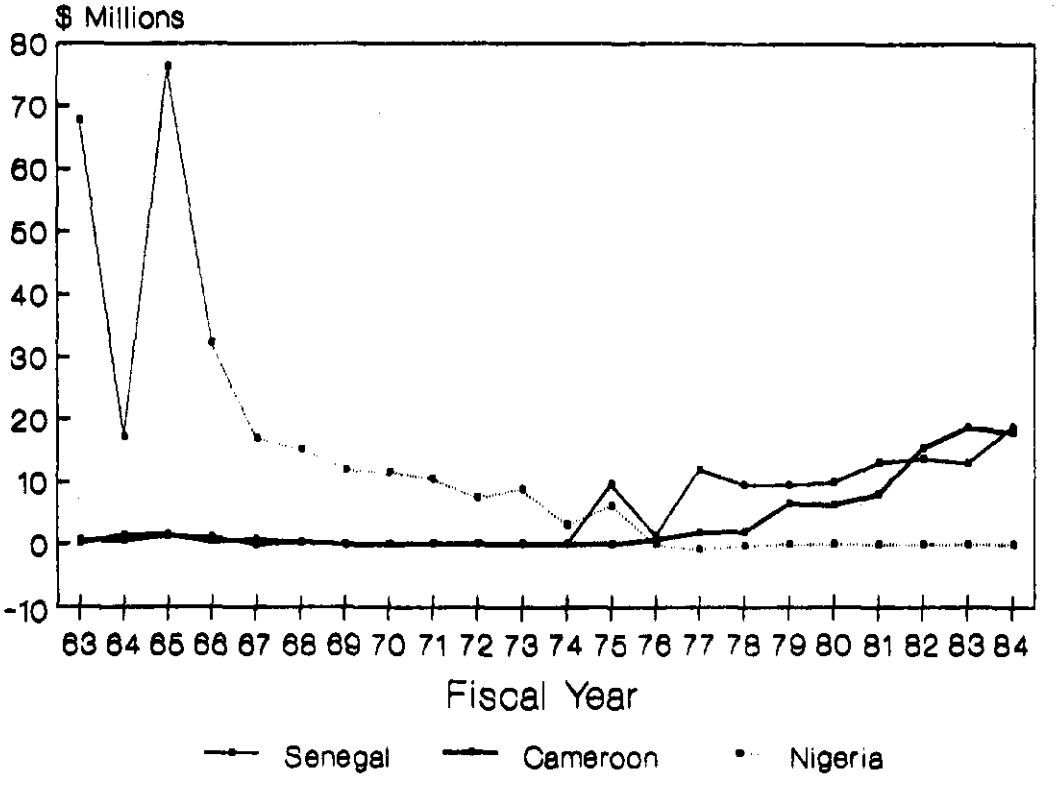


Table 3. Sectoral Breakdown of U.S. Assistance to the Six Study Countries, 1963-1984
(in thousands of constant 1983 dollars)

Sector and Subsector	Total	Percentage	Cameroon	Kenya	Malawi	Nigeria	Senegal	Tanzania
A.I.D. Project and Program Assistance	2,332,063	100.0	207,108	519,418	146,732	943,020	174,311	341,474
Agriculture	902,773	38.7	82,719	269,296	25,517	284,233	114,716	126,292
Crop Production	0	0.0	0	0	0	0	0	0
Storage & Processing	21,901	0.9	0	8,070	0	3,981	9,850	0
Input Supply	161,598	6.9	13,497	89,603	0	79	15,255	43,164
Credit	11,875	0.5	1,645	5,504	0	3,249	1,477	0
Research	54,766	2.3	5,011	5,801	10,050	14,341	4,697	14,866
Extension	76,835	3.3	4,987	2,604	0	35,972	26,420	6,852
Education & Training	311,657	13.4	35,773	80,531	15,467	135,971	11,762	32,153
Planning & Management	80,640	3.5	6,043	27,533	0	26,811	15,070	5,183
Irrigation	39,964	1.7	7,227	0	0	23,227	9,510	0
Marketing	3,217	0.1	0	0	0	0	0	3,217
Livestock	126,783	5.4	7,715	43,743	0	38,499	15,969	20,857
Forestry	9,613	0.4	0	5,294	0	0	4,319	0
Fisheries	3,924	0.2	820	613	0	2,104	387	0
Rural Development	521,312	22.4	94,235	135,855	84,114	36,087	13,385	157,636
Infrastructure	322,224	13.8	91,907	48,420	69,128	28,344	6,602	77,823
Health & Population	81,395	3.5	1,038	27,736	0	7,743	6,681	38,197
Education	62	0.003	0	0	0	0	62	0
Water Supply	6,988	0.3	802	0	6,186	0	0	0
Community Development	41,749	1.8	488	29,024	3,312	0	40	8,885
Industry	68,895	3.0	0	30,675	5,489	0	0	32,731
Other	908,959	39.0	30,154	114,267	37,101	623,680	46,210	57,547
PL 480 Food Aid	836,156		19,827	181,184	12,168	182,541	192,713	247,723
Other Economic Assistance	412,045		44,455	135,071	31,984	82,878	61,545	56,112
Total[a]	3,580,265		271,390	835,674	190,884	1,208,439	428,569	645,309

[a]Excludes military assistance.

Figure 6A. A.I.D. Assistance to Agricultural Education in Malawi, Kenya, and Tanzania, 1963-1984 (in constant 1983 dollars)

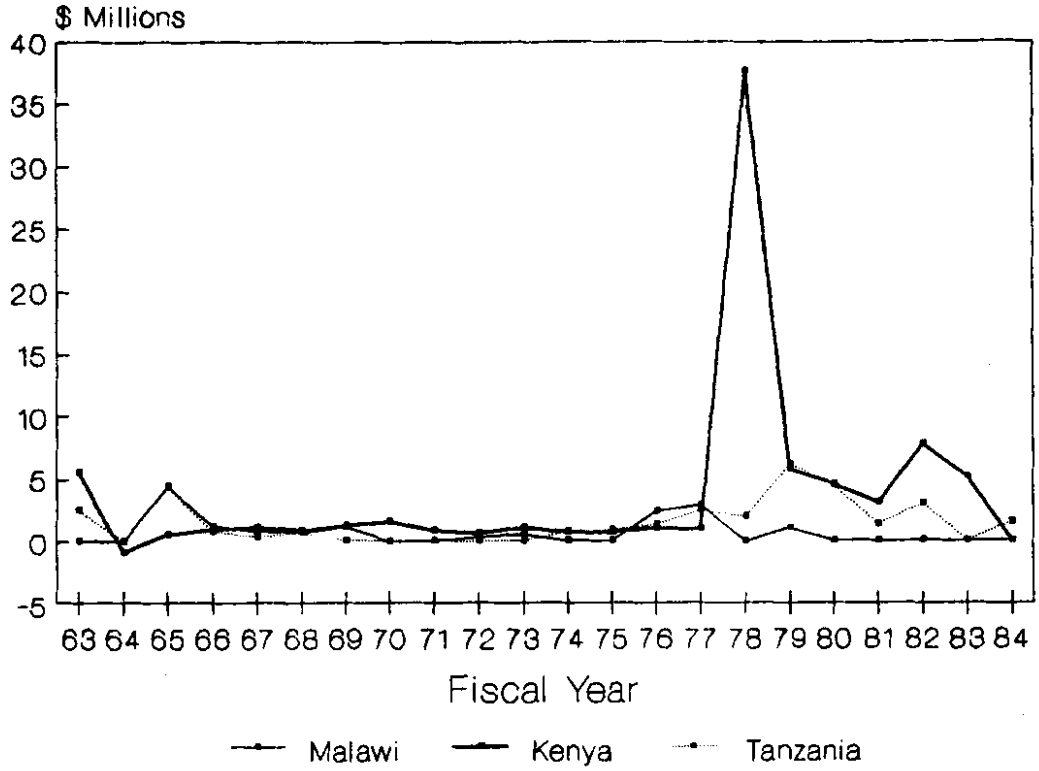


Figure 6B. A.I.D. Assistance to Agricultural Education in Senegal, Cameroon, and Nigeria, 1963-1984 (in constant 1983 dollars)

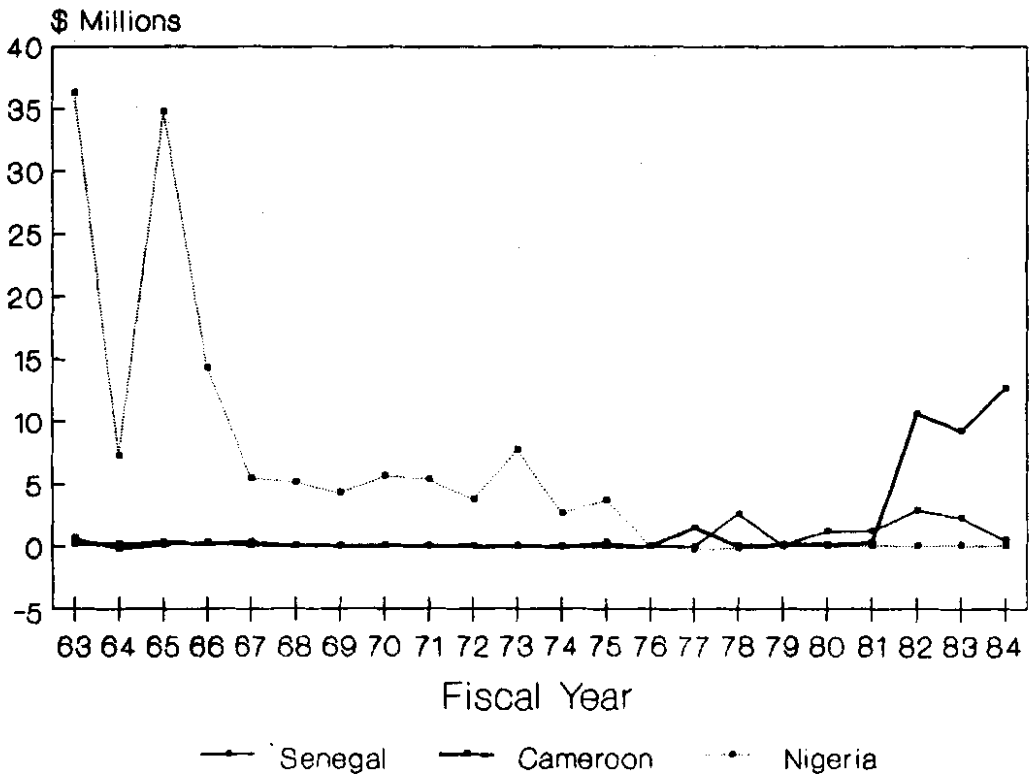
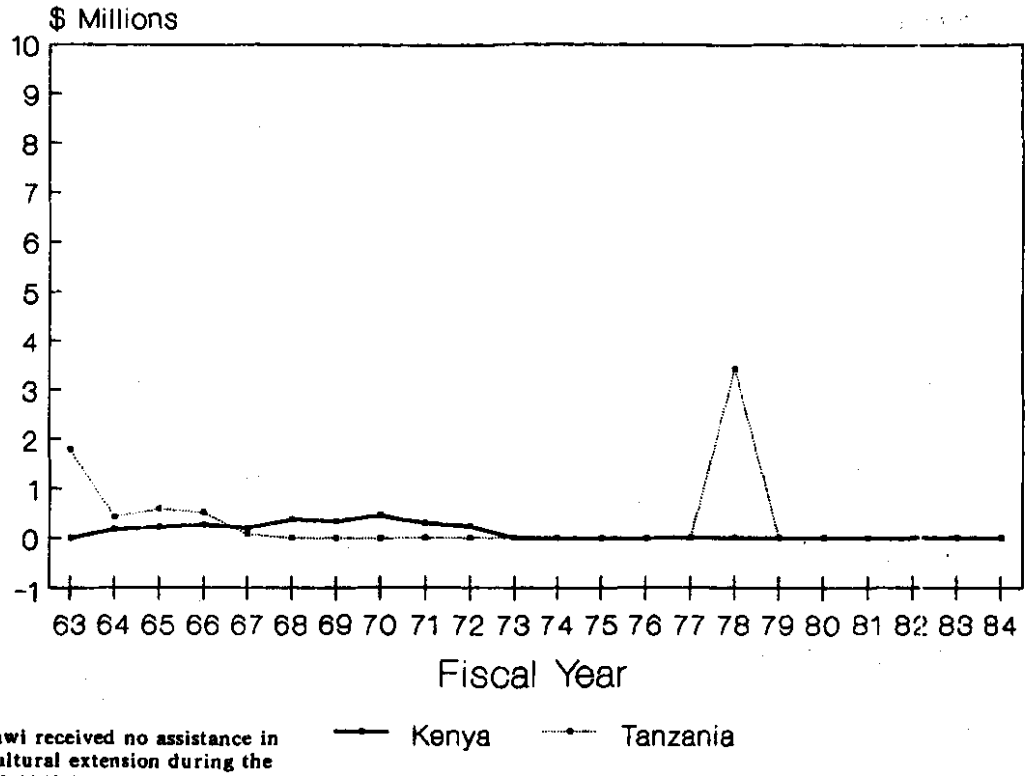
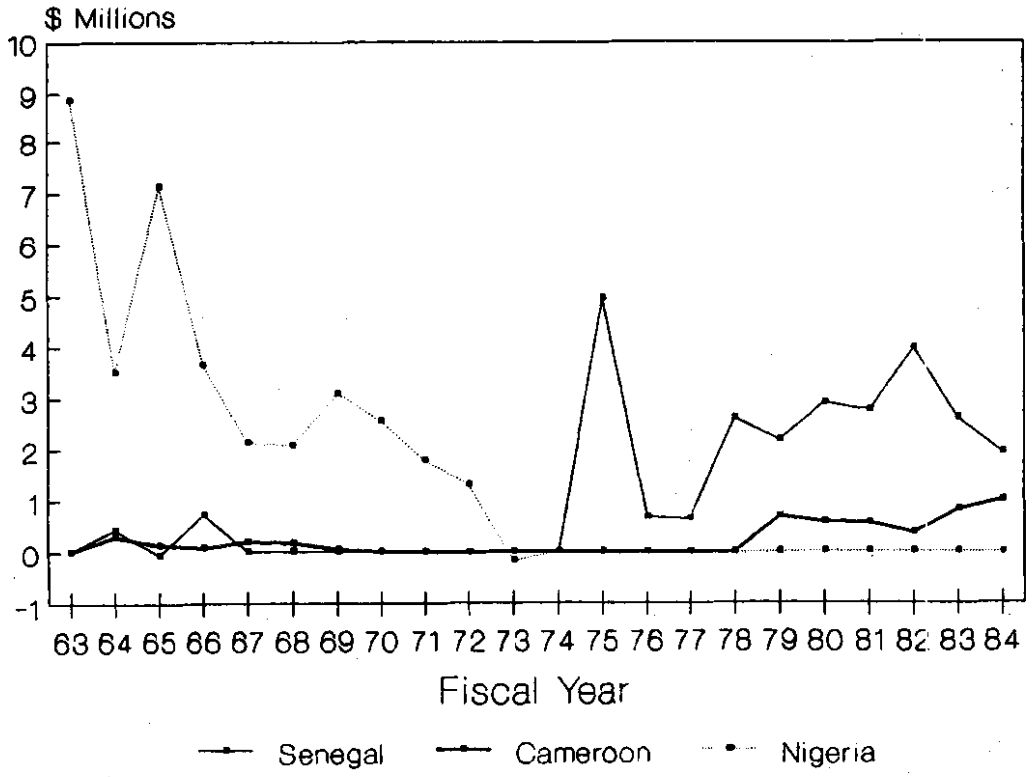


Figure 7A. A.I.D. Assistance to Agricultural Extension in Malawi,* Kenya, and Tanzania, 1963-1984 (in constant 1983 dollars)



*Malawi received no assistance in agricultural extension during the period 1963-1984.

Figure 7B. A.I.D. Assistance to Agricultural Extension in Senegal, Cameroon, and Nigeria, 1963-1984 (in constant 1983 dollars)



noted, however, that research has continued to be an important part of regional and centrally funded programs for Africa, as discussed below.

Significant programs for developing livestock were undertaken in Nigeria and Kenya in the 1960s (see Tables A-2 and A-4 in the appendix). The Kenya livestock program was continued and expanded in the 1970s, while new programs were introduced in Senegal and Tanzania. Input supply (which includes production-level input support as well as commodity import programs) did not receive much attention from A.I.D. until the early 1970s, when Kenya and Tanzania received large amounts in this subsector (see appendix tables). In Tanzania assistance went for seed multiplication activities, in Kenya for fertilizer imports.

Investments in rural infrastructure represent an important part of A.I.D.'s assistance programs in four of the six countries, Senegal and Nigeria being the exceptions (see Figures 8A and 8B). A.I.D. loans and grants went to build highways, rural roads, and a railroad in Cameroon in the 1960s and early 1970s. However, very little has been done in this area in recent years because of the Africa Bureau's avoidance of this kind of aid.

3.5 A.I.D. Regional and Centrally Funded Accounts

In addition to the A.I.D. country programs, regional accounts and centrally funded programs contribute significantly to A.I.D.'s total assistance to Africa. More than 10 percent of A.I.D. assistance to Africa has been obligated through regional accounts. Seven different regional accounts have been used since 1963, either for specific regions within Africa or for special purposes; the accounts involved are presented in Table 4. Several of these accounts administered only minor amounts and have been discontinued.

As Figure 9 shows, the levels of funding for these accounts grew during the late 1960s, when as a result of the Korry Report, regionally administered assistance was substituted for all but 10 country programs in Sub-Saharan Africa. Regional funding tapered off in the early 1970s before peaking in 1978. The account called Africa Regional grew during that period, with the expansion of several scholarship programs as well as support for health delivery and agricultural research. The Southern Africa Regional account swelled in 1977 and 1978, largely due to a commodity import program for Zambia that was linked to its role in negotiating a settlement for majority rule in Zimbabwe. In addition to these regional accounts, centrally funded assistance plays an important role in A.I.D.'s Africa programs. For example, centrally funded assistance to CGIAR helps to support the

Figure 8A. A.I.D. Assistance to Rural Infrastructure in Malawi, Kenya, and Tanzania, 1963-1984 (in constant 1983 dollars)

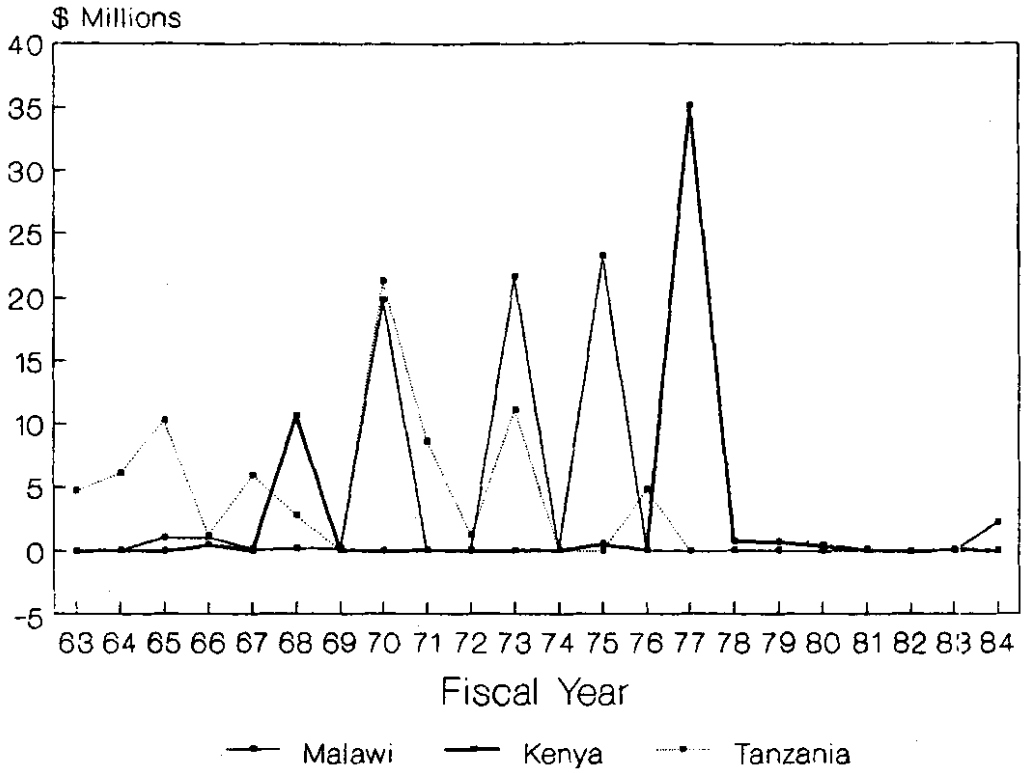


Figure 8B. A.I.D. Assistance to Rural Infrastructure in Senegal, Cameroon, and Nigeria, 1963-1984 (in constant 1983 dollars)

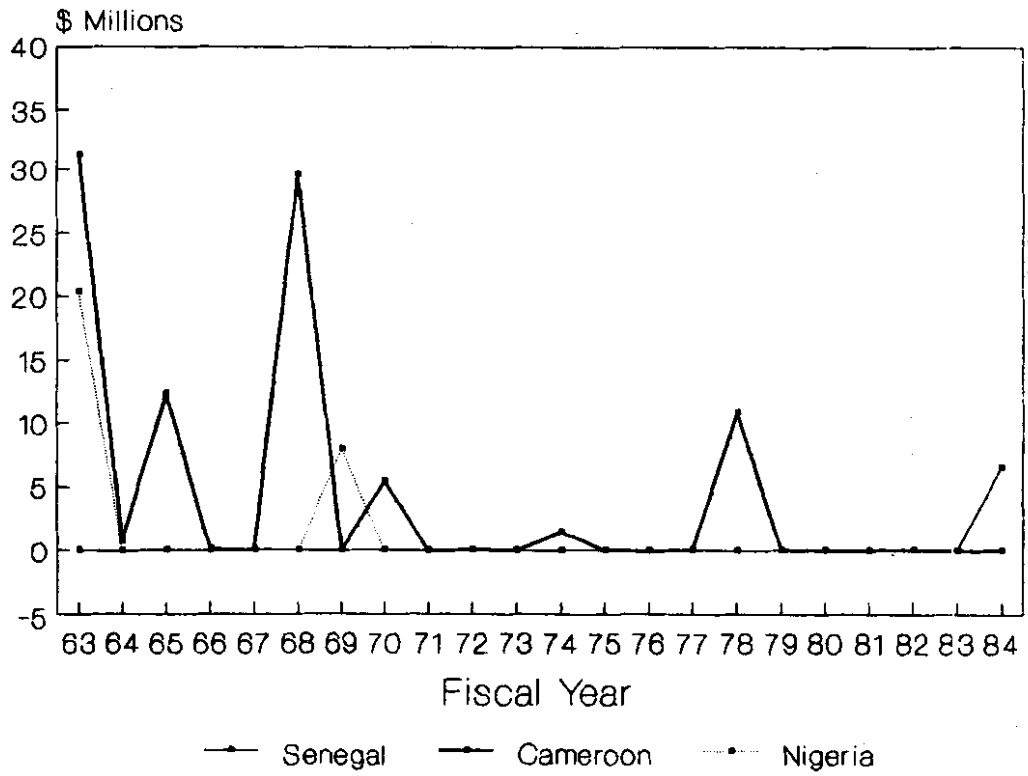


Table 4. A.I.D. Regional Projects and Programs for Africa, 1963-1984
(in thousands of constant 1983 U.S. dollars)

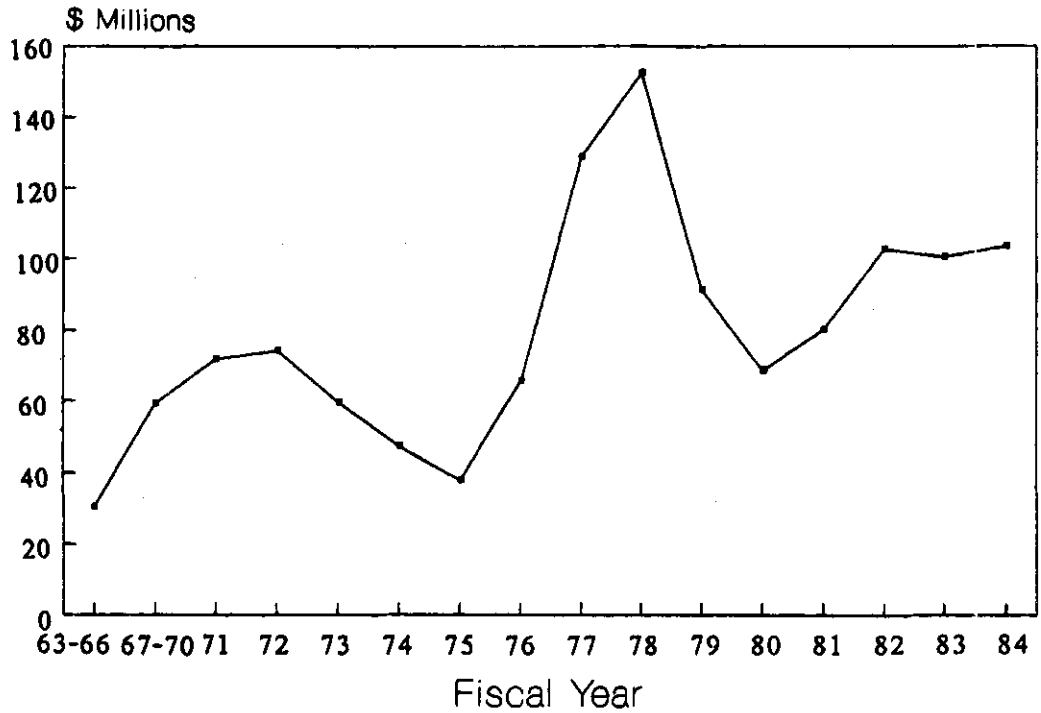
Account	Total	1963-1966 Average[a]	1967-1970 Average[a]	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Africa Regional	677,428	19,691	33,181	41,782	39,613	27,551	21,182	14,237	27,381	38,932	51,289	53,358	41,309	41,087	53,392	54,244	48,255
Central and West Africa Region/ Sahel	336,915	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	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	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	5,400	1,021	4,378	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Area Development Office, Niamey	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	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 4-year period.

Sources: USAID, "Project Assistance and Activities by Country and Technical Field; A.I.D. Dollar Financed Costs" (various years).

International Institute for Tropical Agriculture (IITA) and other international agricultural centers active in Africa.

Figure 9. Annual Levels of A.I.D. Regional Funding for Africa, 1963-1984 (in constant 1983 dollars)



For most activities implemented through regional or centrally funded accounts, it is extremely difficult to attribute shares of the aid to particular countries. Regionally administered assistance has tended to emphasize physical infrastructure, education, health and population, and agricultural research. Centrally funded activities are not included in these data.

3.6 Summary

Traditionally, Africa has not been the focus of U.S. economic assistance. Before 1978 Africa received only about 5 percent of total U.S. assistance; since that time Africa's share has risen above 10 percent. In constant 1983 dollars, total U.S. assistance for Africa has risen since the mid-1970s, regaining levels similar to the high levels of the early 1960s. The increase since 1975 has been primarily due to increased use of Economic Support Funds and food aid. Together they have accounted for more than half of U.S. assistance to Africa since 1980.

The U.S. share of total official development assistance in the six study countries, as for Africa in general, is relatively small. Except for Nigeria, the U.S. share is in the range of 6 to 15 percent.

The share of total A.I.D. support to the six countries that has gone for agricultural and rural development has fluctuated over the years, but has increased since the mid-1970s. Education and rural infrastructure have received the largest shares of this aid. Agricultural research has received small amounts, although this has increased recently.

An important share of A.I.D. funding for Africa has been administered through regional or centrally funded accounts. These programs include support for agricultural research, health and population, and scholarship programs.

4. AGRICULTURAL AND RURAL DEVELOPMENT: AN ANALYTICAL FRAMEWORK

This section is motivated by the conviction that efforts to enhance A.I.D.'s contribution to development require a better understanding of the types of activities that merit priority, as well as more effective implementation of those activities that A.I.D. decides to support. In brief, it is essential that A.I.D., other donors, and local governments come to some agreement about what should be done and what can be done, given the severe financial and manpower constraints faced by local governments and the limited extent to which external assistance can overcome those constraints.

Considerable progress has been made over the past 35 years in understanding which activities are of strategic importance for agricultural development and overall economic growth. Much of this learning process has been based on Asian experience. While the lessons from that experience need to be adapted to the distinctive features of Sub-Saharan Africa, they nevertheless have widespread applicability to all developing countries characterized by a predominantly agrarian economic structure and rapid rates of population growth.

This section discusses the nature of the development process and identifies a number of the elements of a coherent strategy for agricultural and rural development. It thus provides a framework for assessing the strengths and weaknesses of A.I.D.'s activities in the six study countries (Section 6). Unless the policies and projects supported by A.I.D. are consistent with a well-conceived strategy, they cannot be expected to make a sig-

nificant contribution to agricultural and rural development, however well they are implemented.[7] It might be objected that it is not "fair" to assess A.I.D.'s activities in the light of knowledge and understanding not available at the time that key decisions were made. Such an objection has considerable validity. Yet most of the insights summarized in this section have in fact been available for two or three decades, although they have been refined and reinforced by accumulating evidence.[8]

4.1 Nature of the Development Process

One of the most significant advances in economic understanding during the past 30 years has been the recognition that increases in conventional inputs of labor, land, and capital often account for less than half of increases in national output (Abramovitz 1956; Kuznets 1971, 73). In virtually all countries that have achieved impressive progress in agricultural development, technological change leading to increases in total factor productivity--that is, in output per unit of total inputs--has been a major source of the growth of agricultural production (Hayami and Ruttan 1985, ch. 8; Johnston and Kilby 1975, chs. 5 and 6). As emphasized below, "technological change" embraces education, research, infrastructure, and other nonconventional inputs.

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[7]Inasmuch as the purpose of this section is to summarize what has been learned about the design and implementation of well-conceived strategies for agricultural and rural development in Sub-Saharan Africa, critical comments have been elicited from many people involved in that learning process. We are particularly indebted to Martin Billings, Hans Binswanger, Christopher Delgado, John Howell, Glenn Johnson, David Leonard, Carl Liedholm, Peter Matlon, Richard Meyer, Douglas Nelson, T. Ademola Oyejide, Scott Pearson, Vernon Ruttan, Kenneth Shapiro, John Staatz, Thomas Tomich, Luther Tweeten, and V.S. Vyas for thoughtful comments on earlier drafts. We believe that the present version comes close to representing a consensus view of this rather large and diverse group.

[8]The emphasis in this section and in Section 6 on agricultural research, for example, was equally strong in a 1961 article by Johnston and Mellor; in a 1969 paper prepared for A.I.D., Mellor declared that "Development of an effective research system is probably the most important institution-building job to be performed in the development process" (1985).

4.1.1 Accumulation of Physical, Human, and Social Capital

Following the work of Harry Johnson, we stress throughout this report that development is "a generalized process of capital accumulation" in which capital includes not only plant, equipment, and other forms of physical capital and exploitable natural resources but also capital embodied in human resources and capital in the form of economically useful knowledge and skills and effective organizations, both public and private. As defined by H.G. Johnson (1969, 9), economic growth is

> a generalized process of capital accumulation, that is, of investment in the acquisition of larger stocks of the various forms of capital; and the condition of being "developed" consists of having accumulated, and having established, efficient social and economic mechanisms for maintaining and increasing large stocks of capital per head in the various forms.

In contrast, being underdeveloped is a matter not only of having relatively small stocks of the various kinds of physical and human capital but also of having only weak and inefficient mechanisms for increasing those stocks and for keeping "the rates of return on them roughly in alignment and high enough to encourage accumulation" (H.G. Johnson 1969, 9). The remarkable success of the Marshall Plan in contributing to European economic recovery after World War II owed much to the existence of "efficient social and economic mechanisms for maintaining and increasing large stocks of capital per head in the various forms" and for keeping "the rates of return on them roughly in alignment" (H.G. Johnson 1969, 9). Consequently, very high rates of return resulted from U.S. financing of strategic investments in plant and equipment and in rebuilding war-damaged infrastructure. Measures to facilitate technology transfer were unusually effective because the human capital and institutional capacity existed to absorb and adapt a host of new technologies.

4.1.2 Achieving Balanced Capital Formation

The recognition that successful economic development depends on the balanced increase in the per capita availability of many different types of physical, human, and social capital underscores the complexity of the development process. The design and implementation of programs and projects to foster development are by their nature very difficult tasks.

Comparative study of agricultural development has contributed much to our understanding of this complex process. The experience of Japan, Taiwan, the United States, and many other

countries demonstrates that efficient agricultural progress depends on the interacting effects of farm-level and socially determined factors. The farm-level factors include the responsiveness of farmers to incentives and their investments in land improvement, equipment, fertilizers and other forms of working capital, and the acquisition of knowledge and skills. The socially determined factors include educational institutions; investments in agricultural research, extension, and infrastructure; macroeconomic policies; and a host of factors affecting the marketing of farm products and the distribution of inputs.

Agricultural progress in the United States, for example, has been the result of interactions within a system of developmental institutions: farmers and their organizations, the U.S. Department of Agriculture, the land-grant colleges and universities, research and extension programs, private firms, and the Federal and state political institutions involved in the formulation of agricultural policy (Bonnen 1987). Agricultural progress in Japan and Taiwan was also facilitated by striking a proper balance between the role of government and reliance on the initiative of individual farmers and private firms responding to market-determined prices.

The Role and Limits of Government Action and of Price and Market Mechanisms. One of the critical issues on the policy dialogue agenda in the countries of Sub-Saharan Africa concerns the role and limits of government action. Drawing the line between direct government action and reliance on price and market mechanisms is a complex and sensitive matter.

Discussions about the role of government in development are often dominated by unsupported assertions about the superiority of laissez faire and counterclaims concerning the superiority of planning and direct government action. Much thinking about comprehensive economic planning has been based on an implicit premise that direct government action could and would somehow produce outcomes more purposive, more rational, and more benevolent than the allegedly "chaotic" results of private firms operating in an imperfect price and market system.

In a seminal work, Dahl and Lindblom (1953) integrate their insights from political science and economics to provide a basis for making informed judgments about the relative advantages of public agencies and private enterprises. They take a broad view of organization as a framework for rational calculation and for achieving the control whereby groups of individuals determine what each should do and seek to ensure that each does what is expected. These social processes of calculation and control fall into four categories: hierarchies directed by leaders, price and market mechanisms, use of voting or related mechanisms of control over leaders, and exertion of control among leaders through bargaining processes (Dahl and Lindblom 1953, 54).

In order to make reasoned judgments about the role and limits of government action and of price and market mechanisms, it is essential to study the distinctive characteristics of bureaucracy, "the ubiquitous modern organization within which hierarchical processes are most commonly encountered" (Dahl and Lindblom 1953, 233). The Dahl-Lindblom framework yields three propositions that have great relevance to low-income countries.

First, all large organizations, public or private, are "bureaucracies" and rely heavily on hierarchical techniques of calculation and control. In public agencies, the difficulty of achieving efficiency is compounded by the fact that they have diverse objectives and clienteles to satisfy. Second, private enterprises (or independent cooperatives) can be expected to be more efficient than public agencies in responding to the cues of the price system and in holding down costs. Third, individual proprietorships and other small enterprises differ from both large public agencies and large private enterprises in not having the distinctive characteristics of a bureaucracy. When individuals own the firm and its resources, they respond more directly to price and profit signals and have little need for hierarchical techniques of calculation and control. Such individuals often become effective entrepreneurs even though they are totally lacking in bureaucratic skills and may even be illiterate. "Entrepreneurial and trading skills," notes Hopcraft (1986), "are acquired in the market place 'school of hard knocks' rather than in formal educational institutions."

An idealized model--whether it purports to represent the perfect market or the omniscient planner--is virtually useless as a standard for judging the efficiency of alternative processes of calculation and control in the real world. It is the performance of actual institutions that matters. One of the most serious pitfalls of comprehensive state planning arises from the difficulties of organizing the flow of information on which to base the immense number of decisions required in any economy. The advantages of decentralized decision-making are especially significant for the rural economy in general and for agriculture in particular. The enormous diversity that characterizes agricultural production, together with the complex interactions among resource endowments, technology, institutions, history, and cultural heritage, makes it impossible to draw up an ideal plan and to devise an optimal set of policies and programs for realizing planned targets. A wealth of experience in many countries has demonstrated the efficiency advantages of decentralized decision-making by independent farm units.

In general, reliance on markets and prices to allocate most types of goods and services leads to a more efficient outcome than reliance on hierarchical social arrangements. Moreover, reliance on markets for the processes they accomplish best allows

administrative and analytical capacity to be channeled to those activities that only the state can undertake efficiently.

The problems that arise because of an imbalance between the public sector's responsibilities and its resources are especially serious in Sub-Saharan Africa, where the critical resources of administrative capacity, analytical skills, and government revenues are in such short supply. The scarcity of trained and experienced administrators and professionals has a high cost in terms of missed opportunities for development. Enlarging the stock of key human resources can have a very high payoff, but inevitably takes time.

This scarcity of human resources has important implications for the choice of development strategy and priorities for foreign assistance and for government policies and programs. Deficiencies in administrative and analytical capacity call for three responses. First, human and other scarce resources should be allocated to activities with the highest return. In the case of the state, that means giving priority to essential public goods and services that only the state can provide efficiently. Second, institutional arrangements should be adopted that minimize dependence on administration- and analysis-intensive techniques for the organization of production and distribution. Third, insofar as possible, institutional arrangements should be adopted that limit government involvement in production and distribution to a facilitating, regulatory, and educational role. For essentially commercial activities, there are important advantages to relying on a price-and-market system, which depends in turn on decentralized decision-making by independent economic agents--that is, private firms and independent cooperatives.

The general proposition that both public and private investments of scarce resources in the various forms of capital should be balanced "so as to keep the rates of return on them roughly in alignment" is an ideal that can only be approached. The large margin of uncertainty in predicting the returns to be realized from investments in agricultural research and from efforts to diffuse technical innovations are examples of a pervasive problem. Furthermore, <u>complementarities</u> and <u>efficient sequences</u> are critically important for many investments in physical, human, and social capital intended to accelerate the expansion of agricultural output. The "design" of an agricultural strategy to promote efficient, evolutionary change of a complex, dynamic system

is an art that depends on judgment and interpretation of imperfect evidence as much as on formal analysis.[9]

Induced Innovation: Technical and Institutional. It is crucially important that the prices of capital, foreign exchange, and farm products and inputs reflect their scarcity value and that both public agencies and private firms be guided by those signals in allocating resources. Hayami and Ruttan (1971, 1985) have directed attention to how relative prices and perceived price shifts may influence the decisions not only of farmers and of firms supplying inputs but also of agricultural administrators and scientists as they allocate scarce resources.

A developing country has many possible "growth paths" or "patterns" of agricultural development from which to choose. The choice of a path will be determined in large measure by the nature of the technical innovations that are generated by agricultural scientists and adopted by farmers. An especially serious consequence of policies that give rise to price distortions or ignore price signals is that these policies tend to lead to a growth path favoring large farms that rely on technologies that are inappropriately capital- and import-intensive. Because the favored large farms account for the lion's share of commercial sales, they are able in part to escape the cash income/purchasing power constraint that is an unavoidable characteristic of developing countries in which some 60 to 80 percent of the popu-

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[9]The World Bank in particular has allocated much research effort to developing tools for improving the quality of decision-making in the public sector. Several extremely able economists have elaborated on the use of social benefit-cost analysis for that purpose. Yet a recent article by Nathaniel Leff notes that in fact the World Bank's "practitioners did not utilize [social benefit-cost analysis] because they had available an alternative approach that was better suited to their operational needs in investment choice for developing countries." He stresses that the alternative (which he refers to as an "inter-sectoral approach") has the advantage of being "heuristic rather than algorithmic in nature" and of being able to "take account of strategic considerations: 'spillover' effects, both over time and across activities" (Leff 1985, 70-71). For similar reasons, we have reservations about the practical value of social benefit-cost analysis in providing guidance for decisions related to the design of agricultural and rural development strategies (see Johnston 1977, 884-91). The approach adopted here is heuristic and emphasizes strategic considerations, including spillover effects related to complementarities and efficient sequences. Such considerations are especially relevant to the argument advanced below concerning the priority that should be given to interrelated health and family planning activities as a component of a country's rural development strategy.

lation and labor force depend on agriculture for their livelihood.[10]

Conversely, when relative factor prices reflect the underlying scarcity or abundance of a country's resources and are systematically employed in decision-making, then farmers, firms supplying inputs, and even agricultural administrators and scientists are more likely to make choices that foster broad-based development and the progressive modernization of the country's small-scale farm units. The experience of Japan and Taiwan demonstrates the feasibility of the progressive modernization of small-scale farm units based on an efficient sequence of labor-using, capital-saving innovations adapted to resource and cultural endowments. The specific technologies and the efficient sequence of innovations will, of course, be different in the countries of Sub-Saharan Africa because of differences in their resource endowments, institutions, historical legacies, and cultural endowments.

The dynamic sequences of technical change that are so crucial to economic growth are invariably associated with changes in institutions. Institutions are "the rules of a society or of organizations that facilitate coordination among people" (Hayami and Ruttan 1985, 94). Institutions reflect the conventions that have evolved regarding the behavior of individuals and groups. Their interactions help establish expectations about rights to the use of resources for economic activities and about the distribution of rewards from such activities. It is essential that those expectations be sufficiently stable that decisions by farmers and other entrepreneurs can be guided by predictability as well as rationality.

Although institutions must be stable enough to provide a basis for reasonable expectations in dealings among people, "institutions, like technology, must also change if development is to occur" (Hayami and Ruttan 1985, 95). Changes in technology, in demand for products, and in factor endowments are the principal sources of demand for institutional innovation. Such innovation may result from evolutionary changes such as the

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[10]The reasons for a farm cash income/purchasing power constraint and comparative figures on farm cash receipts and expenditures for Ethiopia, Taiwan, and the United States are presented in Johnston and Kilby 1975, 64-74). In Kenya for the years 1978-1980 the cost of purchased inputs averaged about 10 percent of the total value of agricultural output. But the purchasing power constraint was particularly severe for the smallholders that account for the overwhelming majority of farm units in Kenya. It is estimated that purchased inputs represent only about 5 percent of the total value of their agricultural production (de Wilde 1984, 15).

emergence of more efficient market institutions or from spontaneous changes in contractual arrangements, including new forms of property rights. However, collective action is often required; the creation of publicly supported institutions for agricultural research is an important example.

The Catalytic Role of Strategic Public Goods. Agricultural research is a critical element in strategies for agricultural development because of its catalytic role in facilitating technological progress. It also exemplifies the essential attributes of public goods--"nonrivalness" and "nonexcludability" in the jargon of economics. Nonrivalness derives from the fact that the use of new information, say about a practice such as contour farming, does not hinder the adoption of that practice by other farmers. Hayami and Ruttan (1985) emphasize, however, that nonexcludability depends on institutional arrangements. Patent laws, for example, make certain kinds of information excludable in order to create incentives for inventive activity.

Public funding of agricultural research is essential because investment in such research would be far below the socially optimal level if it were left to private firms. The nature of agricultural production makes it difficult to restrict information about most types of new farm practices or other innovations. This means that private firms would be able to capture only a small part of the returns to investments in agricultural research. The results of some agricultural research, along with certain other goods and services, are "quasi-public goods" because they can be viewed as a blend of public and private attributes. The cost of their use may be borne in part by individuals, and some aspects of their use may yield private benefits, but the total benefits of their use have a broader impact on the economy and on society. Typically, the costs of undertaking some activities, such as the establishment of a research institute or the implementation of an irrigation project, are too large for an individual or private firm to bear, while collective benefits exceed the sum of private benefits.

Government decisions in Sub-Saharan Africa regarding direct government action do not appear to have been much influenced by this distinction between public (or quasi-public) and private goods. Strongly critical attitudes toward private firms and the role of price and market mechanisms are pervasive; they seem to derive in part from a paternalistic attitude toward African smallholders inherited from the colonial period (Young 1986; Leonard 1986). The socialist or Marxist leanings of some governments have also been a factor. Moreover, many have argued that African smallholders do not respond rationally to economic incentives because of traditional values.

That view has been a common justification for agricultural price policies that adversely affected farmers' incentives and

the availability of resources for expanding production. The result has often been paternalistic supervision or control of farmers or even direct production by state farms. Independent African governments have also justified their reliance on parastatals as a means of preventing European trading companies or Asian or Lebanese traders from dominating the commercialization of agricultural products. These African governments have tended to view merchants as parasitic, exploiting both consumers and producers. It is often assumed, particularly by policymakers and administrators trained in France, that markets are "chaotic" unless they are "organized" by government intervention.

Governments often have cogent reasons for intervening in markets rather than concentrating on providing public goods and services. State interventions that involve the administrative allocation of scarce resources, including credit, foreign exchange, and licenses, can, of course, serve the political needs of those in power. In contrast to the impersonal and dispersed effects of market mechanisms, the administrative allocation of scarce commodities creates a potent political resource in the form of patronage. This ability to grant preferential treatment can, for example, be used to secure the support of large and influential farmers who might otherwise take the lead in championing rural interests against the government's constituency of bureaucrats, industrialists, and urban workers. It must be recognized that many African leaders may have cogent reasons to make political and patronage concerns a priority, given the fragility of their newly created nations with their often divisive regional and ethnic differences.

Among quasi-public goods, rural health and family planning programs call for special consideration when deciding which activities merit government action. The fact that health and nutritional status influences the quality of human resources is sometimes used to justify foreign assistance for school lunch programs, food subsidies, and similar nutrition and health interventions. At the same time, when resources are as severely limited as they are in Sub-Saharan Africa, government investments in human capital are justified only when they supply public goods and offer an opportunity for very high returns.

Rural health programs focused on infants and small children and their mothers seem to satisfy these two criteria. Simple and inexpensive preventive and health-promotive activities such as immunization programs, oral rehydration, hygiene education, nutrition monitoring, and environmental sanitation can be very cost-effective in improving the health of the very young and in reducing the excessively high infant and child mortality rates that still prevail in Sub-Saharan Africa. Moreover, it appears that reaching a certain threshold in improving child survival prospects enhances the effectiveness of family planning activities. Given the persistence of high fertility and high rates of

natural increase in African countries, interrelated investments in health and family planning can yield extremely high returns in per capita well-being. Such interrelated investments increase the "numerator" by enhancing the quantity and quality of those services, but even more important they slow the increase in the population "denominator," thereby facilitating increases in the per capita availability of food, health services, and so on and of the various forms of capital.

It is surely more than a coincidence that the 10 developing countries that achieved "significant" declines in fertility between 1960 and 1981 (defined as a reduction in the crude birth rate of at least 14 per thousand) have had notable success in reducing infant and child mortality. The (unweighted) average decline in infant mortality (below 1 year old) over that period was from 94 to 43 per thousand, and the average decline in child mortality (ages 1-4) was from 13 to 3 per thousand. The corresponding figures for 32 low-income countries, which give a fair indication of the situation in Sub-Saharan Africa, were from 163 to 124 per thousand for infant mortality and from 30 to 21 per thousand for child mortality rates (Mellor and Johnston 1984, 564; Johnston and Clark 1982, ch. 2; World Bank 1985).

In conclusion, it is inefficient as well as inequitable to rely on markets and the response of private firms to private demands for public (and quasi-public) goods such as agricultural research, education, basic health services, essential infrastructure, and macroeconomic stability. Investments of human talent and financial resources in such activities will never approach socially optimal levels unless the government seizes the opportunity for high payoffs by organizing the supply of strategic public goods through the hierarchical techniques available to it.

It is crucial, however, for African governments and for A.I.D. and other donors to bear in mind the serious problems that have often arisen in Sub-Saharan Africa because of an imbalance between the responsibilities assumed by the public sector and its available resources. A notable feature of the postwar period has been the widespread expectation that activist governments would bring the good things of life to the people (Brittan 1984). The misguided view that governments (and donors) can solve problems with little need to attend to cost seems to have been especially pervasive in Africa. It is perhaps all too easy, when foreign aid can be readily obtained, to ignore the fact that every government action has an opportunity cost. But aid has usually been available only to launch certain kinds of new projects favored by a particular donor agency.

Thus, instead of achieving a balanced increase in the different types of physical and human capital required for development, African nations have typically ended up with a mix of projects and programs that do not add up to a coherent develop-

ment strategy. Moreover, serious recurrent cost problems emerge because scarce capital, foreign exchange, and manpower are committed to a variety of activities, many of which do not merit priority given the country's severely limited resources (Howell 1985). Another common manifestation of the imbalance between responsibilities assumed by governments and their available resources is the failure to make available the "counterparts" called for by many aid projects. As a result, much of the potential training value of such projects is lost.

An important objective of foreign aid is to assist governments in increasing their "absorptive capacity" by enlarging the supply of scarce human and material resources. It is also essential for donors and African governments to give serious attention to the need to improve their tax systems in order to increase government revenues without destroying producers' incentives. A serious disadvantage of the de facto taxation of agriculture implicit in import-substitution strategies is that turning the terms of trade against agriculture weakens farmers' incentives; when the protection takes the form of import quotas rather than tariffs, it does not even enlarge government revenues (see Lewis 1973). Improvements in national tax systems will not be easy. In the short run, donors will in some instances have to recognize that if growth is to accelerate, they will have to finance some types of recurrent costs, for example, by supporting agricultural research efforts or domestic policy research units.

4.2 Strategies for Agricultural and Rural Development

A report by an A.I.D. economist on "The Economic Crisis in Africa" (Wolgin 1985) presented at the 1985 Mission Directors' Conference illustrates the uncertainty and lack of consensus regarding an effective strategy for development. In his conclusion, the author questions the validity of an emphasis on "enhancing the productive capacity of smallholders" because in Africa, "the capacity to develop and transfer productivity-enhancing agricultural technologies is limited." He goes on to suggest: "Perhaps we should concentrate on manufacturing, or on estates" (Wolgin 1985).

That statement by a respected A.I.D. economist highlights three general problems that have bedeviled the design and implementation of agricultural strategies in Africa. First, the statement reflects the uncertainty and ignorance, along with the tendency to charge ahead of the knowledge base, that have often characterized A.I.D.'s approach to this challenge. (Wolgin at least leaves open the choice between a possible concentration on manufacturing or on estates.) Given the extent of ignorance about African agriculture, humility and a willingness to adopt an error-embracing approach is essential. Mistakes are inevitable

and must be recognized as such so that we can learn as much as possible from the hard-won lessons of experience. Second, the statement reflects the tendency to concentrate on industry as the dynamic growth sector and to penalize and neglect the agricultural sector. And third, it reflects the great skepticism among many African policymakers and foreign advisers about the possibility of increasing the productivity of small-scale farm units and their assumption that economies of scale (or of farm size) are invariably of great importance in agriculture.[11]

Given the unprecedented challenge that now confronts the countries of tropical Africa, there is a strong urge to seek panaceas; large-scale, mechanized, "modern" farms have a strong appeal. The need to substantially increase farm productivity is not in question. Historically, slow growth in the demand for food could be met by increasing the area under cultivation and the inputs of human labor. But such a "resource-based" approach is becoming less and less viable because of accelerated population growth. Continued expansion of food imports to meet the growing gap between demand and domestic production cannot be sustained. Moreover, the resource base for agriculture in Sub-Saharan Africa is being degraded in many areas. Indeed, the Food and Agriculture Organization's (FAO) recent report, African Agriculture: The Next 25 Years (1986) points to accelerated degradation of cropland and forests resulting from rapidly increasing numbers of people and livestock as one of the six key causes of the current agricultural crisis, and it devotes an entire chapter to considering ways of halting such degradation.

Efficient acceleration of the growth of agricultural output in Sub-Saharan Africa by means that avoid further degradation of the environment is indispensable. This, it seems clear, will require a shift from the traditional resource-based agriculture to a "science-based" agriculture in which continuing increases in crop and livestock production are made possible by adopting more productive technologies and by increasing the use of chemical fertilizers and other purchased inputs.

Although the need for "efficient sequences of innovations" is universal, the nature of the innovations that are appropriate

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[11]In the context in which it was presented, Wolgin's statement that "the capacity to develop and transfer productivity-enhancing agricultural technologies is limited" was an appropriate response to "technological optimism" and to misplaced confidence that integrated rural development programs would have a direct impact on the productivity and incomes of the rural poor. A recent analysis of World Bank rural development projects emphasizes that costly programs have often yielded very disappointing returns because they were based on "technical packages" that did not measure up to expectations (C. Jones 1985).

will vary over time and by location. In many areas, agroclimatic conditions are so unfavorable that the potential for significant increases in agricultural productivity is extremely limited. Moreover, given the complexity of the issues of agricultural development and the lack of knowledge concerning the distinctive and extremely heterogeneous characteristics of African agriculture, it is well to reiterate that uncertainty about how best to design and implement agricultural strategies is an unavoidable and serious handicap.

On the positive side, considerable progress has been made over the past three decades in understanding the process of agricultural development as well as the interactions between agriculture and other economic sectors.[12] More limited but significant progress has also been made toward a better understanding of the basic characteristics of African farming systems, of the ways in which agroclimatic and socioeconomic factors give rise to differences, and of the evolution of farming systems in response to population pressures in rural areas, urbanization, improvements in access to markets, and other changes in the physical and economic environment.[13]

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[12]A few of the more important publications that have contributed to this emerging consensus are Ohkawa (1972), Johnston and Mellor (1961), W.O. Jones (1960), Schultz (1964, 1980), Krishna (1967, 1982), Hayami and Ruttan (1971, 1985), Eicher and Staatz (1984), Binswanger and Rosenzweig (1986; the published version of a 1984 World Bank paper on "material and behavioral determinants of agricultural production relations"), Mellor and Johnston (1984), and the Lipton-Longhurst 1985 CGIAR Study Paper. The 1985 report of the Organization for Economic Cooperation and Development (OECD)/Development Advisory Committee reviewing Twenty-Five Years of Development Cooperation is of particular interest in summarizing the areas of consensus that have emerged. There are, of course, many viewpoints that are highly critical of this emerging consensus. However, there appear to be such sharp differences among various dependency and Marxist views that there seems little prospect of the critics finding common ground for a consensus. See Staniland (1985, chaps. 5 and 6) for a useful summary of the relevant literature.

[13]See in particular the IFPRI volume edited by Mellor, Delgado, and Blackie (1987); the Eicher-Baker (1982) literature review; the volume edited by Berg and Whitaker (1986), especially the chapters by Spencer, Leonard, Johnston, Lewis, Crawford, and Eicher; the 1979 book by Anthony et al.; Lele's 1975 book and her 1985 Tanzania article; W.O. Jones (1972); and the recent works of Binswanger and Pingali (1984) and Pingali, Bigot, and Binswanger (1987). Many of the most significant features were already highlighted in the 1967 treatise by de Wilde et al.

Although it is difficult to formulate guidelines for the design of agricultural strategies in African countries, it is important to confront that challenge because of the limited effectiveness of relying on ad hoc, piecemeal efforts. One obvious universal need is to strengthen agricultural research systems to support the transition from resource-based to science-based agriculture. But research objectives and priorities need to take account of local socioeconomic as well as agroclimatic conditions. Particularly significant is the great variation in the extent to which African countries, and areas within countries, have moved from being "land surplus" to "land scarce" agricultural economies, as well as the great variation in the extent to which producers in different areas have been able to enlarge their cash receipts (see, for example, Matlon 1985).

It is of great importance to emphasize that the structural and demographic characteristics of the countries of Sub-Saharan Africa do lead to some hard conclusions pertinent to the design of strategies for agricultural and rural development. These are "hard conclusions" because they are unavoidable implications of the "arithmetic of population growth and structural transformation" that applies to countries with rapid rates of natural increase and in which some 50 to 80 percent of the population and labor force still depend on agriculture.

Kenya is a case in point. Demographic projections for Kenya for the 55-year period 1969 to 2024 are of particular interest because of the very rapid rates of growth of population and labor force. According to a "most likely" set of assumptions, it is projected that between 1969 and 2024 Kenya's population will increase from 11 million to 64 million. (By mid-1983 the population had reached an estimated 18.9 million.) It is also projected, assuming continued rapid growth of the urban work force, that the rural labor force will decline from 87 percent of the total in 1969 to 65 percent in 2024. But despite a projected 16-fold increase in the working-age population in urban areas, the rural work force would still increase <u>fourfold</u> during the 55-year period (Shah and Willekens 1978).

Inasmuch as Kenya is already experiencing population pressure in rural areas, it is inevitable that the size of the average farm unit will decline substantially until the absolute size of the country's farm population begins to decline. How soon that turning point will be reached will depend on the future rates of increase of the total labor force and of nonfarm employment. Even if fertility begins to decline soon and rapidly, it will be four or five decades before that turning point is reached because agriculture still accounts for such a large share of the total labor force and because it takes time before a decline in the birth rate is reflected in a slower rate of growth of the working-age population. Hence, the special importance of

agricultural and rural development and of the strategies that expand employment opportunities within and outside agriculture.

It is also because of these demographic and structural characteristics that the cash income/purchasing power constraint mentioned earlier is a persistent characteristic of agriculture in Sub-Saharan Africa. In the longer term, as commercial demand and cash income per farm household increase, it will gradually become attractive for a large and growing majority of African farmers to invest in land improvements and to adopt varieties with a higher yield potential but more demanding of purchased inputs and improved management practices. The pressure and opportunities for intensification and expanded commercial sales will induce farmers to raise their use of fertilizers and other yield-increasing innovations while also encouraging investments in animal draft power and associated implements.

In addition to the general influence of intensification on the attractiveness of using animal draft power, a shift in producers' preferences away from the lighter soils, which are easy to handle but risky, to heavier soils, which require more power for cultivation but retain moisture better and respond to better management, will encourage the adoption of animal-powered cultivation (Pingali, Bigot, and Binswanger 1987). In the short term, however, the need is to emphasize breeding strategies and improved cultural practices, which stabilize and marginally improve yields with only modest increases in the use of purchased inputs and which, at the same time, protect the land base from further degradation and thus preserve and improve production potential in the long term.

4.3 Policy Issues

Three policy issues should figure prominently in policy dialogue between A.I.D. and the governments of African countries because the way these issues are resolved will have a large impact on the success of agricultural development efforts. Reference has already been made to two of these issues, but all three need to be examined more closely: (1) the choice between small-farm development strategies and crash modernization of large-scale, mechanized units; (2) the balance between agriculture and industry; and (3) the balance between the role of government and the role of private firms (or independent cooperatives).

4.3.1 The Choice Between Small- and Large-Farm Development Strategies

Given that 50 to 80 percent of the population and labor force in African countries is still dependent on agriculture, and given the rapid rates of growth of their total population and labor force, there is no way that the average farm unit can be large, at least not for the next 40 or 50 years. Small is not a virtue but a necessity for the overwhelming majority of African farmers. Concentrating on a tiny minority of atypically large farms encourages emphasis on technologies that are too capital- and cash-intensive to be generalized. But going to the opposite extreme of concentrating on "the poorest of the poor" is likely to yield low returns because these people have less capacity to seize new opportunities than the typical small farmer.

In land-scarce countries such as Kenya, if a large part of the arable land is preempted by a subsector of atypically large farm units, the average size of the great majority of farm units will be smaller than otherwise. However, even in countries such as Tanzania that still have ample land for expanding the area under cultivation, there is a trade-off between pursuing a strategy that promotes rapid expansion of a large-scale, mechanized subsector and successfully implementing a small-farm strategy. This is because of the cash income/purchasing power constraint that characterizes a country where the domestic commercial market is small relative to the large number of farm households. Although a subsector of large-scale farm units can escape the sectorwide purchasing power constraint if it accounts for the lion's share of commercial sales of farm products, the consequence is that for the great majority of farm households, the purchasing power constraint is intensified.

It has become fashionable in some circles to assume that food and nutrition problems in developing countries are aggravated by "excessive" emphasis on agricultural exports. Such a view ignores the acute shortages of foreign exchange in most developing countries and the fact that most African countries must rely on enlarged production of export crops because of the lack of alternative means of earning foreign exchange. Furthermore, expansion of production for export has the great advantage that rapid growth in the exports of a small country will usually have relatively little effect on world prices. Thus the possibility of expanding cash income from export crops is often an attractive means of increasing farm cash incomes despite the well-known disadvantages of relying on exports of a few agricultural products such as coffee or cocoa--notably the sharp price fluctuations that occur because demand in the major importing countries is price inelastic.

It is true that during the colonial period, the tendency was to neglect research on food crops and to concentrate on export crops. The current danger, however, is that research priorities may have shifted to the opposite extreme (Lele 1986). What many smallholders in Sub-Saharan Africa need is technical innovations that will lead to higher output of crops for subsistence consumption and for sale, whether domestically or overseas.

Because arguments for small-farm strategies have so often been based on equity considerations, the implicit or explicit assumption that large farms are more efficient has often gone unchallenged. In fact, it is now well established that small farms generally have an economic advantage over large farms as long as farm labor is relatively abundant and cheap. The importance of seasonal labor bottlenecks in African countries is sometimes offered as evidence that agricultural labor is relatively scarce. In fact, apart from rare exceptions such as a few countries that experienced the petroleum boom of the 1970s, the opportunity cost of farm labor is low because of the paucity of nonfarm employment opportunities relative to the size of the rural work force.

To be sure, labor may at times have a relatively high opportunity cost because of seasonal bottlenecks. And there is often more scope in Africa than in Asia for expanding the area under cultivation. Hence, it seems important for agricultural research to focus on simple, labor-saving innovations that will help to alleviate seasonal bottlenecks as well as on the seed-fertilizer combinations that have been so important in Asia because they are divisible and therefore can be used efficiently by small farmers.

In areas with abundant land, low levels of technology, and very limited use of purchased inputs, farmers will have little interest in investing scarce resources in yield-increasing innovations because the economic value of such innovations is related directly to the scarcity value of land. Binswanger (1986) has rightly emphasized that the limited success of research on food crops in Sub-Saharan Africa, and the limited political and financial support for such research, has undoubtedly been strongly influenced by the failure of agricultural scientists and administrators to take account of local socioeconomic factors, especially the scarcity or abundance of land, in determining research priorities.

The fact that many African farmers have shown little interest in fertilizers and their precise placement, in fertilizer-responsive varieties, or in husbandry techniques such as intensive manuring has often been explained as an irrational rejection of "improved farming" by "tradition-bound" farmers, when in fact it was a rational response. Even in remote, land-abundant areas "farmers readily adopted new crops which provided more food or

income per unit of labor, and disease-resistant varieties of cotton" (Binswanger 1986, 473).

The level and orientation of agricultural research is crucial in determining the prospects for successful implementation of small-farm development strategies. In fact, a lack of technical innovations suited to the needs of small farmers because of an inadequate research base is one of the two main reasons why the potential economic advantages of a small-farm development strategy may not be realized. The second reason is that the potential superiority of small farms in terms of economic efficiency may be offset by various "differentiating factors" that give large farms an artificial advantage over small farms (see Ohkawa 1972). Unfortunately, both situations are common in tropical Africa.

In light of the extensive literature that exists on agrarian structure and the choice of agricultural strategies, we have found it surprising that an appreciable number of A.I.D. staff members (including some agricultural economists) tend to accept the frequent assertions about the superiority of large-scale farm units. This is so even though both of the agricultural policy papers issued by A.I.D. (1978, 1982) emphasize the advantages of small-farm strategies.[14]

The obstacles that must be overcome in designing and implementing a successful small-farm development strategy capable of accelerating the growth of agricultural production are indeed formidable. Yet a strategy that emphasizes the crash modernization of a subsector of large-scale farms faces obstacles that in the long run are even more serious because of the severity of capital and foreign exchange constraints. Nor should we overlook the simple arithmetic fact that a relatively small yield increase achieved by all farmers can have a substantially larger impact on aggregate production than a large yield increase on a few large-scale commercial or state-run farms. Thus, a modest 20-percent increase in yield on all farms will have six times the production effect of a 100-percent yield increase on large farms occupying only 3 percent of the total cultivated area.

The fact that agricultural operations are spread out in time and space gives rise to special and costly problems in recruiting and supervising a large farm work force. This is the principal source of the diseconomies of farm size, which tend to outweigh the economies of farm size when the opportunity cost of labor is

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[14]For a recent analysis of these issues, see Johnston and Tomich (1984, 1985). Berry and Cline (1979) is also valuable and is an excellent source of empirical evidence on relationships between farm size and productivity.

low.[15] Because of problems related to incentives and the difficulty of preventing shirking by hired agricultural laborers, large-scale farm units invariably rely on relatively capital- and import-intensive technologies even in low-income countries where the opportunity cost of labor is extremely low. This means, however, that their expansion is limited by the acute scarcity of capital and foreign exchange. For a time that constraint may not be operative because governments often give preferential treatment to large-scale farm units in the allocation of foreign exchange and import licenses and in access to credit at artificially low interest rates. At present, however, many African countries are facing acute shortages of foreign exchange, which have been exacerbated to some extent by generous allocations of foreign exchange for past imports of machinery. In addition, many tractors are not operational because of the unavailability of spare parts, or their use is curtailed by petroleum shortages.

There is a danger that past failures with large, mechanized farm units will be attributed entirely--and erroneously--to the special problems of state farms. The risk then is that the current private-sector initiative will lead to direct or indirect U.S. support for subsidized and protected commercial enterprises using inappropriately capital-intensive technologies.

Small farms that depend on family labor tend to have a significant cost advantage over large-scale units that rely on hired labor. Four factors are particularly important:

1. Because family members have a claim on the residual production of the farm in lieu of a fixed wage, they have a direct incentive to maximize farm profits by working hard and exercising initiative and judgment.

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[15]Economies of farm size in agriculture become increasingly important with increases in the opportunity cost of farm labor. This is because tractors and other labor-saving farm equipment, which become increasingly important as farm labor becomes scarce, are "lumpy" inputs. Moreover, there are scale advantages in both the manufacture and use of tractors and tractor-drawn implements or combine harvesters. Therefore, it is not surprising that in their analysis of productivity differences among countries Hayami and Ruttan (1985, chap. 6) found constant returns to scale in developing countries but increasing returns in industrialized countries, where the share of the labor force in agriculture is small. Thus as the farm labor force in the United States has declined to less than 3 percent of the total labor force, those households that have continued to farm have steadily increased the size of their holdings and adopted increasingly powerful machinery.

2. Decentralized decision-making and the exercise of initiative and judgment by farm workers are especially important. The biological nature of the agricultural production process means that operations are spread out in time and space. Moreover, owing to unpredictable variations in weather and microvariability in the quality of land and other resources, even routine chores often involve what have been aptly described as "on-the-spot-supervisory decisions."[16]

3. Small farm units are usually superior to large farms in economic efficiency because resources of land, labor, and capital are combined in proportions more appropriate to the relative factor endowments and relative factor prices.

4. By relying on capital-saving and labor-using technologies, small-farm strategies make it possible for a country to increase farm output by fuller and more efficient use of its large and growing farm work force, thereby minimizing the agricultural sector's requirements for scarce capital and foreign exchange. Moreover, broadly based agricultural development generates a pattern of effective demand in rural areas that stimulates positive interactions between agricultural and industrial development.

In summary, the available empirical evidence and theoretical work both suggest that agricultural strategies in low-income countries should emphasize to the maximum extent possible reliance on the progressive modernization of small farm units. For a few crops, notably sugarcane and bananas grown for export, economies of scale are substantial because of the need for close coordination between production and processing (sugar) or packaging and shipping (bananas). There is a growing tendency for large enterprises to concentrate on activities that are characterized by economies of scale, leaving production at the farm level to smallholders. Thus the concept of a balance between large- and small-scale farm units is erroneous: an emphasis on policies that promote the expansion of a favored subsector of large-scale farm enterprises across all functions, even those in which economies of scale do not exist, wastes scarce resources and tends to preclude the possibility of successfully implementing small-farm development strategies.

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[16]See the classic article by John Brewster (1950), "The Machine Process in Agriculture and Industry." See also Hayami and Ruttan (1985, 330-33) and Johnston and Clark (1982, 82-89).

4.3.2 The Balance Between Agriculture and Industry

The complex issue of the balance between agriculture and industry is highly relevant to A.I.D.'s policy dialogue with African countries, but it must be treated here in summary fashion.[17] In this matter, "balance" is essential. Studies of the development experience of Japan and Taiwan in particular have underscored the great importance of concurrent growth of agriculture and industry. Because of the growing sectoral interdependence between agriculture and industry in the development process, to opt for either an "agriculture first" or an "industrialization first" strategy is a serious mistake. Indeed, one of the major advantages of successfully pursuing a strategy of broad-based agricultural development is that such a strategy generates a pattern of growth of farm income and effective demand for the products of industry that contributes to decentralized, sustainable growth in manufacturing output and employment. Conversely, steady progress in expanding the size and technical competence of a country's industrial sector makes an increasingly important contribution to the growth of agricultural productivity.

The significance of concurrent progress in agriculture and industry is epitomized by the development experience of the three industrialized countries that have relied most heavily on the expansion of agricultural production and exports--Denmark, Australia, and New Zealand. The impressive growth of farm productivity in these countries, as in other industrialized nations, has been associated with continuing progress in interindustry specialization and division of labor. By 1980 the overwhelming majority of the (male) labor force was engaged in industry--91 percent in Denmark, 93 percent in Australia, and 88 percent in New Zealand.[18] "Industrialization" does not refer merely to the expansion of a country's manufacturing sector but to "the coordinated growth of manufacturing, service, and related industries, including international trade and transport, that characterizes an industrial economy" (Hayami and Ruttan 1985, 129).

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[17]This topic was the theme of a conference of the International Economic Association held in New Delhi in December 1986. For a more detailed analysis of the interactions between agricultural and industrial development, see Johnston and Kilby (1975).

[18]The Hayami-Ruttan farm labor force estimates used in this section refer only to male workers; this increases the cross-country comparability of the figures because there is great variability in definitions relating to the inclusion of women in a country's agricultural labor force.

The specialization that characterizes an industrial economy does more than simply facilitate division of labor and increased use of "machinery whose power, speed, and precision multiplies the yield of human effort" (Johnston and Kilby 1975, 34). It also facilitates the functional differentiation that has made possible the creation of the experiment stations, industrial laboratories, and research universities that have contributed so enormously to the advances in scientific knowledge and technology. It is the interdependent growth in institutional, human, and material capital that has fostered the remarkable growth in productivity in agriculture and in industry that has characterized the U.S., Japan, and other industrialized countries. The lessons evident in the historical experience of these countries are being confirmed by recent research on rural nonfarm activities in today's developing countries (Liedholm and Kilby 1986; Chuta and Liedholm 1984).

Estimates of land and labor productivities by Hayami and Ruttan (1985, ch. 6) that partition the figures for output per worker into output per hectare and number of hectares per worker merit attention. They highlight the large and increasing differences in agricultural productivity between developed and developing countries and the extent to which those differences are a result of the contrasting structural and demographic characteristics of the two groups of countries. Their cross-country analysis of 43 countries does not include any tropical African country, but the figures for Bangladesh, Peru, India, and the Philippines presented in Table 5 probably bracket the experience of the countries of Sub-Saharan Africa fairly well.[19]

There are appreciable differences between Denmark and the three other developed countries, but those differences pale in comparison with the contrasts between the developed and the developing countries. To note the most striking contrast, in 1960 agricultural output per (male) agricultural worker in the United States was some 47 times as high as in Bangladesh; and in 1980 agricultural labor productivity in the United States was a staggering 158 times as high as in Bangladesh. Both countries registered increases in agricultural output of a little over 40 percent; but in Bangladesh that was associated with a 57-percent increase in the (male) farm work force from 12.1 to 19.1 million, whereas in the United States the (male) farm work force declined

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[19]However, the four developing countries included in the tabulation all achieved significant yield increases whereas very few (if any) African countries registered yield increases in aggregate farm output between 1960 and 1980. The common denominator of "wheat units" was obtained by converting the output of other crops and livestock products into tons of wheat based on their value relative to the price of wheat. See Hayami and Ruttan (1985, 120, 447-65) for details of their computations.

from 3.8 to 1.7 million. The striking contrast in the changes in hectares cultivated per farm worker--up from 117 to 247 hectares in the United States and down from 0.8 to 0.5 in Bangladesh--are attributable entirely to the contrasting changes in the size of their farm work force.

Table 5. Estimates of Land and Labor Productivities in Agriculture in Selected Countries

Country	Output per Male Worker in Wheat Units		Output per Hectare in Wheat Units		Hectares per Male Worker	
	1960	1980	1960	1980	1960	1980
United States	93.8	285.1	0.80	1.16	117.0	247.0
Australia	103.8	256.2	0.09	0.15	1,153.0	1,765.0
Denmark	46.4	131.2	4.60	5.58	10.0	23.0
New Zealand	140.5	235.0	1.21	1.71	116.0	138.0
Bangladesh	2.0	1.8	2.51	3.51	0.8	0.5
India	2.2	3.1	1.06	1.58	2.0	2.0
Peru	9.6	10.1	0.26	0.37	36.9	27.5
Philippines	3.3	5.9	2.11	3.47	1.6	1.7

Source: Hayami and Ruttan 1985, Chapter 6.

Significant declines in agricultural land per farm worker resulting from continuing growth in the size of the farm work force make it more and more difficult to increase farm labor productivity in the low-income developing countries. A process of industrialization that generates expanding opportunities for nonfarm employment in order to slow and eventually reverse the increase in the absolute size of the country's farm work force is critical to achieving increases in farm labor productivity and income. Experience during the past three decades has made it clear, however, that policies aimed at accelerating the process of structural transformation by highly protectionist import-substitution strategies have been counterproductive. Such policies have not only affected agriculture adversely but have also had the unintended consequence of impeding the very process of structural change that they were intended to promote. (For an excellent analysis of the profound influence of macroeconomic policy and "macro prices" on agricultural development, see Timmer, Falcon, and Pearson 1983, 218-43.)

The most obvious adverse effects on agriculture have stemmed from too little government spending on agricultural research and other supporting services; inadequate investments in agricultural infrastructure, especially the construction and maintenance of

rural roads; and acute shortages of foreign exchange that have sometimes crippled transport systems because of shortages of vehicles, spare parts, and petroleum. Moreover, large budget deficits that fuel inflation and lead to seriously overvalued exchange rates have been caused in part by excessively generous treatment of an enclave of favored industrial firms. Price distortions for manufactured goods, the result of overvalued exchange rates, have generally been offset by import quotas that have the effect of increasing the prices that farmers pay for both inputs and consumer goods. Meanwhile, tradable agricultural products are not protected, so overvaluation reduces the (local currency) prices that farmers receive for export crops and for import substitutes. In some instances domestic food production may be protected sporadically by import quotas, but the main consequence of such erratic protection is to increase the uncertainty confronting farmers.

Although the neglect of agriculture in government budgets and price distortions that discriminate against agriculture have adverse effects on the entire sector, it is the small farmers who are hurt most. This is because of the nature of the measures that governments adopt to try to offset the negative effects on agricultural production of an overvalued exchange rate and other policy distortions. Almost invariably the measures adopted benefit primarily the relatively large-scale farmers. For example, financial institutions are directed to make credit available at artificially low interest rates to favored farmers and to privileged firms in the modern manufacturing sector. Small farms, along with small-scale rural nonfarm activities, are the least likely to enjoy the fruits of such measures.

Government policies that have enabled large farmers or state farms to acquire tractors at artificially low prices have had particularly adverse effects. Overvalued exchange rates make the price in local currency of imported equipment artificially low. Moreover, such equipment is invariably allowed to enter duty free or at a very low preferential tariff applied to capital goods because of the common but erroneous view that this will promote capital accumulation. If large farmers have access to credit at artificially low interest rates, the incentive to acquire such capital-intensive, labor-displacing farm equipment is intensified. A further important but seldom noticed consequence is that these inducements for large farms, private or state, to acquire tractors and tractor-drawn equipment have the unintended consequence of discouraging the development of a domestic capacity to manufacture simple, low-cost, and more appropriate farm equipment such as animal-powered plows, cultivators, and seeders or planters.

In contrast, the progressive modernization of a large and growing percentage of a country's small farms facilitates the concurrent growth of agriculture and industry and maximizes the

positive interactions between the agricultural sector and manufacturing and other nonfarm sectors. Adopting innovations that are divisible and that complement the large and growing farm labor force minimizes the demand for scarce capital and foreign exchange because agricultural expansion is realized by fuller and more efficient use of the farm work force. This is in contrast to a dualistic pattern of agricultural development in which capital is invested in labor-saving technologies (for a large-scale, "modern" subsector) despite the paucity of alternative employment opportunities. Broadly based agricultural development also facilitates a net transfer of investable resources from agriculture to the faster growing nonfarm sectors without stifling the necessary increases in agricultural output because of the potential that exists for widespread increases in farm productivity.

Moreover, widespread growth of farm productivity and incomes means that there is rising demand for relatively simple consumer goods and farm equipment. This pattern of demand encourages rapid growth of rural nonfarm activities because such products lend themselves to reasonably efficient domestic production by technologies that minimize requirements for capital and foreign exchange (Chuta and Liedholm 1984). Finally, broadly based agricultural development facilitates the absorption of a rapidly growing population of working age into productive employment because it relies on labor-using, capital-saving technologies within agriculture and because it induces a pattern of industrial expansion that permits more rapid growth of nonfarm employment (see Liedholm and Kilby 1986). The prospect is good, therefore, that the growth of demand for labor will exceed the rate of growth of the population of working age, so that a tightening of the labor supply/demand situation will lead to rising levels of income and consumption.

4.3.3 The Balance Between the Public and Private Sectors

There has been a tendency in recent years for A.I.D., the World Bank, and other external donors to place much of the blame for the poor performance of agriculture in Sub-Saharan Africa on the macroeconomic policies of local governments. As noted above in discussing import-substituting industrialization, such policies have indeed distorted agricultural prices and have had adverse effects on farmers' incentives to expand production. Until fairly recently the dominant view among development specialists was to endorse such interventions because of the prevailing belief that they would accelerate industrialization and development. Even now it is common to refer to policies such as fertilizer subsidies as "generous," ignoring the opportunity cost of the government funds so used and the likelihood that the subsidized price adversely affects equity as well as resource

allocation. To be sure, the "urban bias" that Lipton (1977) has eloquently emphasized is so ubiquitous that it is tempting to endorse almost any policy that seems to favor agricultural over urban interests.

> The problem is, however, more fundamental. A first step is to recognize the gap between theory and reality. The dominant view of the early development literature that a benevolent state, acting solely in the societal interest, and equipped with needed information, knowledge and policy instruments, can intervene in an optimal way to correct any market failure and launch a society along the road to self-sustained and rapid development turned out to be much too optimistic, if not completely out of touch with the realities (Srinivasan 1985, 45).

Governments are pushed and pulled by lobbies that are motivated by narrow group interests and that may care little about the societal goals of development. Still worse, broad coalitions that come close to representing the interests of society at large are likely to be ineffective, except insofar as they may be able to influence legislation through the political process, because large groups are subject to the well-known "free rider" problem. Thus state interventions that are intended to overcome "market imperfections" and improve the efficiency of resource allocation and direct it in socially desired directions are in practice likely to create losses due to distortions and the diversion of resources from productive to unproductive activities, including the rent-seeking emphasized by Krueger (1974).

To view those who wield authority as completely self-serving is, however, likely to be as misleading as viewing them simply as disinterested servants of society. It is essential to recognize that on occasion it is appropriate to view the power of authority as a system that is utilized to generate and mobilize resources to attain societal goals (Gamson 1968). Policies that give government officials a great deal of arbitrary and discretionary authority--such as administrative rationing of foreign exchange and subsidized credit--magnify the importance of influence because they give rise to "scarcity rents" created by government interventions. In contrast, policies that foster a government's catalytic role, notably in improving access to education, promoting agricultural research, and undertaking investments in infrastructure, can encourage a stronger focus on societal goals: on "increasing the size of the pie" rather than on "how the pie is divided."

The recent emphasis in the development literature on "participation" is a step in the right direction. Unfortunately, however, there has been a tendency to equate participation exclusively with "participatory organizations" and implicitly to

make the outrageous assumption that the more participation in such organizations the better. Local organizations such as marketing cooperatives and irrigation associations often perform very valuable functions. But participatory organizations impose substantial costs on their members in terms of time and energy. Moreover, fulfilling the two essential functions of participation--providing feedback based on intimate local knowledge and serving as a watchdog against arbitrary abuses of power--does not necessarily depend on the creation of formal membership organizations (see Goodell 1985).

Experience with small-farm credit programs demonstrates this point. It is now recognized that government action ostensibly aimed at giving small farmers access to cheap credit generally ends up as a significant "differentiating factor" favoring the larger and more influential farmers, who obtain the lion's share of the subsidized credit. Perhaps even more important in the long run is the fact that government interventions, including ceilings on interest rates paid on deposits as well as those charged on loans, stifle the emergence of a rural financial system capable of mobilizing loanable funds and of meeting the credit needs of farm and nonfarm entities in rural areas (see Adams and Vogel 1986).

Where local systems or "institutions" are able to emerge and develop, the participants may become sufficiently numerous and well organized to act as a pressure group against arbitrary actions by the government. In African countries, however, the ubiquitous involvement of the government in commercial operations has impeded such an evolution. Moreover, extensive and often unpredictable and arbitrary interventions by governments have limited progress toward creating the conditions that make for predictability and rationality. And governments have often taken on operational responsibilities that have been costly and exceeded their administrative capacity while neglecting more fundamental responsibilities. In a recent essay, "The State and Economic Stagnation in Tropical Africa," Sandbrook (1986, 320) emphasized that governments have often failed to "foster a general sociopolitical and legal framework conducive to market relationships... [together with] political stability and a minimum degree of social harmony." Consequently, there has been too little scope for economic development generated by the energy and initiative of individual farmers, traders, operators of local machine shops, and a host of other small- and medium-scale entrepreneurs in a position to identify opportunities for economic and technical innovations--and to act upon those opportunities.

Private firms can be more flexible because they are controlled more directly by the price system, and profit incentives and competitive pressures are spurs to cost reduction and efficient performance. But a doctrinaire commitment to "the magic of the market place" can also be counterproductive. Even for

organizations carrying out essentially commercial activities, a public agency or parastatal may yield significant net benefits. A notable example is the Kenya Tea Development Authority, which has performed a useful role in carrying out functions characterized by economies of scale--collection and processing of tea leaves--in order to facilitate rapid expansion of tea production by smallholders.

There may also be cogent reasons for a transitional role for a parastatal in the distribution of fertilizers or other new inputs until the level of demand is sufficient to attract competing firms and independent cooperatives. However, because public agencies and parastatals must rely on hierarchical techniques of calculation and control, including the discipline of bureaucratic regulations to limit graft and corruption, it is inherently difficult for them to perform essentially commercial operations efficiently. Government has an important role to play, however, in facilitating actions that can be beneficial to farmers, traders, and consumers. Improving the transportation network; introducing standardization of grades, weights, and measures; and providing timely and accurate market information are familiar examples (Lele 1986).[20]

Despite the political motivations that encourage the adoption of policies giving government officials discriminatory control over scarce resources, it is not mere wishful thinking to expect African governments to become more pragmatic in defining the balance between the public and private sectors. To the extent that policymakers are driven by recent failures and frustrations to modify their strategic view of the development process, a change in policy is a real possibility. After all, politicians and policymakers can reap political advantages from success that may be more enduring than the short-term benefits derived from patronage.

4.4 Summary

This section has examined the nature of the development process in order to provide a basis for identifying the critical elements of successful strategies for agricultural and rural

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[20]It has been suggested that it may be more realistic to encourage and assist African governments in redefining the roles of marketing boards than eliminating them outright (W.O. Jones 1984). It might, for example, be desirable for marketing boards to manage buffer stocks, although trade may well offer a better approach to food security and market stabilization (Hopcraft 1986). Managing a buffer stock operation is costly and also very demanding of analytical capacity.

development. The framework elaborated here should prove helpful in determining whether various types of activities can be expected to make a significant and lasting contribution to a country's agricultural and rural development. In the context of this report, it provides guidelines for the assessment of the impact of A.I.D.'s activities that is presented in Section 6.

Decisions made in the field by Mission directors and their staff are often severely constrained by policy directives from Washington and by the other internal and external constraints examined in the next section. The external constraints in particular have been responsible for a tendency for these guidelines to be displaced from time to time as other ideas such as "basic needs strategies" or "integrated rural development" come into vogue and move to center stage.

It should be emphasized, however, that a good deal of adjusting of A.I.D.'s objectives and priorities is both inevitable and desirable. By the nature of its difficult task, A.I.D. is and should be a pioneering agency able to adapt to lessons learned from its own experience and from better understanding of development problems. The emphasis of the New Directions mandate on basic human needs was important as a reminder that some needs are more basic than others and that alleviation of acute poverty merits particular attention. Indeed, the concern from the early 1970s with basic human needs and "the poorest of the poor" almost certainly helped to increase interest in African development and to raise the priority of Sub-Saharan Africa--a region that includes well over half of the world's poorest countries.

5. A.I.D.'S INSTITUTIONAL CAPACITY

This section describes the effects of A.I.D.'s organization, procedures, and personnel system on the Agency's capacity to support balanced agricultural and rural development in Sub-Saharan Africa during the period under review. The section seeks to understand how A.I.D.'s characteristics have constrained what A.I.D. employees could do and shaped what they wanted to do. The section also examines how decisions to allocate resources have been made and how well these decisions have been informed by knowledge about the needs and conditions of African countries, by appropriate technical judgments, and by balanced developmental objectives. The purpose of the analysis is to illuminate A.I.D.'s institutional strengths and weaknesses, to identify what kinds of tasks it can carry out best, and to recommend how the Congress and A.I.D. management can make it a more effective organization.

We also have attempted to relate changes in A.I.D.'s internal organization, procedures, and incentives to pressures from

its external environment, especially those arising from the Congress and the public, special interest groups, and other branches of government. We have done this both to draw attention to the fact that A.I.D. faces significant constraints over which it has little or no control and to suggest the kinds of changes in its environment that would enable A.I.D. to develop more effective ways of providing assistance to African nations.

The discussion focuses on two distinctive features of the way A.I.D. provides assistance: its reliance on overseas Missions and its project system.[21] A.I.D. is unique among major donors in the extent to which it has assigned its staff to overseas Missions and given them broad programming responsibilities. Indeed, most of the activities reviewed in our six-country study were initiated and supervised by country Missions. It is generally held that the Mission system gives the Agency a comparative advantage in developing programs suited to local needs and in implementing projects responsive to local conditions. Since changes in Mission size, staffing pattern, and task are currently under consideration by A.I.D. management as a result of pressures from the Department of State and the Congress, we believe it timely to assess the effectiveness of the present system.

A.I.D.'s procedures for planning country strategies and for identifying, designing, implementing, and evaluating projects and nonproject assistance are complex, detailed, and comprehensive. These procedures have served as models for other bilateral as well as multilateral donor organizations. However, it is clear that A.I.D.'s system has not proved equally effective in all contexts and for all tasks. In recent years the Agency's management has recognized a number of recurring problems and has taken steps to correct them. Also, since the Congress is contemplating further changes both in A.I.D.'s operations and in the Africa assistance program, this inquiry is also especially timely.

In our effort to identify endemic problems in programming and project work that have reduced A.I.D.'s effectiveness, we have encountered several difficulties. The first concerns sources and uses of data. Although A.I.D. project evaluations are often very frank in their discussion of project shortcomings, many problems are filtered out of official documents even though they are well known to A.I.D. and its contractors. This occurs, for example, when projects are designed and approved in response to special interest group pressures on A.I.D., or when contractors perform poorly. We have therefore based our analysis on interviews as well as records.

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[21]For simplicity the word "Mission" is used here to refer to A.I.D.'s in-country representatives, regardless of whether they have been granted full Mission status in the technical sense.

The second difficulty concerns the presentation of our findings. Our discussion of A.I.D.'s weaknesses is not intended to obscure the Agency's demonstrated strengths and accomplishments, many of which are highlighted in the following section. Moreover, it is important not to confuse individual and organizational incentives; our observations are not meant to give the incorrect impression that A.I.D. employees are bureaucratic opportunists not really committed to development. Indeed, we were impressed by widespread efforts to "get something done" despite the impediments created by Congressional requirements and A.I.D.'s own procedures. Similarly, it is essential not to confuse judgments about whether A.I.D.'s organization, procedures, and incentives are well suited to its task with judgments about whether A.I.D. employees acted reasonably given the organizational context.

This section proceeds more or less chronologically, although some of the themes cut across time periods. The first section considers the distinctive nature of A.I.D.'s task in Africa and the extent to which its early organization and procedures were suited to that task. The second section examines the genesis of changes in A.I.D.'s objectives, organization, personnel system, and programming and contracting procedures that took place during the early 1970s and the way these changes contributed to the effectiveness of A.I.D.'s programs in the countries under review. The last section reviews the attempts of A.I.D. management since 1980 to correct earlier problems and identifies key issues facing the Agency today.

5.1 The Early Period

Effective donor assistance for agricultural and rural development must be based not only on an appropriate, balanced strategy of the type set forth in the preceding section but also on technical and analytical skills, familiarity with what has been previously tried in the host country, a comparative perspective, and a patient, persistent, flexible, and error-embracing approach. The ability of donors to experiment, grope, take some risks, tolerate frustration, sustain a collaborative effort, and learn from experience has been especially necessary in Africa.

At independence, Africa's new nations had very little trained manpower, their governmental institutions had little experience or capacity to carry out their tasks, and attitudes toward professionalism and accountability were weak. Planning capacity was minimal. Since then reliable planning data have remained scarce and skilled personnel are still in short supply. As for agriculture, African cropping and farming systems are complex, diverse, and locally variable. These cropping and farming systems are unfamiliar to American technicians, as are

the social institutions through which rural Africans pool risks, conduct trade, save, and deploy their capital and labor. Thus adapting Western technology and organizational forms to African conditions requires a good deal of patient experimentation.

In the early 1960s, African agricultural and rural development needs were poorly understood by A.I.D. and other donors, and many of their interventions were unrealistic and ineffective. Yet in some respects A.I.D.'s organization, programming procedures, and personnel system gave greater scope for flexible learning in the 1960s than has been the case in subsequent periods. The Agency was decentralized, with considerable delegation of responsibility to its overseas field Missions. Those Missions had more employees in relation to the size of their programs than they have had in more recent periods.

In addition, A.I.D.'s Washington-based bureaucracy was less complex. Throughout the Agency, lines of authority and areas of jurisdiction were blurred, access to superiors was easy, the Agency's family-like Missions fostered informal working relations (as they still do today), and considerable responsibility was assumed by subordinates. These are characteristics of an organization well suited to tasks similar to A.I.D.'s.[22] The Agency was also less tightly bound by bureaucratic procedures and contracting regulations. Loans required fewer types of analysis and were subject to fewer restrictions than was later the case. Programming technical assistance required little analysis or documentation, and A.I.D./Washington's review and approval of requests was handled by a small, technically oriented staff. The process was therefore relatively rapid and flexible.[23] Contracting and procurement were less standardized, centralized, slow, and time-consuming than they have since become. Country strategy documents were less elaborate, and there was less pressure to conform to the Washington policy climate than has been the case since the early 1970s.

A.I.D.'s early personnel system and incentives for professionals also were well suited to its task. Because, in the optimism of the time, it was widely believed that self-sustaining development could be achieved in a decade or so, the new Agency's personnel system was established on a temporary basis.[24] Most

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[22]The fit between A.I.D.'s organizational structure and its tasks is discussed by Tendler (1975, 12-22) and Siffin (1974).

[23]Capital projects, which were clearly differentiated from technical assistance for historical reasons, required economic and technical analyses and more complete documentation.

[24]A.I.D. did not request authority to include its personnel in a career system until 1966 (Tendler 1975, 16).

employees were hired as Foreign Service Reserve Officers, a special category intended to give A.I.D. the authority to hire professionals "on a temporary basis...with such specialized skills as may from time to time be required."[25] Under this system A.I.D. was able to employ trained and experienced people quickly, without giving entrance exams, and it did not have to assume civil-service-type obligations to those it employed. In addition to enabling the Agency to stay flexible, this arrangement was intended to provide employees with the incentive to maintain a professional identity.[26] Some A.I.D. employees were concerned primarily with administration and management, but many were involved in technical assistance. The line between direct-hire and contract personnel was less sharply drawn than it has come to be.

While there may be a nostalgic bias in memories of A.I.D.'s halcyon days, it seems clear that A.I.D. was able to capitalize on the comparative advantage of its overseas Missions in its early period. Employees had both the time and the incentives to devote a greater proportion of their energies to working with counterparts, implementing assistance, and thus learning about a country's needs and conditions. They also had more discretionary power to make changes and mid-course corrections, dropping extension work that proved inappropriate, for example, or initiating research.

The early system had weaknesses as well as strengths. Programs were unrealistically optimistic about what could be accomplished in a few years. This optimism, along with the desire to establish programs in newly independent nations and weak management planning, contributed to what Ambassador Korry in his 1966 report on A.I.D.'s African programs referred to as "scatteration, that is to say, our involvement in hundreds of projects dealing with almost every conceivable activity related to development and at many levels...in 33 countries." (Korry 1966, in Copson et al. 1986). As a result of the Korry Report, A.I.D. bilateral Missions were closed in all but 10 nations. Other countries were assisted only through regional and multilateral programs.

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[25]The Foreign Service Reserve Officer category, established by the Foreign Service Act of 1946 for the use of the State Department and A.I.D.'s predecessors, was incorporated into the Foreign Assistance Act of 1961, Section 522.

[26]The Herter report argues that "They will be forced to identify with their profession.... The decisive reason not to include these specialists in an A.I.D. career system is that, in the main, the career contexts and career loyalties of the best professionals lie with their professions and the whole range of activities with which those professions are associated" (cited in Tendler 1975, 20).

5.2 The Era of New Directions

By the early 1970s A.I.D.'s African Missions found themselves operating in a changed and challenging organizational context. The New Directions legislation altered A.I.D.'s objectives; at the same time, Congress restricted what A.I.D. could do to achieve those objectives. Functional budgeting, earmarking, and additional reporting requirements subjected the Agency and its Missions to micro-management by the Congress. The elaboration of project design and approval procedures and the expansion of the Washington-based bureaucracy contributed to a marked centralization of decision-making authority. The role of direct-hire employees became primarily managerial. Most substantive work on project design, implementation, and evaluation was done by contractors. At the same time, contracting and procurement procedures became more standardized, more restrictive, and slower. Finally, the Agency was spread thin since, in response to the Sahelian drought and the new Congressional mandate, it had once again established bilateral programs in most of the countries from which it had withdrawn in the late 1960s.

The immediate effect of these changes on A.I.D.'s programming system was to reduce the comparative advantage of A.I.D.'s overseas Missions and to exacerbate a number of long-standing problems in the design and implementation of projects. The Mission's bureaucratic work load increased far more rapidly than its work force. Employees were forced to devote a high proportion of their time to diagnosing the Washington "policy climate," packaging and promoting their programs, and overcoming arbitrary constraints in procurement and contracting. Their incentive to understand and address the distinctive, long-term developmental needs of the host country was reduced, as was their incentive to focus on project implementation.

In sum, Mission staff had to devote an increased amount of their attention to solving A.I.D.'s own problems. In this sense, the locus of decision-making for development shifted from host-country institutions to A.I.D. itself. To some extent, the reduction of Mission autonomy and flexibility brought about by overcentralization in this period was offset by an improved institutional memory and strengthened evaluation and learning processes in the Agency. In time these contributed to the formulation of more coherent and effective strategies in areas such as population and agricultural research. Before examining the impact of these changes on the programming decisions of A.I.D. Missions in the countries under review, it is useful to understand why these changes were introduced and how A.I.D. employees coped with them. This has relevance today, since the underlying pressures on A.I.D. that keep Missions from more fully exploiting their comparative advantage have not changed.

Many circumstances contributed to the changes introduced in the early 1970s, including the political and historical factors discussed in Section 2 and the recognition that A.I.D. was no longer a temporary agency. The way the changes were introduced, however, was shaped by two features of the Agency's external environment that had helped to shape American foreign assistance programs from their inception: (1) the absence of a strong constituency with shared goals and (2) the widespread assumption that most of the problems of developing nations could be solved quickly and easily by the direct transfer of American technology and institutions. These features have forced the Agency throughout its existence to be responsive to a wide variety of interest groups with differing and at times contradictory goals and to make unrealistic projections of what it could achieve. They have also contributed to ever-increasing public disillusionment, tighter Congressional oversight, and a more defensive posture by A.I.D. and its employees.

5.2.1 External Pressures on A.I.D.

Foreign assistance has never been popular. Indeed, public support for foreign aid has generally been lower than for any other form of Federal spending.[27] In the early postwar years, support was mobilized with the argument that the goals of foreign aid--containing communism, fostering democratic political institutions, promoting beneficial trade between rich and poor nations, and eradicating hunger, poverty, and ignorance--were mutually reinforcing and could be attained in a relatively short time. In addition, aid supporters argued, the United States was qualified by its unique historical tradition and its preeminent scientific and industrial capacity to exercise moral and technical leadership in fostering development.[28] Nevertheless, the passage of A.I.D.'s enabling legislation, the Foreign Assistance Act of 1961, under the charismatic leadership of President Kennedy, marks the last time an administration has successfully mobilized broad support for foreign aid.

Over the years public support for foreign aid eroded and its constituency was fragmented into a welter of special interest groups. By the early 1970s, in the wake of the Vietnam War, it was increasingly difficult to convince the public that A.I.D.'s

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[27]A useful discussion of the determination of U.S. foreign aid policies is found in Morss and Morss (1982, ch. V).

[28]A useful analysis of this concept of "manifest destiny" and its uses by American presidents is to be found in Berg (1976, 99-110).

humanitarian, commercial, strategic, and developmental goals were congruent.

To ensure the annual passage of A.I.D.'s legislation, the administration has had to forge a fragile coalition of special interest groups and to lobby key members of Congress for their support. Some of the interest groups are committed to a particular goal. Others are concerned primarily with having A.I.D. use their products and services. Still others limit what A.I.D. can do by sponsoring legislative amendments proscribing the Agency's involvement with particular countries, commodities, or technologies.

A.I.D.'s dependence on special interest groups has had several effects. It has led to the proliferation of its legislated objectives, often unaccompanied by additional overall funding or higher personnel ceilings. It has led to the imposition of scores of special restrictions in amendments to A.I.D.'s enabling bill. It has led to dramatic shifts in the Agency's regional focus and in its official policy, of which the New Directions mandate was an outstanding example. Reinforced by Congressional mistrust of A.I.D.'s capacity and the administration's intentions, it has led to the introduction of functional accounts and increased use of "earmarking" in A.I.D.'s appropriations bill. And it has forced A.I.D. to accept the nondevelopmental goals of other agencies, such as the Departments of Agriculture (USDA) and Treasury and the Office of Management and Budget (OMB), and subjected the Agency to direct pressure from members of Congress and high-level political appointees.

5.2.2 The Internal Response

A.I.D.'s vulnerability to the pressures of diverse interest groups has also influenced its growth, organization, personnel system, work force composition, programming and contracting procedures, and incentives. In response to these pressures and to demands of its task, A.I.D.'s organization has become complex and redundant. Over the years many new organizational units have been created within the Agency to cope with new goals or to show compliance with new thrusts. Thus units have been created for new functional areas such as fish protein (when protein rather than caloric deficiency was considered most urgent), for new approaches such as private enterprise and private voluntary organizations, and for new concerns such as Title IX, women, the environment, and energy. Other changes reflect a response to criticism or changing priorities. While units may be downgraded, moved, or merged, their functions are seldom altogether dropped.

The imposition of new objectives has also fostered functional redundancy and overlapping or poorly defined jurisdictional

boundaries as units have added offices and positions for purposes of compliance, coordination, or protection of their turf. At present, for example, agriculture is the concern of the Office of Agriculture in the Bureau for Science and Technology, the Office of Policy Development and Program Review in the Bureau for Program and Policy Coordination, the Agriculture and Rural Development Division of the Africa Bureau, the Regional Economic Development Support Offices in East and West Africa, and each of the country Missions. The same situation exists for other sectoral and special concerns.

In principle, of course, there are differences in the nature of the responsibility exercised over a functional area by different units. In reality, however, most policy and funding decisions are reviewed widely and discussed at committee meetings where employees with similar responsibilities, and perhaps similar professional qualifications, share ideas, dispute one another, squabble over jurisdiction, trade support, and form temporary or lasting alliances. The impact of a reorganization, a new policy, or the reassignment of personnel is muted by this diffused pattern of communication and decision-making.

Functional redundancy has been a source of institutional strength when the problems to be addressed are unclear, when multiple approaches are needed, or when effectiveness or protection against failure is more important than efficiency (Leonard 1982, 209-10). Redundancy has also contributed to A.I.D.'s resilience and organizational flexibility in the face of the reorganizations that tend to sweep across A.I.D. after changes of administration because qualified personnel, as well as the responsibility for carrying out key tasks, are widely dispersed throughout the Agency. A.I.D. can lose a bureau or an office without seriously disrupting its overall functioning. Similarly, a unit in one bureau may be upgraded, merged, divided, moved to another bureau, or given new functions or a new name without causing serious problems.

Yet redundancy can also be a source of difficulty if, as in A.I.D., personnel are not serving in positions for which they were trained and if, as in the early 1970s, there is excessive centralization. Under these circumstances decision-making is slow, and this inhibits A.I.D. Missions from quickly and flexibly responding to host country conditions and needs.

A.I.D.'s work force and personnel system have suffered from frequent changes in the Agency's policy climate, substantive emphasis, and regional focus. Changing objectives have made it difficult for the Agency to maintain a work force appropriate to its tasks. Since the reduction in force following the end of the Vietnam War, A.I.D. has been under almost constant pressure to reduce its complement of direct-hire employees and its operating budget. Efficiency-minded members of Congress and administration

officials tend to compare A.I.D.'s work with that of other Federal agencies that, unlike A.I.D., are applying known techniques to well-understood domestic tasks.

One result of the pressure on A.I.D. to reduce the number of its direct-hire employees and its operating budget has been the focusing of its recruiting efforts on acquiring the professional skills needed to implement its most recent policy objectives. Over time such a recruiting focus has left the Agency with acute shortages in some basic fields such as economics and agriculture. It has also fostered generational "stratification" in its work force; most of its anthropologists, for example, were hired in the mid-1970s.

A second result is that the Agency has had to reclassify many employees into skill categories for which the employees have had no formal training so that they could be assigned to available positions. For example, the agricultural officer in a USAID Mission in Africa in the 1970s was not necessarily an agriculturalist, much less familiar with what was known at the time about African smallholders' farming systems.

A third result is that, regardless of professional background, Mission-based employees spend most of their time on bureaucratic and managerial tasks. Indeed, management is the only clear career ladder in the Agency. Employees recruited because of other skills find it difficult to remain current in their field, to attend conferences, or to receive additional technical training.[29] This situation, plus the poor fit between the length of overseas assignments and the cycle of project development noted below, contributes to frustration, poor morale, and "deprofessionalization."

The complex and centralized programming procedures put in place in the early 1970s were shaped by A.I.D.'s vulnerability to criticism and the defensive posture that the Agency adopted. At the time, A.I.D. was under intense pressure to convince a skeptical Congress that it was conforming to the New Directions policies and that it was going to achieve positive results.

Consequently the new system, which is still largely in effect, requires Missions to specify in considerable detail, before funds are obligated, what they propose to do, how they propose to do it, and how the activity will contribute to developmental goals. Although changes can be made in the project during implementation, they require written Congressional notification. The new system also requires each Mission to prepare a more detailed and comprehensive justification of its country strategy in the Annual Budget Submission and in the Country

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[29]Each year a few employees are granted long-term training leave.

Development Strategy Statement. Also in the mid-1970s, A.I.D. management began to establish a strong, centralized data base and a capacity for evaluating the impact of its activities.

The programming approach, which had previously been used only for loan preparation, was elaborated and extended to technical assistance. Virtually all development assistance was "projectized" so that it could be "targeted" to predominantly rural, low-income groups. In conjunction with the design of a project, the Mission had to prepare a Project Identification Document, a Project Review Paper (which was subsequently dropped), and a Project Paper. Each of these was reviewed in Washington by the Africa Bureau, the Bureau for Program and Policy Coordination, and the predecessor of the Bureau for Science and Technology.

The completed Project Paper, which is still used with some modifications, includes a detailed project description; a logical framework relating inputs to outputs, to a specified purpose, and to a broad development goal; a detailed budget; an implementation plan; an economic analysis; a financial analysis; a social soundness analysis; an environmental impact determination; a procurement plan; and numerous briefer determinations intended to ensure that the project will not be contrary to U.S. policy interests or conflict with the interests of one or another domestic lobby, as specified in A.I.D.'s enabling legislation.

This revised programming system has had a number of positive long-term effects on A.I.D.'s institutional capacity. Perhaps most important, it has enhanced the Agency's capacity to learn from its experience and to introduce new ideas gradually into its Mission programs through a process of creative dialogue between its employees in Washington and overseas. The evolution of A.I.D.'s agricultural research, population, and health care delivery strategies all exemplify this enhanced process of iterative learning (see Section 6).

Coming as they did, however, in the context of the New Directions policies, personnel cuts, and expanded country coverage, the new procedures placed A.I.D.'s Africa Missions in a very difficult position and exacerbated a number of endemic problems that have been found to be characteristic of all donors' technical assistance programs in Africa. The new procedures took up much of the Mission staff's time and energy, lessened its flexibility, and lengthened the time required to respond to host country requests, needs, and "windows of opportunity."

Moreover, under increased pressure to "sell" their projects to an ever more skeptical audience, Missions prepared documents that exaggerated what could be accomplished by applying known technologies and underestimated the difficulty of introducing significant institutional or technical change. The advocative

nature of these documents not only fostered such distortions, but also created strong incentives for field staff to "transform" the host countries' problems, capabilities, and commitments so that they conformed to the current Washington policy climate and review criteria. These pressures and responses reduced employees' incentives to find out what was distinctive about a country and then to design interventions fine-tuned to its needs.

The overcentralized review process exacerbated the strain and suspicion between the Missions and A.I.D./Washington. From the Missions' perspective, distant and poorly informed bureaucrats "upstream" in the project approval and funding process "second-guessed" them on the basis of abstract ideas, personal predilections, or simply the wish to exercise their prerogatives. At times the design and review process took on an adversarial rather than cooperative or constructive tone, and Mission personnel found themselves assuming a defensive, risk-aversive posture.

A.I.D.'s increased dependence on contractors for project design and implementation also created a number of problems. Some of these problems are characteristic of the Federal contracting system and are faced by all Government agencies. As Thomas Rollis, Assistant to the Administrator for Management in A.I.D., has noted in Congressional testimony, concern about fairness and due process toward the contracting community "requires, in large part, a face-value acceptance of the bidder certification of the types of services, the level, the quality, and just about everything except financial capacity" (Rollis 1986, 95). Unlike private-sector firms, Federal agencies are severely restricted in their ability to use generally available knowledge concerning the character, experience, knowledge, and past performance of potential contractors. They are not allowed to keep systematic records of contractor performance or to use poor performance as a criterion for nonselection. Indeed it is very difficult and time-consuming to disbar a contractor for anything other than fiscal malfeasance.

Problems associated with the Federal contracting system are exacerbated in A.I.D. by the nature of its task and its relationship to its contractors. As we have noted, much of A.I.D.'s work requires in-depth knowledge of the host country and a flexible, trial-and-error learning approach rather than the direct transfer or application of known techniques. Yet it is very difficult to establish nonsubjective, quantifiable criteria for assessing these qualities. For this reason it is not surprising that much of the sensitivity to cultural, social, and institutional issues found in A.I.D.'s Project Papers is "filtered out" as they are transformed into contracts by Washington-based contract officers. A.I.D.'s comparative success with infrastructure projects and long-term training, discussed in the following section, is probably due in part to the fact that they entail the use of known techniques and have outputs that are easy to quantify.

The rebidding procedures for contract renewals and the difficulty of enforcing more than minimal standards of performance also provide poor incentives for the contractor to be creative in meeting the unforeseen problems and opportunities that inevitably arise during project implementation. USAID Missions, for their part, have little ability or incentive to enforce high standards of contractor performance. In addition to the costs and problems of terminating a contract for nonperformance or convenience, USAID Missions face a delay of 200 days to a year or more in obtaining the services of another contractor. Finally, A.I.D. managers have proven understandably reluctant to offend contractors who are associated with any of the many special interest groups on which the managers feel dependent for the passage of their appropriations.

A.I.D.'s Africa Missions have also had to cope with aid-tying regulations that direct them to purchase American goods. In addition to the well-known economic costs of such regulations, in Africa these have regularly resulted in lengthy procurement delays and problems with service and spare parts. These problems have been particularly costly in the case of essential equipment such as vehicles.

5.2.3 The Dilemma of the Missions

In sum, by the early 1970s a USAID Mission in Africa had to cope with a very difficult organizational and host country environment as it played its pivotal role in the design and delivery of foreign assistance. The Mission had to translate general policies into the host country context. It had to develop a coherent rationale for its assistance program. It had to design a supply of plausible projects and programs matched to funding that was available through two or more bills and numerous functional accounts, and to do so within an arbitrary time frame. It had to manage the implementation of these activities despite having little control over interministerial coordination or over the personnel, logistical support, or other resources supplied by the host government. Moreover, the Mission had to accomplish all these tasks in ways acceptable to a number of constituencies and agencies in both the United States and the host country.

Most of the constraints, pressures, and contradictions faced by Missions in the 1970s are still present. Since they profoundly affect what the Missions can do and what A.I.D. employees are encouraged to do, it is useful to recapitulate these problems here. The recent attempts of A.I.D. management to deal with many of these problems are discussed in a later section.

Missions are under pressure from A.I.D./Washington to obligate appropriated funds in a timely manner or face program budget reductions in the following year.

Missions are also under pressure from A.I.D./Washington to select and package their programs in accordance with the spirit of current policy guidelines or face time-consuming and delaying harassment in the review process. Failure to conform to the current "policy climate" makes projects more vulnerable to all types of technical and analytical criticism.

Missions have to design their projects in accordance with complex and standardized requirements and make dozens of determinations to ensure that project designs are in compliance with all the statutory regulations.

In implementing projects, Missions must comply with complex statutory regulations concerning contracting and disbursement. These have been designed for use by Federal agencies located in the United States. Compliance is monitored by the Inspector General's office within A.I.D. and by the Congressional General Accounting Office and by A.I.D. managers and lawyers up the line. Irregularities, no matter how technical, lead to serious sanctions and can have adverse effects on the career of Mission directors and others.

In contrast, ill-founded assumptions, faulty analysis, or even deliberate misrepresentation of facts about the host country in program or project documents, or suppression of negative evidence in evaluation reports, only occasionally elicits an official rebuke. And Mission directors report that the developmental success or failure of programs has comparatively little effect on the careers of A.I.D. personnel once they have left the host country for a new assignment.

If Missions became involved in programming PL 480 food surpluses they were, and still are, subject to pressures from the USDA and other members of the interagency Development Coordination Committee. Friction over the type and quality of commodities to be supplied and over delivery dates are frequent.

Missions are occasionally directly pressured by a special interest group to fund a particular activity. More often such pressure is channeled through the personal, informal intervention of high-level A.I.D./Washington managers. The Mission then requests funding for the activity through a central or regional program. Similarly, the Mission may be informally or formally pressured by A.I.D./Washington to use a particular type of contractor.

Particularly if the host country is considered important for strategic, political, or economic reasons, the Mission is subject

to pressures from the Department of State and the American Embassy.[30] The pressure can be for a variety of objectives: to shore up an unstable regime with general budgetary support, to obtain base rights or more limited strategic access, to "resettle" refugees to avoid another "Palestinian situation,"[31] to help a government show concern for a dissident region, or to keep a personal commitment by a visiting American official to the head of state. Regardless of whether the pressures are political, strategic, economic, or diplomatic, there tends to be a strain between the State Department view that A.I.D. should have flexible, quick-disbursing resources and a very small in-country staff and the Agency's view that long-term commitments and on-the-ground management are necessary for an effective technical assistance program.

The Mission is also subject to formal and informal pressures from host country leaders and often to competing requests for support from different host country ministries and agencies. In addition, the Mission has to attempt to coordinate its assistance with other donors, with whom it is at times competing for good project opportunities. This problem was especially troublesome during the mid-1970s when all major donors were under pressure to reach rural people through targeted projects.

The Mission also faces potential contradictions in its broader relationship with the host country. Without "mortgaging" its future program, the Mission has to assure host country officials that A.I.D. is a reliable source of support for costly, long-term development initiatives and institutional changes.

The Mission also has to work "collaboratively" with host country counterparts to make their planning more efficient, while requiring them to accept American-made equipment, imposing on them A.I.D.'s latest developmental priorities and policies, and offering assistance that often favors foreign exchange savings over domestic savings and capital over labor.

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[30]Although it is surprising to outsiders, pressures from the ambassador are not necessarily the same as those from the State Department in Washington. The ambassador not only feels that he or she has a first-hand perspective on local conditions but also has a greater incentive to maintain cordial relations with host government officials. In both cases, pressures from the ambassador and the State Department can be much more specific and situational than the general intervention of the administration in determining aid levels, as discussed previously.

[31]The State Department can make funds available for this purpose through the Migration and Refugee Assistance Bill.

More recently Missions have had to push for politically difficult policy reforms such as economic liberalization, reduced subsidies, and cuts in the government payroll. At the same time, the State Department may be seeking to stabilize the regime or reward it for loyalty in the arena of East-West relations.

5.2.4 Resource Allocation

The ways that USAID Mission employees cope with these conflicting pressures as they allocate financial resources to country programs and projects help to account for the observed patterns of success and failure in assistance to the six countries reviewed in the next section. They also help to account for the persistence of a number of well-recognized problems associated with project design and implementation.

These problems include neglect of social, cultural, political, and institutional issues; overoptimism about the suitability of off-the-shelf technologies; inflated estimates of economic rates of return; underestimation of the time required to get project activities underway and to bring about change; underestimation of costs, delays in delivery, and servicing problems associated with tied-aid procurement; unrealistic assumptions about the availability of qualified, experienced technicians willing to live in remote areas or to work under difficult conditions; unrealistic assumptions about the host country's absorptive capacity and ability to effect interagency coordination; neglect of project implementation or continuation in favor of designing new projects; inadequate monitoring; failure to learn from previous A.I.D. or non-A.I.D. projects in the host country; and the repetition of project activities and approaches that have previously proved unsuccessful.[32]

That these problems have persisted and even deepened over the years suggests strongly that they cannot be resolved by exhortations "to do a better job" or by adopting additional guidelines or tighter regulations. We find them to be symptomatic of the underlying and enduring structural contradictions in A.I.D.'s objectives, in its procedures, and in the incentives that shape the resource allocation strategies used by A.I.D. employees as they carry out the tasks imposed by the Agency's program cycle.

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[32]All of these persistent problems are documented in the six country studies. It is interesting that many of the same difficulties have constrained the efforts of other donors as well (OECD/DAC 1984, 11).

The program cycle through which A.I.D. allocates the funds appropriated annually by the Congress to particular activities is, as has been stressed, complex and time-consuming. Programming takes precedence over all other activities in the regional bureaus and overseas Missions. The program cycle is both the context for most communication and coordination between different parts of A.I.D. and the decision-making arena where competing and innately dissimilar objectives are reduced to the common calculus of fiscal resources. This process affects the career incentives of A.I.D. employees by rewarding them for procedural and tactical knowledge and for becoming experts at moving money, regardless of their technical competence or the impact of their work on a country's development.

Within A.I.D.'s program cycle it is useful to distinguish between two types of allocation process at work: the first, enabling and top-down, establishes the broad parameters of country and sectoral funding levels and of development policy; the second, bottom-up and entrepreneurial, determines the content and recipients of specific aid activities.

The first process takes its direction from A.I.D.'s enabling legislation, State Department determinations, USDA projections, intermittent input from other agencies including OMB and the Department of the Treasury, and policy guidelines developed by A.I.D. management. Together these inputs determine the funding level for a country program. The rationale for the funding level need not include developmental criteria. Early and enduring support for Ethiopia, the increase in funding for Kenya since the late 1970s, and huge appropriations for Egypt and Israel clearly did not.

Even when developmental criteria are significant in determining country funding levels, they are not necessarily consistent through time. Changes in the wake of the Korry Report in the 1960s, the New Directions policies of the 1970s, and the free enterprise and policy reform thrust of the 1980s have resulted in significant fluctuations in program size and content in all the countries reviewed. These changes make it difficult for Missions to maintain existing programs while also responding to new sources of funding and policy guidelines. The instability of A.I.D. programs, summarized in Section 2 and discussed further in this section and the next, had particularly negative effects on institution-building activities such as agricultural research, and on livestock development--both of which require a comparatively long period of continuous support and entail a good deal of learning by doing.

From the perspective of most A.I.D. employees, top-down allocation decisions are normally taken as a given.[33] Along with other procedures of the program cycle, these decisions determine the boundaries of permissible action and the rhetoric of discourse and justification. Together they may proscribe particular activities, but they do not prescribe them. Nor do A.I.D.'s country strategy and project design procedures, in themselves, determine the particular programs, projects, and approaches adopted by a Mission. As we have seen, these procedures are so complex that they are often unworkable, and in any case their application is constrained by a great many exogenous pressures on the Mission.

To understand the creative process through which resources made available through top-down allocation are fashioned into programs and projects--in other words, the way A.I.D.'s general policies and resources are made operational and its working agenda is defined--it is necessary to understand the strategies used by A.I.D.'s entrepreneurial, field-based employees in carrying out their work.

In principle, A.I.D.'s program cycle requires the Mission to develop a country strategy that is informed by current development theory and policy, consistent with U.S. interests, based on A.I.D.'s comparative advantage, and responsive to the specific developmental needs of the host country. Projects and nonproject modes of assistance are then selected to implement the Mission's strategy.

In practice, however, it has seldom been possible for A.I.D.'s Africa Missions to follow this procedure. The Mission's freedom of choice is limited by several considerations in addition to the external pressures discussed previously. Unless the country program is new or in a state of rapid expansion, the Mission finds most of its forward funds encumbered by ongoing and approved projects that cannot easily be discontinued, even if they are no longer supported by Washington's "policy climate." The Mission may also have committed itself to particular host country officials and priorities. Or the Mission may feel committed to extend an initiative to try to make good on sunk investments.

Mission management is also constrained by the size and skills of its work force complement. Given the time-consuming complexity and time-driven nature of A.I.D.'s programming proce-

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[33]This statement requires some qualification. Individual A.I.D. employees with outstanding leadership qualities occasionally manage to obtain higher funding levels for their Mission or program. The genesis of the Sahel Development Fund, for example, owes much to the efforts of one such individual.

dures, it is simply not practical to engage in extensive analysis or in a more than cursory exploration of alternative projects. The Mission is under more pressure to put together a plausible program and to obligate available funds than to consider the opportunity costs of potential options.

Paradoxically, Missions with new or rapidly expanding programs, and therefore the widest options, generally have insufficient staff or time for thorough analysis. A.I.D. addressed this problem creatively by mobilizing outside experts as advisers before starting major new programs in Nigeria, India, southern Africa, and the Sahel. The results of this approach seem positive, but it has not generally been used in Africa once a country Mission has been established.

The program strategies of Missions in Africa have often been opportunistic, eclectic, and entrepreneurial--less the result of planning than the sum of their pragmatic parts. Day-to-day problem-solving has left little time for long-term planning. In such cases the strategy's coherence has been more in the way it has been described to Washington than in the way it has originated or functioned.

To be sure, many of the activities in the country strategy are the result of careful analysis and planning, but many others represent "targets of opportunity" that present themselves to Mission management. Their origin may be a host country request, the politically determined selection of a region, the availability of funding and technical advice through an A.I.D./Washington centrally funded or regional project, pressure from a U.S. special interest group, or simply the enthusiasm of the Mission director or an entrepreneurial individual on the Mission staff. The final selection of projects cannot be based on a careful assessment of all the relevant variables in alternative courses of action.

Because of the need to move ahead in the face of many uncertainties, choices must depend on a best-guess approach and the implicit use of a simplifying list of questions, most or all of which should be answered in the affirmative:

-- Is the proposed project consistent with actual A.I.D. policy, that is, the policy embodied in Washington project approval decisions rather than in Policy Papers?

-- Is it consistent with the Mission's analysis (in its Country Development Strategy Statement) of the way that A.I.D. policy should be adapted to host country conditions?

-- Is the project acceptable to host country political leaders?

-- Is it acceptable to a host country ministry or agency that will be responsible for implementing it?

-- Will the project complement or balance the Mission's "portfolio" of projects? For example, a Mission that has a strong program in agriculture and health-care delivery may desire projects in population or education. This desire for a balanced, or at least a mixed, portfolio is partly a reflection of A.I.D.'s Congressionally mandated "functional accounts" and partly a risk-aversion strategy on the part of the Mission director, who does not want to put all the eggs in one sectoral basket.

-- Is the cost of the project consistent with the Mission's budgetary levels or aspirations?

-- Does the Mission have a sufficient work force with appropriate skills to manage the labor-intensive process of project design?

-- Are there likely to be any special objections to the project raised by the U.S. ambassador or particular members of Congress?

Even though the potential impact of the project on development may be of great significance to the Mission staff, A.I.D.'s organizational incentives do not necessarily give this a high priority in project identification and selection.

Regardless of its origins, a particular project usually takes the form of a fairly specific activity as a solution to a problem. As such, it soon gains a momentum of its own. Even in its early stages the project idea may represent a commitment to a particular host government agency or to political officials to deliver more or less well-specified resources. Whether or not this sense of commitment exists, it becomes increasingly difficult to stop a project once scarce Mission staff time has been invested in it, even if it becomes evident upon further analysis that the project presents many problems.

It occasionally happens that the Mission becomes committed to a project which, rightly or wrongly, lacks a constituency in the host country or is even opposed by the ministry toward which it is directed. In extreme cases this has led to eleventh-hour high-level efforts by the Mission director, or even the ambassador, to pressure the ministry to accept the unwanted project. Not surprisingly, such projects often become the objects of benign neglect by the designated implementing agency.

In identifying and designing projects A.I.D. employees must, to some extent, use simplifying models. This strategy enables

them to cope with the complexity of A.I.D.'s design and review requirements, the uncertainties of development work, and the diversity of African conditions. But it is not without costs. Models may be based in part on broad historical experience, such as the Marshall Plan in Europe or the American experience with the land-grant agricultural system, rural electrification, or range management. Often, however, they are grounded in past development projects or programs with which A.I.D. employees and its contractors are familiar. Such projects, or components of them, can be used to provide guidelines for everything from the rationale to the technology and institutional arrangements of a new project.

Often, because of small Mission size and pressure to design projects, the same project design officers have been responsible for "families" of rather similar projects in several African countries. This was the case, for example, with many of A.I.D.'s pastoral livestock projects and production-oriented area development projects in the 1970s.

The use of simplifying models rests on the explicit or implicit assumption that the context of the problem being addressed is similar to that of a problem addressed previously and that the earlier project was successful in meeting its objectives.[34] Such a strategy for allocating resources has proved

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[34]Simplifying models have other functions in development agencies. Regardless of whether they are based on experimental evidence, disciplinary dogma, past experience, or merely professional folklore, the theories inherent in past projects have an important cognitive, evaluative, and expressive role in the world of the developer. Thus, these paradigms of and for development have provided the personnel of donor agencies with shared ways of thinking and talking about what they are doing and of explaining to those on whom they depend for funding why they believe a development model will work.

Like other models, development models not only provide criteria for choosing between alternatives, but they also define these alternatives and hence the kinds of information that are considered relevant to making the choice. In this way, they generate their own categories of data, which lend them a comforting aura of concreteness. For example, the "model farmer" paradigm, which held sway recently, rested on the self-fulfilling assumption that progressive farmers have larger landholdings because they are progressive, whereas smallholders are inherently more traditional. Aid, therefore, should be given to those who have the attribute of being progressive. Alternative hypotheses concerning the political-economic bases of wealth were not explored, nor were data gathered that could have tested them.

Like other long-used conceptual paradigms, development models are not challenged easily by factual evidence of failure,

reasonably efficient when these conditions are met--as they have been, for example, with projects involving many types of infrastructure and higher agricultural education. In such cases, the use of familiar models not only simplifies A.I.D.'s work and ensures workable project design, but it also increases the likelihood that A.I.D. will be able to find contractors to implement the project who share the conception of the task provided by the model. But when simplifying models are not well suited to the host country context, their use tends to "short-circuit" the project design process, to contribute to problems in project implementation, and to reduce the project's impact. This happened with many of the people-oriented, targeted projects of the 1970s.

The use of a project model generally means that fundamental decisions concerning project design are made at a very early stage. The result is that alternatives tend to be ruled out without ever being given serious attention, thereby vitiating the logic of A.I.D.'s design process. That process assumes that project design entails a hierarchical, sequenced series of choices about the allocation of resources. Choices made early in the sequence involve a wider range of alternatives--for example, between sectors or regions--and require rather general types of data. Choices made later in the sequence involve a more restricted set of alternatives--for example, between crop varieties, techniques for extension, or user-cost rate structures--and require more specific types of data. By beginning with a model solution, many alternatives are precluded from the outset. Nevertheless, because of A.I.D.'s project documentation requirements, much design effort is devoted to rationalizing, after the fact, choices that were never even considered. Furthermore, depending on how great A.I.D.'s need is to approve the project, the project design team may find itself under pressure to disregard the views of technical and country experts, host country officials, and members of other groups whose interests will be affected by the project.

Incorrect assumptions introduced in the design process can not only be expensive for A.I.D. in time and dollars during project implementation but frustrating and demoralizing for its employees, consultants, and contractors as well. For this reason the tendency to use previous projects as models can be costly and can inhibit learning for many years. A.I.D. efforts to draw lessons from project evaluations and to conduct ex post evalua-

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for they provide a rationale for explaining away their apparent lack of success and for shifting the blame to others. For example, since it is often assumed that pastoralists are not responsive to price, their failure to sell livestock in a marketing project is taken, prima facie, as evidence of their traditional values, and more rational explanations are not sought.

tions some years after project funding has ended are directed to this difficulty and have led the Agency to discontinue some types of projects. New project models may be based on experimental research findings, as was the case to some extent with farming systems research; on a new hypothesis about the nature of the problem to be solved; on a particularly successful local development initiative; or on the efforts of a contractor.

Designing projects within the A.I.D. system gives considerable scope to the creativity of its more entrepreneurial employees. For this reason A.I.D.'s projects are greatly influenced both by these individuals' substantive knowledge, experience, and familiarity with specific types of projects, and by organizational incentives generated within A.I.D. to which they must respond. When a proposal is funded, A.I.D. becomes committed to the particular conceptions, formulations, technologies, and approaches it promotes.

The entrepreneur's bureaucratic skills are as important, if not more important, than expertise in development or knowledge of the host country. Successful entrepreneurs must capitalize on available funds, cast their proposals in the current policy idiom and, to a greater or lesser extent, provide information and analysis that makes their proposals plausible if not compelling. But this is not enough. Entrepreneurs must also be adept at shepherding their proposals through the hazards of the review process through which funding choices are actually made, not so much by explicit bargaining as by attending meetings, writing memos, and mobilizing the support of a coalition based on previous association, common interests in development, commitment to a technology or contractor, or common professional background. Thus entrepreneurs are members of task-oriented, cross-cutting working groups; possess a well-developed information network; and can defend their bureaucratic turf. They have friends in key offices and bureaus in Washington and perhaps in the Congress as well.

Entrepreneurial roles may be located anywhere in the organization--in the Missions, the regional bureaus, or the support bureaus--although the beginner entrepreneur has more scope for action in the field. Entrepreneurial employees are not restricted to the upper echelons of A.I.D.'s hierarchy. Indeed, able and enthusiastic individuals are often surprised at the initiatives they can take soon after "coming aboard." Many of A.I.D.'s more innovative activities originate with entrepreneurs located on the periphery of the organization--in the field, in the Bureau for Science and Technology, or the Bureau for Policy Planning and Coordination, for example--who have been brought into A.I.D. on a temporary or permanent basis because they have specific expertise thought to be needed after a policy change.

The entrepreneur's professional background and experience have a direct bearing on the kinds of activities he or she promotes. As the secretary general of agriculture of one country has noted: "If they send a livestock man, you can be sure we'll get a livestock project." This observation applies not only to general sectoral interests but also to specific definitions of problems and technical solutions. In a very real sense, aid entrepreneurs "have solutions looking for problems." Particularly for entrepreneurs with a primarily technical background, this approach contributes to a persistent neglect of cultural and social factors, economic incentives, and opportunity costs.

5.2.5 Impact on Country Programs

The changes we have described in A.I.D.'s policies and procedures in the early 1970s made it difficult for Missions to program additional funds for such activities as higher agricultural education and transportation in which A.I.D. had experienced considerable success (see Section 6). The New Directions thrust pushed them to undertake new types of projects that would directly benefit low-income rural people. It is clear that A.I.D. management in the countries reviewed for this study would not have introduced this shift in their country strategies and project portfolios on the basis of their experience or knowledge of host country conditions or commitments.

The impact of the New Directions policies on the content of A.I.D.'s programs in agricultural and rural development differed from country to country, according to the status of A.I.D.'s earlier assistance program, pressure to increase the level of assistance due to U.S. foreign policy concerns, and the Mission management's perceptions of the host country context. Case material from the six country programs reviewed illustrates how these factors caused variations in the Agency's response.

In Kenya, where average annual obligations increased, for political reasons, from $2-$5 million in the 1960s to $15-$17 million in the 1970s (see Section 3 and Dijkerman 1987a), pressure on the Mission to spend was considerable. New Directions had only a moderate impact on programming.[35] The Mission's earlier emphasis on livestock and smallholder agriculture and its methods for assisting these sectors remained unchanged; however, the rationale for these activities was revised to fit the new policies, and funding levels were increased. Community development, which might have fit the new mandate and which had constituted 20 percent of A.I.D.'s program in Kenya during the first

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[35]Mission planning documents from the period show concern with Kenya's absorptive capacity (Dijkerman 1987b, 144).

period, was dropped because of poor performance. A new concern with arid and semiarid lands led to studies, a project, and modifications in A.I.D.'s agricultural research efforts (see Section 6). The Mission also was successful in obtaining funding for several large projects not in keeping with A.I.D./Washington's interpretation of New Directions, including rural roads, support for higher education, and overseas manpower training. In addition, two loans opened a major "new" subsector, input supply, by providing capital for credit and for fertilizer imports from the United States (Dijkerman 1987a, 60).

In Tanzania total A.I.D. assistance did not increase greatly in constant dollars in the 1970s, although the rationale for assistance became more complex (see Section 2). Funding was more heavily concentrated in agriculture and rural development; a major new initiative in health was also undertaken. As noted in Section 3, the Mission's strategy at this time represented an evolution from its earlier emphasis on analysis and planning. The only obvious casualty of the New Directions policies was support for higher agricultural education, which was eliminated despite the Mission's initial recommendation. Although A.I.D.'s changed policies were not a big problem in Tanzania, the new emphasis on projects does seem to have caused the Mission to increasingly lose touch with the country's economic and policy climate and thus to have contributed to the Mission's failure to address the problems that arose in most of A.I.D.'s projects (Dijkerman 1987b, 59-60). Whether these project-level problems owed more to country-specific conditions than to the way A.I.D. approached certain kinds of projects is a question to which we shall return.

In both Cameroon and Senegal A.I.D. was reestablishing bilateral programs and Missions at the beginning of this period. Most of their activities were, therefore, new and within the bounds of New Directions policies. The Cameroon Mission's strategy was to focus its modest resources on the northern part of the country, which was the poorest region and the one most affected by the Sahelian drought. At the same time, the ground was being prepared for channeling assistance to agricultural education, research, and extension at the national level. In Senegal the new bilateral program centered on restoring the losses in crops and livestock resulting from the drought and, later, on promoting regionally based integrated rural development, small-scale pump irrigation, research, and planning. Many of these new projects encountered severe problems.

A bilateral Mission was not reestablished in Malawi until 1980 because A.I.D. viewed Malawi's policies as antithetical to the objectives of New Directions. The regionally financed construction of major roads continued, however, because of the State Department's view that Malawi played a stabilizing role in

regional politics. In Nigeria, bilateral programs were phased out by the early 1970s.

5.2.6 Problematic Projects

New Directions, coupled with Congress's increasing concern about accountability, required A.I.D. to "projectize" most assistance at a time when funding levels were rising. The task of designing and implementing targeted projects that would provide agricultural benefits directly to low-income rural groups presented USAID Missions with a number of problems.[36] Some of the problems had to do with social and cultural factors, some with host country absorptive capacity, and some with A.I.D.'s own capacity to carry out this type of work.

Attempts to change the behavior of low-income people in Africa must be based on a realistic understanding of how they make a living, how they view their needs and wants, and how they are organized to cope with risk, to control access to natural resources, and to deal with the government. Moreover, no matter how well project planners take account of such factors, project implementors must learn as they go, listen to people, and respond flexibly to the problems that arise. Since change is likely to be slow and uncertain, planning for it becomes difficult within a relatively fixed 3- to 5-year project framework. Rather than a project, what is often needed is a long-term, incremental process.

The proposed activities must be sequenced properly in relation to each other and to other developments in the host country. Appropriate technologies must be developed or adapted, not simply assumed to exist. Administrative and support services in the country must function and be coordinated. If the host government is expected to contribute to maintenance and recurrent costs during and especially after the life of a project, it must not only have the revenue to do so and share A.I.D.'s general objectives but must also view the project beneficiaries, intended or otherwise, as a significant political constituency.

Several other prerequisites must also be met. It is difficult for a Mission to design and implement a project unless there are agreed upon and appropriate models for the project's main component activities and A.I.D. can find contractors who are

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[36]The problems noted here are those typically associated with projects that attempt to deliver a highly specific service or supervised technical package to farmers rather than funding generalized "enabling" activities such as the provision of rural infrastructure.

experienced with adapting them to a developing country.[37] Last, but by no means least, the project must anticipate and realistically address the logistic and procurement problems associated with activities in many African rural areas.

In light of these observations, it is clear that many of the tasks entailed in the targeted projects that A.I.D. Missions were urged to undertake in the early 1970s were "problematic"--that is, they were inherently difficult; were out of sequence with agricultural research, infrastructure, and administrative capacity; and placed unrealistic demands on A.I.D.'s design and implementation capacity under African conditions. At the same time, pressures to meet obligation deadlines and fit programs to available funding and political priorities created strong incentives for A.I.D.'s entrepreneurial managers responsible for project design and approval to downplay the problematic nature of these tasks.

Case material from the six country studies indicates that project success is linked to the ability of those who implement projects to carry out these "problematic tasks." The effect is largely cumulative. That is, the more unrealistic assumptions there are in a project's design, the greater the likelihood that severe problems will be encountered during implementation. Thus, for example, the approach taken by A.I.D. to pastoral livestock development, crop production, and integrated rural development has tended to be based on many unrealistic assumptions and to be comparatively ineffective, while its approach to higher agricultural education and rural infrastructure has been more realistic and therefore more effective.[38] A.I.D.'s approach to some other activities, such as seed multiplication and agricultural research, has involved fewer incorrect assumptions but, because of the linkages among components, those assumptions have been very damaging (see Section 6).

The case material presented at greater length in the next section also shows that the lack of success A.I.D. has had with

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[37]It appears that agreement or lack of agreement on the appropriateness of models is only partially an empirical question. U.S. interest groups differ sharply in their views on the desirable direction of change in African agriculture with respect to scale, crops, and mode of organization.

[38]It is important to maintain the distinction between the goal of an activity and the approach taken to attain the goal. In development work this is often not done. A.I.D.'s lack of success with an inappropriate approach to pastoral livestock projects, for example, has led A.I.D. management to drop activities in this sector without seriously considering whether other approaches should be explored.

what we have termed problematic tasks tends to override country-specific differences.[39] This suggests either that these tasks are inherently difficult, that A.I.D. lacks the capacity to carry them out, or both. Whether other development agencies or private voluntary organizations have greater capacity to carry out targeted, people-oriented agricultural and rural development activities, and whether these are an appropriate part of a balanced strategy, is beyond the scope of this section. It is evident, however, that A.I.D.'s comparative advantage does not lie in this area.

Brief selections from the case material will help clarify these observations and illustrate a number of points made earlier in this section. We begin with livestock projects, not because they are typical of A.I.D. projects but because they illustrate clearly most of the weaknesses we have been discussing. We then note other types of projects that have been troublesome and comment on the reasons why A.I.D. seems to have greater success carrying out more "traditional" projects involving higher education, training, and infrastructure.

Livestock Projects. A.I.D.'s experience with livestock development in Kenya is instructive, since Kenya is regarded as a success story in Africa and has been spared wars, prolonged droughts, and severe economic decline. Furthermore A.I.D.'s involvement in the livestock sector, though not its individual projects, was long term and continuous.[40]

A.I.D. has been involved in the livestock sector in Kenya since the mid-1950s; it funded eight major projects between 1960 and 1984. Seventy percent of this investment was in ranch and range projects.[41] A.I.D.'s objectives and its methods for attaining them changed little over the years, although its rationale changed with policy shifts. Central objectives were to conserve and develop Kenya's rangelands so they could support greater numbers of livestock, to establish a range management division in the Ministry of Agriculture, to improve marketing and credit, to expand off-take, and to raise the incomes of pastoralists. These objectives were to be achieved by transferring U.S. technology on range and ranch management through group ranching

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[39]By extension it appears that differences between A.I.D.'s performance in the six countries are as much a function of the types of activities it happened to undertake as of host country factors or the quality of project design and management.

[40]A more detailed and fully documented account of this program is to be found in Dijkerman (1987b).

[41]The remainder was in veterinary medicine and livestock research.

and a range program. It was assumed that the United States had a comparative advantage in these areas, despite differences in climate, ecology, herding strategies, and socioeconomic factors.

After funding technical studies, surveys, and training, A.I.D. tried to establish group ranching associations, which were to organize rangeland units and manage them. According to A.I.D.'s optimistic assessment in its report to Congress, implementation was to begin in 1965; by 1967 group ranching was to be so firmly established in Kenya that the project would be financed by grazing fees and cattle taxes. The implicit assumptions that U.S. ranch and range management techniques could be readily transferred to Kenyan conditions and that they would be adopted by pastoralists were not tested in the project's research program. Indeed, little thought seems to have been given to the pastoralists or their socioeconomic system. Lessons from earlier British range management efforts in Kenya were apparently not heeded during project design or implementation.

After the passage of new land tenure legislation intended to instill in pastoralists a sense of responsibility for the quality of the range and provide the basis for mortgage credit, donor interest in the sector picked up considerably. Although Phase I of an ambitious World Bank project begun in 1969 was found to be encountering many implementation problems, a multidonor Phase II effort was started in the early 1970s in the spirit of the new concern with directing development toward rural people.

A.I.D.'s contribution to this multidonor effort was represented by a range and ranch development project and a livestock development loan, together totaling more than $15 million. These funds financed road construction, bore holes, and reservoirs in the arid North-East Province, as well as a continuation of training and technical assistance. The objective of the effort was to funnel immature cattle from the North-East Province to the group ranches in higher rainfall areas for fattening before being sold to a Government parastatal.

A decade later the effort was judged a failure and the project was terminated by A.I.D. In retrospect three deficiencies of the project are striking: many key assumptions on which the program was based were doubtful or wrong; available information concerning the invalidity of the assumptions was ignored; and the reason it was ignored was, in part, because of pressure to obligate funds.[42]

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[42]That the World Bank was the lead donor and was making a much larger financial contribution doubtless was a factor in project design and approval. This suggests that there are circumstances under which donor coordination may not be a virtue.

An unpublished evaluation conducted in 1979 for the USAID/-Kenya Mission indicated that, of 37 assumptions underlying the project, 15 were "unwarranted," 17 were questionable, and only 5 were sound. The biological assumptions tended to be sound, while the economic, administrative, cultural, and sociopolitical assumptions were not.

The prevalence of unsound assumptions cannot be attributed to lack of information or reasonable risk-taking; Dijkerman (1987a) shows that project designers were aware of earlier experience with pastoral livestock projects in Nigeria and Kenya. One of them had written a paper on the subject in 1972. Yet a very cautionary study of project issues conducted by Robert Chambers in 1969 was ignored.

Project failure was thus overdetermined. In addition to being based on incorrect assumptions about pastoralists' interests, organization, and strategies, the project made many over-optimistic assumptions about implementation. Finding qualified Kenyans and American contract personnel was a continual problem. Five years into the project, only 3 of the 11 positions for Americans had been filled, and these were the positions in Nairobi! There were problems with vehicles and spare parts--at one point A.I.D. found that 14 of 15 vehicles purchased for the Range Management Division were inoperative. Other facilities were not completed or maintained. Credit was granted but not repaid. Promised coordination between the two ministries responsible for implementation was poor.

A.I.D.'s pastoral livestock projects in Cameroon, Tanzania, and Senegal encountered similar problems, despite many differences in context and detail.

A $5.4 million project in northern Cameroon approved in 1977 was not extended in 1984 because of the "lack of success, the complexity of the sector, the lack of commitment on the part of the government, and the difficulty in recruiting the necessary technical assistance."[43] The final evaluation of the project noted that, after 6 years of implementation, it was "impossible to observe anything that could be clearly identified as a long-term, planned effect of the project."

After reviewing project documents and evaluations and interviewing individuals associated with the project, Jaeger concluded that the following were the most serious problems limiting the success of the project: attempting to do too much in too short a time, long delays in getting the project started, difficulty in recruiting and keeping a full technical assistance team, diver-

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[43]For a detailed account of this project see Jaeger (1987a, 54-61).

gent objectives on the part of A.I.D. and the Government, and failure to understand and take account of the complex, plural, transhuman livestock systems in the region. The Government's lack of commitment was traced in part to its lack of belief in the feasibility of implementing the American range management model, although officials desired specific technical inputs such as water points.

The original Project Paper noted potential problems associated with the complex, migratory pattern of range use in the area. Yet contractors ignored these problems and concentrated narrowly on deferred grazing and the construction of water points, which they assumed to be essential despite considerable debate in the literature on pastoral livestock projects. By 1982 conflicts between the project staff and nomadic herders over enclosures had become so serious that the latter were excluded by Government force from zones they had traditionally used. Jaeger concludes that the project's unrealistic time frame, overoptimistic assumptions, and resulting implementation problems can be attributed to pressure on the Cameroon Mission to design New Directions projects in the wake of the Sahelian drought.

Similarly, A.I.D.'s Masai Livestock and Range Management Project in Tanzania had achieved few of its 34 project outputs after more than 10 years of implementation.[44] Once again, according to the final evaluation, the primary cause of this poor performance could be attributed to unrealistic and overoptimistic assumptions in project design and revision. It was also evident that changes in Tanzanian development policy associated with Ujamaa, along with deepening economic problems, caused additional problems for project implementation.

An instructive feature of this project is that the 1969 USDA study on which it was based showed great sensitivity to the need to understand Masai organization and practices and explicitly recommended that the assistance take these into account. The ensuing Project Paper makes reference to these issues, but they are less central in the plan of action. During implementation the project contractors, among whom there was considerable turnover, spent most of their energy on technical and logistical problem-solving. Virtually none of the ecological, economic, or sociological research called for was done in more than cursory fashion.

Integrated Rural Development. Case studies from the country reports show that many of the tasks included in integrated rural development and production-oriented projects also proved problematic for A.I.D. It appears, however, that the effects of these

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[44]A detailed description of this project is found in Dijkerman (1987c, 114-20).

problems on project implementation and impact were somewhat less severe; perhaps American technology and models are more easily adapted to the needs of settled farming people. A.I.D.'s main efforts in integrated rural development in the six countries under review were in Senegal and Tanzania. Neither effort is regarded as very successful but for rather different reasons.

The $23.7 million Casamance Regional Development project was the largest A.I.D. project in Senegal prior to 1985 and accounted for 20 percent of all obligations between 1978 and 1984.[45] After 5 years the project was found to have had very little impact on agricultural production or other activities, with the possible exception of applied research. Despite the fact that A.I.D. had undertaken a survey of the region in 1967 and subsequently financed an agricultural development project with many of the same activities, the project was based on incorrect assumptions about the ability of extension and credit services to "double yields for rice and corn and increase them 20 percent for millet, sorghum and peanuts" and of Senegalese parastatals to perform necessary administrative tasks.

A.I.D.'s $14.6 million Arusha Regional Planning and Village Development project in Tanzania represents a rather different approach to integrated rural development and highlights a different set of difficulties.[46] To allow for participation in the selection, design, and implementation of development activities, the project adopted a "process" or rolling design approach developed by one of A.I.D.'s contractors. Much effort was devoted to developing a district-level information base and planning process; technical assistance and construction were financed on a modest scale as needs were identified. The project had some other unusual features, including great stress on contractors learning the local language.

It is difficult to evaluate what the project's long-term success might have been had it not been terminated when A.I.D. phased out its program in Tanzania for unrelated reasons. Evaluation team members were strongly divided on this point, with one likening the project to "an up-elevator in a sinking ship," a reference to deteriorating economic conditions in Tanzania.

What is clear is that A.I.D.'s statutory regulations and procedures are not suited to an approach in which major resource allocation decisions are made by the contractor after funds have been obligated. Despite the attempt to design a flexible funding mechanism, numerous misunderstandings and considerable tension

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[45]This project is discussed in Section 6 and, in greater detail, in Jaeger (1987c, 54-64).

[46]This case is discussed in Dijkerman (1987c, 121-27).

arose between the USAID Mission and the project manager over authorizing the construction of facilities that did not meet mandatory A.I.D. standards. The project manager, who developed a close working relationship with the district government, tried to support its agenda and was accused by the Mission of using project equipment for nonproject purposes.

The sort of problems illustrated by these examples is not limited to pastoral livestock and integrated rural development projects. On the contrary, it is characteristic of the A.I.D. production-oriented projects in Senegal and Kenya (see Section 6) and in many of the Sahelian countries as well. Jaeger, summing up his findings from Cameroon, finds that erroneous assumptions have contributed to serious implementation problems in projects concerned with farmer training centers, pastoral and small farm livestock, seed multiplication, food crop protection, and rural water supply (Jaeger 1987a, 117-118).

Many of the problems we have been discussing have also proved troublesome, as is noted in Section 6, in more orthodox types of A.I.D. activity, including higher agricultural education and agricultural research. But they appear to be less acute in such cases. American institutional models can be more easily transferred and adapted to African conditions in these modern sector activities. American contractors familiar with these models and willing to live in Africa are easier to find. The activities themselves are generally of higher priority to African governments and their more vocal constituencies.[47] In addition, articulate constituencies for these types of activities in the United States put pressure on the Congress and A.I.D. for continuing support, and they often maintain professional and institutional linkages with the institutions they help to establish in Africa.

5.3 Changes in the 1980s

Since the late 1970s A.I.D. management has made a number of changes intended to address the weaknesses we have been discussing. In this section we note these changes, assess their effectiveness, and discuss what we believe to be the most important remaining problems constraining A.I.D.'s institutional capacity to promote balanced development in Africa.

To enhance the comparative advantage of its overseas Missions, the Agency undertook a program of decentralization. Middle management in Washington has been reduced, and Mission

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[47]In the past this was less true of agricultural research than other activities, although Kenya was a partial exception.

staff size maintained as much as possible. Greater project approval authority has been granted to the Missions. Project Papers have been shortened, and the average time for project design and approval has been reduced. The length of tour of A.I.D. employees overseas has been lengthened by 8 or 9 months since 1981 to cut costs and increase Mission staff continuity, and increasing use has been made of foreign nationals. A.I.D. obtained the authority to deobligate funds from projects that are lagging and to reobligate them to other projects, although only for activities within the same functional account. Greater emphasis has been placed on project implementation, as opposed to design, by hiring additional contract officers and administrative officers and redesigning in-house training programs to emphasize the management of implementation.[48] In addition, A.I.D. is providing more financial technical assistance to local administering units to foster their use of audits as a management tool.

To address A.I.D.'s weakness at designing and implementing small, flexible, people-oriented projects (and to facilitate compliance with budgetary earmarking), the Agency has established "umbrella" cofinancing projects in five countries (as of June 1986), including Kenya and Senegal. Under this arrangement a line of credit is set up between a private voluntary organization management unit and the host government; individual private voluntary organizations, both U.S. based and indigenous, may then apply to have individual activities approved and funded without recourse to A.I.D.'s usual approval system.

To alleviate problems associated with project design, project proliferation, and recurrent costs, A.I.D. has reduced the number of new projects in Sub-Saharan Africa from about 63 in 1985 to about 33 in 1987, while increasing project size and duration. The Agency has also relied more heavily on nonproject modes of assistance, which it tries to link to policy reforms and structural change. It has initiated the new African Economic Policy Reform Program to help African governments defray the costs and risks associated with such change.

To improve its "institutional memory," A.I.D. has been seeking since the early 1970s to strengthen its evaluation and information capacity. Project evaluations, some of which have been cited above, are usually frank, self-critical, and as analytically sound as is possible given severe data constraints and weak monitoring of the impact of projects. A.I.D.'s Center for Development Information and Evaluation provides information from A.I.D. evaluations and other sources in response to several thousand requests a year. Since the late 1970s A.I.D. has also conducted ambitious impact evaluations of projects, programs, and

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[48]This change was accompanied by a reduction in staff training in development.

broader issues. The present study has made extensive use of all these sources of information.

Although most of these changes are useful, their positive impact may be swamped by continued and even intensified pressure on A.I.D. As A.I.D.'s Administrator, Peter McPherson, noted in his prepared testimony for the Congress in 1986, "The proliferation of 'priority' areas and the earmarks on assistance [still] create a web of constraints which reduce A.I.D.'s ability to pursue coherent development strategies effectively responsive to individual countries" (A.I.D. 1986, 195). Budgetary restrictions are of many types. For example, some 75 percent of Economic Support Funds are earmarked for individual countries on non-developmental grounds. About 13 percent of Development Assistance funding is earmarked for private voluntary organizations and cooperatives. Some 18 percent of commodity import programs under the Economic Support Fund must be used for agricultural commodities. And 10 percent of Development Assistance is earmarked for minority-owned firms. The tendency to earmark has been on the rise during the 1980s.

Micromanagement by the Congress continues. In 1985 alone, A.I.D. provided 849 congressional notifications totaling 1,700 pages. A.I.D. estimates that it devotes more than 200 person-years per year to its interaction with the Congress.

Pressures on A.I.D. from special interest groups are unabated. The head of A.I.D.'s Africa Bureau reports, "I just spend too much time fighting off the special interest brush fires, both, again, within A.I.D. and outside of A.I.D.... Clearly, effectiveness and impact suffers from all of this. It is almost what I would call the 'Johnny Appleseed' approach to development, where we merrily go across the continents, just dropping projects all over the place, without trying to figure out what is best or saying no" (A.I.D. 1986, 137-38).

Despite A.I.D.'s increased emphasis on implementation, many problems remain. New regulations and set-aside requirements have made contracting more difficult than ever. Staff cuts have left USAID Mission personnel with less time to devote to project supervision. Indeed the tendency to equate success in implementation with the ability to disburse funds does not necessarily encourage staff to focus on essential but difficult activities. Delegating authority to the Missions is doubtless desirable, but it does not, in itself, provide Mission personnel with development skills, in-depth country knowledge, or the incentive to undertake long-term programs that may be essential to balanced growth.

The increased funding of small-scale projects implemented by private voluntary organizations may be appropriate for some activities but will not take the place of support for essential

government services. Nor will it overcome those problems that trace back to overly optimistic assumptions about technology and institutional transfer.

Increased reliance on policy dialogue and nonproject assistance may be desirable and necessary for a time, but as the next section notes, it is not without risks as well as benefits. First, past experience in Africa indicates that donor advice is not always correct. Second, A.I.D. is not well staffed with economists and other social scientists who can anticipate the likely consequences of standard policy prescriptions in a particular African country. Third, policy dialogue coupled with conditionality often creates poor working relations between the Mission and host country officials, as has been the case recently in Kenya. Fourth, many of the pressures and incentives that cause A.I.D. entrepreneurs to make unduly optimistic assumptions or to be less than honest in their reporting can influence nonproject as well as project work.

Throughout this section we have tried to show that many of the well-recognized and well-documented difficulties constraining A.I.D. project design and implementation are symptomatic of underlying and enduring structural contradictions in A.I.D.'s objectives that are reflected in its procedures and incentives. We suggest that the solution to these endemic problems lies in modifying the Agency's institutional and individual incentive structure, rather than in issuing additional guidelines, imposing internal regulations, or adopting new management systems.

6. ASSESSING A.I.D.'S IMPACT ON AGRICULTURAL AND RURAL DEVELOPMENT

This section summarizes the evidence from the six study countries about the impact of A.I.D.'s agricultural and rural development activities. We turn first to A.I.D.'s recent emphasis on policy dialogue because it is so important in the present African context and is receiving so much of A.I.D.'s attention. Section 6.2 examines A.I.D.'s performance in seven agricultural subsectors--agricultural education, training, research, extension, input supply, livestock, and planning. In Section 6.3, attention is given to the two major categories of A.I.D. support for rural development--rural infrastructure and rural health and population-related activities. Section 6.4 offers observations on agricultural and rural development and basic human needs.

We are keenly aware of the difficulty of assessing the impact on a country's development of an individual donor country's activities, especially when its share in the total foreign assistance to that country has been relatively small and subject

to large fluctuations, as is the case with A.I.D. flows to the group of recipients covered by this study (see Figures 1 and 4A and 4B in Section 3). For the six countries, total U.S. assistance for the 1963-1984 period ranged from $1,208 million for Nigeria to $191 million for Malawi (in constant 1983 dollars). The U.S. share in total official development assistance for the 1970-1984 period ranged from 22 percent for Nigeria to 6 percent for Cameroon. On a per capita basis, however, U.S. assistance averaged only $0.61 annually for Nigeria but $1.36 for Cameroon (in constant 1983 dollars). In Kenya, the only one of the six countries in which U.S. assistance has tended to rise steadily, the annual per capita assistance averaged $2.10 (in constant 1983 dollars) and represented 15 percent of total official development assistance from all countries (Table 1 in Section 3).

These figures on total assistance understate the relative importance of A.I.D. support for agricultural and rural development, however. Just over 60 percent of A.I.D.'s project and program assistance to the six study countries for 1963-1984 was devoted to this purpose, a considerably higher percentage than for other bilateral and multilateral donors.[49] Agriculture's share of this assistance totaled approximately $900 million (in constant 1983 dollars, see Table 3 in Section 3), or about 38 percent of A.I.D. project and program assistance to these countries for the 22-year period. Another 22 percent of that assistance was allocated to rural development, mainly infrastructure, and 39 percent to various other projects and programs (Table 3, Section 3). In addition to the $2,332 million of project and program assistance, a little over $400 million was allocated to "other economic assistance" (including the Peace Corps), while allocations for food aid amounted to $836 million, not much below the total of $905 million for assistance for agriculture. That comparison serves as a useful reminder that a substantial part of U.S. assistance for Sub-Saharan Africa has been for famine relief and humanitarian purposes rather than for <u>development</u> assistance.[50]

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[49]It should also be noted that multilateral assistance, particularly from the World Bank and the international agricultural research centers, has had a significant impact on these countries; the United States has contributed 20-30 percent of the funds for these efforts.

[50]Food aid is provided for various purposes, but in Sub-Saharan Africa a large part of it has been for famine relief. Unfortunately it has not been possible to examine the complex and controversial issues related to food aid in the present study. Clearly, food aid can be of immense value in emergency situations when the need is to avert starvation and to lessen problems of disease aggravated by severe malnutrition. Under favorable circumstances food aid can also make a useful contribution to

Most of the recent increase in U.S. assistance to Sub-Saharan Africa in general and to the six study countries in particular has been for nonproject assistance. As reported in Section 3, since 1980 the Economic Support Fund and food aid have accounted for more than half of all U.S. assistance to Africa. Out of a total of about $1,100 million in loan and grant obligations to Africa in 1984, $326 million was for the Economic Support Fund and $333 million for food aid. It is therefore appropriate to begin with a brief review of the use of nonproject aid and "policy dialogue" to promote structural reforms.

6.1 Nonproject Aid and Policy Dialogue

In many countries of Sub-Saharan Africa, structural reforms to improve the policy environment appear to be virtually a precondition for the success of programs or projects to increase productivity by investing in physical, human, or social capital. Jon Moris, an anthropologist with long experience in tropical Africa, has aptly described the disappointing results in implementing agricultural development programs in Sub-Saharan Africa as a "systemic problem." He notes that such common obstacles as a severe revenue/expenditure squeeze, a bad fit between objectives and organizational capacities, an inability to adhere to schedules, unreliable technical and support services, failure to repair or maintain equipment, and low morale among field staff cannot be explained as simply a matter of "weak management." Rather, these problems are the result of a "system of interactions" in which managers are put again and again into impossible working situations (Moris 1983). Furthermore, the proximate causes of this common failure to meet the administrative and organizational requirements of rural development are compounded by budget deficits, inflation, severe shortages of foreign ex-

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development objectives. The positive impact of food aid, however, cannot be expected to match the rate of return that can be realized from development assistance directed at strengthening agricultural education, research, or other critical elements of well-conceived strategies for agricultural and rural development. Hopkins (1986) provides a useful account of the role of food aid in Africa. An Agricultural Development Council symposium volume published in 1981 with contributions by C. Christensen, E.B. Hogan, G.E. Schuh, J.W. Thomas, and others gives particular attention to food aid as an instrument of development (Christensen et al. 1982). An early contribution to the debate by Johnston (1957) emphasized an issue that is still of central importance: the need to assess the extent to which the "political cost" is less for food aid than for other forms of assistance in order to judge the degree to which food aid represents a net addition to other forms of assistance.

change, price distortions, and other consequences of poor macroeconomic management.

In many countries government actions have depressed farm prices, encouraged cheap food imports (often through overvalued exchange rates), skimped on investments in maintaining rural roads, and made inadequate provision for spare parts and replacement of trucks and even of hoes and machetes, resulting in serious inefficiencies in the marketing of farm products. For reasons stressed in Section 4, interventions that lead to underpricing of capital and foreign exchange, and to administrative rationing of those scarce resources to a favored subsector of atypically large and capital-intensive farm units, tend to induce a dualistic pattern of agricultural development.

Thus macroeconomic policies that have generally adverse effects on the agricultural sector turn out to have especially adverse effects on the great majority of small farmers. Hence A.I.D.'s recent concern with policy dialogue, policy-based assistance, and policy reform could have a significant positive impact on the prospects for success of agricultural strategies aimed at the progressive modernization of a large and growing percentage of a country's small farm units.

In Kenya, recent A.I.D. experience with policy dialogue and a structural reform program is of special interest. The United States has a strong political interest in Kenya because U.S. naval vessels are permitted to use the port of Mombasa. Because of these interests, U.S. economic assistance to Kenya has grown considerably since the late 1970s. A $117 million Structural Adjustment Program was initiated in 1983 with a $30 million Economic Support Fund grant for the first year of a 3-year program. A.I.D. policy dialogue and this support program with its associated conditionality were aimed at overcoming structural weaknesses in the Kenyan economy. Principal areas addressed were economic stabilization, reduction of trade barriers, institutional reforms related to budgeting and parastatals, population policy, and liberalization of fertilizer distribution and grain marketing. These efforts were coordinated with the IMF and especially with the World Bank's Structural Adjustment Loans, which were addressing similar problems (Dijkerman 1987a; Berg et al. 1985).

The initial $30 million grant in 1983 was made in one installment, $28 million of it as a cash grant in foreign exchange that appears to have contributed significantly to the success of stabilization efforts in that year. Kenya's annual inflation rate and budget deficit were cut by about one-half, the effective exchange rate was lowered, the real rate of interest was increased, and the foreign trade current account deficit and foreign borrowing were reduced (Berg et al. 1985, ii). In contrast, agricultural policy has been described as an area of "no

achievement" (Berg et al. 1985, 140). The reasons for the lack of success in promoting the liberalization of fertilizer distribution and the marketing of maize and other staple foods are complex and need not be repeated here (see Dijkerman 1987a, 106-17; Berg et al. 1985).[51]

We are mainly in agreement with the "Evaluation of the A.I.D. 1983-84 Structural Adjustment Program in Kenya" prepared by Berg, Hecox, and Mudge (1985). We also strongly endorse their view that A.I.D.'s approach to policy dialogue needs to be modified. Too much emphasis has been put on using leverage and "policy dialogue" to ensure that government officials make "the right decisions." In our opinion, the emphasis should be instead on developing a policy dialogue process that enhances a country's capacity for good policy research and analysis, thereby improving decision-making by a country's own policymakers. The Kenya report puts it well:

> Persuasion and debate--reasoned dialogue--has to be the major instrument; we have to persuade our Kenyan partners that liberalization (opening up grain markets, divesting, encouraging private actors, freeing up imports and favoring exports) will do what we say it will. Moreover, we have to think more about ways to address other obstacles--for example, the Kenyan preoccupation with political risks, and with ethnic factors (Berg et al. 1985, 162).

The emphasis on using policy dialogue as a tool to help a country strengthen its own capacity for policy research and analysis underscores the importance of building educational institutions that train people for such tasks. Equally important is encouraging the establishment or strengthening of mechanisms for institutionalizing that capacity. Stronger links need to be forged with government ministries so that policymakers increasingly demand and get relevant information and good analysis. In

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[51]In Cameroon, Senegal, and Malawi, A.I.D.'s policy dialogue and structural adjustment programs have also included the objective of liberalizing fertilizer distribution (see Jaeger 1987a and 1987c; Dijkerman 1987a). A strong emphasis in Malawi on reduction of fertilizer subsidies was linked with the goal of promoting a shift from ammonium sulphate to urea and other high-analysis fertilizers. That change poses a difficult challenge for Malawi's extension staff because of the need to train farmers in the more demanding techniques of applying high-analysis fertilizers. But importing plant nutrients in a more concentrated form will bring significant savings in transport costs to land-locked Malawi; and the shift away from ammonium sulphate should be helpful in correcting problems related to the build-up of soil acidity.

this context, A.I.D.'s Agricultural Research and Planning project in Senegal appears to be making a notable contribution to this type of institution building (Jaeger 1987c).

The need for parallel efforts to ensure that A.I.D. participants in the policy dialogue process understand the complex issues involved should not be overlooked. As was stressed in Section 4, valuable insights can be derived from high-quality policy research and analysis that draws on past experience. In-house training can contribute much to the effectiveness of the process; so can commissioning relevant policy research to provide evidence and analysis for the benefit of A.I.D. staff as well as personnel in African countries.

Policy reform, important as it is, represents a transitional strategy; once major policy problems are resolved, the gains to be realized from further reforms will be limited. Moreover, policy reform is not the sole prerequisite for development--that is, for the generalized process of capital accumulation emphasized in Section 4. Yet the need to address price and other distortions is crucial since these distortions make it exceedingly difficult to achieve the balanced increases in physical, human, and institutional capital on which efficient and equitable development depend.

6.2 Project and Program Assistance to Agriculture

The pattern of resource allocation for agriculture has varied considerably among the six countries and over time (see Figures 5A through 8B in Section 3). Overall, as Table 6 shows, obligations for education and training accounted for about a third of the 37.6 percent of total obligations allocated to agriculture.

In Nigeria, Cameroon, and Malawi, however, education and training was the most important category of expenditure, accounting for 48 percent, 43 percent, and 60.6 percent, respectively, of total allocations for agriculture to those countries. Although not the leading category in Kenya and Tanzania, assistance for education represented sizable shares of the allocations for agriculture--30 percent for Kenya and 25 percent for Tanzania. In Kenya and Tanzania funds for input supply ranked higher. In Kenya the input supply allocations were mainly for commodity import programs for fertilizer; in Tanzania they included sizable allocations for seed multiplication and modest support for fertilizer imports. In Senegal, A.I.D. assistance for education and training has been relatively unimportant. That country has relied mainly on French universities to provide postsecondary training for its agricultural scientists and administrators.

Table 6. A.I.D. Project and Program Assistance to the Six Study Countries as a Percentage of Total Assistance

Subsector	Percentage of Total Assistance
Agriculture, total	37.6
Education and training	13.0
Input supply	6.7
Livestock	5.3
Planning, management, and statistics	3.3
Extension	3.2
Agricultural research	2.3

6.2.1 Agricultural Education

The country studies for Nigeria, Kenya, Tanzania, and Malawi single out projects establishing or strengthening educational institutions to provide postsecondary training in agriculture and veterinary medicine as ones that have had a positive and lasting impact. In Cameroon, A.I.D.'s agricultural program was dominated from 1982 through 1984 by large allocations for Dschang University, an institution established in western Cameroon to consolidate and strengthen higher education for agricultural scientists and administrators. That project, which is being implemented under a contract with the University of Florida, is at such an early stage that it would be premature to discuss its impact.

A.I.D.'s most important agricultural institution-building projects in Sub-Saharan Africa have been in Nigeria, but Kenya, Tanzania, and Malawi also participated in what has been aptly described as the "institution-building era" of U.S. foreign assistance. Between 1951 and 1966, A.I.D. and its predecessor agencies initiated 68 institution-building contracts with 35 U.S. land-grant institutions involving 39 countries (Wilcock and McDowell 1986, 7). During that period seven land-grant universities provided support for universities or colleges in seven countries in Sub-Saharan Africa: Nigeria, Kenya, Malawi, Tanzania, Ethiopia, Sierra Leone, and Uganda. All of the projects, except for the Oklahoma A&M project in Ethiopia that began in 1952, were initiated in the early 1960s at about the time those six anglophone countries received independence.

Institution Building in Nigeria. The most ambitious and impressive institution-building efforts were in Nigeria, where three land-grant universities supported the establishment of

faculties of agriculture in three new universities--the University of Nigeria at Nsukka in eastern Nigeria under a contract with Michigan State University, the Ahmadu Bello University in northern Nigeria with support from Kansas State University, and the University of Ife in western Nigeria under a contract with the University of Wisconsin. Kansas State also entered into a contract with A.I.D. for the establishment of a Faculty of Veterinary Medicine at Ahmadu Bello (Jaeger 1987b).

The University of Nigeria at Nsukka opened in 1960. Enrollment grew rapidly from 259 in 1960/1961 to 2,500 in 1965/1966. Under an $11 million contract with A.I.D., Michigan State was to help the University of Nigeria to develop instruction, research, extension, and administration as well as to plan procurement of educational and technical materials. By 1964 there were 27 Michigan State University educators at the university. Future Nigerian faculty members sent to the United States for training were to start replacing the Michigan State staff in 1967. In addition to A.I.D., other contributors to the University of Nigeria included the United Kingdom, the Netherlands, the Food and Agriculture Organization (FAO), UNICEF, the Ford Foundation, and the Peace Corps, which was providing 22 teachers in the mid-1960s.

Turmoil associated with the Biafra separatist movement began to disrupt activities at the university in late 1966, and the university closed for 3 years during the war. Yet despite the damage and being closed for 3 years, the university appears to have made an impressive recovery. According to a recent impact evaluation, many of the agricultural scientists trained during the formative years of Michigan State University's involvement are performing well and are dedicated to relevant research that is linked to teaching and extension (Gamble et al. 1986; Jaeger 1987b, 59).

A.I.D.'s involvement in Ahmadu Bello University began in 1962, with the first advisers from Kansas State arriving in 1964 and the last advisers departing in 1978. A total of $21.2 million was obligated for six separate projects in support of Ahmadu Bello University's Faculty of Agriculture, Faculty of Veterinary Medicine, the Institute for Agricultural Research adjacent to the university, the Extension and Research Liaison Service, and agricultural schools at Kabba, Samaru, Mando Road, and Vom (Jaeger 1987b, 42-43).

Ahmadu Bello was established in response to the report of the prestigious Ashby Commission, which concluded that "the flow of agricultural graduates is pitifully inadequate for the nation's needs" (Federal Ministry of Education 1960). Under a 1962 Project Agreement, Kansas State University was given responsibility for organizing and developing the Faculties of Agriculture and Veterinary Medicine; a contract signed in 1963 spelled

out Kansas State University's assignment to provide personnel, commodities, and participant training to carry out the agreement.

Enrollment in the Faculty of Agriculture grew from 29 in 1964 to 77 in 1966, and by 1970 57 B.Sc. degrees had been awarded. By 1982 enrollment had climbed to 319, and 511 B.Sc., 85 M.A., and 8 Ph.D. degrees had been awarded. Plans for the Faculty of Veterinary Medicine called for a major building program that was 90 percent completed by 1966; the number of students grew from 15 in 1965 to 39 in 1966. In 1985 the Faculty of Veterinary Medicine had an enrollment of about 300, and the reputation of its training and clinical services was excellent.

The A.I.D./Kansas State University project is given much credit by Nigerians and other informed observers for the coordination of teaching, research, and extension at Ahmadu Bello University. Tensions were reported between the Kansas State staff and other expatriates, especially the British scientists working at the long-established Institute of Agricultural Research. It appears, however, that this was a constructive tension, with both sides learning from the sometimes lively debate over the advantages and disadvantages of the British and American systems of organizing agricultural education and research.

The Nigerians, who now fill virtually all faculty and research positions in both Ahmadu Bello University and the Institute of Agricultural Research, also seem to have benefited from that dialogue and were better able to mold the institutions to fit Nigeria's needs and resources. Incorporating the Institute for Agricultural Research into Ahmadu Bello, expanding the role of the unit now known as the Agricultural Extension Research Liaison Service, and involving the Institute's researchers in teaching and members of the Faculty of Agriculture in research were important design changes that evolved over the course of Kansas State University's involvement.

A.I.D.'s participation in developing the Faculty of Agriculture at the University of Ife was somewhat more limited but nonetheless of critical importance. The Ashby Commission did not recommend support for the proposed University of Ife in its 1960 report, but the Government of Western Nigeria was persistent and requested financial and advisory assistance from A.I.D. After a number of feasibility and needs studies, A.I.D. signed a contract with the University of Wisconsin and obligated approximately $6 million for the project.

The University of Wisconsin's support began in 1964, when the University of Ife was temporarily located at Ibadan pending a move in 1968 to a 13,000-acre site at Ife. Student enrollment rose rapidly from 244 in 1962 to 3,982 in 1972, and academic and administrative staff increased from 80 to 415 over that period.

A 1971 Project Appraisal Report expressed concern about the lack of planning for an orderly phasing out of the University of Wisconsin's participation. At the same time, it reported that the performance of the Wisconsin team was outstanding in planning and management, in relations with cooperating country personnel, and in the organization and development of curricula and syllabi.

Judgments concerning the impacts of these three institution-building efforts are difficult. For a country such as Nigeria with a population approaching 100 million, there is no doubt that an indigenous capacity to train agricultural scientists and administrators is a necessary requirement for satisfactory progress in agricultural and rural development. It seems equally clear that the A.I.D.-funded assistance by the U.S. land-grant universities made significant contributions to the creation of Nigerian institutions with the capacity to provide that training.

A recent review of the impact of A.I.D. assistance to the three universities confirms that assessment, noting that "Veterans of the present agricultural faculties assert that the hard work, zeal, and mature guidance of U.S. staff during the formative years of these universities still are remembered fondly" (Gamble et al. 1986, 5). A number of Nigerians trained in the institution-building programs for those three universities have played key roles in establishing other Nigerian universities in recent years. The role of Ahmadu Bello's Faculties of Agriculture and Veterinary Medicine in helping to establish new universities in other states of northern Nigeria seems to have been especially noteworthy.

It should be pointed out that the established universities have not been adequately supported by the Nigerian Government, even during the petroleum boom. In that buoyant climate the emphasis was on creating new colleges and universities. It also appears that too many agricultural research institutes were established. With the sharp decline in foreign exchange receipts and Government revenue as oil prices fell, the Faculties of Agriculture and Veterinary Medicine are now being crippled by severe funding constraints (Gamble et al. 1986, 6).

Institution Building in Kenya. A.I.D. has been involved in Kenya's agricultural education subsector since the early 1960s. Most of its support has been concentrated on Egerton College of Agriculture, a postsecondary institution located in the highlands and established originally to provide agricultural training for European farmers. The first phase of A.I.D. assistance began in 1960 and was aimed at expanding the faculty as more students, primarily Africans, enrolled. In 1962, following the termination of the diploma-granting program at Makerere College in Uganda, the expansion of Egerton was accelerated, and it became an important regional diploma college. Enrollment increased from 20 students in 1960 to more than 200 in 1963 and then to 450 in 1968,

including more than 100 students from Tanzania, 20 from Uganda, and 7 from Malawi, Zambia, and Nigeria. The willingness of other African countries and donors to send students to Egerton indicates that it had earned a reputation as a high-quality educational institution despite its rapidly growing size and responsibility.

Between 1960 and 1969 some 13 project agreements and amendments were signed between A.I.D. and West Virginia University, which was also the contractor for agricultural education projects in Uganda and Tanzania, for the purpose of supporting the expansion of Egerton College. Ten other donors, including Britain's Overseas Development Administration, Denmark's Danida, the Netherlands, UNICEF, FAO, the Rockefeller Foundation, the Peace Corps, and Freedom From Hunger (U.K.), assisted in the expansion by providing instructors, scholarships, books, and lab equipment and by constructing buildings. Egerton's leadership, originally expatriate but "Africanized" by 1966, played a crucial role in the expansion process and in coordinating donor assistance.

The original phase of A.I.D. support for Egerton came to an end in 1972/1973. In 1974 an A.I.D. team explored the possibility of a follow-on project, but Egerton's principal at the time was only interested in support for obtaining books for the college library. In 1977, the USAID Mission in Kenya funded a study of Kenya's requirements for professional and subprofessional agricultural manpower. On the basis of that study the Government of Kenya formulated an ambitious plan to expand its capacity for agricultural education and approached the World Bank, A.I.D., and other donors for support. The Mission offered to provide support for the University of Nairobi's Faculty of Agriculture and also to undertake a second project at Egerton College. The first offer was rejected by the University of Nairobi's vice chancellor, despite the fact that A.I.D. had previously channeled more than $4.6 million to the University of Nairobi's Veterinary Faculty.

The offer of additional support for Egerton was accepted, however. By the time A.I.D. launched the second phase of its effort to strengthen the college, Egerton had attained a status equivalent to a parastatal. Such status was important in shielding the college from normal government bureaucratic regulations and in helping to solve staff retention problems by improving the conditions of service. In addition, the new principal of Egerton shared with A.I.D. the long-range goal of strengthening the college and making it a degree-granting institution. This second-phase expansion accounted for about 70 percent of a $49.8 million "multicomponent" project entitled Agricultural Support Systems project, which was to increase smallholder and pastoralist access to agricultural services.

The objectives of the Egerton component of the project were to expand the college's physical facilities, to provide additional training for Egerton staff at U.S. universities, and to increase student enrollment from about 690 to 1,630. To accomplish these objectives, $23.6 million was provided for expanding physical facilities and providing commodities, $2.4 million for upgrading Kenyan staff to higher degrees, and $7.9 million for funding U.S. professors and instructors to temporarily replace staff who were being trained.

By October 1984, 95 percent of the planned construction had been completed, 53 Egerton staff had been trained in the United States to the M.S. or Ph.D. level, and enrollment had increased to 1,632 students, attaining the 1986 goal. Furthermore, in the fall of 1986 Egerton initiated a degree program; the diploma program is being retained, but enrollment for diploma students is being reduced to about 1,000, whereas the 4-year degree program will eventually have a total enrollment of about 2,000. In another significant recent development, A.I.D. has entered into an agreement with Egerton and the University of Illinois whereby Illinois will provide continuing support through the exchange of faculty and through short-term consulting assignments to strengthen specific activities at Egerton, such as preparation of training and instructional materials.

Institution Building in Tanzania. There are marked similarities between A.I.D.'s support for Egerton College in Kenya and its support for the College of Agriculture at Morogoro in Tanzania. A noteworthy difference between the two efforts, however, is that the Morogoro College of Agriculture became part of the University of Dar es Salaam in 1969; it has recently become the Sokoine Agricultural University. The change was spurred by a visit to India by President Nyerere, who was impressed by the performance of India's network of agricultural universities, which A.I.D. had helped to build.

Makerere College's decision to terminate its diploma program precipitated the founding of Morogoro Agricultural College in Tanzania in much the same way that it led to an intensified effort to strengthen Egerton College in Kenya. A $300,000 grant from the Rockefeller Foundation helped to launch Morogoro College in January 1961. In 1962 the USAID Mission in Tanzania signed a $1.3 million contract with West Virginia University to assist in establishing a college that would be capable of meeting the country's need for diploma-level agriculturalists.

Under the project, West Virginia provided instructors, teaching materials, and funds for training at West Virginia University; the first class of 14 students left for the United States in 1962 and a second class of 14 followed a year later. By the end of 1963 a project of $1.1 million was signed with West Virginia for the construction of physical facilities, including

staff houses, student dormitories, a lecture hall and classrooms, laboratories, and a student union, plus buildings associated with about 800 acres of farms used for teaching purposes.

In 1968 the Mission judged that these two projects had been "successful" and decided to let them end at their planned completion date (Dijkerman 1987b, 98). The planned construction had been completed in 1967; and Morogoro awarded 57 diplomas in that year, 7 more than the 50 planned for 1968. A former A.I.D. participant trained at West Virginia had become the principal of the college, and 76 Tanzanians had received A.I.D.-financed training, including 16 to the M.S. level and 2 to the B.Sc. level. Of a teaching staff of 20 in 1970, only 8 were Tanzanians, 5 were U.S. instructors under A.I.D. contract, and the rest were expatriates provided by other donors.

Participant training for Morogoro proceeded slowly because of the lack of qualified Tanzanians. This reflected the fact that Tanzania, compared with Kenya, had fewer secondary educational facilities before independence. In addition, the Government of Tanzania pursued an explicit policy of emphasizing primary education and limiting the number of secondary schools. As a result, the gap between secondary school enrollment in the two countries widened greatly: by 1982 Tanzania ranked lowest and Kenya highest among the six study countries, as shown in Table 7 (World Bank 1985, 222).

Table 7. Secondary School Enrollment in the Six Study Countries as a Percentage of Age Group, 1965 and 1982

Country	1965	1982
Tanzania	2	3
Kenya	4	20
Malawi	2	4
Cameroon	5	19
Nigeria	5	16
Senegal	7	12

The neglect of secondary education in Tanzania has resulted in a relative shortage of qualified applicants for overseas training. This has limited the pool of B.Sc. applicants so that more training needs to be financed at that level before any M.S. or Ph.D. training can be undertaken, thus "lengthening the time needed to build a cadre of people who can serve as trainers to

the next generation of Tanzanians" (Dijkerman 1987b, 99). The problem seems to be aggravated by the fact that relatively few of the graduates of the University of Dar es Salaam are interested in pursuing graduate training in the agricultural sciences or in agricultural economics.

In the early 1970s the World Bank agreed with the Tanzanian Government on giving priority to the Ministry of Agriculture Training Institutes to meet the need for diploma and certificate graduates to staff Government positions. This decision, combined with the USAID Mission's interpretation of New Directions as discouraging the funding of university education, led the Mission to launch a $4.6 million Agricultural Manpower project in 1974 to support the Ministry of Agriculture Training Institutes, with only a small component going to an agricultural education program at Morogoro. In 1978, at the Government's urging, the USAID Mission did develop and gain approval for a $2.3 million project for a department of agricultural education and a center for continuing education in agriculture at Morogoro. But as late as 1979 the USAID Mission director in Tanzania responded to a request from the Minister of Agriculture for more advanced degree training by asserting that A.I.D./Washington preferred projects that "benefit the poor directly in the shortest amount of time possible. Consequently A.I.D. assistance to various agricultural institutions...is being critically examined as to the degree to which such assistance benefits the institutions involved but not the farmers who are served by them" (letter from H. Stevens, Mission Director, as quoted in Dijkerman 1987c).

Morogoro Agricultural College continued to develop. Denmark and other external donors helped to offset the effects of A.I.D.'s fluctuating support. The Government's decision to raise the status of the college by reorganizing it as Sokoine Agricultural University indicates that the Government recognizes the need to educate agricultural scientists and other specialists and administrators.

Institution Building in Malawi. Support for the establishment of Bunda College of Agriculture in Malawi also began in the early 1960s when A.I.D. joined with Britain's Overseas Development Administration to establish a new agricultural school. Previously Malawi had to depend on agricultural colleges in Uganda and other countries. Most of a $2.7 million A.I.D. Agricultural Development project was allocated to Bunda College. The University of Massachusetts provided technical assistance that accounted for 35 percent of the funds allocated to Bunda; another 46 percent went toward construction of the new campus, and the rest was used to provide B.Sc. training for nine students and some miscellaneous support. In 1970 the USAID Mission in Malawi and the University of Massachusetts made a strong appeal for a 4-year follow-on project. At that time, however, the Malawi Mission was being phased out in line with the Korry

Report's recommendations, and the request for a follow-on project was denied by A.I.D./Washington.

Although some modest interim support was provided in the mid-1970s, it was not until the 1976-1984 period that A.I.D. again made a significant contribution to building Bunda College. In 1975 Bunda was charged with initiating a new 5-year degree program, and President Banda and the Malawian Government made it clear that renewed support for the college was their "highest priority for USAID assistance" (quoted in Dijkerman 1987c, 76). Goals of this $4.0 million project included "localization" of staff from 32 percent to 90 percent, the establishment of a new 5-year degree program, an increase in the number of diploma students, and a building program. Shortly after the A.I.D. project started a U.N. Development Program (UNDP)/Food and Agriculture Organization (FAO) project agreement was signed to train faculty to higher degree qualifications; the bulk of the $2.7 million allotted was used for staff scholarships. Many of the Bunda staff members who received M.S. training under the A.I.D. project were thus able to continue studying for a Ph.D. As a result of the combined A.I.D. and UNDP/FAO projects, the targets for localization of staff and other goals were met and even exceeded.

6.2.2 Agricultural Training

Participant Training. U.S. training of agriculturalists has not been limited to projects directly related to the establishment and strengthening of agricultural colleges. A.I.D. has funded participant training in the United States under a number of other programs, including projects related to livestock, seed multiplication, hatchery management, statistics, health, and population. A number of centrally funded projects have also been important. According to the Directory of Returned Participants maintained by the USAID Mission in Cameroon, 575 Cameroonians were trained in the United States between 1961 and 1982. That total includes 195 who received short-term training, but the majority received long-term training and many obtained advanced degrees (Jaeger 1987a, 80-81). Most of the long-term training of participants was centrally funded through the African Graduate Fellowship Program (AFGRAD) or the African Scholarship Program for American Universities. The African Manpower Development project, the Inter-African Fellowship Program, and International Training for Health also sponsored training.

A.I.D. has financed degree and nondegree training for many participants from Kenya and Tanzania. Between 1956 and 1984 an estimated 1,681 Tanzanians and 1,839 Kenyans were trained in the United States (Dijkerman 1987b, 164; 1987c, 135). Nearly 80 percent of the trainees from Kenya were funded under bilateral

projects. Of the 627 Kenyans trained between 1978 and 1984, 5 percent received Ph.D. degrees, 15 percent received Master's degrees, and 18 percent received Bachelor's degrees. Roughly 60 percent of the participants received their training in fields related to agriculture--agronomy, animal sciences, biology, entomology, general agriculture, livestock production, plant breeding, range management, veterinary medicine, and agricultural economics (Dijkerman 1987a, 164-65).

Although the countries of Sub-Saharan Africa still suffer from shortages of trained manpower, the situation would be much more serious had it not been for A.I.D.'s support for participant training. Providing training obviously does not ensure that the expertise acquired is put to productive use. However, follow-up studies on trainees from AFGRAD and other programs indicate that 87 percent of the alumni from these programs are living and working in Africa. Educational and research institutions have employed about half of these graduates; a very high percentage of those trained for positions at Bunda, Egerton, and other agricultural faculties have in fact taken up those positions. An impressive number of individuals in key positions in Africa received their advanced training under the auspices of A.I.D. The AFGRAD survey reports that "over half of the older alumni now have major responsibility for policy formulation and decision-making..." (A.I.D. 1984, 22).

Investments in human capital are more "durable" than investments in many other projects that tend to be vulnerable to changes in government policies or in circumstances affecting project implementation, such as changes in international prices. This is also an area in which A.I.D. appears to have a comparative advantage. It is able to rely on a large number of U.S. institutions of higher learning that rank with the best in the world and that are especially strong in the agricultural sciences. There are, of course, questions about the relevance of training in the United States for future work in African countries. Indeed, that is one of the reasons why building African institutions of higher education is of such fundamental importance. Their existence should make it possible to limit future participant training in the United States to advanced or specialized training not yet available in Sub-Saharan Africa. In the case of Ph.D. training, it seems important for dissertation research to be carried out in Africa so that the problems addressed as well as the laboratory and other resources available will be relevant to a scientist's future research. We return to that topic in Section 6.2.3.

Training by the International Agricultural Research Centers. The international agricultural research centers, especially the International Institute for Tropical Agriculture (IITA) in Nigeria, also have had an important role in providing training for African scientists and technicians. It is estimated that

between 1970 and 1984, IITA provided training for 2,860 participants from 42 African countries. More than three-fourths of the trainees attended short courses, but even those courses can make a significant contribution to professional development when they are associated with continuing follow-up by scientists from IITA or from a regional center such as the International Center for the Improvement of Maize and Wheat (CIMMYT) regional center for eastern and southern Africa located in Nairobi. In addition to the short courses, IITA also provides training for a limited number of "research scholars" and "research fellows" who are candidates respectively for M.S. or Ph.D. degrees (or their equivalent). All of the six study countries have sent people to the IITA training program, although some 40 percent of all the participants were from Nigeria (Okoro and Onuoha 1985, 79) (see Table 8).

Table 8. IITA Training Program Participants, October 1970 to December 1984

Country	Total	M.S. (or equivalent)	Ph.D. (or equivalent)
Cameroon	120	11	8
Kenya	61	-	2
Malawi	28	1	-
Nigeria	1,159	19	34
Senegal	36	-	-
Tanzania	130	4	2
Other	1,326	80	32
Total (42 countries)	2,860	115	78

It was emphasized in Section 4 that investments in human capital formation are highly complementary with other critical elements of strategies for agricultural and rural development. Investments in agriculture-related higher education can have a positive impact on development in many ways. We know from past experience that exceptionally high returns can be obtained from generating and diffusing technological innovations that are feasible and profitable for farmers operating under a variety of agroclimatic conditions. Furthermore, substantial empirical evidence indicates that high returns from investments in primary education for the children of farm families depend upon a dynamic setting in which improved production possibilities are available to farmers, thus placing a premium on their enhanced ability to acquire and process information and make good decisions. In a

stagnant agricultural environment, investments in rural schooling yield meager returns (Jamison and Lau 1982).

Although an indigenous capacity to train agricultural scientists is a necessary requirement for satisfactory progress in agricultural development, it is not a sufficient condition. In a sense the teaching role of universities is, in the jargon of economics, only an "intermediate product." To fulfill their potential, these institutions must also acquire the capacity to contribute, directly and indirectly, to the development and testing of the technical innovations so critical to successful agricultural development. Likewise they have an important role to play in evolving institutional mechanisms, attitudes, and procedures that ensure that they not only contribute to policy research but also assist in creating a demand for policy research and analysis on the part of a country's administrators and policymakers.

6.2.3 Agricultural Research and Extension

In the introduction to this section it was noted that a mere 2.3 percent of A.I.D.'s project and program assistance in the six study countries has been devoted to agricultural research. The share allocated to extension, 3.2 percent, has been larger, but the effectiveness of investments in building up agricultural extension programs has generally been limited by deficiencies in the research base for extension. With a few important exceptions--notably cotton research in a number of countries and the development and diffusion of hybrid maize in Kenya, Zimbabwe, and Zambia--extension programs have offered relatively little that has been relevant and attractive to African smallholders given the constraints that these farmers face.

Assistance for Research in Kenya and Tanzania. The Kitale maize program in Kenya represents an important success for agricultural research in Africa. But it does not represent a comparable success for A.I.D. In the 1960s A.I.D. did provide technical assistance through USDA to help establish a comprehensive breeding improvement program at Kitale. A lack of continuity in A.I.D. support, however, and shifts in A.I.D. priorities have reduced the impact of its assistance for maize research in Kenya.

Particularly unfortunate was A.I.D.'s failure to complete the job that was started at Kitale in building the capacity for a strong and sustained national maize breeding program. A shift in emphasis from the high-altitude to the medium-altitude regions appears to have been justified by the success achieved; the spread of new hybrids of maize adapted to the medium-altitude areas of the Central Province matched the earlier rapid spread of hybrids suited to high-altitude areas in western Kenya (Johnston

1978). The emphasis on breeding for protein content and quality appears, however, to have diverted scarce resources away from more important objectives. A shift in emphasis of A.I.D.-supported maize research to semiarid areas of eastern Kenya also appears to have been questionable (Dijkerman 1987a, 84). A concerted effort to develop well-adapted varieties of sorghum, including attention to problems of milling and palatability, would seem to have been more promising because of sorghum's considerably greater capacity to resist the effects of drought. That conclusion has also been reached by the agricultural specialists currently in the Kenya USAID Mission.

Experience in Tanzania reveals additional problems that have limited the impact of A.I.D.'s efforts to support agricultural research programs. By the late 1960s the need to strengthen Tanzania's agricultural research system had been identified as a priority for A.I.D. assistance. However, a variety of misunderstandings and problems delayed progress and limited the effectiveness of efforts initiated in the early 1970s. An agricultural research project submitted to A.I.D./Washington for approval by the Mission in 1970 was intended to develop Tanzania's capacity to plan, organize, and administer an agricultural research program for grain, legumes, and other food crops; the project was to emphasize varietal improvement through breeding and agronomic research and trials on farmers' fields. Incredible though it may seem, this was originally envisaged as a 2-year project. It was also expected that a U.S. university would be the implementing contractor, but the cost estimates of the one university that finally submitted a proposal were much higher than the remuneration for field support and benefits set forth in contract guidelines that had just been issued by A.I.D./ Washington.

After prolonged and fruitless negotiations, an alternative arrangement was finally adopted. A.I.D. accepted a Ford Foundation proposal to use IITA and CIMMYT as contractors, with the Foundation also contributing to the funding of the project. The $8.5 million A.I.D. contract with IITA/CIMMYT was finally signed in December 1973. By the end of 1974 only two of the five scientists had arrived. Two more had arrived by 1976, so that a project designed in 1970, approved in 1971, had finally fielded 80 percent of the field staff by 1976 (Dijkerman 1987b, 87). Other problems arose as a result of a redesign of the project that added responsibilities but provided only limited additional resources. Implementation was further hampered by unsatisfactory communication between researchers and farmers, by the inability of the Tanzanian Government to provide qualified trainees for the project, and by various "systemic" problems that made it harder and harder to carry out development work in Tanzania (Dijkerman 1987b, 88-91).

A second agricultural research project, initiated in 1982, was an $8.3 million Farming Systems Research project with an initial obligation of $3 million. The Tanzanian Government agreed to a reorganization that brought research activities together in the Tanzanian Agricultural Research Organization, and it accepted a covenant stating that it would double the agricultural research budget, provide all required participant trainees, and ensure that such trainees were assigned to appropriate positions after completion of their training. Given the economic situation in the country at the time and the Government's budget problems, one can wonder whether the Mission realistically expected the Government to fulfill the terms of the agreement. The project's emphasis on construction of new buildings and irrigation facilities at the Ilonga research station also appears to have been questionable considering that the existing facilities were not being maintained properly. In time, the Mission responded to the Government's recurrent cost problems by allocating local currency generated under its food aid program to assist with the maintenance and operation of the research station.

Recent Research Programs in Malawi and Cameroon. In recent years A.I.D./Washington has shown increased interest in supporting agricultural research in Sub-Saharan Africa. The fact that Malawi is the only one of the six study countries where agricultural research is a prominent component of total agricultural assistance for the 1963-1984 period reflects the fact that A.I.D. channeled little assistance to the agricultural sector until the late 1970s.

A contract for a $9 million agricultural research project ($10 million in 1983 dollars) that was disbursed between 1979 and 1982, which was the only research project funded during the period covered by this study, was two-thirds as large as the total funds allocated for education and training (and extension) throughout the 1963-1984 period. In addition to the technical assistance provided by the agricultural scientists sent to Malawi by the University of Florida, 12 participants were sent to the United States for Ph.D. training and another 21 for M.S. degrees. This was a basic research project with a farming systems component and was intended to strengthen the capability of the Ministry of Agriculture's Department of Agricultural Research to develop technical innovations for Malawi's smallholders.

Although many problems were encountered during implementation, both the Malawian Government and A.I.D. seem to have learned as they went along. For example, good use seems to have been made of a regionally funded project on farming systems research activities in eastern and southern Africa, being implemented by CIMMYT's regional office, to compensate for the Florida team's limited familiarity with African agriculture and lack of experience with farming systems research (Dijkerman 1987c, 71).

The process of designing a follow-on agricultural research project was a good example of the Government and two key donors making a joint effort to build a more effective research and extension system. Following a review of Malawi's research and extension system by the International Service for National Agricultural Research, the Malawian Government, the World Bank, and A.I.D. initiated discussions that continued from 1983 to 1985. During that period decisions were reached concerning donor responsibilities, financing arrangements, and research and extension agendas. In 1986 A.I.D./Washington approved $14 million for a Malawi Agricultural Research and Extension project to complement a program that also comprises two World Bank/International Development Association (IDA) projects totaling $35.7 million and a $33.1 million contribution by the Malawian Government.

The purpose of the A.I.D. project is to improve Malawi's institutional capacity to increase the productivity of traditional crops and identify the most viable crops for diversifying smallholder production. The new research system will include a significant farming systems component in the form of "adaptive research units" that are to be well integrated with on-station research and with extension activities in the various agricultural development divisions. The project also contains a women's component, reflecting the Malawian officials' positive impression of a study of women's role in Malawi's agriculture that was carried out during the period of the first research project. The Ministry of Agriculture was very actively involved throughout the project design process and insisted that the new projects incorporate lessons learned from the previous project (Dijkerman 1987c, 72-74).

An important feature of Malawi's research strategy is to draw on relevant research of other countries and of the international agricultural research centers. In fact, a 1984 report on "The Impact of the Collaboration Between the International Agricultural Research System and the National Agricultural Research System in Malawi" makes it clear that such collaboration has already been having a positive impact on research. In addition to the previously mentioned training for farming systems research carried out by the CIMMYT regional program, the IITA regional root crop specialist appears to have made a valuable contribution in helping Malawi take advantage of improved cassava varieties developed at IITA (Billing 1984). Groundnut breeding carried out with technical assistance from the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has also made good progress.

An A.I.D.-funded National Cereals Research and Extension project (NCRE) in Cameroon is of considerable interest as a possible "model" for wider use in Sub-Saharan Africa. The project, comprising a $7.7 million grant for a 5-year period ending in 1985, was designed to develop facilities and Cameroonian

institutional capacity to perform cereals research; to implement research programs for maize, sorghum, millet, and rice; to establish and maintain an exchange of information with international, African, and Cameroonian research institutions; and to create a testing and liaison unit to facilitate communication and feedback among researchers, extension agents, and farmers. As the implementing contractor, IITA has "fielded a team of scientists that appear to be extremely well-qualified, motivated, and sensitive to farmers' conditions and objectives in carrying out their research programs" (Jaeger 1987a, 71). A mid-term evaluation in 1983 was very favorable. The USAID Mission in Cameroon has also been favorably impressed by the team of experts and by IITA's supervision and support, as when it responded promptly to the Mission's criticism of a senior team member and arranged for a well-qualified replacement.

In recognition of the long gestation period involved in developing an effective national agricultural research system, a 10-year Phase II project was approved in 1984. Under this $39 million project three additional technical liaison units are to be created and 15 more Cameroonian scientists will receive training for advanced degrees. In this phase each counterpart will work with the technical assistance team for a year both prior to and after M.S. training and then for 3 years after obtaining a Ph.D. In addition, the Cameroonian Government is currently negotiating a $46 million project with the World Bank for agricultural research that will cover areas not included in the NCRE project such as research on export crops (Jaeger 1987a, 76-77).

IITA and the country team have established effective links with other international agricultural centers--notably ICRISAT, CIMMYT, and IRRI--in addition to maintaining good working relations with the Cameroonian Government and A.I.D. In north Cameroon the head of the NCRE sorghum project has also been collaborating successfully with the Semi-Arid Food Grains Research and Development (SAFGRAD) center. On-farm testing organized by a SAFGRAD Accelerated Crops Production Officer in 1984 and 1985 indicated that S35, a variety obtained from the ICRISAT breeder at the Institute for Agricultural Research and Ahmadu Bello University in Nigeria, was giving higher yields than local varieties. Unfortunately, the trials were conducted exclusively at high input levels not representative of actual farming conditions and probably well above what is economical. These results, therefore, need to be verified at more typical and more economic input levels.

The head of a Cooperative Research Support Program cowpea project in north Cameroon, also located at Garoua, is a Togolese national with a Ph.D. from IITA (in conjunction with the University of Ibadan). He is keenly aware of the cash income constraint that farmers in north Cameroon face and is therefore emphasizing breeding for disease resistance and other innovations

that do not require purchased inputs. The interaction between this cowpea specialist and the NCRE sorghum breeder, an Indian scientist influenced by the success of Asia's "seed-fertilizer revolution," has resulted in a healthy ongoing debate concerning research priorities and strategies (Jaeger 1987a, 72-73).

In northwest Cameroon, research programs have been developed for a number of crops; the prospects for improved maize varieties appear to be especially promising. A technical research liaison unit has been active in that region in carrying out on-farm testing and providing feedback to the on-station research.

Farming Systems Research. In the late 1970s and early 1980s there was such enthusiasm for farming systems research that it came to be something of a fad. Farming systems research was a response to a clearly demonstrated need for methodologies that would help make research at experiment stations more relevant to the needs of small farmers. Farming systems research was intended to increase the farm-level impact of scientific research by exploiting the potential complementarities between that research and the trial-and-error process of "learning by doing" of farmers based on their intimate knowledge of the local environment and of the limited resources at their command. However, some of the literature extolling and elaborating on farming systems research has made exaggerated claims, and in some countries farming systems research projects seem to have multiplied prematurely. Donors have in some instances been funding ambitious farming systems research projects, often in newly established units independent of the country's agricultural research system, while neglecting support for critically needed on-station and commodity research.

Many of those who have written about farming systems research seem prone to draw up wish-lists of objectives to be realized by their holistic approach. Those carrying out such research in recent years, however, have recognized the need to build on the experience and concepts developed by pioneers such as Collinson (1982), Hildebrand (1976), and Norman (1980) and to evolve more cost-effective approaches. A team of scientists from the International Livestock Center for Africa, but based at IITA, appears to be a good example of researchers who recognize the continuing need to evolve practical, cost-effective approaches (Okali and Sumberg 1986). That team has been working to identify and promote improved management systems for small ruminants applicable to the humid zone of West Africa. A major conclusion of their work is that it is essential to maintain close links between on-farm and on-station research. Their work is also interesting because there are cogent reasons for defining farming

systems research to include livestock activities as well as cropping systems.[52]

Because of the need for a deep understanding of local farming systems, it seems doubtful that expatriate "experts" can be very successful in introducing farming systems research without having had substantial prior experience with similar farming systems. The lack of such experience among some farming systems research teams has limited their effectiveness. A.I.D.'s funding of a CIMMYT regional project to organize training and other activities to support farming systems research activities in Malawi and elsewhere in eastern and southern Africa appears to have been useful in that regard.

The need for special training is also emphasized by the fact that African farming systems are in a state of flux because of increasing population pressure on the land, increasing off-farm demand for farm products, and reduced transport costs (except in areas where road maintenance has been badly neglected and spare parts for vehicles are not available). Recent research underscores the importance of understanding the "systematic and predictable patterns" of change that can be expected in response to such pressures and opportunities (Binswanger and Pingali 1984; Pingali et al. 1987). Both of these considerations underline the need for sustained long-term research with an on-farm focus. It is encouraging that greater attention is being given to the special problems of institutionalizing research with a farming systems perspective <u>within</u> national systems in order to maximize communication with and participation of station-based technical scientists.

<u>An Evolving Strategy for Strengthening Agricultural Research</u>. Although the past efforts of A.I.D. and other donors to strengthen agricultural research systems in Africa have been fragmented and ineffective, recent developments point to an emerging consensus on a more realistic approach. In their recent monograph, <u>Building Colleges of Agriculture in Africa: U.S.</u>

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[52]In our study countries, we found no examples of farming systems research that included livestock activities. However, a recent development in Burkina Faso is worth mentioning. Research on the semiarid farming systems of that country indicates that "tied ridges" (a system by which water retention is improved by connecting the ridges on which crops are planted every 5 feet or so to form basins that trap water) are one of the few promising technical innovations currently available. There is, however, a long history in East and West Africa of farmers showing no interest in tied ridges, presumably because of the labor requirements. But in Burkina Faso recent progress in devising an animal-drawn implement for forming the tied ridges may improve the prospects for farmer adoption.

University Experiences and Implications for Future Projects, Wilcock and McDowell report: "Our findings indicate virtually unanimous support for the need for more appropriate agricultural technology research in Africa, for faculties [of agriculture and veterinary medicine] playing a greater research role, and for the substantially longer periods of time required to get the institutional development job done" (1986, 36).

Wilcock and McDowell emphasize in particular that their findings are in strong agreement with the directions outlined in A.I.D.'s "Plan for Supporting Agricultural Research and Faculties of Agriculture in Africa" that was issued in May 1985. Among the salient features of that plan, they stress (1) involving faculties of agriculture more in research, (2) concentrating much of the support for research development at four to six key agricultural faculties that would be expected to develop linkages with institutions in neighboring countries, (3) concentrating A.I.D. support for U.S. institutions at relatively few universities with adequate resources and a strong institutional commitment to international agricultural development activities, and (4) maintaining support for this effort for the 20 to 25 years needed for effective institution building.

The rationale for greater involvement of faculties of agriculture in research is that as a result of the institution-building efforts described earlier, the greatest concentration of scientific competence for agricultural research is now found in those faculties. And the potential return to those investments in human capital will not be realized unless effective means are devised to increase faculty involvement in research. Achieving that involvement will not be easy. A great many agricultural scientists teaching at African colleges and universities have become accustomed to the idea that teaching is their full-time job, and they have lacked incentives and resources for engaging in research on their own or in collaboration with their students. However, continuing support for those institutions will be jeopardized unless the faculties of agriculture make a commitment to problem-solving research that is of practical value to their country's farmers.

Two lessons from the "green revolution" in Asia are of enormous importance to the countries of Sub-Saharan Africa. First, sustained government support for national institutions of higher education and for agricultural research depends on success in using agricultural science to facilitate widespread increases in farm productivity. And second, the international centers such as IRRI and CIMMYT can provide valuable support to national research programs but cannot be a substitute for them. National research programs are crucially important in carrying out location-specific adaptive research and in conducting the "maintenance research" so critical in agriculture because of changes

in pest problems and in the disease resistance and other characteristics of improved varieties.

Fortunately, there now seems to be general recognition that efforts to rigidly transplant the U.S. "land-grant model" are doomed to fail. An encouraging feature of the Malawi follow-on project discussed earlier is the active involvement of the Government in the design of the project and the clear indication that the responsible Government officials feel that they "own" this project and have a commitment to ensuring its success. The principles that guided the U.S. experience do have general applicability, and one of those principles stressed by Wilcock and McDowell is that viable institutions for teaching, research, and extension must be shaped by the political process within a country. For example, they note that an attempt by Njala University College in Sierra Leone to have the administrative responsibility for the national agricultural extension program transferred to the college was ill-advised. In contrast, a subsequent project in which the college was involved in doing combined research and extension work on an experimental basis in nearby areas seems to have been much more successful (Wilcock and McDowell 1986, 30, 33).

One of the important advantages that IITA has in undertaking A.I.D.-funded research projects such as the program in Cameroon is its ability, especially in collaboration with ICRISAT and CIMMYT, to recruit well-qualified scientists from Asian and Latin American countries. This important dividend results in good measure from A.I.D.'s earlier investments in human capital. Some of the stronger agricultural universities in India are a particularly valuable source of competent scientists, and in such fields as agricultural engineering and sorghum breeding, their training and experience is likely to be more relevant to African conditions than that of American agricultural scientists. There are also potential cost advantages because the opportunity cost of an agricultural scientist from a low-income country such as India is considerably lower than for scientists from the United States or Western Europe. In staffing technical assistance teams for projects such as the NCRE project in Cameroon, an international center such as IITA can, to some extent, relate the remuneration that it offers to the previous salaries of scientists that it recruits.

Clearly, there is still much to be learned about the most cost-effective means of strengthening agricultural research and programs for diffusing technical innovations in African countries. The fundamental need is to achieve more progress in identifying technical innovations that are feasible and profitable for small farmers. From that standpoint, A.I.D.'s recent emphasis on designing "research and extension" projects aimed at strengthening agricultural research and establishing effective

links between research and extension appears to be very appropriate.

6.2.4 Extension-Based Production Activities

Over the past 25 years A.I.D. has allocated a substantial portion of its funds in Africa for activities intended to affect agricultural production directly. These projects have often been based on "technology transfers" and have generally relied on extension workers to transmit information to farmers about specific farming methods or the use of inputs that are believed to result in increased productivity and, thus, higher incomes.

During the mid- to late 1970s such activities received more emphasis because the New Directions legislation instructed A.I.D. to focus its attention on the rural poor; projects involving technology transfer were believed to offer a rapid solution to the food shortages of arid and semiarid Africa that had been made so acute by the Sahel drought. However, in the six countries studied, nearly all of these efforts failed to achieve their objectives. The pattern that emerges is one of projects based on unrealistic assumptions about the potential benefits and appropriateness of the proposed solutions. They are the most striking examples of the common problem of "technological optimism."

Activities of this type include crop-specific production projects, components of integrated rural development projects, livestock projects (discussed below), irrigation projects, and rural training activities. Two cereal projects in Senegal, for example, set out to increase millet yields by half by promoting fertilizer use, early planting, and other agronomic techniques. In Cameroon, a Small Farm Family Training Centers project was based on the belief that a year of training farmers in the use of improved agronomic techniques and animal traction would permit farmers to return to their villages and increase their income by 50 percent. In Nigeria, a Maize and Rice Production project set out to devise "improved packages" and to promote their adoption by farmers, with almost no specific information on what was available or what might be appropriate.

The consistently discouraging outcomes of such projects lead to several conclusions. First, the direct transfer of technologies to Africa is unlikely to succeed. One reason is that research in much of the world is focused on increasing yields because land is the scarce factor of production. But in much of Africa, labor, not land, is still the scarce factor of production, and farmers are unlikely to adopt technologies that consume additional labor in order to raise production per unit of land area. Second, these types of activities are approved and often

continued because of one of A.I.D.'s common weaknesses--an inability to ensure that analyses included in Project Papers and evaluations are realistic and objective.

6.2.5 Input Supply

Agricultural projects and programs classified under the rubric of input supply ranked second to those in education and training, accounting for 6.7 percent of A.I.D.'s project and program assistance to the six study countries. The principal expenditures under this heading have been for commodity import programs for fertilizer, which were discussed in Section 6.1. Most of the remaining outlays were allocated to seed multiplication projects in Tanzania and Cameroon.

There is an attractive logic to the proposition that a seed multiplication project is an essential ingredient of a crop improvement program. For example, in the case of hybrid maize, seed multiplication and distribution are necessary conditions for crop improvement projects because of the rapid decline in yield if hybrid seed is not replaced each year. (The rapid diffusion of hybrids among Kenya's smallholders was dependent on the competent performance of a private company that had previously specialized in producing grass seed for European farmers in the highlands.)

A North Cameroon Seed Multiplication project, however, illustrates many of the problems that make it exceedingly difficult to design and implement a seed multiplication project that will have a favorable benefit-cost ratio. Phase I of that project began in 1975 with a $1.5 million grant to develop a system for producing improved seed for peanuts, maize, sorghum, and millet and for distributing the seed to farmers.

An evaluation carried out in 1979 reported that limited progress had been made and that "few meaningful benefits will accrue to small farmers from pushing forward with the goals originally envisioned" (as quoted in Jaeger 1987a, 66). The USAID Mission, for its part, concluded that the goals of Phase I were not achieved because the project tried to do too much with limited resources. Within a year another evaluation was done by seed specialists from the Seed Technology Laboratory of Mississippi State University. This evaluation concentrated on how the quality and uniformity of the seed could be improved. No economic analysis was undertaken, the report taking as a given the premise that a seed farm was essential. The subtitle of this second evaluation, "Analysis and Recommendations for Phase II," implied that a decision had already been made to continue the project despite the serious problems reported in the 1979 evaluation.

A Phase II project began in 1982 with an $8 million grant and a $5.6 million loan. An Inspector General audit in November 1985 found that only limited progress had been made and questioned the viability and economic feasibility of the project. This audit noted that the project suffered from slow implementation, a lack of coordination among Government agencies, poor management, and poor contractor performance. Yet despite continuing management and technical problems, including location of the seed farm on a site with severe soil erosion problems, the project has been distributing substantial quantities of seed to farmers. However, the seed is sold at subsidized prices that are 50- to 100-percent below local market prices, so the project has clearly not met the "market test."

A more fundamental problem has been the unrealistic assumption underlying both Phase I and Phase II that research would promptly be able to develop improved varieties of the four crops and therefore would make the investment in seed multiplication and distribution worthwhile. Despite these flaws, some A.I.D. staff continue to regard seed multiplication as an essential component of any future strategy for Cameroon's agricultural development (Jaeger 1987a, 69).

The seed multiplication project in Tanzania also appears to have been out of sequence because of the limited availability of improved crop varieties. Progress in the East African Community and in Tanzania in developing improved maize varieties, including some promising hybrids, suggests that the potential contribution of this project was greater than that of the northern Cameroon project. Yet the results were no less disappointing.

A.I.D. assistance to seed multiplication in Tanzania began in 1970 and continued until 1982. The project included a substantial amount of participant training and on-the-job training. Responsibility for seed distribution was assigned to TanSeed, a parastatal established with financial and technical assistance from the Commonwealth Development Corporation. Although the Tanzanian Government strongly favored the seed multiplication project in principle, its financial support declined as the country's economic difficulties increased.

According to a review carried out in late 1982 by two senior consultants from the U.S. seed industry, the project "was in complete disarray" (quoted in Dijkerman 1987b, 44). With the benefit of hindsight, it now appears that the project was probably premature, given the indications that it will not be sustainable now that A.I.D. assistance has ended. The original, ambitious plan to set up seven seed farms had to be scaled back to three, a sign that the original project was overly ambitious. Moreover, the $6.7 million that A.I.D. allocated to seed multiplication in Tanzania during the 1970s was not much less than the

$8.5 million that it allocated for agricultural research--evidence of a serious imbalance in A.I.D.'s investment priorities in that country.

Both the Cameroon and Tanzania projects appear to have been designed to use inappropriately capital-intensive technologies, and both seem to have suffered from serious management problems. It also seems to be exceptionally difficult to recruit technical advisers with the required expertise and managerial capacity for such projects. Moreover, a considerable body of experience suggests that government agencies or parastatals do not have a comparative advantage in seed multiplication.

6.2.6 Livestock Projects

The livestock sector accounted for 5.3 percent of A.I.D.'s project and program assistance for agriculture, but it is now recognized to be the Agency's least successful agricultural subsector. Other donors have had much the same experience. Most of the A.I.D. funding went to a set of rather similar pastoral livestock range management projects.[53] None of these projects, which were carried out in all the study countries except Malawi, are considered to have made progress toward their range management, production, or human welfare objectives. While their training components have contributed to human capital formation, their institution-building impact has been marginal. It is striking that lessons learned in early projects in Nigeria and Ethiopia were not incorporated into later programs in Kenya and Senegal, although the earlier experience was known to A.I.D. design officers. Livestock projects in Kenya, Cameroon, and Tanzania were discussed in some detail in Section 5.2.6 as important examples of the difficulty that A.I.D. has in implementing tasks that are problematic because of unrealistic assumptions and, in this case, the poor fit between the U.S. range management model and conditions in Africa.

Recently A.I.D. management suspended efforts in the pastoral livestock subsector. Further attention is given to livestock projects in Section 7 because livestock activities and pastoral groups are important in Sub-Saharan Africa. Furthermore, the difficulties encountered in this subsector illustrate some significant institutional problems that constrain A.I.D.'s ability to design and implement agricultural programs.

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[53]Other A.I.D. interventions in livestock, particularly in veterinary medicine in Nigeria, have been more successful.

6.2.7 Planning, Management, and Statistics

This rather mixed category essentially tied with extension as the fourth ranked subsector in total outlays for agricultural assistance to the six countries. Projects of this type were undertaken in all of the countries except Malawi, but they differed considerably in their nature and timing.

Tanzania. A.I.D. gave considerable support to agricultural analysis and planning activities in Tanzania in the second half of the 1960s and again in the early 1980s (Dijkerman 1987b, 77-84). During the earlier period an Agricultural Production Surveys project led to the commissioning of studies on agricultural marketing, seed multiplication and distribution, livestock and range management, land consolidation, smallholder tea development, and agricultural education and credit. Dijkerman notes that this approach appears to have been a sensible way to develop a Mission strategy because it included Tanzanian involvement from the ministerial level downward, reconnaissance studies, feasibility studies, project proposals, and donor coordination, particularly with the World Bank.

In the early 1980s the USAID Tanzania Mission again initiated some valuable analysis and planning activities. Even more than in the 1960s the focus was on agricultural pricing and marketing concerns. A special A.I.D. policy unit known as the Office for Policy Analysis was established to concentrate on problems caused by Tanzania's agrarian policies. As Dijkerman notes, the idea that the Government's policies were partially to blame for the country's agricultural problems was controversial. Because of the sensitive nature of these issues, the Mission's approach was to undertake analyses, commission studies by consultants, and support the efforts of Tanzanian scholars, the Tanzania Agricultural Economics Society, the Departments of Rural Economy and Economics and the Economic Research Bureau of the University of Dar es Salaam, and the Marketing Development Bureau of the Ministry of Agriculture. (For a partial listing of studies supported by A.I.D., see Dijkerman 1987b, 83-84.)

Kenya. Allocations to Kenya for planning projects since the 1970s are an example of another approach to strengthening agricultural management and planning capacity in ministries of agriculture and finance. The Harvard Institute for International Development has had the contract for projects with both ministries: Rural Planning and Rural Planning II with the Ministry of Finance, and the Technical Assistance Pool with the Ministry of Agriculture. The Technical Assistance Pool has also received funding from other donors, most notably the World Bank.

The resident Harvard Institute advisers have been well trained and have had extensive and relevant experience; they are

generally considered to have performed very well. One noteworthy contribution was to introduce the use of microcomputers, an innovation that appears to have been especially valuable in enhancing the ability of the Ministry of Agriculture to carry out its budget management responsibilities with speed and efficiency. In contrast, there has been considerable dissatisfaction concerning the in-service training carried out by the Harvard Institute advisers, a deficiency that resulted in part from the strong demand for "the 'advisers' [to] assume the role of 'line employee' planners" (Dijkerman 1987a, 126-27).

Cameroon. An Agricultural Management and Planning project initiated in Cameroon in 1978 has been similar in content to the projects in Kenya, with one important exception. A major responsibility of the Cameroon project has been to assist the Ministries of Agriculture and Planning in conducting an agricultural census for the entire country. The census was carried out in 1984 and received excellent support from the national, regional, and local governments. The project has been extended to June 1987. Some useful studies have been carried out, and with the establishment of the Department of Studies and Projects in the Ministry it seems that good progress is being made in institutionalizing a capacity for economic analysis and for the collection, processing, and analysis of statistical data (Jaeger 1987a, 77-79).

Senegal. An Agricultural Research and Planning project initiated in Senegal in 1981 has followed an interesting and different approach. This 5-year project has involved the Senegalese Institute for Agricultural Research and Michigan State University. Project objectives include the development of Senegalese macroeconomic research capacity in the area of food and agricultural policy, as well as the development of production systems research capacity at the microlevel. The project was designed to be a significant part of a program to reorganize, decentralize, and strengthen the Senegalese Institute for Agricultural Research, with financing from the World Bank, France, and A.I.D.

The project has a strong participant training component that has included graduate training at U.S. universities and field research on policy-related matters carried out in Senegal with young but very able U.S. collaborators. The project appears to have had strong support from Michigan State and good working relations with Institute staff. The studies that have resulted have made a valuable contribution to the ongoing policy dialogue over agricultural issues in Senegal (Jaeger 1987c, 75-80).

Nigeria. A project carried out in Nigeria in the 1960s to assist the Federal Office of Statistics to develop a capability to collect basic statistics on crops and livestock raises an important issue. The Office of Statistics continues to publish

agricultural statistics, but its estimates appear to be inferior to even the very rough approximations made by FAO and the U.S. Department of Agriculture.

Our hypothesis, which we have not been able to test in even the crudest way, is that the crop-estimating system introduced under the project was too sophisticated to be successfully sustained in a country in which the required skills are scarce and reasonably accurate estimates of crop area and yield are extraordinarily difficult to obtain. In Nigeria and throughout Sub-Saharan Africa, small and irregular plots, limited commercialization, and staggered harvesting of crops--especially cassava, which may be harvested after 9 or 10 months or left in the ground for 2 years or more--are features that greatly complicate the collection of agricultural statistics.

6.3 Support for Rural Development Activities

A.I.D.'s project and program assistance for rural development activities for the period 1963 through 1984 amounted to approximately $518 million (in constant 1983 dollars). Those expenditures, which represented about 22 percent of A.I.D.'s total project and program assistance in the six study countries, went mainly for rural infrastructure projects, with significant allocations also for health and population activities.

6.3.1 Rural Infrastructure: Transportation and Irrigation

A.I.D. support for rural infrastructure projects has been substantial, accounting for 12.8 percent of total project and program assistance for agricultural and rural development in the six study countries; a comparable amount has been devoted to agricultural education and training.

A.I.D.'s participation during the 1960s in multidonor projects for major extensions of the TransCameroon railway help to explain the fact that Cameroon has accounted for nearly 25 percent of A.I.D. assistance for infrastructure projects in the six countries. A Farm-to-Market Roads project and Highway Development project were other major rural infrastructure projects in Cameroon funded by A.I.D. (Jaeger 1987a, 32-33).

Tanzania ranks after Cameroon in rural infrastructure assistance largely because A.I.D. funded major portions of the TANZAM highway connecting Zambia with the port at Dar es Salaam. A.I.D. also provided support for a number of other road projects in Tanzania as well as for the establishment of road materials testing laboratories.

In Malawi A.I.D.'s support for rural infrastructure accounted for 45 percent of all A.I.D. project and program assistance to that country between 1963 and 1984, an even higher share than the 44 percent of total A.I.D. assistance that went to rural infrastructure in Cameroon. In contrast, A.I.D. assistance for the construction of irrigation facilities in the study countries has been very limited.

In general A.I.D.'s investments in improving transport networks has had a significant long-term impact, especially in those countries where the U.S. contribution was substantial. A.I.D.'s support for infrastructure projects in Kenya was much less than in Cameroon, Tanzania, and even Malawi, representing a little less than 9 percent of the $550 million in project and program assistance to that country during the 1963-1984 period. However, an innovative approach to supporting the use of labor-intensive techniques in constructing rural roads in Kenya appears to have encouraged other donors to support similar projects (Dijkerman 1987a, 161).

There is no reason to believe that the United States has a comparative advantage in providing assistance for rural infrastructure projects. It is worth noting, however, that investments in road construction are likely to be a reasonably effective use of A.I.D. funding when it becomes politically attractive to increase assistance to a country quickly, as appears to have been the case with Tanzania at the time that the United States provided substantial assistance for the TANZAM road project. Furthermore, road construction and certain other rural infrastructure projects may offer one of the more promising ways to obtain a positive developmental impact from food aid, which will probably be a significant component of nonproject aid during the next decade or longer.

6.3.2 Rural Health and Population-Related Activities

The 3.5 percent of A.I.D.'s bilateral project assistance to the six countries allocated to health and population activities was slightly more than the 3.2 percent allocated to extension. Moreover, central and regional funding of health and population activities has been of considerable importance, so it is misleading to consider only A.I.D.'s bilateral assistance to this subsector.

Our study of health and population activities has been limited because we have been concerned mainly with A.I.D.'s activities in support of agricultural development. Nevertheless, our assessment supports the view of many that A.I.D.'s patient and persistent support for rural health and family planning

activities will come to be viewed as one of its more important contributions to development in Sub-Saharan Africa. Mortality and morbidity rates are still relatively high in Africa, and the region lags far behind Asia and Latin America in the spread of family planning. This is, of course, the reason why Sub-Saharan Africa is the one region in which rates of natural increase are still rising. One should not forget, however, that it took time before family planning programs in Asia and Latin America began to be effective. Recent developments suggest that efforts to implement effective family planning programs may soon begin to bear fruit in most if not all of the MADIA countries.

Among these six countries, Kenya and Nigeria rank highest in "contraceptive prevalence"--that is, in the estimated current use of some means of fertility control, including withdrawal, rhythm, and abstinence as well as contraceptives such as pills, intra-uterine devices, and condoms. The estimated contraceptive prevalence rates of 7 percent in Kenya and 6 percent in Nigeria are well above those in the other countries--an estimated 4 percent in Senegal, 2 percent in Cameroon, and only 1 percent in Malawi and Tanzania. But all these rates are trivial compared with those in some Asian and Latin American countries--69 percent in China, 70 percent in Taiwan, 66 percent in Costa Rica, 59 percent in Thailand, 48 percent in Indonesia, and 40 percent in Mexico (Lapham and Mauldin 1985).

Until very recently USAID Missions in Sub-Saharan Africa placed more emphasis on assistance to increase the effectiveness and coverage of rural health programs than on family planning. There have been cogent reasons, however, for that sequence. Whereas support for health programs has been virtually universal, political leaders and policymakers in tropical Africa have been slow to accept the idea that rapid population growth is a significant obstacle to improving per capita incomes and well-being. That reluctance is not surprising. Even after three decades of rapid population growth there are still many areas in Africa where sparseness of population is a barrier to development because of the high per capita cost of constructing roads and other rural infrastructure. But even in areas where the <u>size</u> of the population is too small, an annual growth <u>rate</u> of 3 or 4 percent is a serious obstacle to achieving economic and social progress.

There has long been "debate within the population and development communities about the relationship between 'development' and 'family planning' in bringing about fertility decline" (Sinding 1979, iii). Within A.I.D., however, the sensible view has prevailed that this is a spurious dichotomy: clearly, socio-economic conditions and organized family planning programs are both of great importance. For example, the <u>A.I.D. Population Sector Strategy</u> paper emphasizes that the Agency's population policy involves both

-- Programs in other development sectors which influence parents' desire to space or limit the number of children and enhance their ability to understand and use effectively modern methods of contraception; and

-- Programs to ensure the widespread availability of high-quality voluntary family planning services through which couples who so wish can regulate their fertility (1983, 1).

There also appears to have been a consensus among health and population specialists and senior administrators in A.I.D. that health programs that are effective in improving the survival prospects for infants and small children are not only important in their own right, but also represent a policy intervention that can have a powerful influence in increasing receptivity to family planning. Emphasizing the links between child health and survival prospects and the acceptance of family planning seems especially important in Africa because of the reluctance of local leaders to recognize the need to promote family planning while strongly and universally supporting health programs.

Moreover, local public health and medical specialists recognize that mortality and morbidity rates among infants and small children are excessively high and that the means now exist to bring down these rates rapidly and at relatively modest cost. Although preventive and health-promotive programs such as immunizations and oral rehydration are crucial, it is also increasingly recognized that limiting child-bearing to the "prime" reproductive years of 20-34 and keeping the number of births to a woman to three or four can also significantly reduce maternal as well as infant and child mortality. It is, therefore, advantageous that A.I.D.'s field specialists are "health and population officers" and come under the technical supervision of a "chief of health, population, and nutrition" in A.I.D.'s Africa Bureau in Washington.

Evidence from many countries indicates that investments in rural health and nutrition programs targeted at infants, small children, and women of child-bearing age, and linked with efforts to accelerate parents' perception of the improved survival prospects for their children, often merit a high priority. In some African countries the administrative capacity and other factors required to improve child survival and reduce fertility are still lacking.

Recognizing the importance of national differences, the Agency's population strategy calls for sequencing activities according to the "stage" of program development in a country. In the initial stages, for example, priority is to be given to

demographic data collection and analysis, to "observational travel by government officials to [developing countries] where successful family planning programs are operating," and to "policy discussions to identify national health priorities and determine ways to provide family planning information and services within existing health policies and programs" (A.I.D. 1983, 5).

In interviews with A.I.D. officials responsible for health and population activities, we were impressed by the workable consensus that has emerged and has promoted continuity and facilitated collaboration among donors and between donors and national governments. A.I.D.'s eclectic approach has included support for private-sector activities, including private voluntary organizations, as well as support for government programs.

Interventions that improve the health and survival prospects of infants and small children can be expected to yield important benefits in addition to helping to reduce fertility. For example, children whose physical and cognitive development has not been impaired by frequent infections and malnutrition can be expected to perform better in school and to become more productive workers.

Some of the efforts by A.I.D. and other donors to promote rural health programs have been overly ambitious and lacking in focus. A 1980 report on Tanzania's health sector stated that "The high cost of vehicles and gasoline and the difficulty in obtaining spare parts has resulted in the country's health services system operating at only a fraction of its capacity. Supplies sometimes spoil before they are ever distributed, and most rural health facilities suffer from a lack of both medicines and equipment" (quoted in Moris et al. 1985, 48).

In Cameroon, the Government rejected a rural health project proposed by A.I.D. in 1982 because the recurrent cost burden was considered too large. Recent efforts in Cameroon and elsewhere have begun to place more emphasis on having participants cover part of the cost of health activities. Projects are more sharply focused on key priorities for developing countries--birth spacing, oral rehydration therapy related to overall diarrheal disease control, an immunization program, and a nutrition package emphasizing breast feeding, improved weaning practices, and growth monitoring.

Nevertheless, developing the necessary competence and commitment and ensuring continuing government support for A.I.D.'s child survival strategy is extremely difficult. To achieve the maximum sustainable impact, A.I.D. is emphasizing the institutionalization of the services being introduced under its child survival strategy.

The A.I.D.-supported programs are also emphasizing the use of modern communication strategies and collaboration among donors. The need for collaboration is easy to voice but difficult to accomplish. We were impressed, however, by reports that the major donors agree on the objectives and essential elements of maternal and child health and family planning programs and are collaborating to design assistance activities that are mutually supporting. A notable example is the multidonor Integrated Rural Health and Family Planning project in Kenya, which includes performance target indicators that were selected through a dialogue among donors and the Kenyan Government (Berg et al. 1985, 131).

It is too early to judge whether these seemingly well-conceived strategies will begin to achieve the sort of results now being realized in many Asian and Latin American countries because of earlier efforts. But there are some grounds for optimism. A momentum toward establishing national population policies began in January 1984 at a conference at Kilimanjaro when 24 African governments agreed that "All couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so." That statement was reaffirmed by a larger number of countries in 1985 at the World Population Conference in Mexico City. In May 1986 parliamentarians from 36 African governments met in Zimbabwe and agreed to work within the political framework of their countries to increase support for population policies. A.I.D.-assisted family planning programs are now in operation in countries that represent nearly 70 percent of the population of Sub-Saharan Africa. Training programs are underway, and service delivery systems are gradually being established in more and more countries.

6.4 Agricultural and Rural Development and Basic Human Needs

A major difficulty in making a summary assessment of A.I.D.'s performance in promoting agricultural and rural development in Sub-Saharan Africa derives from the continuing uncertainty over objectives and priorities. In part this is an inevitable consequence of a concern with multiple objectives. As a minimum, African governments and A.I.D. have had to respond both to humanitarian concerns for prompt relief of famine conditions and to the longer run objective of development, including the important goal of overcoming the problems of low productivity and pervasive poverty that make these countries so vulnerable to drought-induced famine. Analysis has little to offer in striking the "right" balance between the humanitarian objective of famine relief and development objectives.

Section 1 referred to the continuing debate over "top-down" versus "bottom-up" strategies for development. This debate goes on outside as well as within A.I.D. In discussing alternative strategies in more detail, the 1986 report of the Congressional Research Service on U.S. aid to Africa characterizes A.I.D.'s recent approach as an "accelerated development strategy" and raises the issue of whether this "represents a clear break with the basic human needs approach prescribed in the foreign assistance legislation..." (Copson et al. 1986, 116).

For the reasons set forth in Section 4, we consider it misleading to polarize the development debate into a choice between growth and equity, or between development and basic human needs. Given the pervasiveness of rural poverty in Sub-Saharan Africa, the fundamental requirement for a feasible approach to satisfying basic human needs is successful implementation of broadly based small-farm development strategies. Efforts to "benefit the poor directly in the shortest amount of time possible," to recall a statement by a Mission director in Tanzania quoted earlier, tend to be counterproductive. Experience in Africa seems to have confirmed what has been learned in other developing regions: certain investments in physical, human, and social capital are indispensable. Policies that bypass those essential investments in building institutions and in developing human resources and seek instead to satisfy the basic needs of a country's rural poor directly and rapidly are doomed to failure.

In discussing the impact of A.I.D. support for agricultural education and training earlier in this section, we concluded that developing an indigenous capacity for training agricultural scientists is a necessary but not a sufficient requirement for satisfactory progress in agricultural development. Such trained manpower must also be mobilized to provide an effective national agricultural research system oriented toward the needs of small farmers operating under diverse conditions. The very limited success in generating and disseminating technical innovations well adapted to the needs and resources of a large and growing percentage of smallholders has been the most important single failure of agricultural development efforts in Sub-Saharan Africa.

Weaknesses in macroeconomic management have, however, had more directly adverse effects. Indeed, in Section 6.1 it was suggested that structural reforms to improve the policy environment are a virtual precondition for the success of programs and projects to increase rural productivity and incomes by investing in physical, human, and social capital. Needless to say, university graduates also have an important role to play in strengthening the capacity for policy research and policy analysis so that broad-based increases in farm productivity and incomes will be facilitated, not impeded, by institutional and economic factors. Constructive policy dialogue, improved macroeconomic management,

good decisions regarding development priorities, and coordination of the activities of A.I.D. and other donors must ultimately derive from competent and responsible action by a developing country's own policymakers. Moreover, as was emphasized in Section 4, such distortions as underpricing capital and foreign exchange and turning the terms of trade against agriculture have particularly adverse effects on the great majority of small farmers.

There are encouraging indications that African leaders are beginning to draw important lessons from experience. It seems probable, for example, that an increasing concern with rapid population growth among many policymakers is influenced strongly by a growing awareness of "the correlation between high population growth and the problem of unemployment..." (Government of Kenya 1983, 35). Policymakers are also becoming aware of the serious problems that result from imbalance between public sector responsibilities and resources, more realistic about the respective strengths and weaknesses of public- and private-sector activities, and more willing to define the roles of the two sectors pragmatically so as to maximize the relative advantage of each. For example, both host country officials and A.I.D. staff have come to realize that integrated rural development projects such as the $23.7 million Casamance Regional Development project in Senegal are too complex, too expensive, and too limited in their positive impact to merit priority in national programs or donor efforts (see Jaeger 1987c, 54-64). More generally, there are signs of greater recognition of the shortcomings of relying on parastatals for carrying out essentially commercial activities such as the marketing of crops or the distribution of inputs.

At the same time, governments are coming to recognize the critical importance of their role in providing certain essential public goods or quasi-public goods such as those related to certain types of health interventions. Thus an increasing number of governments are now prepared to support complementary and closely linked activities to improve child survival prospects and to promote the spread of family planning. Their combined effect in improving per capita well-being acts by slowing the increase in the population "denominator" as well as by increasing the "numerator" by enhancing the health of small children and the well-being of rural families that no longer experience excessively high infant and child mortality.

A time lag is unavoidable between the lowering of birth rates and the impact of that change on the rate of growth of a country's population of working age. One crucial advantage of a well-designed, broad-based agricultural strategy is that it encourages the adoption of labor-using, capital-saving technologies that make it possible to expand opportunities for productive employment in agriculture. Moreover, as noted in Section 4, the gradual but widespread increase in per capita income

associated with broadly based agricultural development generates a pattern of demand for nonfarm goods and services that induces decentralized growth of small- and medium-scale firms. Such firms tend to use labor-intensive technologies and make relatively modest demands on the critically scarce resources of capital, foreign exchange, and highly educated manpower.

A pattern of development that generates rapid growth in the demand for labor, within and outside agriculture, makes it possible to expand employment opportunities at a rate that exceeds the rate of growth of a country's labor force. Hence, poverty and inequality in income distribution can be reduced because of an increase in returns to labor resulting from a tightening of the labor supply/demand situation. Failure to seize that opportunity will mean a decline in returns to labor since the labor force will then increase more rapidly than employment opportunities. In addition, per capita incomes in agriculture will decline because diminishing returns to land and labor are not offset by widespread technological progress.

Except for famine-related emergency situations, attempts to satisfy the basic needs of poor rural households by "delivering" a range of goods and services is neither feasible nor desirable. An effective strategy for overcoming widespread poverty and meeting the basic needs of rural and urban households in Sub-Saharan Africa is one that fosters increases in productivity and incomes, including the subsistence income of farm families, while engaging in selective interventions related to education and health.

A.I.D.'s recent emphasis on strengthening agricultural research programs is in line with such a strategy. It is to be commended as an important step in overcoming a deficiency that has limited the impact of past agricultural activities. Moreover, A.I.D. has made good use of the comparative advantage of the United States in contributing to the establishment and strengthening of the educational institutions that are a precondition for creating effective national research systems.

The patient and sustained support that A.I.D. has given to selective interventions to improve child health and survival prospects and to promote family planning also deserves high marks. Such support has made it possible for A.I.D. to stimulate a growing professional competence among its own health and population officers and its contractors; as a result the Agency has acquired a comparative advantage in providing financial and technical assistance for these activities. The fact that expanded support for interrelated activities to promote child survival and family planning has been viewed as jeopardizing the availability of funds for (even higher priority) projects to support the strengthening of agricultural research systems under-

scores the current lack of external and domestic resources for development in Sub-Saharan Africa.

7. CONCLUSIONS AND RECOMMENDATIONS

The impact of A.I.D. assistance programs examined in this study has been severely limited by distinctive conditions in Africa, by the Agency's lack of a domestic constituency, and by certain organizational and procedural constraints.

The countries of Sub-Saharan Africa have extensive areas characterized by harsh physical conditions. Many are sparsely populated, and all have high or very high rates of population growth. Their agroeconomic systems are locally variable, complex, grounded in social institutions unfamiliar to outsiders, and often oriented more to averting risk than to optimizing returns. Moreover, the overwhelming importance of rainfed agriculture and the high cost of investments to expand irrigated areas present special difficulties for agricultural research programs in generating appropriate innovations. In many areas rainfall is inadequate and unreliable, whereas in other areas it is so heavy that it leads to rapid leaching of soil nutrients. Progressive degradation of soils caused by the shortening of fallow periods and the destruction of trees and shrubs is generally associated with a transition from abundance to scarcity of agricultural land--a common phenomenon that adds to the challenge confronting agricultural research programs.

Conditions in African countries at the time of independence posed many obstacles for early assistance efforts. Transport systems were poorly developed, education and social services were rudimentary, and trained manpower was scarce. Region-specific research, data collection, analysis, and planning capacity were virtually nonexistent. Leaders were confronted with arbitrary boundaries and diverse ethnic constituencies. Few Africans had experience serving in central government institutions. Attitudes toward professionalism and accountability were weakly institutionalized. No precedents existed for carrying on legitimate political activity.

Encouraged by the promise of rapid development, the optimism of foreign development experts, and the unbounded expectations of their constituents, all the new governments in greater or lesser degree succumbed to the attractions of centralized economic planning and control. They accepted development assistance uncritically; rapidly expanded governmental organizations, parastatals, project authorities, and government payrolls; and established a pattern of ethnic patronage in order to maintain political

balance.[54] There are many indications, however, that African policymakers are learning from past mistakes and are moving toward more realistic development policies.

Another constraint on the effectiveness of A.I.D. programs in all African nations has been the fact that Africa has had lower priority in U.S. foreign policy than any other region. This has been reflected in low absolute levels of assistance, a lack of continuity in country focus, small program size, and shifts in emphasis between bilateral and regional assistance.

The absence of a clear political constituency for long-term foreign assistance has left A.I.D. vulnerable to faddish policy shifts, to pressures from an increasing variety of special interest groups advocating their objectives or seeking contracts, to interventions by individual members of Congress, and to constant and not necessarily well-informed criticism. Although these problems have also affected A.I.D. programs in other regions, they appear to have been less constraining than in Africa because those programs began earlier and because non-African host governments, with longer traditions of education and greater administrative capacity, were better able to draw on A.I.D. assistance selectively and to incorporate the assistance into their own plans. Furthermore, coordinating U.S. aid with assistance from other donors was less difficult outside Africa because the United States, either alone or with the World Bank, played a dominant role.

A.I.D.'s effectiveness in Africa has also been limited by a lack of consensus on the critical elements of strategies for agricultural development, by persistent overoptimism concerning the appropriateness of the technologies and institutional systems being transferred, and by factors that have hampered learning from experience.

Our conclusions concerning the strengths and weaknesses of A.I.D.'s activities in support of agricultural and rural development in Sub-Saharan Africa are divided into three sections.

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[54]Political instability, which is often cited as an impediment to economic development in Africa, has not characterized the countries in this study, except for Nigeria. It is worth recalling that the growth of government payrolls posed an especially serious problem because, in the name of nondiscrimination, the principle was adopted at the end of the colonial period that African civil servants should receive the same salaries as their European predecessors. The real value of those salaries has now been reduced substantially by inflation unmatched by salary increases, but that legacy contributed significantly to the exceptionally large gap between incomes in the "modern" and in the rural sectors.

Section 7.1 examines the effectiveness of A.I.D. programs in selected subsectors; Section 7.2 reviews the potential advantages of A.I.D.'s emphasis on country Missions and the constraints that limit the realization of that potential; and Section 7.3 considers the effectiveness of A.I.D.'s programming system. Finally, Section 7.4 contains our recommendations.

7.1 Effectiveness of A.I.D. Programs

In terms of the conceptual framework adopted in this study, A.I.D. has contributed measurably and significantly to human capital accumulation (the knowledge, skills, and competence of individuals) in all six countries under review. It has contributed significantly to physical capital accumulation (transport and construction) in all countries except Senegal, although there have been severe problems with maintenance and recurrent costs in Kenya and especially in Tanzania. Its contribution to social capital accumulation (economically useful knowledge and institution building) has been of mixed value--often only partially effective and occasionally counterproductive. This weakness in institutional development has clearly been the major source of imbalance in A.I.D.'s efforts and has limited the development impact of its contribution to the formation of physical and human capital formation.[55]

To get beyond these broad generalizations, it is necessary to examine A.I.D.'s effectiveness in specific subsectors. In this final section of the report we are concerned more with understanding what has worked and why it has worked than with describing the magnitude of the effort, which was covered in Sections 3 and 6.

Because of the limited scope of the A.I.D. programs, problems of measurement and attribution, and the political and economic factors that have swamped all development efforts in the countries under review, it is impossible to document the ultimate impact of A.I.D. assistance on agricultural and rural development. We have therefore had to rely on observable intermediate outputs that we know from experience in other parts of the world are necessary, though not sufficient, conditions for improving people's access to government services, attaining sustained increases in production, achieving higher incomes, and enhancing the well-being of the rural population.

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[55]This imbalance is characteristic of all donor efforts and hence of development in most sub-Saharan nations. Nevertheless, preliminary indications from the larger MADIA study suggest that A.I.D. may have performed relatively well in the difficult area of building institutions to support agricultural development.

In Section 4, agricultural education, research and extension, rural infrastructure, and rural health and population activities were identified as critical elements in well-conceived strategies for agricultural and rural development. These are public or quasi-public goods and services that can have a catalytic effect in fostering increases in rural output and well-being. As such, they merit priority and justify direct government action.

The findings from our country studies are consistent with the historical evidence concerning the strategic importance of these elements in promoting agricultural development. Agricultural education, research, and extension are emphasized in this subsection. Briefer attention is given to input supply, livestock projects, and integrated rural development projects. Rural infrastructure projects and rural health and population activities are discussed in the context of A.I.D.'s country Missions.

This review of the findings of the six country studies is guided by the four questions that were posed in Section 1. In seeking to explain the pattern of success or failure in each of the subsectors discussed, we ask: (1) Was the activity an appropriate part of a balanced strategy in relation to the host country's needs, resources, and institutional capacity? (2) Was the country situation favorable in terms of the policy environment, the timing and sequencing of activities, and the commitment of the country's political leaders to the objectives of the project or program? (3) To what extent were U.S. experience, technical expertise, and institutional models appropriate to the host country's needs and context? (4) Did A.I.D. have or could it obtain the institutional capacity to plan and implement the activities necessary for the success of this type of program under host country conditions?

7.1.1 Agricultural Education and Training

A.I.D.'s comparative success in agricultural education and training is related to certain features of its institutional capacity and to the fairly general recognition that education, training, and the resulting human capital formation are critical ingredients of successful agricultural strategies. It is clear from the review in Section 6 of the six country studies conducted under the MADIA study that the greatest success was achieved in Nigeria, where A.I.D.'s institution-building efforts were initiated shortly after independence. Among the three Nigerian universities that received A.I.D. support, the most impressive results appear to have been realized at Ahmadu Bello University in northern Nigeria, where support from A.I.D. and the land-grant university implementing the contract was sustained for the longest

period of time. Nevertheless, there seems to be a consensus that A.I.D.'s support for Ahmadu Bello was ended prematurely and too abruptly because of the termination of A.I.D. assistance during Nigeria's oil boom.

In contrast, A.I.D.'s support for agricultural colleges in Kenya, Malawi, and Tanzania has been sporadic. (The major effort to assist in the establishment of an agricultural university in Cameroon did not get under way until 1980.) In Kenya, Malawi, and, to a much greater extent, Tanzania, the policy shift in Washington resulting from the New Directions legislation seems to have adversely affected the level and duration of support for higher education. In 1979, for example, the USAID Mission director in Tanzania responded negatively to a Government request for assistance with advanced degree training in agriculture, noting that A.I.D./Washington preferred projects that "benefit the poor directly in the shortest amount of time possible" (quoted in Dijkerman 1987b, 58). It is noteworthy, however, that the negative consequences of A.I.D.'s intermittent support for higher education in these three countries were mitigated considerably because of the support made available by other donors.

The distinctively American land-grant university model and the content of American agricultural training have naturally had to be modified to fit the African context. Linkages between education, research, and extension have proved difficult to establish because, under the influence of the British and French systems, these functions come under different ministries. The experience at Ahmadu Bello University is especially interesting because of the way in which the ideas of the current Nigerian staff of the university evolved under the influence of the American professors from Kansas State University and the British scientists working at the long-established Institute of Agricultural Research adjacent to the university. The incorporation of the Institute into Ahmadu Bello University, the involvement of Institute researchers in teaching and of members of the Faculty of Agriculture in research, and the creation of the Agricultural Extension Research Liaison Service appear to have been appropriate modifications of the land-grant model to fit Nigeria's needs and resources. Influential and well-informed Nigerians view the institutions that have evolved at Ahmadu Bello University as offering a useful pattern for wider application in Nigeria.

In addition to its support for building local institutions for higher education, A.I.D. has funded both short- and long-term participant training in the United States under a number of programs described in Section 6. In recent years there has been a tendency toward limiting training in the United States to graduate students. The International Institute of Tropical Agriculture (IITA) and other international agricultural research centers, which receive some 25 to 30 percent of their funding

from A.I.D., also provide training for a growing number of students from African countries. As a result of collaboration between IITA and the University of Ibadan, this includes a significant amount of M.S. and Ph.D. training.

Too often the training received in the United States is not sufficiently relevant to conditions in Africa, although some of the land-grant institutions have devised mechanisms for enabling students to carry out their doctoral research in Africa. For example, Kansas State University's policy was to have Nigerians who were being trained to staff the Faculty of Veterinary Medicine at Ahmadu Bello University do their doctoral thesis research in Nigeria to ensure that their work would be relevant to their future teaching and research and would be carried out with the laboratory and other resources available to researchers in Nigeria. It was clear from our interviews of Nigerian staff at Ahmadu Bello that the training at land-grant universities and summer work experience on American farms were also valuable in shaping attitudes that can be expected to yield long-term benefits for agricultural development. In particular, we were struck by the extent to which the respect that trainees acquired for the work habits and decision-making capabilities of American farmers carried over into an increased appreciation of the knowledge and skills of Nigerian farmers. This is in marked contrast to the paternalistic attitudes that have been a common legacy from the colonial era.

Agricultural education stands as A.I.D.'s most impressive institution-building effort in Africa, even though the accomplishments have not been as substantial as in Asia and Latin America, where the effort started earlier and received more sustained support. Aside from a certain tendency during the 1970s to regard higher education as "elitist," there has been strong support in the United States for agricultural education and training. Indeed, the land-grant institutions and their supporters have been a significant constituency for A.I.D. In addition, these institutions have often performed well as contractors in helping to establish agricultural colleges and faculties of agriculture and veterinary medicine in Africa. And they have had the capacity to provide high-quality undergraduate and graduate education for African students in the United States. Participant training presents relatively few logistical, managerial, or contracting difficulties for A.I.D. and does not require a large Mission staff. Moreover, it is politically and personally popular with African trainees as well as with American educational institutions.

It is important to emphasize, however, that the investments in agriculture-related higher education have not yet had a satisfactory impact on agricultural development. This is primarily because the complementary investments in developing effective national agricultural research systems have not been made. As

noted in Section 6, the teaching role of universities is, in a sense, only an "intermediate product." The high returns that can be realized from complementary investments in education and research depend on the generation and diffusion of technological innovations that are feasible and profitable for large numbers of farmers; in Sub-Saharan Africa that means farmers operating under extremely diverse agroclimatic conditions.

Because developmental investments need to be not only well balanced but also properly sequenced, there is justification for an initial emphasis on building institutions of higher education and on increasing human capital. The potential returns from those investments, however, cannot be realized until the institutions for higher education add to their teaching role the capacity to make significant contributions to the development and testing of the technical innovations needed to increase agricultural productivity and output. It is essentially for that reason that the potential of well-conceived agricultural strategies to achieve substantial increases in total factor productivity has yet to be realized in Sub-Saharan Africa.

7.1.2 Agricultural Research and Extension

Both A.I.D. and African governments have failed to take the necessary steps to develop effective national agricultural research systems. The fact that only 2.3 percent of A.I.D.'s project and program assistance to the six countries was allocated to research, compared with the 13 percent devoted to education and training, may actually understate the relative neglect of research. Many of the research projects that were funded were short-term, fragmented efforts that could not be expected to make a significant contribution to the necessarily long-term task of building a national capability for research.

Several factors appear to be most important in accounting for A.I.D.'s relative neglect of research. First, a tendency toward "technological optimism" has accounted for an "extension bias" in Africa and other regions. Second, the New Directions emphasis on trying to find ways of directly satisfying the basic needs of the poor diverted attention from long-term institution-building efforts, thus reinforcing the tendency to assume that technical solutions were available and could be readily transferred. Third, the contribution of research was regarded as too slow. And fourth, institutional constraints on A.I.D. have made it difficult for the Agency to adopt the long time frame required to support the development of effective national agricultural research systems. Opposition by American farmers' interest groups may also have had an inhibiting effect, especially for crops such as cotton and peanuts that are viewed as competitive with U.S. production.

Among African political leaders and policymakers the tendency was almost universal to give priority to immediate problems and the search for quick solutions. Moreover, misplaced enthusiasm for area development and integrated rural development schemes encouraged governments to invest in piecemeal research projects that have not been successful and that have probably had negative effects on building a national research capability. European farmers in Zimbabwe and Kenya constituted potent lobbies demanding strong research programs, but by and large African farmers have not yet been motivated to exert strong pressure for allocating scarce resources to building a research capability.

The reasons for lack of success in agricultural research programs are numerous. The difficult and diverse physical environment is one obvious factor. A number of assumptions implicit in American and Asian models of food crop research were misleading. For example, the relative abundance of land in Sub-Saharan Africa led to a common view that a direct shift from hand hoes to tractors would make a major contribution to increasing agricultural productivity and output. This assumption ignored the cash income/purchasing power constraint and other factors, discussed in Section 4, that usually make it uneconomical to shift directly to tractor-based technologies. Moreover, following the success of the "green revolution" in Asia, there was a tendency to focus too exclusively on improved seed-fertilizer combinations and other yield-increasing innovations. This inappropriate focus on yield led to fruitless attempts to promote labor-intensive techniques, overlooking the fact that such innovations are not attractive to farmers when land still has little scarcity value. More generally, not much was understood about the complex farming systems evolved by African farmers. As a result, many of the innovations recommended by research scientists and extension staff were neither feasible nor profitable given the labor and cash income constraints that farmers faced.

A lack of appreciation for the potential contributions of research was not surprising since research on food crops in Africa has had very few successes. The scientific knowledge that has been accumulated about cassava, millet, sorghum, yams, and some of the other important food crops in Africa is extremely limited compared with knowledge about wheat and rice, the crops that spearheaded Asia's green revolution.[56] It is not surprising that success stories for food crops in Africa apply only to

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[56]Except in a few high-altitude areas, growing conditions are not favorable for wheat production in tropical Africa. The most promising possibilities for rice require irrigation; but it has been stressed already that expanding the irrigated area in Africa tends to be a high-cost option for increasing food production.

maize, for that is the only crop for which a large body of accumulated knowledge is available.

Despite the formidable difficulties, the current situation is rather encouraging. In recent years the Agency has started major agricultural research programs in Cameroon, Malawi, and Kenya. The programs in Cameroon and Malawi are being undertaken in cooperation with other donors; in both cases considerable effort has been made to incorporate lessons from prior experience.

The Africa Bureau's new agricultural research strategy paper (A.I.D. 1985) is in many ways exemplary. The paper incorporates lessons from earlier failures, is well attuned to the needs and capacities of various nations, and provides a coherent "blueprint" for action. Yet there is cause for concern if the Agency is committed to a fixed blueprint because there is still much to be learned about how best to support efforts to establish effective national research programs. It is easy to overlook how much trial-and-error learning occurred in India and other Asian countries; for example, flexible and sustained technical assistance provided by the Rockefeller and Ford Foundations contributed a great deal to the efforts of the Government of India and of A.I.D. to increase the effectiveness of that country's research system (see Lele and Goldsmith 1986).

Implementing the new research strategy will require the Agency to overcome several endemic institutional weaknesses. The plan for regional concentration of research in larger, stable countries runs counter to the desires of most host government officials and to pressures from A.I.D.'s country Missions. And the plan to contract research with a restricted group of the most experienced land-grant schools will no doubt encounter opposition. Yet the task of providing assistance to strengthen agricultural research programs in Africa is so difficult and important that A.I.D. should make a determined effort to resist political pressures to bring in institutions that lack the necessary professional qualifications, experience, and commitment. The Agency should also be prepared to test the effectiveness of alternative "models" for providing technical assistance to strengthen national research systems, including the "IITA model" being implemented in Cameroon under a contract between the USAID Mission, IITA, and the Government of Cameroon (see Section 6).

7.1.3 Input Supply

This subsector ranks next to agricultural education and training in A.I.D. expenditures, accounting for almost 7 percent of project and program outlays in the six countries. The largest expenditures in this category have been for commodity import

programs for fertilizer, followed by seed multiplication projects in Tanzania and Cameroon.

Seed multiplication and distribution is a highly specialized activity, and our conclusions are tentative because of our lack of expertise in this area. Our studies suggest, however, that seed specialists tend to assume that a seed multiplication program is an essential component of an agricultural development strategy; consequently, they pay little attention to the economic returns from investing in that activity rather than in other activities that might merit a higher priority.

We have concluded that A.I.D.'s relatively large outlays for seed multiplication in Tanzania and Cameroon were out of proportion to other, more fundamental elements of an agricultural development strategy, particularly agricultural research. This is another example of the "technological optimism" mentioned earlier. A high social rate of return on seed multiplication is dependent on the availability of varieties that have a substantial yield advantage over local varieties; yet we have found little evidence that such varieties are available. Cotton and maize may be exceptions, and a new sorghum variety in northern Cameroon seems promising. But we are inclined to believe that in both countries investments in seed multiplication were premature. These projects seem to confirm the common view that government agencies or parastatals do not have a comparative advantage in commercial seed production and distribution and that they tend to be excessively costly because of management problems, which also encourage the adoption of inappropriately capital-intensive technologies.

7.1.4 Livestock Projects

Given the economic and nutritional significance of livestock in Africa and the existence of extensive rangelands that are unsuitable for other productive uses, it is essential to understand why livestock projects have performed so poorly. It is estimated that livestock accounts for one-third of the agricultural GDP in Africa, providing food, transport, and animal traction. More than half of all livestock are in the drier regions in agropastoral and pastoral systems. A.I.D.'s efforts have focused primarily on purely pastoral systems, which account for approximately one-fifth of all livestock.

A.I.D. now recognizes that there are many reasons for the poor performance of pastoral livestock projects. One source of difficulty has been the differing objectives of governments, donors, and pastoral groups. Governments generally view nomadic and seminomadic pastoralists as a problem and hope they will settle down, whereas donors regard pastoralists as inefficient

cattlemen. The pastoral groups themselves are concerned with maintaining access to pasture, water, and markets and with obtaining additional water and veterinary services. These differing objectives have resulted in strained relations between host country officials, A.I.D., and its contractors; in the diversion of project equipment to other uses; and in the unwillingness of governments to finance recurrent costs.

A second source of difficulty has been the inappropriateness of American range management and ranching models, concepts, and techniques to the social and ecological context of African pastoral systems. An expert seminar sponsored by A.I.D. and Winrock International concluded that A.I.D. initiatives have been thwarted by insufficient understanding by planners and confusion by technicians over basic ecological concepts such as carrying capacity; by an emphasis on livestock production that threatens the range resource base; by a failure to perceive drought as a regular phenomenon; by insufficient research on the local physical and social conditions; and by the transfer of technology inappropriate to the ecological, economic, or social organization of the local population (Sullivan 1986, 1).

It is now recognized that livestock activities must be considered in their wider social and political setting. Rangeland users include not only nomadic herders but also people practicing a mix of agriculture and pastoralism, sedentary farmers, and even host country businessmen and government officials with vested interests in the range areas, who hire others to care for their animals. Pastoralists are usually involved, too, in a wider regional economy, often supplementing the products of herding through exchange, agriculture, or wage labor. The lack of success of many livestock projects can thus be attributed in part to the failure to address the wider policy environment in which they are implemented (Thomas et al. 1985). A consensus is emerging that future efforts to assist the pastoral livestock sector should give greater attention to understanding local systems, to developing and testing appropriate interventions, and to policies concerning land and pasture tenure, water rights, market regulations and pricing, intercountry relationships, and private-sector investment.

7.1.5 Integrated Rural Development and Area Development Projects

A.I.D.-funded projects of this kind have been relatively unimportant in the six study countries, except in Senegal. They have, however, been of major importance in the assistance programs of the World Bank and several other donors. A $24 million Casamance Regional Development project in Senegal and a $15 million Arusha Regional Planning and Village Development project in Tanzania were reviewed in our country studies. The Tanzania

project had some special design features that gave rise to considerable friction between the USAID Mission and the contractor. Moreover, the general economic decline in Tanzania makes it especially difficult to assess the project's potential contribution to regional development.

In the case of the Casamance project in Senegal there is now general agreement, resulting from a learning process within the Mission as well as from evaluations and audits, that the project was based on overly optimistic assumptions, that it ignored existing services, and that it failed to take account of structural weaknesses and inappropriate functions of the parastatal organizations it sought to strengthen. Much can be said for an integrated perspective on agricultural and rural development, but the Casamance project seems to provide evidence that the effort to achieve the integrated administration of a variety of rural development activities within a single project will probably exceed the capacity of the host country.

Unlike some other donors, A.I.D. seems to have learned in a relatively short time that it does not have the institutional capacity to implement such projects effectively. In our judgment, A.I.D. is also to be commended for not setting up "project management units" with a sizable core staff of expatriates on the assumption that the host country's lack of administrative capacity for such complex projects could thereby be overcome.

7.2 Effectiveness of A.I.D.'s Country Missions

A.I.D. is unique among major donors in the extent to which it has assigned its staff to overseas Missions and given them broad programming responsibilities. This arrangement is generally believed to give the Agency a comparative advantage in working collaboratively with host country counterparts, in developing strategies suited to local needs, and in implementing projects. Because there is currently pressure to reduce the size of Missions for fiscal and security reasons, we have tried to assess the strengths and weaknesses of the system.

Documenting the strengths of A.I.D.'s Mission presence is difficult because many of the Missions' achievements are the result of informal contacts and friendship between Mission staff and host government officials as well as the Missions' patient persuasion efforts. These activities are not necessarily supported by project funding or featured in official reporting documents. Yet it is clear that these informal processes, reinforced by seminars, conferences, and visits to the United States and to other developing nations, have significantly altered the attitudes of host government officials in each of the six coun-

tries toward higher agricultural education, research, health, and population issues.

A.I.D.'s Mission system also allows its field staff considerable latitude in marshaling or redeploying resources in response to changing circumstances, unforeseen difficulties, or unexpected opportunities. The contribution of first-hand knowledge and fiscal flexibility to A.I.D.'s relief and rehabilitation efforts, recently demonstrated in Kenya and other countries, is manifest but it is beyond the scope of this review. The flexible use by Missions of funds generated by PL 480 and commodity import programs to support critical local or recurrent costs associated with development projects, to fund local research, or to sponsor informational conferences for host country policymakers is less well known. Indeed it is not in the Mission's interest to reveal the degree of its flexibility to a distant and often hostile Congress or to a worried Washington bureaucracy.

Our review also leads us to conclude that the effectiveness of A.I.D.'s African Missions in translating general policies and available resources into development assistance programs addressed to recipients' needs and capacities has been constrained by many pressures. Foremost among these is the pressure to obligate appropriated funds in a timely manner. Other significant constraints arise from pressures to select and package activities in accordance with the current policy climate in Washington; to comply with ever-increasing, complex, and time-consuming documentation, contracting, and procurement requirements; to fend off or accommodate numerous U.S. special interest groups; and to accommodate the State Department's political and strategic concerns. Mission management is also constrained by the size and skills of its work force. Given the time-consuming complexity and time-driven nature of A.I.D.'s programming procedures, it is simply not practical to engage in extensive analysis or to explore alternative projects in more than cursory fashion. The Missions are under more pressure to put together a plausible program and to obligate available funds than to consider the opportunity costs of potential options.

Since the early 1970s A.I.D.'s heavy emphasis on "projectizing" its assistance and on contracting out all but bureaucratic tasks has severely limited the staff time and skills that could be devoted to analytical tasks. In Africa, the ability of a Mission to develop and maintain effective program strategies has also been constrained by a loss of Mission "memory," which has been exacerbated by high staff turnover. In addition, A.I.D. employees in Africa form part of an expatriate community with limited local contacts outside of bureaucratic and technocratic urban middle class groups, which are often unaware of the perspectives of the farm population.

These competing and at times conflicting pressures have shaped Mission strategies in many ways. Although there has been a high degree of stability of A.I.D. goals--with a continuing emphasis on agriculture, food crops, and smallholders throughout the period under review--there has been instability of programs to achieve these goals and marked discontinuity in project-level support for specific institutions and activities. Whether A.I.D. programs and projects are continued or terminated seems to be related more to pressures from Washington than to project performance or changes in host country conditions. This strikes us as a central difficulty in A.I.D.'s country strategies. The Washington orientation of a country Mission, moreover, frequently leads it to give inadequate attention to the host country's institutional capacities and political priorities.

These pressures from Washington have also discouraged Missions from coordinating their activities with other donors. Yet, as we have emphasized repeatedly, because of the multiplicity of donors operating in African countries, the need for coordination is especially acute--and difficult. In principle, A.I.D.'s country Missions have a comparative advantage over other donors in working collaboratively with host country counterparts and in assisting local governments in developing policies and programs well suited to local needs. But the pressures noted above, as well as some of the factors examined in the next section, impair the ability of Missions to work constructively with host governments.

Because of the lack of information about the agricultural economies of Sub-Saharan Africa, the need to "plan without facts" bedevils A.I.D. as well as local governments and other donors. Probably the most glaring deficiency in most countries is the lack of reasonably accurate statistics on crop areas, yields, and production. A donor agency, although probably not A.I.D., needs to develop a comparative advantage in providing technical assistance on the collection, analysis, and dissemination of such data, including funding of computer hardware and software.

Section 1 quoted a senior government official in a planning ministry who stressed "the incredibly high opportunity cost of the time of senior policymakers that is devoted to so many meetings with donor representatives." That thoughtful and experienced official also noted that, because of the constraints and deadlines that the USAID Mission faces, it often fails to engage in <u>meaningful dialogue</u> with government officials at the operational level, attempting instead to impose its will through meetings with top-level officials. This is understandable since the dynamics of A.I.D.'s programming cycle create strong pressures for a Mission to respond quickly to unanticipated opportunities for funding that arise in Washington. Major changes in the "policy climate" in A.I.D./Washington also contribute to this

problem, as Missions hurriedly develop new initiatives to show compliance and win approval from A.I.D. management.

We stress these problems because we believe that A.I.D.'s country Missions have the potential to play a very important and constructive role. The fact that the problems are surmountable seems to be demonstrated by the way in which health and population officers in the country Missions have been able to work patiently and persistently with host governments and other donors. These specialists have helped to bring about changes in policymakers' attitudes to family planning and have collaborated in developing health and population strategies that could lead at long last to a drop in fertility rates. Moreover, in Malawi and especially in Kenya the USAID Missions seem to have made significant progress in working with the local government and with the World Bank and other donors to develop plans for strengthening agricultural research, including mechanisms for promoting greater involvement on the part of university scientists.

A.I.D.'s country Missions are well placed to develop a comparative advantage in working with local governments and other donors to ensure that donors are responding to the needs that merit highest priority. The Missions should also seize the opportunity to increase the effectiveness of their policy dialogue aimed at encouraging and supporting structural reforms. In all of the six study countries, structural reforms to improve the policy environment are virtually a precondition for achieving a positive impact from projects and programs to increase farm productivity and output.

7.3 Effectiveness of A.I.D.'s Programming System

A.I.D.'s experience in Sub-Saharan Africa indicates that effective assistance for agricultural and rural development must be based on technical and analytical skills, familiarity with what has worked in the host country, a comparative perspective, and a patient, persistent, flexible, and error-embracing approach. The last is essential because it requires a good deal of experimenting, groping, and mutual learning to adapt Western technology and organizational forms to Africa's unfamiliar, distinctive, and diverse conditions.

On the positive side, in the past quarter century A.I.D. has contributed greatly to the available pool of people with the appropriate skills by broadening the disciplinary and technical breadth of its work force and by providing long-term support for relevant sectoral and topical investigation and training at universities and other research centers in the United States and Africa. A.I.D. has also developed an evaluation system that has not only produced valuable long-term assessments of the Agency's

experience and impact but has also provided managers with useful information during project implementation. In addition, the Agency has made progress in developing approaches better suited to African social, economic, and agronomic conditions.

On the negative side, changes within A.I.D. have made it more difficult for the Agency to adopt a flexible, error-embracing approach and to capitalize fully on the favorable developments in implementing its programs. Paradoxically, A.I.D.'s organizational structure, procedures, personnel system, and incentives were in some respects better suited to its task in the 1960s than they are at present. The Agency was more decentralized, with greater delegation of authority to the Missions. Contracting and procurement procedures were less restrictive. Programming of technical assistance was less time-consuming and more flexible since it required little documentation and was reviewed in Washington by a small, technically oriented staff.

Institutional changes in A.I.D. since the 1960s have tended to make it harder for its employees to experiment, take risks, and respond flexibly to changing circumstances and new opportunities. Many of these changes, although well intended, have been shaped by the Agency's defensive response to constant adverse criticism and exceedingly detailed surveillance by the Congress. Finding ways to mitigate the adverse effects of those changes will not be easy because these changes reflect the unpopularity of foreign aid and the multiple and at times contradictory objectives by which A.I.D.'s performance has been judged. A.I.D. has also been a victim of overoptimistic expectations about what the Agency could accomplish.

A.I.D.'s organization has become far more complex as new structures have been created to show compliance with new objectives, regulations, and directives from the Congress and the administration. Similarly, its programming, project design, contracting, and procurement requirements have become vastly more detailed, standardized, and demanding of staff time. More time has to be spent also on preparing forward-looking advocacy documents to obtain funding. Consequently, less time can be devoted to project implementation and evaluation. Resource allocation decisions are still shaped by the entrepreneurial efforts of A.I.D.'s employees, but increasingly these have been focused on coping with A.I.D.'s unworkable bureaucratic requirements rather than on supporting the host country's development efforts.

The need to specify in advance just what will be done with appropriated funds, combined with the pressure to obligate funds, creates incentives for A.I.D.'s managers to exaggerate the magnitude and certainty of proposed program benefits and to use information selectively to "transform" host country problems, capabilities, and commitments to conform to the current Washington policy climate and review criteria. A.I.D.'s defensive

posture also creates incentives to ignore information in project evaluations and to be wary of bringing independent country or technical experts into decision-making processes unless they are known to "understand" A.I.D.'s needs.

The Agency's personnel system has become more bureaucratic, although it remains less hierarchical than that of many other large organizations. Promotions are linked largely to general bureaucratic skills and performance rather than to technical skills or ability to work effectively with host country counterparts. The only clear career ladder is in management. Together, A.I.D.'s internal work incentives and career patterns tend to frustrate the Agency's most able and committed employees, making it difficult for them to maintain their professional skills.

We stress these institutional problems because we find that they help to account for many of A.I.D.'s well-recognized problems in designing and implementing projects, achieving program continuity, and maintaining a balanced focus on the host country's problems and prospects rather than on those of A.I.D. These institutional problems point to the need for A.I.D. to shift away from an emphasis on "packaging" its activities and making excessive promises to Congress and toward an emphasis on achieving sustained development in host countries. Were such a shift to occur, evaluation of projects and programs would come to be perceived as an essential part of a learning process to determine which activities have achieved successful results rather than as an unwelcome exposure of extravagant claims.

7.4 Recommendations

Our recommendations address fundamental and long-term issues facing A.I.D. They seek to answer three related questions: What activities should A.I.D. emphasize in light of the general priorities for agricultural and rural development and of the Agency's areas of comparative advantage? How can A.I.D. focus attention on the problems of host countries rather than on prevailing attitudes and concerns in Washington? What kinds of changes in A.I.D.'s programming procedures and in its mandate would enable the Agency to make its future efforts more effective?

Our concern is to go beyond the usual litany of exhortations for A.I.D. to improve project design, focus on implementation instead of obligations, and give more weight to conducting and learning from evaluations. The validity of those propositions is widely recognized by A.I.D.'s critics as well as its employees and managers, who have in fact taken a number of steps to implement them. That the problems which the recommendations address have nevertheless persisted and even deepened over the years suggests that they are symptomatic of underlying and enduring

structural contradictions in A.I.D.'s objectives, procedures, and incentives. A narrow preoccupation with detailed mechanisms for addressing "symptoms" distracts attention from impact to implementation, from what needs to be done to what A.I.D. can do easily, and from the host country's problems to those of A.I.D.

7.4.1 Program Priorities

The general analysis in Section 4 of the lessons of past experience and the country-specific review in Section 6 of the impact of A.I.D.'s activities provide a basis for identifying a set of activities in support of agricultural and rural development that merit priority in a country's development strategy. The order in which the eight items are presented below, while not random, is not intended to indicate their relative importance. Although it is not possible for A.I.D. to provide support for all these activities, they are so important and so interrelated that the activities all merit consideration when a host government, A.I.D., and other donors are determining their priorities.

-- Support the efforts by host governments to define their development priorities and to coordinate the activities of A.I.D. and other donors so they fit national priorities and do not, in aggregate, exceed a country's financial and administrative capacity for effective implementation.

-- Invest in human capital formation. This includes supporting rural schooling, literacy programs, and institutions of higher learning that are needed to strengthen agricultural research, policy research and analysis, and the management of agricultural and rural development.

-- Assist in developing effective national agricultural research systems oriented toward the needs of smallholders. Farming systems research and other techniques for improving the two-way flow of information between farmers and research workers represent important supplements to formal research, but they are clearly not substitutes for on-station and usually commodity-oriented research.

-- Strengthen the capacity for policy research and analysis and establish information systems that provide the most essential data needed to improve the quality of government decision-making.

-- Improve the quality and broaden the scope of policy dialogue to encourage policies favorable to effective

and sustained agricultural and rural development. Constructive dialogue requires better policy research and analysis by A.I.D. and host country participants and an approach based on collaboration, experimentation, and learning rather than on conditionality and confrontation.

-- Promote a more accurate understanding of the strengths and weaknesses of the public and private sectors so that their roles are defined with a view toward maximizing the relative advantages of each.

-- Make and facilitate investments to extend, improve, and maintain a country's rural infrastructure of roads, communications, electric power, and water supplies for farm and household use.

-- Provide encouragement and support for affordable rural health and family planning programs, with emphasis on the interrelated objectives of improving child health and survival prospects and reducing fertility.

Although A.I.D. should carefully consider all eight types of activities, it will be able to focus its own programs on only a subset of these activities. A.I.D.'s priorities should, of course, take account of both the activities of other donors and the programs of the host country. In fact, reaching agreement on priorities among donors and with a host government is, in our judgment, an essential step in improving donor coordination. It is, of course, necessary to define priorities within as well as among these types of activities. To cite an example discussed in Section 6, A.I.D.'s early enthusiasm for farming systems research seems to have led to a tendency to expand that component of research at the expense of support for commodity research and other essential activities carried out at agricultural experiment stations.

Another crucial consideration in determining priorities is to make sound judgments about the time sequencing of different activities. The key question regarding the seed multiplication projects discussed in Section 6, for example, is whether those projects merited priority at the time they were initiated and later, in the case of the Cameroon project, continued and expanded. Given a realistic judgment concerning the time required for research programs to develop improved cultivars that would justify such a sizable investment, it seems doubtful that these seed multiplication projects were properly timed.

These eight priority activities, with the partial exception of support for rural infrastructure, share certain characteristics. They are facilitating rather than direct-impact projects. They are directed to generalized human, social, and physical

capital formation. They seek to strengthen the capacity of institutions to address their countries' distinctive needs. They attempt to strengthen leaders' commitment to priority actions in agricultural and rural development by placing these actions in a broader and more balanced framework for development. They attempt to place the locus of planning, coordination, and resource allocation firmly within host country institutions rather than in A.I.D. They require patient, long-term, flexible support, experimentation, risk-taking, and an error-embracing process of learning. And they must draw selectively on a broad range of experienced experts, rather than depend narrowly on the efforts of inexperienced technical specialists.

A.I.D.'s experience in Africa, and still more in Asia, indicates that the United States can muster the capacity to support these kinds of facilitating activities. But it also indicates that the Agency's current programming system, implementation procedures, and incentive structure are not very well suited to carrying them out. Nevertheless, some steps can be taken immediately, and others begun, that will strengthen the efforts A.I.D. is already making.

A first step is for A.I.D. to avoid, insofar as possible, undertaking projects that

-- Assume it will be possible to transfer U.S. technologies and forms of organization directly to rural African populations[57]

-- Assume it will be easy to alter existing institutional patterns, including those established during the colonial period

-- Depend on extensive logistical support, the timely procurement of commodities, or U.S.-made equipment that cannot be serviced by existing facilities

-- Entail complex management, notably by depending for their functioning on outputs of other planned projects, relying on inputs to be provided by ministries not responsible for the project's implementation, or requiring substantially better interministerial coordination than already exists

These are guidelines, not absolute rules. Experience has demonstrated that integrated rural development schemes should be

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[57]Projects that require U.S. contractors to live in remote rural areas and work more or less directly with local people should be avoided, although activities implemented by the Peace Corps and private voluntary organizations constitute a partial exception.

avoided in all, or virtually all, instances because managing them is so complex. Agricultural research systems also entail difficult management problems, yet these difficulties must be confronted because effective agricultural research programs are indispensable.

While these general guidelines also apply to support for rural infrastructure, they can be relaxed, if necessary, because A.I.D.'s past efforts in this area have been comparatively successful. Moreover, rural infrastructure can usefully absorb unanticipated "windfall" funding; it is advisable, therefore, for A.I.D. to have infrastructure projects "on the shelf" in order to make good use of such opportunities.

Another important requirement is for more support for the continued development of institutions after the initial infusion of funds for construction, technical assistance, and training. This can be done by providing additional and continuing support for the following:

-- Research by Africans on many aspects of agricultural and rural development, including population, health, land tenure and resource management, energy, and environment

-- Maintenance of U.S. equipment for which spare parts and service are not locally available

-- Workshops, publications, travel, networking, and mid-career and in-service training to enable Africans to maintain their professional competence and morale

-- Policy-relevant, applied research and the exchange of information among African political leaders, administrators, and technical experts to improve government decisions and institutionalize the process of technically informed dissent

Nonproject assistance should continue to be used to expand successful host country initiatives and to reduce the cost and risk associated with changing government policies, procedures, organization, and responsibilities.

7.4.2 Operating Procedures

These recommended changes in the focus of A.I.D.'s activities can be facilitated by modifying A.I.D.'s procedures and by reducing the role of the Congress in micromanaging the Agency's programs. Changes in procedures should be designed to further reduce the time and effort Missions devote to designing and managing new and complex projects and preparing other advocacy

documents and should encourage Missions to give more attention to host country problems and to project implementation and impact. Official reporting requirements should be modified to create incentives for A.I.D. staff to work with counterparts.

There is a need, in short, to shift the locus of Mission attention from A.I.D.'s own programming problems to supporting existing institutions and making them more effective. This shift would help to check the tendency of donor assistance to foster the proliferation of projects and the expansion of government. It would also encourage better coordination with other donors. Indeed, when several donors fund a technical assistance team, foreign advisers seem more likely to give priority to the needs of the host government than to the preoccupations of a particular donor.

Some simplifying modifications in A.I.D. procedures have already been made. Others can be made without great difficulty. More fundamental changes will not be easy and cannot be made without the cooperation of the Congress. In the longer run, the Congress needs to find mechanisms for giving A.I.D. multiyear appropriations and more flexibility in programming these funds, while also holding the Agency more accountable for the developmental impact of its programs. Such changes will require that A.I.D., together with other members of the development community, help the Congress and the public to gain a more realistic picture of what needs to be done and how long it will take to promote agricultural and rural development in Africa.

The kinds of change we envisage would encourage A.I.D. to adopt a less defensive, more flexible, error-embracing approach and to welcome more participation in its deliberation by outside African and U.S. experts and critics. Greater reliance on a more flexible approach, along with a greater emphasis on effective, informed, and patient policy dialogue and nonproject assistance, would require greater analytical skills and country knowledge in the Missions but fewer personnel. Mission staff would have greater incentive to update their skills and broaden their understanding of the host country and region.[58] And A.I.D./Washington

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[58]A.I.D. might, for example, introduce a job classification called "country specialist." This would enable the Agency to reward individuals who acquire expertise in a country or a region such as the Sahel or East Africa. Country specialists would increase A.I.D.'s institutional memory and would be able to analyze a country strategy and projects in light of A.I.D.'s past implementation experience in that country. They could also serve as the A.I.D. liaison officer with outside experts. Indeed, we believe that Missions should be encouraged to make repeated use of outside experts with an intimate knowledge of a particular country. A funding mechanism could be devised so that Missions and

would have the incentive to help them do so by providing short- and long-term training and by establishing coherent career ladders.

It would violate the spirit of this report for us to attempt to offer detailed prescriptions for modifying A.I.D.'s program priorities or operating procedures. The country studies and this synthesis report have identified certain types of projects that have not worked well and have also reviewed what has worked well under particular circumstances. But it is impossible to say what A.I.D. should be doing in a particular country without taking into full account the specific circumstances prevailing in that country. Because of the great diversity among (and within) the countries of Sub-Saharan African, the selection and sequencing of activities must be country-specific. Such decisions require consideration and interpretation by country Missions and should form a major theme in their policy dialogue with local governments.

A.I.D./Washington could bring in such individuals for periodic consultations when strategic decisions are under consideration. Such an arrangement would contribute to building an institutional memory in a USAID Mission that would be longer than the length of time spent in the Mission by the A.I.D. staff member who has been there the longest; it could also smooth discontinuities caused by staff and contractor rotations. These outside experts could perform a screening function, judging strategy components and project ideas against special circumstances in a particular country.

APPENDIX: SECTORAL BREAKDOWN OF U.S. ASSISTANCE TO THE SIX STUDY COUNTRIES, BY YEAR, 1963-1984

Table A-1. Sectoral Breakdown of U.S. Assistance to Cameroon by Year, 1963-1984
(in thousands of constant 1983 dollars)

Sector/Subsector	Total	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
A.I.D. Project and Program Assistance	207,108	32,709	4,802	16,949	4,252	3,032	30,761	285	5,767	266	255	225	1,647	520	1,491	4,840	17,640	9,909	7,111	8,112	15,529	19,000	22,007
Agriculture	82,719	221	1,376	1,478	377	643	340	94	0	0	0	0	0	0	828	1,937	2,083	6,614	6,315	8,112	15,532	18,768	18,000
Crop Production	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage & Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input Supply	13,497	0	640	942	0	0	0	0	0	0	0	0	0	0	770	420	514	24	157	135	2,095	5,585	2,215
Credit	1,645	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	341	0	506	798	0
Research	5,011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	839	696	670	426	1,060	1,320
Extension	4,987	0	301	138	91	194	170	47	0	0	0	0	0	0	0	0	0	704	575	558	369	820	1,021
Education & Training	35,773	221	134	261	194	255	0	0	0	0	0	0	0	0	58	1,518	39	156	125	289	10,617	9,208	12,700
Planning & Management	6,043	0	301	138	91	194	170	47	0	0	0	0	0	0	0	0	0	1,353	420	2,659	0	(73)	743
Irrigation	7,227	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,413	1,477	3,337	0	0	0
Marketing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Livestock	7,715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,531	1,126	2,016	310	1,519	1,213	0
Forestry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fisheries	820	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508	155	0	157	0
Rural Development	94,235	31,243	778	12,335	88	0	29,578	0	5,492	0	0	0	1,458	367	0	222	11,309	565	0	0	(3)	0	802
Infrastructure	91,907	31,243	778	12,335	88	0	29,578	0	5,492	0	0	0	1,458	0	0	0	10,934	0	0	0	0	0	0
Health & Population	1,038	0	0	0	0	0	0	0	0	0	0	0	0	367	0	0	375	296	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Supply	802	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	802
Community Development	488	0	0	0	0	0	0	0	0	0	0	0	0	0	0	222	0	269	0	0	(3)	0	0
Other	30,154	1,245	2,647	3,136	3,788	2,389	843	191	275	266	255	225	189	153	663	2,680	4,248	2,729	796	0	0	232	3,205
PL 480 Food Aid	19,827	160	160	157	152	152	148	569	137	1,596	509	225	1,136	1,213	2,485	1,093	1,895	1,930	1,016	2,483	1,519	700	391
Other Economic Assistance	44,455	1,925	3,201	2,511	2,734	1,819	1,183	1,139	1,373	1,330	1,782	1,575	1,704	1,907	1,491	1,873	2,333	2,831	2,483	2,483	2,431	2,000	2,347
Total	271,390	34,795	8,163	19,617	7,138	5,002	32,092	1,993	7,278	3,191	2,546	2,026	4,488	3,640	5,467	7,806	21,868	14,670	10,610	13,078	19,479	21,700	24,745

Table A-2. Sectoral Breakdown of U.S. Assistance to Kenya, by Year, 1963-1984
(in thousands of constant 1983 dollars)

Sector/Subsector	Total	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
A.I.D. Project and Program Assistance	519,418	21,361	10,141	17,756	11,876	10,911	18,684	6,852	7,401	13,335	5,369	27,613	3,647	21,295	13,384	52,084	48,091	22,815	34,995	21,681	45,920	60,168	44,038
Agriculture	269,296	8,348	3,883	3,249	3,435	3,050	3,890	2,901	3,444	2,372	2,487	24,768	2,015	19,409	10,727	14,814	44,514	17,304	32,689	18,750	19,760	12,404	15,023
Crop Production	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage & Processing	8,070	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,070	0	0	0
Input Supply	89,603	0	0	0	0	0	0	0	0	0	0	22,506	0	0	5,798	5,508	4,049	1,708	16,471	6,264	14,585	0	12,715
Credit	5,504	234	765	493	0	0	0	0	0	178	794	347	407	480	1,067	614	176	(19)	0	0	(31)	0	0
Research	5,801	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,767	959	0	1,013	0	1,062
Extension	2,604	0	189	226	267	200	376	344	464	298	239	0	0	0	0	0	0	0	0	0	0	0	0
Education & Training	80,531	5,499	(826)	571	960	1,137	881	1,278	1,552	806	649	1,087	691	699	1,002	966	37,574	5,662	4,515	3,052	7,698	5,077	0
Planning & Management	27,533	0	0	364	49	367	813	296	228	186	224	0	0	66	1,617	1,180	1,152	6,312	5,855	0	(41)	7,563	1,302
Irrigation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0
Livestock	43,743	2,615	3,755	1,563	2,068	1,234	1,665	897	1,085	880	580	828	916	18,165	1,243	6,546	1,563	875	959	0	(3,463)	(236)	4
Forestry	5,294	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,930	1,364	0	0	0
Fisheries	613	0	0	31	91	112	154	85	115	24	0	0	0	0	0	0	0	0	0	0	0	0	0
Rural Development	135,855	1,524	4,254	4,149	3,241	591	11,260	951	1,269	9,667	1,754	1,488	1,206	1,666	2,657	36,709	3,350	5,510	7,813	2,052	14,800	17,936	8,008
Infrastructure	48,420	0	0	0	425	0	10,648	0	0	0	0	0	0	520	0	35,126	729	643	393	0	0	(64)	0
Health & Population	27,736	0	0	0	0	0	0	379	450	375	1,245	349	634	496	2,268	1,566	1,971	4,841	1,392	1,987	13,508	3,330	(7,054)
Education	0	0	0	0	0	0	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	0	0	0	0	0	0
Community Development	29,024	1,524	4,254	4,149	2,816	591	612	572	818	9,292	509	1,139	572	650	389	17	650	26	28	65	279	70	0
Industry	30,675	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,013	14,600	15,062
Other	114,267	11,489	2,004	10,358	5,200	7,270	3,535	3,000	2,689	1,295	1,128	1,357	426	220	0	562	227	0	493	879	11,360	29,828	20,946
PL 480 Food Aid	181,184	2,246	1,280	12,241	44,650	2,425	2,366	285	2,197	3,723	1,273	900	947	1,733	3,976	2,342	1,166	1,544	21,784	26,280	17,623	16,900	13,302
Other Economic Assistance	135,071	0	320	3,453	4,556	2,729	4,732	4,270	15,654	27,393	6,618	5,852	4,923	6,240	4,970	6,713	12,829	4,633	3,838	3,518	3,038	4,000	4,793
Total Economic Assistance	835,673	23,607	11,742	33,450	61,082	16,065	25,783	11,407	25,252	44,451	13,260	34,365	9,517	29,268	22,330	61,139	62,087	28,992	60,617	51,479	66,582	81,068	62,132
Military Assistance	245,313	0	0	0	0	0	0	0	0	0	0	0	0	8,666	51,192	23,729	39,946	13,383	23,364	6,725	33,525	21,700	23,083
Total	1,080,987	23,607	11,742	33,450	61,082	16,065	25,783	11,407	25,252	44,451	13,260	34,365	9,517	37,934	73,522	84,868	102,033	42,375	83,981	58,204	100,106	102,768	85,215

Table A-3. Sectoral Breakdown of U.S. Assistance to Malawi, by Year, 1963-1984
(in thousands of constant 1983 dollars)

Sector/Subsector	TOTAL	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
A.I.D. Project and Program Assistance	146,732	132	672	14,479	6,536	4,526	3,363	3,521	19,910	266	685	25,133	261	23,316	2,459	3,005	144	4,875	4,946	6,181	7,819	7,079	7,424
Agriculture	25,517	0	0	4,429	1,209	806	731	1,136	0	0	318	542	0	0	2,394	2,888	(13)	4,244	1,860	2,794	2,180	0	0
Crop Production	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage & Processing	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0
Credit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Research	10,050	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,217	1,860	2,794	2,180	0	0
Extension	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Education & Training	15,467	0	0	4,429	1,209	806	731	1,136	0	0	318	542	0	0	2,394	2,888	(13)	1,027	0	0	0	0	0
Planning & Management	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0
Livestock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forestry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fisheries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rural Development	84,114	132	0	1,315	1,112	418	287	102	19,773	0	(28)	21,541	0	23,226	0	0	0	507	1,393	1,993	2,906	4,354	5,076
Infrastructure	69,128	0	0	1,014	1,002	109	195	85	19,773	0	31	21,541	0	23,226	0	0	0	0	0	0	0	0	2,152
Health & Population	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Supply	6,186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	790	1,759	2,906	731	0
Community Development	3,312	0	0	301	109	218	92	17	0	0	0	0	0	0	0	0	0	507	603	234	0	795	435
Industry	5,489	132	0	0	0	91	0	0	0	0	(51)	0	0	0	0	0	0	0	0	0	0	2,828	2,489
Other	37,101	0	672	8,735	4,216	3,302	2,346	2,283	137	266	387	3,050	261	90	65	117	157	124	1,693	1,395	2,734	2,725	2,347
PL 480 Food Aid	12,168	0	0	314	0	0	0	285	0	266	2,036	675	189	693	663	781	292	257	1,242	3,000	101	200	1,174
Other Economic Assistance	31,984	1,283	4,482	3,767	4,556	3,335	2,662	2,562	1,922	1,064	764	450	379	347	331	0	0	515	451	621	912	800	782
Total	190,884	1,415	5,154	18,560	11,093	7,861	6,025	6,368	21,833	1,596	3,485	26,258	829	24,356	3,453	3,786	436	5,647	6,639	9,802	8,832	8,079	9,380

Table A-4. Sectoral Breakdown of U.S. Assistance to Nigeria, by Year, 1963-1984
(in thousands of constant 1983 dollars)

Sector/Subsector	Total	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
A.I.D. Project and Program Assistance	943,020	86,946	145,969	86,630	70,468	65,485	63,001	124,114	109,025	86,700	63,384	23,857	6,627	11,786	0	(948)	(168)	142	0	0	0	0	0
Agriculture	284,233	67,553	17,230	76,256	32,333	17,053	15,259	11,896	11,518	10,388	7,527	8,820	3,191	6,184	0	(821)	(155)	0	0	0	0	0	0
Crop Production	0	0	0	0	0	0	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	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	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	0	0	0	0	0	0
Research	14,341	1,523	992	2,470	1,681	998	844	330	391	523	925	1,348	489	2,451	0	(623)	0	0	0	0	0	0	0
Extension	35,972	8,874	3,509	7,128	3,651	2,150	2,085	3,097	2,558	1,780	1,314	(173)	0	0	0	0	0	0	0	0	0	0	0
Education & Training	135,971	36,229	7,206	34,751	14,266	5,470	5,143	4,272	5,627	5,402	3,787	7,735	2,702	3,733	0	(198)	(155)	0	0	0	0	0	0
Planning & Management	26,811	3,301	803	4,715	5,993	3,303	3,115	1,810	1,362	1,630	868	(90)	0	0	0	0	0	0	0	0	0	0	0
Irrigation	23,227	4,630	762	9,729	2,934	1,962	1,532	632	533	277	237	0	0	0	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	0	0	0	0	0	0	0
Livestock	38,499	10,479	3,469	14,398	2,986	2,289	2,094	1,435	860	487	3	0	0	0	0	0	0	0	0	0	0	0	0
Forestry	0	0	0	0	0	0	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	0	0	0	0	0	0
Rural Development	36,087	20,373	0	0	0	0	0	7,971	0	0	0	5,627	0	2,115	0	(126)	(13)	142	0	0	0	0	0
Infrastructure	28,344	20,373	0	0	0	0	0	7,971	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health & Population	7,743	0	0	0	0	0	0	0	0	0	0	5,627	0	2,115	0	(126)	(13)	142	0	0	0	0	0
Education	0	0	0	0	0	0	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	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	0	0	0	0	0	0
Other	623,680	0	128,739	10,374	38,135	48,431	47,742	104,247	97,508	76,312	55,857	9,410	3,437	3,487	0	0	0	0	0	0	0	0	0
PL 480 Food Aid	182,541	963	1,921	3,139	1,822	2,122	6,211	120,129	22,794	11,702	509	900	5,680	3,987	663	0	0	0	0	0	0	0	0
Other Economic Assistance	82,878	8,663	15,365	13,497	19,439	13,643	6,803	3,701	824	266	0	0	0	347	331	0	0	0	0	0	0	0	0
Total	1,208,439	96,572	163,255	103,265	91,730	81,249	76,016	247,944	132,643	98,668	63,893	24,757	12,308	16,119	994	(948)	(168)	142	0	0	0	0	0

Table A-5. Sectoral Breakdown of U.S. Assistance to Senegal, by Year, 1963-1984
(in thousands of constant 1983 dollars)

Sector/Subsector	Total	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
A.I.D. Project and Program Assistance	174,311	7,058	6,722	314	1,822	910	887	854	549	266	255	225	189	10,920	1,822	13,582	12,684	19,303	11,287	15,313	16,408	19,100	33,841
Agriculture	114,716	645	547	1,271	1,221	(52)	240	(17)	0	0	0	0	0	9,677	1,473	11,865	9,581	9,582	9,909	13,161	13,754	13,083	18,775
Crop Production	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage & Processing	9,850	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,650	0	0	0	0	0	0	2,201
Input Supply	15,255	0	352	22	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,000	9,781
Credit	1,477	0	0	0	0	0	0	0	0	0	0	0	0	116	16	0	271	183	169	135	147	200	239
Research	4,697	0	0	0	0	0	0	0	0	0	0	0	0	466	65	0	560	396	339	788	283	400	1,401
Extension	26,420	0	435	(56)	738	0	0	0	0	0	0	0	0	4,947	689	656	2,611	2,198	2,923	2,768	3,962	2,595	1,955
Education & Training	11,762	645	(240)	75	267	0	0	0	0	0	0	0	0	291	41	0	2,605	105	1,196	1,197	2,846	2,280	453
Planning & Management	15,070	0	0	0	115	(52)	0	(17)	0	0	0	0	0	0	0	0	2,204	1,405	1,422	2,404	3,897	1,680	2,010
Irrigation	9,510	0	0	1,230	0	0	240	0	0	0	0	0	0	0	0	3,559	1,330	0	793	1,128	0	494	736
Marketing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Livestock	15,969	0	0	0	0	0	0	0	0	0	0	0	0	3,857	663	0	0	3,256	1,896	3,830	2,034	434	0
Forestry	4,319	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,807	1,170	755	586	0	0
Fisheries	387	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	232	0	155	0	0	0
Rural Development	13,385	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,240	1,790	2,513	206	227	91	475	6,842
Infrastructure	6,602	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,602
Health & Population	6,681	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,240	1,790	2,449	206	230	91	435	240
Education	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	0	(2)	0	0	0
Water Supply	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Community Development	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0
Other	46,210	6,414	6,175	(957)	601	961	648	871	549	266	255	225	189	1,243	350	478	1,312	7,208	1,172	1,924	2,562	5,542	8,224
PL 480 Food Aid	192,713	1,925	8,003	2,511	3,949	16,977	4,437	5,978	9,337	6,915	2,800	3,601	14,958	3,640	3,810	4,527	16,328	7,592	17,043	19,244	12,458	12,300	14,378
Other Economic Assistance	61,545	2,246	2,881	2,197	2,430	1,819	2,366	1,993	1,648	1,596	1,782	1,801	1,515	1,733	1,822	2,342	2,333	2,316	2,145	2,173	2,026	1,800	18,583
Total	428,569	11,229	17,606	5,022	8,201	19,706	7,690	8,825	11,534	8,776	4,837	5,627	16,663	16,293	7,455	20,451	31,345	29,212	30,475	36,730	30,891	33,200	66,803

Table A-6. Sectoral Breakdown of U.S. Assistance to Tanzania, by Year, 1963-1984
(in thousands of constant 1983 dollars)

Sector/Subsector	Total	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
A.I.D. Project and Program Assistance	341,474	14,505	13,307	35,747	10,974	13,849	12,958	3,259	26,185	17,715	4,938	21,575	11,685	28,833	14,610	10,642	25,138	26,373	16,482	22,408	10,588	(180)	(119)
Agriculture	126,292	4,306	515	4,918	984	564	1,612	327	2,186	7,758	3,156	2,762	9,414	26,938	8,133	8,827	12,283	15,172	6,487	2,699	5,947	(180)	1,483
Crop Production	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Storage & Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input Supply	43,164	0	0	0	0	0	0	0	665	311	438	585	4,900	23,550	3,897	2,167	2,592	3,481	593	0	0	(14)	0
Credit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Research	14,866	0	0	0	0	0	0	0	0	141	873	545	206	385	470	1,088	2,063	3,198	1,467	1,391	3,038	0	0
Extension	6,852	1,790	439	596	510	82	0	0	0	0	0	0	0	0	0	0	3,435	0	0	0	0	0	0
Education & Training	32,153	2,515	77	4,322	474	388	639	105	0	0	0	0	784	877	1,296	2,448	1,924	6,061	4,427	1,309	3,024	0	1,483
Planning & Management	5,183	0	0	0	0	94	973	222	1,055	1,218	1,067	576	0	0	0	0	(22)	0	0	0	0	0	0
Irrigation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marketing	3,217	0	0	0	0	0	0	0	0	1,080	71	223	339	789	181	492	159	0	0	0	(115)	0	0
Livestock	20,857	0	0	0	0	0	0	0	467	5,008	708	833	3,185	1,338	2,290	2,632	2,131	2,432	0	0	0	(166)	0
Forestry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fisheries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rural Development	157,636	7,241	6,642	11,852	2,330	6,400	6,510	458	21,385	8,585	1,186	17,924	2,206	889	6,358	1,817	12,130	11,201	9,992	19,490	4,641	0	(1,602)
Infrastructure	77,823	4,687	6,076	10,279	1,233	5,881	2,783	14	21,286	8,585	1,186	11,028	0	3	4,771	0	0	0	0	83	(75)	0	0
Health & Population	38,197	0	0	0	0	0	0	0	0	0	0	6,896	2,206	886	1,587	1,795	2,152	8,228	3,742	12,219	(9)	0	(1,504)
Education	0	0	0	0	0	0	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	0	0	0	0	0	0
Community Development	8,885	2,554	567	1,573	671	518	893	444	44	0	0	0	0	0	0	22	15	515	11	1,137	19	0	(98)
Industry	32,731	0	0	0	425	0	2,834	0	55	0	0	0	0	0	0	0	9,963	2,458	6,239	6,051	4,706	0	0
Other	57,547	2,958	6,149	18,977	7,660	6,885	4,836	2,474	2,614	1,372	596	889	64	1,005	119	(2)	726	0	3	219	0	0	0
PL 480 Food Aid	247,723	9,625	5,122	6,278	9,416	6,063	7,986	5,693	4,943	6,915	3,055	3,601	4,923	40,905	45,890	27,944	11,663	3,088	11,287	15,313	7,698	6,500	3,814
Other Economic Assistance	56,112	963	4,802	7,847	6,379	4,851	2,662	854	0	0	0	0	0	0	0	468	20,119	257	339	2,483	1,418	1,400	1,271
Total	645,309	25,093	23,230	49,872	26,769	24,763	23,606	9,807	31,129	24,630	7,993	25,176	16,608	69,738	60,501	39,055	56,920	29,719	28,108	40,204	19,704	7,720	4,967

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