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1980 FUNCTIONAL REVIEW

Africa Bureau

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## PREFACE

This third annual ARD Functional Review was prepared by the staff of the Agriculture and Rural Development Division of the Office of Development Resources under the general direction of Lane Holdcroft. Major contributions were made by Clinton Doggett, Stanley Krause and Wendell McMillan. ARD would also like to thank Robert Hudec of FM and Kris Wolter of DS/DIU for computer retrieval assistance.

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## I. Introduction

The annual ARD Functional Review is designed to provide an overview, in quantitative terms, of the Africa Bureau's agricultural projects in the rural sector of Africa. The year's analysis represents a departure from the previous two years in that, rather than limiting itself to agricultural subject matter areas, it focuses on investment directed at achieving two of the major goals of AID's assistance program as articulated by the Africa Bureau and most field missions: increasing food production and rural incomes. Given the importance of augmenting food supplies in the face of increasing demand and declining production, this year's analysis has the added objective of establishing a reference point from which Bureau assistance strategies for the rural sector may evolve.

More specifically, the purposes of the 1980 Functional Review are:

1. To develop a profile of all Africa Bureau projects to determine the level of investment directed at increasing food production and rural income in Africa, by year and by country, for the period FY 1977-81;

2. To identify investment trends by project category, i.e. agriculture (including research, production, marketing, etc.), health, education, nutrition, housing, enterprise promotion and manpower development, over the period;

3. To identify, within the category of agricultural development projects, trends of investment that impact directly and indirectly on food production and rural income over the period; and

4. To develop a reference point from which a Bureau assistance strategies for investment in the rural sector may evolve.

## II. Conceptual Framework and Procedures

The conceptual framework guiding this analysis of investment strategies can be summarized as follows.

The bulk of AID's assistance to Africa's developing nations is directed at encouraging the rural development process. Rural development is defined as the process by which the poor majority of rural populations is assisted in solving its problems of livelihood and hence improving its standard of living on a self-sustaining basis. This process of rural development recognizes the creation of disequilibrium through changes in institutions, technology and people, and it includes three major aspects--raising levels of output and living, increasing participation of the rural poor, and making the process self-sustaining.

In looking at AID's assistance programs and projects in Africa, three broad categories of rural development programs can be identified: production programs (including research and distribution), and consumption programs of two types, namely social services and social welfare. The development model most widely accepted at present dictates that investment, both public and private, in production programs (as defined above) provides the basis for increased tax collection by host country governments, which in turn finances the bulk of consumption programs, both of the social services and social welfare nature. The increased investment in social services by host countries, with external donor assistance, of course feeds back into increasing production. Social services programs (i.e. education, health, family planning, etc.) over the long term are considered essential to sustaining improvement in levels of living. There is ample evidence to support the thesis that investment in social services as compared to social welfare programs (i.e. grant food assistance) is much more efficient in terms of sustaining improved levels of living.

The methodology used in the Functional Review, as detailed in Appendix 1, includes (a) definition of the universe, (b) data sources, (c) categorization

of projects and (d) illustrative project titles for each category. Briefly, the main steps included compilation of project expenditure data contained in printouts from Financial Management and in the Bureau's 1982 Annual Budget Submission; categorization of the projects by functional areas; and calculation of investment levels and trends by categories over the five-year period FY 1977-81.

Following an examination of current trends in Sub-Saharan agriculture, particularly with regard to problems of food production and rural incomes, the findings from the analysis of the Bureau's investment profile are presented. The concluding sections discuss implications of the analysis for future Bureau assistance strategy, and recommended courses of action.

### III. Trends in Sub-Saharan Agriculture

#### A. The Food Production Problem<sup>1/</sup>

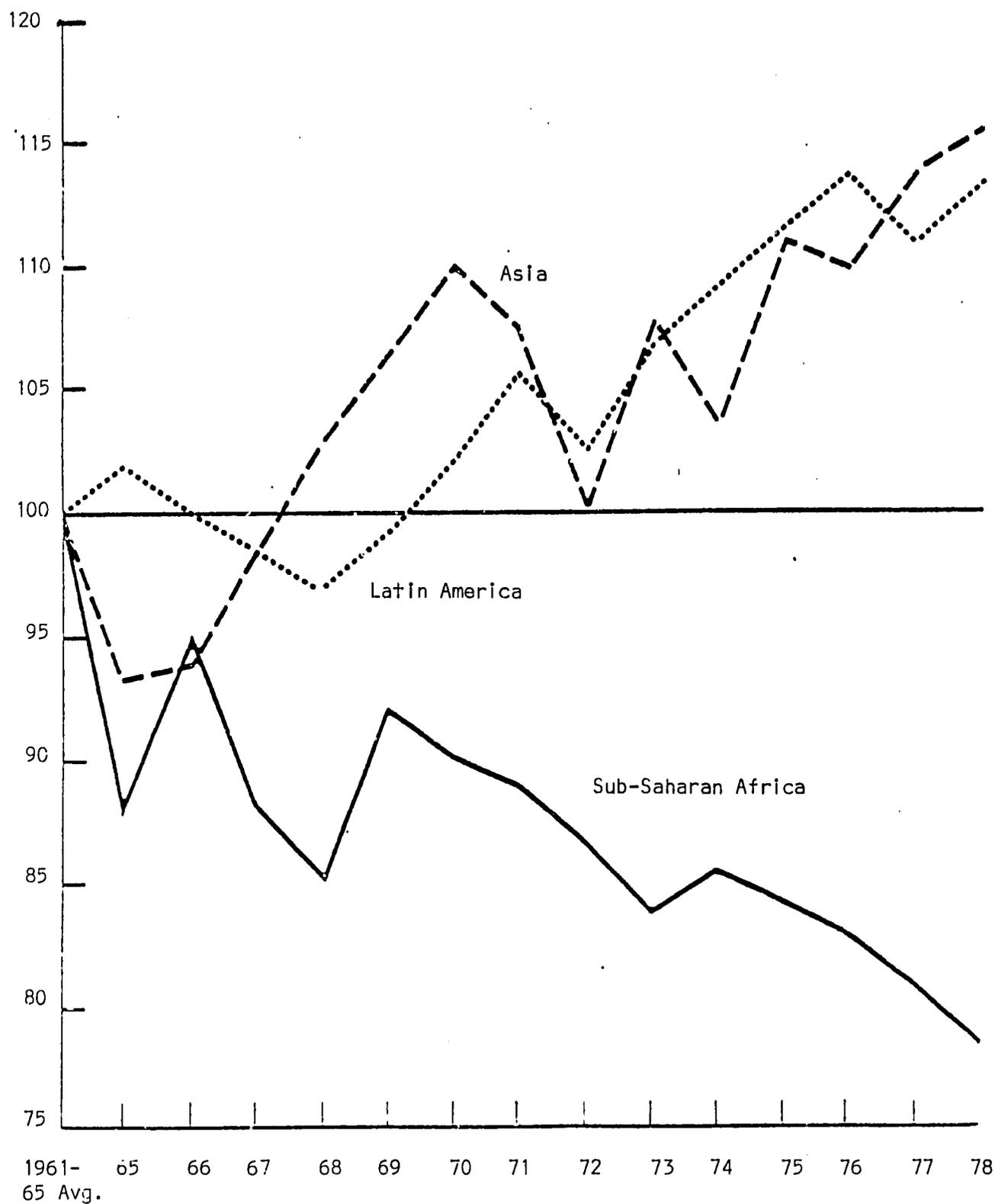
Sub-Saharan Africa is the only region in the world where per capita food production declined over the past two decades. A few countries improved on the record of the early sixties; most, however, showed moderate to severe declines (Table 1). In 1978, per capita food production in Angola, Benin, Ethiopia, Ghana, Nigeria, Zimbabwe, Senegal, Sierra Leone, Uganda and Upper Volta was less than 90 percent of the 1961-65 average.

Declining per capita food production exacts a high price in both human and economic terms. The human price is inadequate nutrition, the most basic measure of which is caloric intake. In most sub-Saharan countries, per capita caloric intake falls below minimal nutritional standards (Table 2). Even if the total food available were distributed equally

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<sup>1/</sup> This section represents a condensation of a portion of the "Overview" chapter of Food Problems and Prospects in Sub-Saharan Africa, USDA, September 1980, pp. 1-11.

Index of Food Production Per Capita: Sub-Saharan Africa



Source: U.S. Department of Agriculture, Food Problems and Prospects in Sub-Saharan Africa: The Decade of the 1980s, p. 2.

Table 1--Indices of per capita food production, Sub-Saharan Africa, 1970-79

Region and country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 <sup>1/</sup>
	<u>1961-65=100</u>									
<b>Sahel:</b>										
Mali	84	86	65	67	86	88	97	82	105	75
Niger	104	109	105	66	91	76	103	92	106	85
Senegal	64	87	56	68	90	100	87	59	88	68
Upper Volta	76	70	66	58	72	76	74	67	69	67
<b>West Africa:</b>										
Benin	92	89	88	93	89	84	85	88	89	82
Cameroun	97	102	97	93	97	96	97	96	97	97
Ghana	99	93	81	87	88	75	74	71	68	70
Guinea	107	110	109	108	98	94	101	93	102	101
Ivory Coast	107	113	105	109	120	142	129	125	128	132
Liberia	81	84	84	91	100	94	96	98	96	97
Nigeria	95	93	95	87	90	89	88	86	84	84
Sierra Leone	93	98	96	95	92	96	92	95	87	82
Togo	108	103	102	96	98	96	97	93	97	96
<b>Central Africa:</b>										
Angola	104	95	88	95	92	72	65	58	53	51
Zaire	119	109	106	112	107	105	106	103	97	97
<b>East Africa:</b>										
Burundi	117	119	119	117	98	113	110	109	108	109
Ethiopia	99	99	91	87	84	67	63	58	52	54
Kenya	96	92	99	97	96	102	113	117	111	110
Rwanda	123	122	115	118	112	121	119	121	119	119
Sudan	110	115	107	101	114	125	122	123	129	123
Tanzania	102	104	100	101	114	117	99	98	100	105
Uganda	95	92	87	82	79	81	77	73	76	68
<b>Southern Africa:</b>										
Madagascar	108	107	107	98	102	105	105	107	108	99
Malawi	96	108	118	109	110	97	101	95	96	90
Zambia	95	117	132	110	135	139	153	142	128	104
Zimbabwe	79	93	103	78	102	92	88	86	83	69

Source: U.S. Dept. Agri, Econ., Stat., Coop. Service, Indices of Agricultural Production, 1970-79.

<sup>1/</sup> Preliminary

and efficiently, there would not be enough to give everyone an adequate diet. In the 18 countries where per capita calorie availability is less than 90 percent of minimal requirements, serious nutritional problems are unavoidable.

Table 2—Calories per capita, selected countries in Sub-Saharan Africa, 1977

Region and country	Percentage of nutritional requirements	Region and country	Percentage of nutritional requirements
	Percent		Percent
Sahel:		Central Africa--Con.	
Chad	74	Congo	103
Gambia	--	Equatorial Guinea	--
Mali	90	Gabon	--
Mauritania	86	Zaire	--
Niger	91		
Senegal	95	East Africa:	
Upper Volta	79	Burundi	97
		Ethiopia	75
West Africa:		Kenya	88
Benin	98	Rwanda	98
Cameroon	89	Somalia	88
Ghana	86	Sudan	--
Guinea	84	Tanzania	93
Guinea-Bissau	--	Uganda	91
Ivory Coast	105		
Liberia	104	Southern Africa:	
Nigeria	83	Botswana	--
Sierra Leone	93	Lesotho	99
Togo	90	Madagascar	115
		Malawi	90
Central Africa:		Mozambique	81
Angola		Zambia	87
Central African Republic	99	Zimbabwe	108

Source: World Bank, World Development Report, 1980.

Declining per capita food production coupled with chronically inadequate calorie intake means there is little margin for human error or natural disaster. Drought, political turmoil or errors in policy can produce major food crises which threaten many with starvation. Famines in the Sahel and Eastern Africa over the past decade make this all too obvious. If the historical pattern of food production continues, responding to emergencies will take a larger share of the financial resources of both African

countries and international food aid programs.

The major economic price of inadequate food production is a rising import bill. Other effects are felt throughout African economies. Governments in Sub-Saharan Africa have responded to inadequate domestic food production by increasing imports. During the sixties, grain imports imposed little financial hardship. While the volume of imports doubled, the cost rose by only 50 percent. Stable, low grain prices combined with concessional sales made imports a cheap and relatively secure way of meeting growing urban demand. In the seventies, however, the situation changed dramatically. The cost of sub-Saharan Africa's cereal imports in 1978 was double that of 1970.

The food situation just described would be serious in almost any international economic environment. It is particularly ominous now, however, since many African countries have been experiencing severe balance of payments problems as a result of recent international economic changes. African countries are usually exporters of primary commodities. Even the largest of the foreign exchange earners depend on a few unprocessed products. With the exception of oil, these commodities' prices have not kept pace with the increased cost of key imports. Short-lived booms in coffee, sugar and copper temporarily boosted some countries' earnings but have not offset the rising cost of imports. Hence, the balance of trade for sub-Saharan Africa (excluding Nigeria) moved from a small surplus in 1970 to a massive deficit in 1976.

Financing food imports is more difficult not only because real grain prices are higher, but also because other imports such as petroleum and industrial goods are much more costly. In addition, sub-Saharan countries may have to compete for food supplies in tighter, less stable global markets. Global cereal markets, once characterized by assured supplies for commercial and concessional sales, are in a state of transition. Several forces are at

work.

First, commercial demand for grain imports is increasing among middle income LDCs, as well as in Eastern Europe and the Soviet Union. Second, some experts now think U.S. agriculture is in a state of "rough equilibrium", without the chronic surplus capacity which characterized the last several decades. Third, financial conditions in the major industrial countries limit the growth of aid. Finally, another shift in global markets is possible if major grain producing countries find it politically and economically attractive to generate a portion of their energy requirements from foodstuffs.

Virtually all attempts to project Africa's import requirements conclude that unless there are major changes in domestic production trends, the situation will become much worse during the 1980s. If domestic production trends continue, Africa's demand for food imports will be two to three times its present level by 1990, even without significant income growth. However, for some African countries, even maintaining per capita income at 1975 levels may be an optimistic scenario. Based on 1974-79 trends, real per capita income is projected to decline in both the Sahel and southern Africa, while West Africa (primarily Nigeria) would experience strong real income growth. Under these conditions, the import demand for food in sub-Saharan Africa would rise to 21.1 million tons (wheat equivalent). However, West Africa would account for 86 percent of the import demand. Because growth is concentrated in West Africa, even this dramatic increase in paying demand does little to reduce the calorie gap, which now amounts to 10.1 million tons. Without major efforts to supplement commercial purchases, diets would remain inadequate in the Sahel, Central and East Africa.

#### B. Impacts on Incomes and Nutrition

Sub-Saharan Africa is in economic distress and this distress is generally

most severe in rural areas. Viewed another way, the economic distress tends to be rooted in poor performance in food and other agricultural production, since most of the rural people derive their entire or primary income from agriculture. The poor performance in food production translates into lack of adequate food for many people, including farmers themselves.

While the purposes of this Functional Review do not include inter-sectoral macro-economic analysis, it is noted that the recent World Development Report indicates growth of per capita GNP of only 0.2 percent from 1970 to 1980 for low-income oil-importing countries of sub-Saharan Africa.<sup>1/</sup> The comparable figure for middle-income oil-importers was 0.9 percent.

This poor record of income growth is projected to continue in the 1980s, as is indicated in Table 3. The "low" and "high" case represent

Table 3. Growth of Gross National Product Per Person in Sub-Saharan Africa, 1970-1990.

Country Group	Population 1980 (millions)	Average Annual Percentage Growth				
		1970	Low Case		High Case	
			1980	1985	1980	1985
Low-Income Oil Importers	141	-80	-85	-90	-85	-90
Middle-Income Oil Importers	125	0.2	-0.3	0.1	0.1	1.1
		0.9	1.3	1.3	1.6	1.4

Source: World Bank, World Development Report, August 1980, Table 2.8, p. 11.

alternative projections of the severity of impact of higher energy costs, patterns of policy response, and degree of success of those responses. The "low" case may result in a reduction of per capita GNP by 0.3 percent annually from 1980-85 in the low-income oil-importing countries, rising to a growth rate of only 1.0 percent annually from 1985-90. The "high" case requires a series of policy adjustments, and fair success from them. The

<sup>1/</sup> World Bank, World Development Report, August 1980, Table 2.8.

picture is moderately brighter for the middle-income countries. Unfortunately, the World Bank presentation does not allow identification of the countries in each group, except that Angola, Congo, Gabon, Nigeria and Zaire are identified as oil-exporters.

USDA employed a series of projections in its recent analysis that were largely still less favorable, particularly for the Sahel and southern Africa.<sup>1/</sup>

The past and projected poor performance of agricultural production is central to the aggregate economic picture. Most of the population is rural, and indeed depend directly on agriculture for their principal income. Agricultural output per worker is low and displays slow growth. In these circumstances nutrition levels are low, purchasing power for food and other goods is low, and the capacity to support public services for health, education etc. is low or non-existent. The following paragraphs provide some supporting data for these statements.

The World Bank report provides data on the labor force in agriculture. Eighty percent or more were in agriculture in 16 of the 25 low-income oil-importing countries listed in sub-Saharan Africa in 1978, and sixty percent or more in five of the eight middle-income countries.

The proportion of gross domestic product derived from agriculture is substantial but much lower than the labor force in agriculture, reflecting low incomes of farmers and incompleteness of national accounts data. World Bank reports that 40 percent or more of GDP was derived from agriculture in 13 of the 25 low-income oil-importing countries, and at least 30 percent in 12 of the 20 remaining low and middle-income countries tabulated.

These data imply a very large discrepancy between income from agriculture

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<sup>1/</sup> USDA, op. cit., Appendix Table 6, p. 397.

and that from other sources. Three primary factors are involved: (1) incomes of agricultural workers are low, (2) national accounts data for subsistence food production and associated non-agricultural output for auto-consumption are notoriously incomplete, and (3) agricultural workers nearly always produce other products (monetary or implied forms of income) than food. Nevertheless, the extent of the implied difference of income is worth noting. The data suggest agricultural incomes less than 20 percent those in other sectors in 18 of 33 countries, and at least 40 percent in only five! Some of the sharpest contrasts are in the Sahel and in Lesotho. The relatively best agricultural incomes were in Benin, Ghana, Nigeria, Angola and Mozambique.

The preceding omitted two significant rural items: fish, which also is food, and fuelwood. Wood is a product of rural people and land resources comparable to those used for food production. Wood gathering is a task that occupies a substantial and growing amount of time of some rural people, and wood is becoming very expensive for many who must buy it. In these and other ways, wood production, gathering, transportation, and commerce is becoming increasingly significant. Similar statements can be made for non-commercial fishing.

"In some parts of the world, undernutrition is primarily a distribution problem. This is, in general, not true for Africa; inadequate nutrition is both a production and distribution problem. Aggregate supplies are inadequate--even assuming totally egalitarian distribution. Furthermore, much of the inequality in income which exists reflects urban-rural differences."<sup>1/</sup> The USDA report goes on to review the state of knowledge of nutrition levels, food consumption patterns, and results of inadequate nutrition in Africa. Estimates of FAO and World Bank of the aggregate

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<sup>1/</sup> USDA, op. cit., pp. 49-50.

positions are cited. Aggregate food supplies were about 10 percent less than minimal requirements in 1975 (World Bank) and in 1976 (FAO).<sup>1/</sup> The number of underfed people has been growing. Various analysts estimate a country requires an aggregate of 10 percent more calories than minimum nutritional requirements of the population, in order to expect to meet to meet inevitable distribution requirements to satisfy higher-income people. Thus, an overall availability of 90 percent of overall minimum needs, mathematically, probably represents an overall deficiency of 20 percent from the 110 percent needed on a practical basis.

These data provide a general view of the basic relationships between agricultural productivity, trends in food production, the primary role of agriculture, income levels, and general levels of nutrition. The critical need to improve performance in agricultural production is evident.

#### IV. Analysis of the Africa Bureau's Investment Portfolio, FY 1977-81

Examination of the Bureau's investment (project) portfolio included three major aspects: (1) An analysis of the "profile" over time of the Africa Bureau's project portfolio based on major functional categories; (2) An analysis over time of the degree to which projects in the portfolio addressed the problems of augmenting food production; (3) An analysis over time of the degree to which projects in the portfolio addressed the problems of enhancing income-generating activities. The three separate analyses are presented individually below.

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<sup>1/</sup> USDA, op. cit., p. 49.

### A. Functional Profile

Table 4 lays out the Bureau's portfolio profile in terms of expenditures, both in absolute amounts and as a percentage of each year's total, for each of the four major functional areas of Production, Consumption, Transportation and Communications, and General Development. (Note: All dollar figures presented in this analysis are in 000s). A glance at these

Table 4. Expenditure by Functional Category (in \$000s)

	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
Production 294 Projects	50,238 43.2%	84,838 54.3%	95,536 53.5%	193,189 59.7%	287,216 60.5%
Consumption 147 Projects	23,440 20.2%	30,304 19.4%	31,835 17.8%	69,783 21.6%	87,438 18.4%
Transp'tn & Comm's 49 Projects	23,553 20.3%	17,546 11.2%	27,213 15.2%	17,292 5.3%	26,388 5.6%
General Development 80 Projects	18,949 <u>16.3%</u>	23,629 <u>15.1%</u>	23,884 <u>13.4%</u>	43,112 <u>13.3%</u>	73,839 <u>15.5%</u>
TOTAL 570 Projects	\$116,180 (100%)	\$156,317 (100%)	\$178,468 (100%)	\$323,376 (100%)	\$474,881 (100%)

figures reveals that (1) Production-oriented projects have steadily increased as a percentage of total expenditure for each year; Consumption-oriented projects have remained at around the level of 20 percent, with slight variation in either direction for each year; (3) Transportation and Communications has declined significantly as a proportion of annual expenditure; and (4) General Development has consistently remained at about 15 percent of each year's expenditure. A more detailed breakdown of expenditure proportions by functional category and sub-category is presented in Table 5.

#### 1. Production

Within this functional area are the categories Production-Food (PF),

Table 5.  
Africa Bureau Portfolio Trend Analysis: Breakdown of Expenditure by Functional Category (in \$000s)

	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
<u>I. Production-Food</u>					
General Agriculture 68 Projects	10,190 8.8%	13,103 8.4%	30,690 17.2%	47,587 14.7%	91,601 19.3%
Physical Inputs 10 Projects	9,827 8.5%	28,513 18.2%	6,742 3.8%	22,649 7.0%	16,425 3.5%
Crops 22 Projects	6,778 5.8%	10,545 6.7%	11,304 6.3%	10,913 3.4%	11,242 2.4%
Crop Storage & Protection 12 Projects	1,188 1.0%	1,634 1.0%	2,818 1.6%	3,652 1.1%	9,934 2.1%
Fish 8 Projects	69 0.1%	51 -	60 -	370 0.1%	2,125 0.4%
Livestock/Range Management 26 Projects	10,044 8.6%	11,461 7.3%	15,398 8.6%	15,208 4.7%	17,044 3.6%
Agricultural Marketing 3 Projects	277 0.2%	116 0.1%	87 -	- -	985 0.2%
Institutions/Manpower Development 11 Projects	990 0.9%	2,199 1.4%	2,647 1.5%	5,428 1.7%	9,439 2.0%
Agricultural Education/Training 14 Projects	276 0.2%	2,458 1.6%	5,397 3.0%	14,210 4.4%	17,088 3.6%
Agricultural Research/Extension 26 Projects	1,342 1.2%	2,410 1.5%	2,758 1.5%	23,458 7.3%	30,742 6.5%
Agricultural Credit 7 Projects	1,047 0.9%	2,597 1.7%	688 0.4%	800 0.2%	1,050 0.2%

Table 5 (Cont'd)

	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
Agricultural Planning 11 Projects	774 0.7%	1,179 0.8%	1,427 0.8%	2,329 0.7%	5,174 1.1%
<u>Subtotal</u> 218 Projects	(42,802) (36.8%)	(76,366) (48.9%)	(80,016) (44.8%)	(146,604) (45.3%)	(212,849) (44.8%)
<u>II. Production-Nonfood</u>					
Human Resources 5 Projects	- -	- -	40 -	1,965 0.6%	4,000 0.8%
Industry/Enterprise Promotion 11 Projects	2,377 2.0%	2,507 1.6%	1,885 1.1%	4,945 1.5%	5,173 1.1%
Credit 2 Projects	3,046 2.6%	1,267 0.8%	2,560 1.4%	100 -	200 -
<u>Subtotal</u> 18 Projects	(5,423) (4.7%)	(3,774) (2.4%)	(4,485) (2.5%)	(7,010) (2.2%)	(9,373) (2.0%)
<u>III. Production-Mixed</u>					
Natural Resources & Energy 42 Projects	1,871 1.6%	4,215 2.7%	6,720 3.8%	12,888 4.0%	27,844 5.9%
Commodity Import 2 Projects	- -	- -	- -	19,600 6.1%	30,000 6.3%
Credit 4 Projects	142 0.1%	212 0.1%	195 0.1%	980 0.3%	1,526 0.3%
Miscellaneous 10 Projects	- -	271 0.2%	4,120 2.3%	6,107 1.9%	5,624 1.2%

Table 5 (Cont'd)

	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
<u>Sub-Total</u> 58 Projects	(2,013) (1.7%)	(4,698) (3.0%)	(11,035) (6.2%)	(39,575) (12.2%)	(64,994) (13.7%)
<u>IV. Consumption-Services</u>					
General Education 32 Projects	5,708 4.9%	12,091 7.7%	10,591 5.9%	16,523 5.1%	11,391 2.4%
Health & Population 79 Projects	15,840 13.6%	15,521 9.9%	18,458 10.3%	27,853 8.6%	51,539 10.9%
Potable Water 11 Projects	206 0.2%	576 0.4%	504 0.3%	6,462 2.0%	12,779 2.7%
<u>Sub-Total</u> 122 Projects	(21,754) (18.7%)	(28,188) (18.0%)	(29,553) (16.6%)	(50,838) (15.7%)	(75,709) (15.9%)
<u>V. Consumption-Welfare</u>					
Disaster/Refugee Assistance 13 Projects	1,060 0.9%	836 0.5%	956 0.5%	16,893 5.2%	10,245 2.2%
Shelter 9 Projects	55 -	343 0.2%	282 0.2%	2,023 0.6%	1,484 0.3%
Food Distribution 3 Projects	571 0.5%	937 0.6%	1,044 0.6%	29 -	- -
<u>Sub-Total</u> 25 Projects	(1,686) (1.5%)	(2,116) (1.4%)	(2,282) (1.3%)	(18,945) (5.9%)	(11,729) (2.5%)
<u>VI. Transportation &amp; Communications</u>					
Sector & Miscellaneous 6 Projects	1,447 1.2%	1,626 1.0%	84 -	3,726 1.2%	1,050 0.2%

Table 5 (Cont'd)

	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
Roads 34 Projects	13,806 11.9%	11,138 7.1%	17,421 9.8%	13,566 4.2%	25,338 5.3%
Railroads 1 Project	- -	- -	4,717 2.6%	- -	- -
Telecommunications 4 Projects	3,363 2.9%	2,960 1.9%	1,624 0.9%	- -	- -
Airports 2 Projects	673 0.6%	- -	415 0.2%	- -	- -
Bridge & Port Construction 2 Projects	4,264 3.7%	1,822 1.2%	2,952 1.7%	- -	- -
<u>Sub-Total</u> 43 Projects	(23,553) (20.3%)	(17,546) (11.2%)	(27,213) (15.2%)	(17,292) (5.3%)	(26,388) (5.6%)
<u>VII. General Development</u>					
Miscellaneous 50 Projects	14,925 12.8%	18,349 11.7%	16,816 9.4%	28,675 8.9%	49,916 10.5%
Research & Training 6 Projects	1,834 1.6%	639 0.4%	356 0.2%	879 0.3%	1,414 0.3%
Manpower Development 17 Projects	1,139 1.0%	3,313 2.1%	6,066 3.4%	13,438 4.2%	22,359 4.7%
Community Development 3 Projects	5 -	228 0.1%	425 0.2%	120 -	- -
Public Administration 4 Projects	1,046 0.9%	1,100 0.7%	221 0.1%	- -	150 -
<u>Sub-Total</u> 80 Projects	(18,949) (16.3%)	(23,629) (15.1%)	(23,884) (13.4%)	(43,112) (13.3%)	(73,839) (15.5%)
<u>GRAND TOTAL: 570 Projects</u>	\$116,180 (100%)	\$156,317 (100%)	\$178,468 (100%)	\$323,376 (100%)	\$474,831 (100%)

Production-Nonfood (PN) and Production-Mixed (PM). Following an analysis of these three categories, immediately following, a breakdown for the PF category, which is of special interest to the ARD Functional Review, will be provided.

Table 6 summarizes the portfolio trends with respect to the three major categories within the functional area of production: PF, PN and PM.

Table 6. Breakdown of Production (in \$000s)

	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
Production-Food	42,802	76,366	80,016	146,604	212,849
Production-Nonfood	5,423	3,774	4,485	7,010	9,373
Production-Mixed	2,013	4,698	11,035	39,575	64,994
All Others	<u>65,942</u>	<u>71,479</u>	<u>82,932</u>	<u>130,187</u>	<u>187,665</u>
<u>TOTAL</u>	\$116,180	\$156,317	\$178,468	\$323,376	\$474,881

From the data it is apparent that (1) PF has increased as a percentage of the total yearly expenditure, from 36.8 percent in FY 77 to 44.8 percent in FY 81, although down from a high of 48.9 percent in FY 78; (2) PN has declined, from 4.7 percent in FY 77 to 2.0 percent in FY 81; and (3) PM has increased, from 1.7 percent in FY 77 to 13.7 percent in FY 81. (Note: The large jump in PM for fiscal years 80 and 81 is largely accounted for by two commodity import programs in Sudan Totalling \$19,975 and \$30,000 respectively. Omitting these two items from the analysis altogether, the PM proportions would have been 6.6 percent in FY 80 and 7.9 percent in FY 81. These figures would still represent a significant growth rate for this category, however, reflecting the increases in the sub-category under PM called "Natural Resources and Energy," which by itself increased from 1.6 percent in FY 77 to 5.9 percent in FY 81.)

### Production-Food (PF)

The analysis of the PF category is based on the PF sub-categories expressed as a proportion of expenditure for all categories (i.e. PF + PN + PM + CS + CW + TC + GD). Table 5 provides a breakdown of the proportions spent in each category and sub-category, including sub-totals for the former, for each fiscal year, including those for PF. Looking at the PF category in relation to each year's total for all categories, the following observations on PF sub-categories are offered.

General Agriculture (68 projects), which includes sector support, integrated rural development and projects cutting across two or more sub-categories under PF, has increased from 3.8% in FY 77 to 19.3% in FY 81;

Physical Inputs (10 projects) has declined from 8.5% in FY 77 to 3.5% in FY 81 after an initial rise to 18.2% in FY 78;

Crops (22 projects), rising from 5.8% in FY 77 to 6.7% in FY 78, has since declined to 2.4% in FY 81;

Crop Storage and Protection (12 projects) has increased from 1.0% in FY 77 to 2.1% in FY 81;

Fish (8 projects) has remained consistently under 0.5%;

Livestock and Range Management (26 projects) has declined from 8.6% in FY 77 to 3.6% in FY 81;

Agricultural Marketing (3 projects) has remained consistently at or under 0.2%;

Institutions/Manpower Development (11 projects) has increased modestly from 0.9% in FY 77 to 2.0% in FY 81;

Agricultural Education and Training (14 projects) has steadily increased, from 0.2% in FY 77 to 3.6% in FY 81, although down from a high of 4.4% in FY 80;

Agricultural Research and Extension (26 projects) has increased dramatically, from 1.2% in FY 77 to 6.5% in FY 81, although also down from FY 80 when it constituted 7.3% of the total;

Agricultural Credit (7 projects) rose from 0.9% in FY 77 to 1.7% in FY 78 and has since declined to 0.2% in FY 81; and

Agricultural Planning (11 projects) has increased very modestly, from 0.7% in FY 77 to 1.1% in FY 81.

In assessing investment trends of the PF sub-categories it must be borne in mind that projects cutting across two or more sub-categories were entered under the "General Agriculture" sub-category. An example of such a project would be "Crop Production and Marketing" (Botswana, -0056). With this important clarification in mind, conclusions are presented below on expenditure trends for the various PF sub-categories. A listing of specific projects under each PF sub-category, including General Agriculture, is offered as Appendix 2 to this study.

a. Significant increases in expenditure as a proportion of each year's total were noted for (i) General Agriculture, (ii) Agricultural Education and Training, and (iii) Agricultural Research and Training.

b. Significant decreases in expenditure as a proportion of each year's total were noted for (i) Physical Inputs, (ii) Crops and (iii) Livestock and Range Management.

c. PF sub-categories consistently representing less than 2.5 percent of each year's total expenditure were (i) Crop Storage and Protection, (ii) Fish, (iii) Agricultural Marketing, (iv) Agricultural Institutions/Manpower Development, (v) Agricultural Credit and (vi) Agricultural Planning.

d. Within the PF category itself (i.e. taking PF expenditures as representing 100 percent of total expenditure for each fiscal year) it is apparent that, with the exception of Crops and Livestock/Range Management, similar patterns emerge whether one takes the PF category as representing 100 percent of expenditure for each year or whether one takes as 100 percent for each year the sum total of all categories (i.e. PF + PN + PM + CS + CW + GD). Using the former mode of analysis, Crops declined by a factor of 3 (as opposed to 2 under the latter) and Livestock/Range Management declined by a factor of 3 (as opposed to about 2.5 in the latter).

### Production-Nonfood (PN)

Within this category are the sub-categories of Human Resources, Industry/Enterprise Promotion, and Credit. The following observations on PN sub-categories are offered.

Human Resources (5 projects) has increased from zero percent of total expenditure to 0.8% in FY 81;

Industry/Enterprise Promotion (11 projects) has declined from 2.0% in FY 77 to 1.1% in FY 81; and

Credit (2 projects) has declined from 2.6% in FY 77 to zero percent in FY 81.

### Production-Mixed (PM)

Within this category are the sub-categories Natural Resources and Energy, Commodity Import, Credit and Miscellaneous. The following observations on PM sub-categories are offered.

Natural Resources and Energy (42 projects) has steadily increased as a proportion of annual expenditure, from 1.6% in FY 77 to 5.9% in FY 81;

Commodity Import (2 projects, both in Sudan) has increased from zero percent in FY 77 to 6.1% in FY 80 and 6.3% in FY 81;

Credit (4 projects) has increased from 0.1% in FY 77 to 0.3% in FY 81; and

Miscellaneous (10 projects) rose to 2.3% in FY 79 and has declined to 1.2% in FY 81.

## 2. Consumption

Within this functional area are the categories of Consumption-Services (CS), comprising projects aimed at enhancing or enabling the provision of government or quasi-government services such as health delivery and education, and Consumption-Welfare (CW), containing projects aimed at "welfare" functions of governments such as free food distribution and the provision

of low-income shelter. Taken together, these two categories have averaged about 20 percent of expenditure for each of the fiscal years 1977-81.

#### Consumption-Services (CS)

Containing the bulk of expenditure for the "Consumption" functional area, this category includes the sub-categories of General Education, Health and Population, and Potable Water, for a total of 122 projects active at some point during the period. The following observations on trends for each sub-category are offered.

General Education (32 projects) represented 4.9% of expenditure in FY 77, rose to 7.7% in FY 78, and has since declined steadily, to 2.4% in FY 81;

Health and Population (79 projects), combined here due to the numerous instances (as in Maternal-Child Health/Family Planning) in which these areas overlap in both funding source and project purpose, comprised the bulk of the CS category. Expenditures amounted to 13.6% in FY 77 and has declined to 10.9% in FY 81, although up from the low of 8.6% in FY 80;

Potable Water (11 projects) has risen fairly steadily from less than 1% of expenditure in FY 77 to 2.7% in FY 81.

#### Consumption-Welfare (CW)

Containing the balance of the "Consumption"-projects, this category comprises the sub-categories of Disaster/Refugee Assistance, Shelter and Food Distribution. It must be emphasized, however, (a) that the bulk of U.S. disaster relief and refugee assistance is carried out through the Office of U.S. Foreign Disaster Assistance (PDC/OFDA) and is not "projectized" in the AID sense, and therefore is not included in this category, and (b) that PL 480 activities are not included in this analysis and therefore are likewise not represented in this category. With these important clarifications in mind, the following observations can be made with regard to the CW sub-categories.

Disaster/Refugee Assistance (13 projects) accounted for less than 1% of expenditure in FY 77, rose to 5.2% in FY 80 and is projected at 2.2% for FY 81;

Shelter (9 projects) has remained consistently under 1% of expenditure for each year; and

Food Distribution (3 projects) has also remained under 1%, with no expenditure planned for FY 81.

These three sub-categories, taken together, have increased as a proportion of yearly expenditure, from 1.5% in FY 77 to 5.9% in FY 80 and are projected at 2.5% for FY 81.

### 3. Transportation and Communications (TC)

Projects aimed at improving transportation and communication linkages comprise this functional area. TC sub-categories, which are self-explanatory, yielded the following trends.

Sector and Miscellaneous (6 projects) accounted for less than 2% of expenditure in each year, with no discernable trend in either direction;

Roads (34 projects), including road design and maintenance, representing the bulk of the TC functional area, has declined steadily from 11.9% in FY 77 to 5.3% in FY 81;

Railroads (1 project) incurred an expenditure in FY 79 only, at which time it accounted for 2.6% of the total;

Telecommunications (4 projects) declined from 2.9% in FY 77 to less than 1% in FY 79 and has since dropped to zero;

Airports (2 projects) has remained under 1% of yearly totals, with no expenditures incurred in FY 80 or planned for FY 81;

Bridge and Port Construction (2 projects) has declined from 3.7% in FY 77 to 1.7% in FY 79, with no expenditures incurred in FY 80 or planned for FY 81.

Taken together, expenditures for the TC functional area have declined as a percentage of the yearly total, from 20.3% in FY 77 to 5.6% in FY 81, reflecting in large part the declining proportion of expenditure on roads,

but also the fall-off in expenditure for Railroads, Telecommunications, Airports, and Bridge and Port Construction.

#### 4. General Development

Projects aimed at enhancing the development "process" itself are included in this functional area. Observations on trends with regard to sub-categories in this area are offered below.

Miscellaneous (50 projects) has averaged 10.5% each year, with no discernable trend in either direction;

Research and Training (6 projects) has declined from 1.6% in FY 77 to less than 1% in FY 81;

Manpower Development (17 projects) has increased from 1% in FY 77 to 4.7% in FY 81;

Community Development (3 projects) has represented well under 1% for all five years; and

Public Administration (4 projects) has remained under 1% for all years.

Taken together, the GD functional area has averaged about 15% of expenditure each year, with no clearly discernable trend evident in either direction.

This concludes the Functional Profile of the Bureau's investment portfolio.

#### B. Food Production and Income Generation Profile

As stated earlier in this paper, an analysis was also conducted to determine the extent to which the Africa Bureau project portfolio addressed problems associated with (a) food production and (b) income generation. By way of clarification, it should be repeated that each of the 570 projects comprising the universe, irrespective of functional area designation,

was evaluated, informally, against both food production and income generation. Thus, some projects were directly related to one but only indirectly related to the other, directly related to both, or any other possible combination.<sup>1/</sup> The findings of this portion of the analysis are summarized in Table 7, yielding the following observations.

### 1. Income Generation

A. Activities directly related to income generation (253 projects dominated by PF, PN and PM) accounted for 42.0% of expenditure at the beginning of the period, rose to 52.0% in FY 78, and have since declined to 48.8%, representing a net gain of 6.8 percentage points.

B. Activities indirectly related to income generation (292 projects dominated by CS, GD, PM and TC) have declined as a percentage of total expenditure, from 57.0% in FY 77 to 48.5% in FY 81, a net loss of 8.5 percentage points.

C. Activities unrelated to income (25 projects dominated by CW) have increased from 1.0% in FY 77 to 2.7% in FY 81, following a jump to 6.0% in FY 80 caused by start-up expenditures for project 690-0201, "Refugee Support" in the Southern Africa Regional program.

### 2. Food Production

A. Activities directly related to food production (226 projects dominated by PF and PM) accounted for 36.7% of FY 77 expenditure, rose to 48.8% in FY 78, and have since declined to 45.6% in FY 81, representing a net gain of nearly 9 percentage points.

B. Activities indirectly related to food production (191 projects

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<sup>1/</sup> See Methodology, Appendix 1.

Table 7

Africa Bureau Portfolio Analysis: Relation of Portfolio to Income and Food Production

	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>
<u>A. INCOME</u>					
<u>Directly Related</u> 253 Projects	48,828 42.0%	81,215 52.0%	87,326 48.9%	160,572 49.7%	231,707 48.8%
<u>Indirectly Related</u> 292 Projects	66,237 57.0%	73,923 47.3%	89,826 50.3%	143,438 44.4%	230,285 48.5%
<u>Unrelated</u> 25 Projects	1,115 1.0%	1,179 0.8%	1,316 0.7%	19,366 6.0%	12,989 2.7%
<u>TOTAL</u> 570 Projects	\$116,180 (100%)	\$156,317 (100%)	\$178,468 (100%)	\$323,376 (100%)	\$474,881 (100%)
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<u>B. FOOD</u>					
<u>Directly Related</u> 226 Projects	42,692 36.7%	76,265 48.8%	80,781 45.3%	149,780 46.3%	216,764 45.6%
<u>Indirectly Related</u> 191 Projects	56,978 49.0%	52,031 33.3%	69,595 39.0%	98,960 30.6%	164,955 34.7%
<u>Unrelated</u> 153 Projects	16,510 14.2%	28,021 17.9%	28,092 15.7%	74,636 23.1%	93,162 19.6%
<u>TOTAL</u> 570 Projects	\$116,180 (100%)	\$156,317 (100%)	\$178,468 (100%)	\$323,376 (100%)	\$474,881 (100%)

dominated by PM, TC, and CD) have declined as a percentage of total expenditure from 49.0% in FY 77 to 34.7% in FY 81.

C. Activities unrelated to food production (153 projects dominated by PN, CS and CW) have increased from 14.2% of total expenditure for FY 77 to 19.6 of that for FY 81.

It is apparent from these separate analyses that there is a correlation between income-generating projects and food-producing projects. This is largely due to the internal consistence of the analysis: for example, nearly all projects in the PF category were by definition directly related to food production but also to income generation since the former strongly affects the latter. In any case, it may be observed that

a. Expenditures directly related to either food or income reached their peak as a proportion of total expenditure in FY 78 and have since declined;

b. Expenditures indirectly related to either food or income have declined as a proportion of total expenditure; and

c. Expenditures unrelated to either food or income have increased as a proportion of total expenditure, most notably with respect to projects unrelated to food.

## V. Implications for Bureau Strategy

This section provides the conclusions and recommendations of ARD for AID strategies in the rural sector of Africa, primarily with respect to strategies to expand production of food and other agricultural commodities. The food situation of Africa, and relationships between this situation and rural economic and social conditions, as discussed earlier, are primary determinants of these conclusions and recommendations.

The agricultural development assistance strategy of AID in Africa should focus on helping host countries (a) to create a national policy and program environment that gives farmer producers adequate incentives and the associated means to increase their output (primarily of food) and (b) concurrently to develop the institutions that service national food production and distribution systems. Specific institutions that require long-term support include research, extension and marketing (both of production inputs and of commodities produced). Physical infrastructure also commands attention, with basic transportation networks probably receiving priority attention.

We concur in the USDA analysis, which emphasizes the need for increased attention to planning and policy analysis. The first conclusion of their report is that "In the near term, the coordination of government policies in food production, marketing and trade offers the best hope of meeting food needs in Sub-Saharan Africa."<sup>1/</sup> Assisting host governments in planning and policy analysis should receive first priority in virtually any imaginable country situation in which there is a satisfactory level of interest and degree of understanding. For this purpose, we should support the U.S. commitment to the World Food Council to assist host countries in undertaking

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<sup>1/</sup> USDA, op. cit., p. 366.

food sector strategy studies. PL 480, Title III provisions offer a particular entree to undertake policy studies and to negotiate for policy changes that may be identified as needed. And over the long term, we need to dramatically expand our assistance to host countries in launching projects that will institutionalize rural agricultural food sector planning and policy analysis capabilities. Our project portfolio analysis indicates only very modest efforts to date.

The USDA analysis clearly identified the need for supporting institutional capacities to make price incentives effective. There is little use in announcing a price floor that cannot be backed by providing convenient buying points, prompt payments, storage and transport. An almost disastrous series of events in Kenya and Tanzania following exceptionally large crop harvests should amply dramatize these relationships.

The need for better trained human resources is an integral part of virtually any program thrust. Certainly policy analysis and management of programs of implementation, research and extension require cadres of highly trained people and also less-trained supporting staff.

A mid-term and long-term strategy requires development of improved technology, production and distribution of any inputs that are required from off-farm sources, and presenting ("teaching") the new techniques to farmers through extension processes. For a variety of compelling economic and logistic reasons, the improved technology should be as nearly "self-contained" as possible, with little dependence on heavy supporting infrastructure.<sup>1/</sup> This consideration may be similar in its results to the efforts to identify "appropriate technology," at least to the extent that those engaged in "appropriate technology" activities are fully

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<sup>1/</sup> USDA, op. cit., p. 365.

knowledgeable and pay close attention to the requirements of agriculture.

Many observers, including the USDA analysts, have noted the shift toward foods that are difficult or impossible to produce in Africa, especially on the part of urban dwellers. The shift, especially toward wheat and rice, has serious economic implications. The shift away from traditional staples should be arrested or reversed if possible. The means may be an enlarged program to identify specific consumer preferences, to integrate this information with research on new varieties, and to develop new processing technologies.<sup>1/</sup>

In the longer term, it is necessary to transform the subsistence sector in ways that raise living standards and respect social values. Only thus can food production really be increased sharply, generating substantially increased employment and income.<sup>2/</sup> Only through a transformation that substantially increases output per worker can the conditions of severe rural poverty in most of Africa really be relieved. Research must play a fundamental role in identifying the needed technology.

Recent statements by David Garst of the Board for International Food and Agricultural Development (BIFAD) underscore the preceding emphasis on identification and dissemination of technology that is truly productive. Garst notes that it may be surprising that he, a U.S. agri-businessman, would support institutional and human resource development activities. He employs an illustration based on fertilizer use and its effect on production in Bangladesh and India. Only by finding technology that provides a much better pay-off will investment in fertilizer really pay off. The returns to cost from research are thus likely to be much higher than short-

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<sup>1/</sup> USDA, *op. cit.*, p. 366.

<sup>2/</sup> *Ibid.*, p. 367

term returns from fertilizer purchases. He concludes, "Present shortages are human resources and institutional infrastructure, not fertilizer or credit."<sup>1/</sup>

How do these program needs compare with the profile of AID expenditures in Africa for the period FY 1977-81?

Growth of expenditures for projects classified as "Production", both in level and percentage, is consistent with the urgent need for both food and income. A continued and even heavier emphasis on production is indicated as imperative throughout this decade. The quality of the production projects is as important as levels of investment.

Stability of the level of expenditures for Transportation and Communications, but a sharp decline in the percentage allocation, is sharply contrary to perceived needs. Opportunities to build and renovate roads that directly support food production and marketing should receive priority attention.

Division of the Production category among food, nonfood and mixed groupings raises questions, but no definitive conclusions. The "Production-Mixed" category, which increased so sharply, deserves further study. It is not clear that this increase represents a valid, rewarding shift from specialized to more rewarding, logically integrated multi-activity projects.

#### A. Food Production

The food production grouping is treated in greater detail than others. The sharp increase in "General Agriculture" projects may represent a desirable long-term objective, but other types of projects may have been

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<sup>1/</sup> Agency for International Development, BIFAD Briefs, Vol. III, No. 6, October 1980, pp. 1-2.

sacrificed and/or projects more sharply focused on food production may be more appropriate. Perhaps host countries and AID are not ready for the demands of more comprehensive, complex projects.

The decline of expenditures for Physical Inputs projects should be reversed, particularly through exploiting opportunities to produce hand tools, more complex equipment, improved seeds and fertilizer on an economic basis. The USDA analysis calls sharp attention to this general need and it is supported by the practical experience in Africa of the ARD staff.

The declining percentage allocation to relatively specific Crops projects may reflect the shift toward the more complex "General Agriculture" category. This shift may be desirable in principle, but it is not certain the research base and experience is adequate as yet to design and administer complex projects successfully.

Crop storage and protection generally is recognized as an opportunity to gain relatively quick increases in food actually available for consumption. The need for adequate storage with reasonable losses is further indicated by the USDA analysis, demonstrating the need for storage in support of effective incentive programs. The case for crop production may be similar. The effectiveness of existing projects should be evaluated. To the extent the record shows that performance somewhat matches the theoretical promise of these projects, they should be applied in additional countries on a priority basis.

Aquaculture programs have great appeal, but their record thus far in Africa is considered mixed at best. There is no basis for recommending expansion beyond a few pilot projects.

The decline in livestock and range management expenditures as a

proportion of yearly totals may reflect the difficulty of designing and implementing successful range management projects in particular. The need for improved range management as a base for more productive livestock is evident. Efforts should be continued and expanded where there is solid promise of progress.

There is need for major expansion and improvement of marketing systems, particularly as productivity of farmers can be increased to provide more food for the rapidly growing cities. While there is some marketing activity included in other project categories, the need is so great that projects with a marketing emphasis should be sought, and expenditures increase.

The institutions and manpower group is varied, and most of this activity is hidden in other groups (i.e. research and extension, agricultural education and training). We place great emphasis on institution building and on manpower development. However, while these purposes may in most cases best be met through other projects with a functional orientation, cooperative development activities should be discussed separately. A few specialized cooperatives projects are included in this category. This organization type is widespread, and involved integrally in many projects that AID supports. Performance of cooperatives should be strengthened through expanded specialized attention and assistance, not necessarily requiring specialized projects.

Agricultural education and training should receive continued emphasis, probably continuing to increase in both amount and proportion. This represents an area of special U.S. skill, and offers high returns. AID needs to adopt a long-term commitment toward this activity, including willingness to absorb recurrent costs where public reserves are not

sufficient.

The dramatic increase in agricultural research and extension is supported solidly. The need to identify, prove and disseminate improved technology is paramount in improving the food and rural income situation of Africa. Potentially effective research programs should not suffer for lack of funds, and extension systems must be strengthened to disseminate proven technology.

It is not certain that lack of agricultural credit has been a significant production constraint in most of Africa. The need for credit will expand sharply, however, when the need for purchased components of proven technology is shown, and inputs are available. The need for credit may readily outrun AID capabilities, and AID may elect to defer to the World Bank or other donors in many cases.

As indicated above, improved agricultural planning and policy analysis at the host country sector level is the most critical of our recommended priorities. These activities must be expanded. As our project portfolio analysis suggests, relatively little attention has been given to this by the Africa Bureau and its field missions.

#### B. Consumption

ARD has no comments or recommendations on this category.

#### C. Transportation and Communications

The decline in the proportion for roads should be reversed, as noted above.

#### D. General Development

The increase in expenditures for manpower development may be desirable. New proposals should be examined constantly for the relevance of

training programs to productive occupations, especially farming and related functions.

Public administration may be a valuable category, to the extent these projects genuinely contribute to improved administration of public programs, especially the production-oriented ones.

#### E. Food Production and Income Generation

Analysis of the division of expenditures between that directly income-related and that indirectly related showed a sharp increase in the direct group in FY 1978 and then a fairly steady percentage thereafter. This constancy is not consistent with the critical need for goods, and for income to support services in Africa. It may be difficult, however, to expand the income-related portfolio while the situation dictates much emphasis on institution building, training, and planning and policy analysis.

The close correlation between the portfolio related to income production and that related to food was noted earlier. The needs of Africa definitely dictate more direct attention to food than the proportions indicated by this classification, never reaching 50 percent, and declining slightly as a percentage since FY 1978.

## VI. Recommended Course of Action

Much recent analysis, and even information getting into the mass media, highlight the food needs of Africa to an extent that demands still further emphasis on food production activities by AID. Decisions by the Africa Bureau to concentrate in this area in its regular program, and in the additional "Leadership" investment proposal, are strongly endorsed.

Action to increase food production also will increase incomes of farmers, those in the input supply system, and those who market the increased output. More food production produces more income, purchasing power for food and other goods, and the private and public income stream required to support and service the components of basic human needs.

AID strategy and programs in Africa should focus on helping (a) to create a national policy and program environment that gives farmers adequate incentives and the associated means to increase their output (primarily of food) and (b) concurrently to develop the institutions that service national food production and distribution systems. Actions to accomplish these broad purposes are varied, complex, and require fitting to individual countries. The following paragraphs lift up the main items considered applicable to most or many African host countries.

Assisting in planning and policy analysis should receive first priority. Preparing food sector strategy statements in selected countries, as recommended by World Food Council, provides a short-term means of planning and policy assistance. Other similar rural/agricultural/food sector planning and policy analysis efforts must be encouraged for both the short- and long-term. The priorities in institutional development are for research, extension and marketing. These establishments and their operating programs offer the way to identify and disseminate technology

that will increase output per worker. Institution-building programs and projects must be expanded. In addition to maintaining and expanding current research initiatives, AFR is preparing for presentation to a group of donors under the framework of Concerted Action for Development (CADA), a proposed major additional research initiative.

As improved technologies are identified and disseminated, it will be necessary to supply the physical inputs involved. We recommend expansion of projects to produce such inputs in countries whenever feasible. Actions to expand distribution systems for the inputs go hand in hand. Such distribution and marketing of production inputs usually should be combined in a strengthened marketing system for commodities produced. AID should begin planning and preparing for major actions in this field.

Transportation is frequently identified as a significant bottleneck. Certainly AID and other donors must prepare to make large investments in road networks and truck fleets before a really more productive agricultural system, particularly one involving inputs supplied from towns and cities and products returned to them, can be in place.

Actions to improve crop protection and crop storage will command priority consideration whenever economic actions are identified because these actions can yield a rapid increase in food available for consumers.

Agricultural education and training needs cut across virtually all conceivable functional actions. The U.S. can provide a lasting benefit to African countries by increased investment in training, particularly in skills required for tangible development programs. ARD recommends that selected missions be encouraged to prepare training projects, per se, and that AFGRAD-type programs be expanded. ARD is preparing for consideration a proposal for a new high-level agricultural university for

advanced and specialized training in Africa.

This outline and presentation may imply a low priority for projects contributing directly to increased production in the short term. It is true we perceive the greatest needs to be in the areas of policies, institutional systems and manpower, before bricks, mortar, machines, dams and fertilizer investment on a large scale can be very effective. None-the-less, short-term direct production interventions should be undertaken as opportunities are identified and resources are available, particularly those that test and commence to build institutions that increase production. We do recommend continued acceptance of an institution-building approach, albeit sometimes indirect, giving priority attention to identified functional requirements of a productive system of agriculture.

## Appendix 1.

### Methodology

#### A. Definition of the Universe

The Africa Bureau Portfolio Trend Analysis was designed to discern patterns of investment by the Bureau over a five-year period, FY 1977-81. The universe consisted of all projectized expenditures, regardless of funding account, incurred at any time during this period. Since some projects incurred their final expenditures at the beginning of the period (FY 77) while others were only coming on stream at the end (FY 81), the resulting universe represents the cross-section of a flow of expenditure over time. The total number of projects incurring expenditure during the period, exclusive of "Self-Help Development" projects, for which descriptive material was not readily available, was fixed at 570 separate and discreet activities. These projects are listed in Appendix 2 by country or regional program.

#### B. Data Sources

Two sources were employed in the compilation of project expenditure data: printouts from Financial Management and the 1982 Annual Budget Submission for the Bureau. The former, containing actual expenditures by year and by project, were used for the fiscal years 1977, 1978 and 1979, while the latter, containing estimated expenditures by year and by project, was used for fiscal years 1980 and 1981. The data taken from the 1982 ABS did not incorporate new projects projected for FY 1982.

The two sources, taken together, enabled an overview of the five-year period revealing not only older and newer projects but projects spanning the two data sources as well. Thus, for example, a project that began in FY 1979, the last year covered under the printouts from FM, was picked up again in the FY 1982 ABS data.

## C. Categorization of Projects

### I. Functional Categories

As originally envisaged, the Portfolio Trend Analysis was to divide activities into projects of two types, "Production" and "Consumption." The former was to cover all projects aimed at the producing sectors of a given economy (i.e. agriculture and industry) while the latter was to cover activities aimed at the consumptive sectors (i.e. health and education). As the review of projects proceeded, however, it became apparent that certain activities did not "fit" into either category and it was determined that two new ones would be added: Transportation and Communications (TC), covering chiefly roads but also road maintenance, telecommunications, bridge and port construction and other activities in this area, and General Development (GD), covering activities such as "training in project management" which aim at enhancing the development "process" itself.

#### a. Production

As stated above, projects in this functional area are "aimed" at the productive sector of a given economy. The beneficiaries of these projects either produce goods and services, as in crop production, or enhance their capability to do so, as in vocational education.

Production, for the purposes of this analysis, is broken down into Production-food (PF), Production-Nonfood (PN) and Production-Mixed (PM), which are in turn further broken down into sub-categories. Following is a brief description of each category and a listing of illustrative project titles in each sub-category.

#### PF-Projects aimed at the production of food

General Agriculture Includes sector support, integrated rural development, or projects containing components of two or more sub-categories in this group.

Zambia	611-0101	Agriculture & Rural Development
Kenya	615-0169	Agriculture Systems Support
Uganda	617-0142	Agricultural Projects Support
Niger	683-0228	Rural Integrated Agricultural Development

Physical Inputs

Rwanda	696-0103	Farm Hand Tools
Tanzania	621-0092	Seed Multiplication & Distribution
Sahel	625-0013	Sahel Fertilizer Development

Crops

Nigeria	620-0798	Food Crop Production
Mali	688-0206	Action Riz-Sorgho
Chad	677-0001	Lake Chad Irrigated Agriculture

Crop Storage & Protection

Senegal	685-0209	Grain Storage
Sahel	625-0928	Regional Food Crop Protection

Fish

Cameroon	631-0022	Small Farmer Fish Production
C.A.R.	676-0004	Fish Culture Extension

Livestock & Range Management

Kenya	615-0157	National Range & Ranch Development
Tanzania	621-0129	Dairy Production
Somalia	649-0108	Central Rangelands Development

Agricultural Marketing

Tanzania	621-0099	Agriculture Marketing Development
Sahel	625-0523	West Africa Meat Marketing
Upper Volta	686-0243	Grain Marketing Development

Institutions & Manpower

Tanzania	621-0119	Agriculture Manpower Development
Somalia	649-0112	Agriculture Delivery Systems
Liberia	669-0127	Agricultural Cooperatives Development

Agricultural Education & Training

Malawi	612-0054	Bunda Agricultural College
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Mali	688-0207	Agricultural Officers Training
Cameroon	631-0002	Training for Farm Families

#### Agricultural Research & Extension

Kenya	615-0180	Cropping Systems Research
Botswana	633-0215	Horticulture Extension
Africa Reg'l	698-0393	Food Grain Research & Development

#### Agricultural Credit

Sierra Leone	636-0112	Cooperative Credit Society
Liberia	669-0145	Agricultural Credit Bank
Africa Reg'l	698-0391	Directed Agricultural Production Credit

#### Agricultural Planning

Cameroon	631-0008	Agriculture Management & Planning
Lesotho	632-0064	Lesotho Agriculture Sector Analysis

PN-Projects aimed at the production of goods and services other than food.

#### Human Resources

Liberia	669-0131	Vocational Training
Senegal	685-0222	Integrated Youth Job Development

#### Industry & Enterprise Promotion

Sierra Leone	636-0168	Opportunities Industrialization Center
Sahel	625-0717	African Enterprises Promotion II
Lesotho	632-0209	Cottage Mohair Production

#### Credit

Kenya	615-0202	Credit Union Development
Sahel	625-0715	Investment and Credit Facility

PM- Projects aimed at the production of both food and non-food goods and services. Includes natural resources and energy.

#### Natural Resources & Energy

Botswana	633-0209	Renewable Energy Technology
Sudan	650-0045	Rural Reforestation
Senegal	685-0223	National Plan for Natural Resources

Commodity Import

Sudan	650-0038	Commodity Import Program
Sudan	650-0040	Commodity Import Program II

Credit

Lesotho	632-0214	Credit Union Development
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b. Consumption

Projects in this functional area are divided into two groups: Consumption-Services (CS) and Consumption-Welfare (CW). The former relates to quasi-governmental functions generally associated with user fees or charges such as health and education, while the latter involves transfer payments or free distribution of commodities, such as food, or services, such as low-income shelter. Following is a list of illustrative project titles for sub-categories under each of these two groups.

CS-Projects aimed at the provision of government servicesGeneral Education

Guinea-Bissau	657-0003	Primary Teacher Training
Niger	683-0237	Literacy Training
Chad	677-0005	Rural School Construction
Africa Reg'l	698-0062	Graduate Fellowship Program

Health & Population

Tanzania	621-0157	Health Education & Training
Ghana	641-0087	Population Dynamics
Swaziland	645-0062	Water-Borne Disease Control
Botswana	633-0032	Maternal-Child Health/Family Planning
Liberia	669-0054	National Medical Center

Potable Water

Mali	688-0224	Rural Water Improvement
Cape Verde	655-0004	Mindelo Desalinization

CW-Projects aimed at free distribution of commodities  
or services

Disaster/Refugee Assistance

Tanzania	621-0123	Disaster Relief Assistance
Ethiopia	663-0211	International Disaster Seminar
Chad	677-0043	Chad Recovery & Rehabilitation

Shelter

Botswana	633-0092	Self-Help Housing Development
Guinea	675-0202	Secondary Cities Shelter
Niger	683-0224	Shelter Sector Planning

Food Distribution

Chad	677-0023	Food Delivery & Rural Works
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c. Transportation & Communications

Projects in this category are aimed at improving transportation and communications linkages in African countries. Sub-categories in this functional area are self-explanatory and are as follows: (1) Sector Support and Miscellaneous, (2) Roads, (3) Rail, (4) Telecommunications, (5) Airport and (6) Bridge and Port Construction. Following are illustrative project titles.

Africa Reg'l	698-0423	Transportation Development Studies
Gambia	635-0206	Roads Maintenance Systems
Sudan	650-0031	Southern Access Road
Cameroon	631-0011	Trans-Cameroon Railroad III
Liberia	669-0111	Telecommunications Expansion
Liberia	669-0107	Navigational Aids at Principle Airports
Sahel	625-0888	Cotonou Bridge & Dam

d. General Development

Projects aimed at the development "process" itself are included in this category. Following are illustrative project titles for each sub-category.

Ghana	641-0062	Economic Development Management
Sierra Leone	636-0108	Increasing Revenue for Development
S. Afr. Reg'l	690-0104	Project Development & Support
Africa Reg'l	698-0127	African Development Bank
Sahel	625-0934	Sahel Private Voluntary Organizations

#### Research & Training

Cameroon	631-0007	Social Science Research & Training
Botswana	633-0095	National Migration Study
Africa Reg'l	698-0403	Social Science Research

#### Manpower Development

Lesotho	632-0030	South Africa Development Personnel & Trng.
Africa Reg'l	698-0384	African Manpower Development
Mauritania	682-0211	Rural Assessment/Manpower Survey

#### Community Development

Cameroon	631-0010	Pilot Community Development
Ghana	641-0095	Community Development Staff Training
Mali	688-0209	Community Development for Women

#### Public Administration

Liberia	669-0122	Institute of Public Administration
E. Afr. Reg'l	618-0649	East Africa Community Staffing/Management
Niger	683-0279	Evaluation Assistance to Ministry of Plan

#### D. Relation of Portfolio to Food Production and Income Generation

In addition to constructing the typology described above, each project, irrespective of functional category, was evaluated with regard to its potential or actual relation to (a) food production and (b) income generation. Based on descriptions of project purpose and goal, a project was either directly related (D), indirectly related (I) or unrelated (U) to these two objectives. It must be emphasized that each of the 570 projects comprising the universe was evaluated against both food and income. Hence,

a project might be directly related to income but unrelated to food, unrelated to either, or any other of the nine possible combinations:

Food-D	Income-D
Food-D	Income-I
Food-D	Income-U
Food-I	Income-D
Food-I	Income-I
Food-I	Income-U
Food-U	Income-D
Food-U	Income-I
Food-U	Income-U

Each of the major functional categories discussed earlier, (i.e. PF, CS, GD, etc.) were dominated, with some exceptions in each category, by the following configurations:

Production-Food	Food-D	Income-D
Production-Nonfood	Food-U	Income-D
Production-Mixed	Food-I	Income-I
Consumption-Services	Food-U	Income-I
Consumption-Welfare	Food-U	Income-U
Transportation & Communications	Food-I	Income-I
General Development	Food-I	Income-I

Appendix 2.

Projects by Country and Regional Program

(In Numerical Order of Country or Regional Program Code)

























## AFRICA BUREAU PORTFOLIO TREND ANALYSIS, FY 1977-81

Country or Region: Sahel (Cont'd)

Project Number	Project Title	Type	Expenditure by Fiscal Year (\$000s)					Food			Income		
			77	78	79	80 (Est.)	81 (Est.)	D	I	U	D	I	U
			625-0916	Sahel Food Crop Protection	PF	670	920	1,387			X		
-0917	Water Data Network & Dev.	PM	314	637	2,202	1,896	500		X			X	
-0926	African Development Program	GD	2,767	2,778	588				X			X	
-0927	Demographic Data	CS				400	300			X		X	
-0928	Reg'l Food Crop Protection	PF			24	2,900	5,000	X			X		
-0929	Planning, Management & Res.	GD		2,133	3,226				X			X	
-0930	Instit. Bldg./Socio-Econ. Dev.	GD			200	500	1,300		X			X	
-0934	Sahel F.Cs	GD				100	700		X			X	
-0936	Sahel Manpower Dev.	GD			181	1,400	2,000		X			X	
-0937	Accelerated Impact Program	GD				1,000	1,000	X				X	
-0939	Improved Rural Technology	PM				50	600	X				X	
-0940	Water Data Network & Mgmt. II	PM					640		X			X	
-0942	Envir. Trng. & Mgmt.	PM				10	155		X			X	
-0980	Reg'l Roads Maint. Trng. Cntr.	TC				130			X			X	
-9801	Human Rights Fund for Africa	CW				70	150			X			X
TOTALS			21,382	20,141	20,449	16,439	20,349	18	25	5	21	27	1

















## AFRICA BUREAU PORTFOLIO TREND ANALYSIS, FY 1977-81

Country or Region: Gambia

Project Number	Project Title	Type	Expenditure by Fiscal Year (\$000s)					Food			Income		
			77	78	79	80 (Est.)	81 (Est.)	D	I	U	D	I	U
			635-0202	Soil/Water Resource Mgmt.	PM		11	316	500	800		X	
-0203	Mixed Farming & Resource Mgmt.	PF				1,500	1,500	X				.	
-0204	Rural Development Program II	PF					300	X				.	
-0205	Gambia Reforestation	PM				300	500		X			.	
-0206	Rural Roads Maint. Systems	TC				1,000	2,000		X			.	
-0208	Cooperatives Development	PF				50	350	X				.	
-0215	Training for Development	GD					200		X			.	
TOTALS			-	11	316	3,350	5,650	3	4	0	3	.	0



































## AFRICA BUREAU PORTFOLIO TREND ANALYSIS, FY 1977-81

Country or Region: Liberia (Cont'd)

Project Number	Project Title	Type	Expenditure by Fiscal Year (\$000s)					Food			Income		
			77	78	79	80 (Est.)	81 (Est.)	D	I	U	D	I	U
			669-0139	Upper Bong County Rural Dev.	PF			1,151	1,500	1,949	X		
-0141	Agriculture Training & Dev.	PF	9	48	10			X			X		
-0142	Upper Lofa County Rural Dev.	PF	136	541	902	1,421	2,000	X			X		
-0143	Road Maintenance Equipment	TC	675	90	91	811			X				
-0145	Agricultural Credit Bank	PF				550	600	X			X		
-0146	Low Income Housing	CW			22	250	380			X			X
-0153	Rural Development Training	PF		250	1,734	350	350	X			X		
-0154	Nimba County Entrep'l Dev.	PN		50	113				X		X		
-0157	Hand Dug Wells	CS			208					X			
-0159	Navig. Aids at Princ. Airports	TC			415				X				
-0160	Youth On-the-Job Training	PN				295	200			X	X		
-0163	Nimba County Rural Technology	PM				150	600	X			X		
-0164	Land Tenure	PF					355		X				
-0165	Health Delivery System	CS					2,250			X			
-0168	Opport's Ind'iz. Center int'l	PN				500	500			X	X		
-0171	BWI Expansion	PN					1,000			X	X		
TOTALS			7,662	6,360	10,468	12,469	16,824	10	12	11	15	17	11





## AFRICA BUREAU PORTFOLIO TREND ANALYSIS, FY 1977-81

Country or Region: Chad

Project Number	Project Title	Type	Expenditure by Fiscal Year (\$000s)					Food			Income			
			77	78	79	80 (Est.)	81 (Est.)	D	I	U	D	I	U	
			677-0001	Lake Chad Irrigated Agric.	PF	30	1,007	277			X			
-0002	Agricultural Institution Dev.	PF			92			X						
-0004	Rural Health Planning/Mgmt.	CS	15	249	155					X		X		
-0005	Comp. Human Resources Dev.	CS	47	389	477					X		X		
-0008	Acacia Albida Expansion	PF	352	452	286			X						
-0009	Irrigated Crop Production	PF	118	106	148			X						
-0014	Crop Prod/Seed Mult/Grain Mktg	PF			25			X						
-0020	Rural Family Grain Storage	PF		93	65			X						
-0021	Rural School Construction	CS			126					X		X		
-0022	Rural Sanitary Water	CS		24	230	339				X		X		
-0023	Food Delivery/Rural works	CW		26	117	29				X		X		
-0032	Chad Road Maintenance	TC			500	754			X			X		
-0033	Lvstk Vaccination Campaign	PF		245	69			X						
-0043	Chad Recovery & Rehabilitation	CW					1,500			X				X
-0201	Chad Range & Livestock Dev.	PF	870	821	377			X						
TOTALS			1,432	3,412	2,944	1,122	1,500	8	1	6	3	3	1	















## AFRICA BUREAU PORTFOLIO TREND ANALYSIS, FY 1977-81

Country or Region: Upper Volta

Project Number	Project Title	Type	Expenditure by Fiscal Year (\$000s)					Food			Income		
			77	78	79	80 (Est.)	81 (Est.)	D	I	U	D	I	U
			686-0201	Eastern CPD Integ. Rural Dev.	PF	972	561	331	884	790	X		
-0202	Seed Multiplication	PF	400	92	247	366	136	X			X		
-0205	Village Livestock Dev.	PF	248	535	237	643	266	X			X		
-0211	women's Roles in Development	PD		110	121	189	640	X			X		
-0212	Village Development	PM		38	16	120	185				X		
-0215	Eastern CPD Rural Roads	TC		522	568	1,024	408		X			X	
-0219	Rural Enterprise Development	PM		180	232	185	45	X			X		
-0220	Dori Integrated Rural Dev.	PF	22	70	98	30		X			X		
-0221	Agric/Human Resources Dev.	PF			194	1,094	2,500	X			X		
-0222	Volta Valley Development	PF					350	X			X		
-0226	Training women in the Sahel	GD			79	155	400		X			X	
-0228	Rural water Supply	CS				2,000	3,900			X		X	
-0231	Saguenega Integ. Rural Dev.	PF			847	1,956	1,158	X			X		
-0235	Forestry Education & Dev.	PM				100	1,800		X			X	
-0243	Grain Marketing Development	PF					985	X			X		
-0245	Foundation Seed Production	PF					325	X			X		
-0247	Rural Roads II	TC					838		X			X	
TOTALS			1,642	2,108	3,470	8,746	14,726	12	4	1	12	5	0







## AFRICA BUREAU PORTFOLIO TREND ANALYSIS, FY 1977-81

Country or Region: Southern Africa Reg:

Project Number	Project Title	Type	Expenditure by Fiscal Year (\$000s)					Food			Income			
			77	78	79	80 (Est.)	81 (Est.)	D	I	U	D	I	U	
			690-0004	Univ. of Bots/Les/Swazi land	CS	8						X		
-0006	BotZam Road	TC	2,662	911	1,101				X				X	
-0035	Malawi Roads I	TC	1,795	1,228					X				X	
-0046	Malawi Roads II	TC	3,564	2,092	4,183				X				X	
-0063	Dev. Trng. for S'tern Africa	CS	577	3,589	3,979	8,000	3,043			X			X	
-0076	Southern Perimeter Road	TC				4,000	8,000		X				X	
-0083	Academic & Skills Training	CS	2	126	970				X				X	
-0102	Fund for Student Refugees	CS		2,000	610					X			X	
-0104	Program Development & Support	GD		694	217				X				X	
-0105	SA Dev. Anal. & Planning	GD		313	520				X				X	
-0201	Refugee Support	CW				12,101	2,000			X				X
-0202	Private Voluntary Organiz's	GD					800		X				X	
-0206	Planning, Mgmt., & Research	GD				1,000	1,750		X				X	
-0207	Agriculture & Lvstk. Dev.	PF					250	X				X		
-0208	Technical & Managerial Trng.	GD					500		X				X	
-0209	Transportation & Storage Dev.	PF					3,000	X				X		
TOTALS			8,608	10,953	11,580	25,101	19,343	2	10	4	2	13	1	















## Appendix 3.

AFRICA BUREAU PORTFOLIO TREND ANALYSIS

Country and Regional Program Expenditures  
Expressed as a Percentage of Total Expenditure

	<u>FY77</u>	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
<u>Central Africa</u>					
631 Cameroon	0.3%	0.7%	3.4%	1.4%	2.7%
658 Sao Tome/Principe	-	0.1	-	-	-
660 Zaire	2.0%	1.7%	2.7%	1.1%	1.2%
676 Central African Rep.	0.3%	0.2%	0.2%	-	-
679 Congo	-	-	-	-	0.1%
696 Rwanda	0.4%	-	0.3%	0.3%	1.1%
695 Burundi	-	-	-	0.4%	0.8%
Total	<u>3.0%</u>	<u>2.7%</u>	<u>6.6%</u>	<u>3.2%</u>	<u>5.9%</u>
<u>East Africa</u>					
603 Djibouti	-	-	-	0.2%	0.3%
615 Kenya	8.1%	4.8%	7.6%	4.3%	5.0%
617 Uganda	-	-	-	-	1.2%
618 East Africa Reg'1	0.5%	0.5%	0.1%	-	-
621 Tanzania	4.7%	6.5%	4.0%	3.9%	5.7%
642 Mauritius	-	-	-	0.1%	-
649 Somalia	-	-	-	3.6%	3.1%
650 Sudan	0.6%	0.5%	1.1%	10.9%	10.9%
662 Seychelles	-	-	-	0.1%	0.1%
663 Ethiopia	4.7%	2.4%	1.5%	-	-
Total	<u>18.6%</u>	<u>14.7%</u>	<u>14.3%</u>	<u>23.1%</u>	<u>26.3%</u>
<u>Coastal West Africa</u>					
620 Nigeria	1.1%	0.6%	0.2%	-	-
636 Sierra Leone	0.1%	1.1%	0.8%	1.4%	0.7%
641 Ghana	3.0%	2.9%	5.3%	1.4%	2.3%
669 Liberia	6.6%	4.1%	5.9%	3.9%	3.5%
675 Guinea	-	0.1%	0.7%	1.1%	1.2%
680 Benin	-	-	-	0.6%	0.6%
693 Togo	-	-	-	0.4%	0.7%
Total	<u>10.8%</u>	<u>8.8%</u>	<u>12.9%</u>	<u>8.8%</u>	<u>9.0%</u>
<u>Southern Africa</u>					
611 Zambia	7.4%	17.4%	2.8%	6.5%	5.2%
612 Malawi	0.1%	0.9%	0.8%	0.9%	1.3%
652 Lesotho	1.3%	1.6%	2.1%	2.3%	3.2%

(Continued next page)

	<u>1Y77</u>	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
<u>Southern Africa (Cont.)</u>					
633 Botswana	0.7%	2.1%	1.2%	4.6%	3.0%
645 Swaziland	0.6%	1.1%	0.7%	2.7%	1.8%
656 Mozambique	0.5%	-	-	-	1.5%
690 S'tern Africa Reg'l	7.4%	7.0%	6.5%	7.8%	4.1%
Total	<u>18.0%</u>	<u>30.1%</u>	<u>14.1%</u>	<u>24.8%</u>	<u>20.1%</u>
<u>Sahel</u>					
657 Guinea-Bissau	-	0.2%	0.4%	0.5%	0.7%
637 Gambia	-	-	0.2%	1.0%	1.2%
685 Senegal	0.9%	2.8%	2.6%	3.0%	3.2%
682 Mauritania	0.2%	0.2%	0.9%	1.7%	2.3%
688 Mali	2.7%	4.7%	5.3%	7.3%	3.9%
686 Upper Volta	1.4%	1.3%	1.9%	2.7%	3.1%
683 Niger	3.3%	3.0%	5.9%	1.7%	3.1%
677 Chad	1.7%	2.2%	1.6%	0.3%	0.3%
655 Cape Verde	0.5%	1.2%	1.6%	0.4%	0.5%
626 ADO-Niamey	0.2%	0.8%	4.1%	1.5%	1.2%
628 ADO-Dakar	-	-	1.7%	-	-
689 Entente	-	-	-	-	0.1%
625 Sahel Regional	18.4%	12.9%	11.5%	5.1%	4.3%
Total	<u>28.8%</u>	<u>29.3%</u>	<u>37.7%</u>	<u>25.2%</u>	<u>23.9%</u>
698 <u>Africa Regional</u>	<u>20.7%</u>	<u>14.3%</u>	<u>14.5%</u>	<u>14.8%</u>	<u>15.0%</u>
<u>Grand Total</u>	116,180 (100%)	156,317 (100%)	178,468 (100%)	323,376 (100%)	474,881 (100%)

