Accelerated Development in Sub-Saharan Africa

An Agenda for Action

The World Bank
WASHINGTON, D.C.

This report was written by the African Strategy Review Group, consisting of Elliot Berg, coordinator, K. Y. Amoako, Rolf Güsten, Jacob Meerman, and Gene Tidrick, with the assistance of many staff members of the World Bank.

The Report draws heavily on the ideas of many colleagues inside and outside the World Bank, and also reflects the views expressed by scholars and officials in Africa and in donor countries. The judgments expressed do not necessarily reflect the views of the Bank's Board of Executive Directors or of the Governments that they represent.

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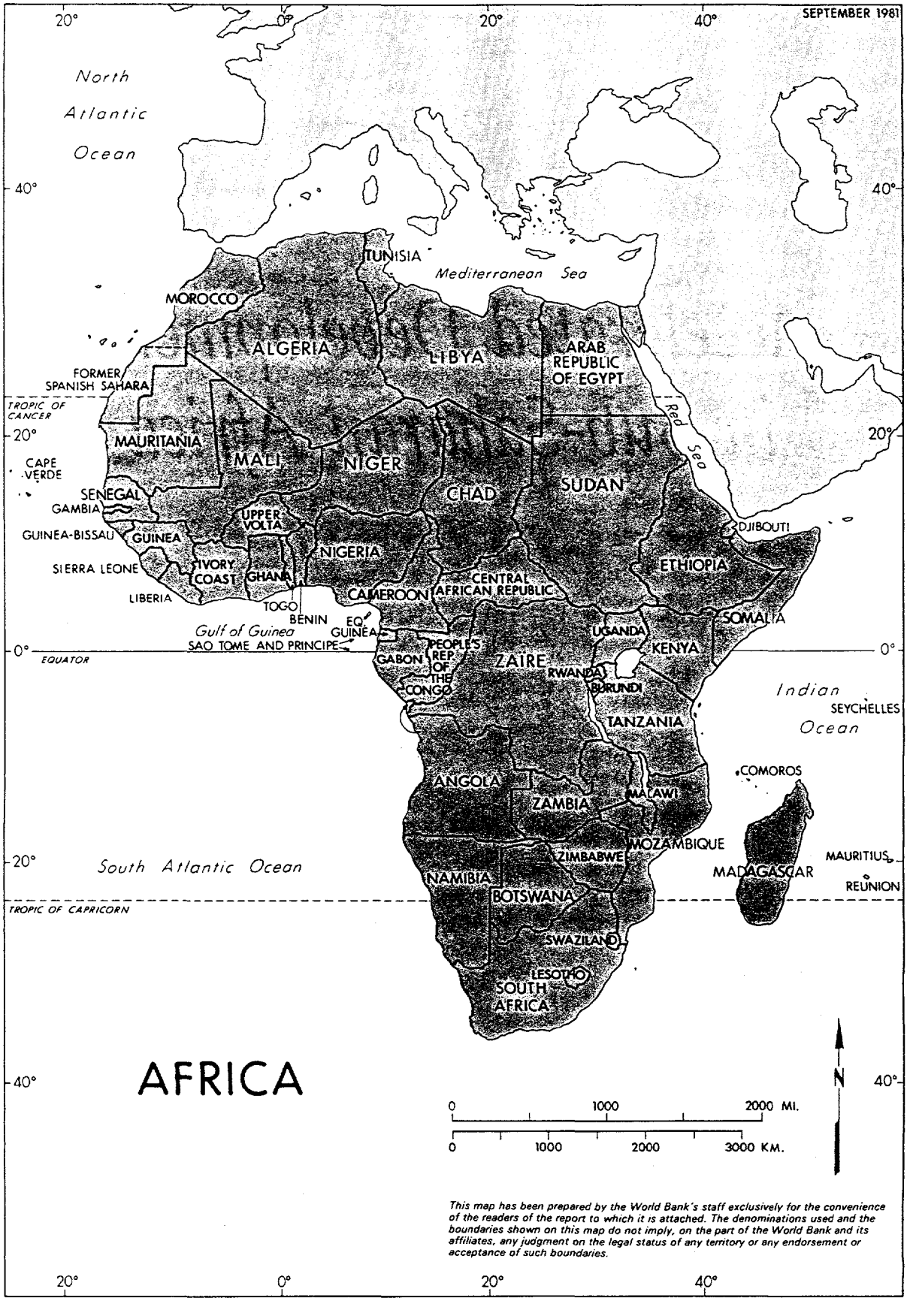

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Foreword

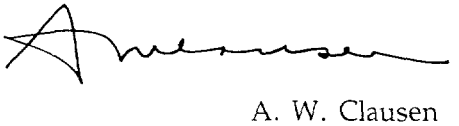
This report has been prepared by the staff of the World Bank. It highlights the severity and complexity of the problems facing many of the countries of Sub-Saharan Africa in their efforts to raise the living standards of their people.

The report accepts the long-term objectives of African development as expressed by the Heads of State of the Organization of African Unity in the *Lagos Plan of Action*. It emphasizes that if these objectives for the year 2000 are to be achieved, actions must be taken to reverse the stagnation and possible decline of per capita incomes which are projected for the 1980s.

The central theme of the report is that more efficient use of scarce resources—human and capital, managerial and technical, domestic and foreign—is essential for improving economic conditions in most African countries. From this flow a number of suggestions for the improvement of incentives and institutional support for production, particularly in agriculture. The public sector will have to meet the extensive needs for infrastructure, education, health, and other services. The efficient provision of these services will place enormous demands on administrative and managerial capacity—the scarcest resource in all countries. It is in this context that the report suggests that African governments should not only examine ways in which the public sector organizations can be operated more efficiently, but should also examine the possibility of placing greater reliance on the private sector. The report emphasizes that this is not a recommendation which derives from any preconceived philosophy of ownership. It derives from considerations of efficiency, which suggest that governments can more effectively achieve their social and development goals by reducing the widespread administrative overcommitment of the public sector and by developing and relying more on the managerial capacities of private individuals and firms, which can respond to local needs and conditions, particularly in small-scale industry, marketing, and service activities.

However, the report offers no general prescriptions. The countries of Africa are too diverse—politically, culturally, philosophically—to attempt to define a single strategy. Programs of action must be formulated by each country, and these programs must include the external financial and technical assistance which will be required to support them. To encourage the reviews and discussions which are prerequisites to the formulation of these country strategies, we have decided to publish this report, thereby facilitating widespread distribution.

We hope that the results of these discussions will be a strengthened commitment to a joint effort by African governments, bilateral donors, and international institutions to accelerate development in Sub-Saharan Africa.



A. W. Clausen

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Economic and demographic terms are defined in the technical notes to the Statistical Annex. *Billion* is 1,000 million. *Tons* are metric tons (1,000 kilograms). *Growth rates* are in real terms unless otherwise stated. *Dollars* are United States dollars. *Symbols* used in the text tables are as follows: . . Not available; (.) Less than half the unit shown; and n.a. Not applicable.

1. INTRODUCTION

In the fall of 1979, the African Governors of the World Bank addressed a memorandum to the Bank's President, expressing their alarm at the dim economic prospects for the nations of Sub-Saharan Africa and asking that the Bank prepare "a special paper on the economic development problems of these countries" and an appropriate program for helping them. This Report is the response to that request.

The Report discusses the factors that explain slow economic growth in Africa in the recent past, analyzes policy changes and program orientations needed to promote faster growth, and concludes with a set of recommendations to donors, including the recommendation that aid to Africa should double in real terms to bring about renewed African development and growth in the 1980s. The Report's agenda for action is general; it indicates broad policy and program directions, overall priorities for action, and key areas for donor attention. It does not—indeed could not—deal with specific programs or problems of individual countries.

The Report draws heavily on the Bank's experience in Africa and its extensive relations with its African members as well as the work of other multilateral organizations and bilateral development agencies. In particular, the Report builds on the *Lagos Plan of Action,*[1] the statement of development strategy adopted by the African Chiefs of State at the meeting of the Organization of African Unity held in April 1980. The *Lagos Plan* endorses objectives for the African states to achieve a more self-reliant, more economically integrated Africa by the year 2000. This Report deals with short- to medium-term responses to Africa's current economic difficulties. It focuses on how growth can be accelerated and how the resources to achieve the longer-term objectives set by the African governments can be generated, with the support of the international community. Like the *Lagos Plan,* the Report recognizes that Africa has enormous economic potential which awaits fuller development.

The Setting

Sub-Saharan Africa is a region of great diversity. On the one hand, it encompasses Nigeria, a country of 80 million people (almost one quarter of the total population of the region), producing some 44 percent of regional output. On the other hand, it includes a number of small countries such as Togo and Swaziland. There are countries rich in oil and mineral resources[2] as well as countries that are entirely agricultural; countries of the tropical rainforest and those of the semiarid interior; landlocked countries and those fronting the ocean; six countries where agricultural output has grown by over 3 percent a year during the 1970s[3] and seven countries where agricultural output has been

1. Organization of African Unity, *The Lagos Plan of Action for the Implementation of the Monrovia Strategy for the Economic Development of Africa,* adopted by the Second Extraordinary Assembly of the OAU Heads of State and Government, Devoted to Economic Matters (Lagos, Nigeria: April 28–29, 1980).

2. Botswana, Gabon, Guinea, Nigeria, Zaïre, Zambia, and Zimbabwe, among others.

3. Cameroon, Ivory Coast, Kenya, Malawi, Rwanda, Swaziland.

unchanged or has actually declined during this period[4]; countries with a long-established indigenous trading class (most of the nations of West Africa) and those where such a group is smaller and of recent origin; countries which are attempting socialist transformation and those which are following the example of the market economies.

There is, nonetheless, considerable homogeneity within the region. African economies are for the most part small in economic terms, a result of low average incomes and small populations. Of the 45 states in the region, 24 have fewer than five million people. Only Nigeria has a gross domestic product (GDP) greater than that of Hong Kong. African economies are open; foreign trade typically accounts for about a quarter of GDP. They are specialized economies, most of them agricultural, dependent on the export of two or three primary commodities. Even in the mineral-exporting countries, the bulk of the population—rarely less than 70 percent—works in agriculture, and subsistence-oriented production still accounts for half or more of total agricultural output. Only about 20 percent of the population is urban, and modern wage employment absorbs a very small proportion of the labor force—in most countries less than 10 percent.

In addition to these similarities of economic structure, other characteristics are common: the scarcity of educated people, the dominance of land-extensive agricultural systems, and an extreme ethnic diversity and consequent political fragility. All are new states, recently emerged from colonial rule, except Liberia and Ethiopia. All are tropical, with the exception of Lesotho and Swaziland. In almost all, fertility is high and population is growing rapidly—more rapidly than in any other region of the world.

Finally, there is an extraordinary degree of similarity throughout the region in the nature of the policy problems that have arisen, such as in rural development, trade, and industrialization, and in the national responses to them.

4. Angola, Congo, Ghana, Mauritania, Mozambique, Togo, Uganda.

The Report is necessarily selective in its analysis. Many important questions have been treated elsewhere: problems of science and technology, for instance, are treated at length in the *Lagos Plan of Action*, while others, such as higher rates of domestic saving, are likely to follow a resumption of growth rather than precede it. New investment opportunities and growth are the focus of the Report.

The Present Economic Crisis

During the past two decades economic development has been slow in most of the countries of Sub-Saharan Africa.[5] When, in the mid-1970s, the world economy experienced inflation and recession, nowhere did the crisis hit with greater impact than in this region.

The picture is not uniformly bleak. There are signs of progress throughout the continent. Vastly more Africans are in schools, and most are living longer. Roads, ports, and new cities have been built and new industries developed. Technical and managerial positions, formerly occupied by foreigners, are now held by Africans. Of the 45 countries in the region, nine posted annual growth rates of over 2.5 percent per capita between 1960 and 1979 (see Table SA.1).[6]

But for most African countries, and for a majority of the African population, the record is grim and it is no exaggeration to talk of crisis. Slow overall economic growth, sluggish agricultural performance coupled with rapid rates of population increase, and balance-of-payments and fiscal crises—these are dramatic indicators of economic trouble.

Between 1960 and 1979, per capita income in 19 countries grew by less than 1 percent per year, while during the last decade, 15 countries recorded a *negative* rate of growth of income per capita. And by the end of the 1970s, economic crises were battering even

5. All references to Africa in this Report are to Sub-Saharan Africa unless otherwise specifically noted. See the Introduction to the Statistical Annex for a listing of the countries included.

6. All tables preceded by the letters SA are located in the Statistical Annex. All other tables, such as 1.1, 2.1, 2.2, etc., are in the text.

high-growth countries like Kenya, Malawi, and Ivory Coast—where per capita GNP growth had averaged an annual 2.7 percent between 1960 and 1979—compelling them to design programs, supported by the Bank, to restructure their economies. Output per person rose more slowly in Sub-Saharan Africa than in any other part of the world, particularly in the 1970s, and it rose more slowly in the 1970s than in the 1960s (see Table 1.1).

The tragedy of this slow growth in the African setting is that incomes are so low and access to basic services so limited. Per capita income was $329 in 1979 (excluding Nigeria) and $411 when Nigeria is included. Death rates are the highest in the world and life expectancy is the lowest (47 years). Fifteen to twenty percent of the children die by their first birthday, and only 25 percent of the population have access to safe water. Of the 30 countries classified by the United Nations Conference on Trade and Development (UNCTAD) as the poorest in the world, 20 are African. Of the 36 countries listed in the World Bank's *World Development Report 1981* as "low income" (a per capita income of less than $370), almost two thirds are African.

The economic crisis is especially evident in agriculture, and is reflected in output figures. Export crop production stagnated over the past two decades. A 20-percent increase in production registered during the 1960s was wiped out by a decline of similar proportions in the 1970s. Consequently, Africa's share of the world market dwindled. As for food crops, while data are uncertain, they leave no doubt about general tendencies. Total food production rose by 1.5 percent per year in the 1970s, down from 2 percent in the previous decade. But since population was rising rapidly—by an annual average of 2.5 percent in the 1960s and 2.7 percent in the 1970s—food production per person was stagnant in the first decade and actually declined in the next. Imports of food grains (wheat, rice, and maize) soared—by 9 percent per year since the early 1960s—reinforcing food dependency. Food aid also increased substantially (see Tables SA.24 and SA.29). Since 70 to 90 percent of the population earns its income from agriculture, the drop in production in this sector spelled a real income loss for many of the poorest.

The deterioration in agriculture and other internal and global factors led to widespread balance-of-payments crises in the 1970s. Current account deficits in the region as a whole rose from a modest $1.5 billion in 1970 to $8 billion in 1980. External indebtedness climbed from $6 billion to $32 billion between 1970 and 1979, and debt service increased from 6 to 12 percent of export earnings in the same period. Foreign exchange reserves, which were comfortable in 1970, fell sharply. In 1979, reserves could cover only two months' imports

Table 1.1. Sub-Saharan Africa and the World: Basic Data

Countries	Population (millions) mid-1979	GNP per capita average annual growth rate (percent) 1960–70	GNP per capita average annual growth rate (percent) 1970–79	Per capita growth 1970–79 (percent) Agriculture	Per capita growth 1970–79 (percent) Volume of exports	Adult literacy rate (percent) 1976	Life expectancy at birth (years) 1979	Death rate of children aged 1–4 (per thousand) 1979
Sub-Saharan Africa	343.9	1.3	0.8	−0.9	−3.5	28	47	25
Low-income	187.1	1.6	−0.3	−1.1	−4.5	26	46	27
Nigeria	82.6	0.1	4.2	−2.8	−2.8	. .	49	22
Other middle-income	74.2	1.9	−0.5	−0.4	−3.5	34	50	22
South Asia[a]	890.5	1.5	1.5	0.0	0.6	36	52	15
All developing	3,245.2	3.5	2.7[b]	0.1	−1.5	57	58	11
Low-income	2,260.2	1.8	1.6[b]	0.1	−3.1	50	57	11
Middle-income	985.0	3.9	2.8[b]	0.6	1.9	72	61	10
All industrialized	671.2	4.1	2.5[b]	0.2	5.2	99	74	1

. . not available.

a. Bhutan, Bangladesh, Nepal, Burma, India, Sri Lanka, and Pakistan.

b. 1970–80.

Source: World Bank data files.

and by 1980 reserves had fallen even lower. Fiscal pressures also intensified in many countries, as indicated by declining real budgetary allocations for supplies and maintenance, growing imbalances between salary and nonsalary spending, and difficulties in financing local and recurrent costs of externally funded development projects.

The crises that evolved in much of the region are particularly disturbing since, during the period from 1960 to 1974, world trade and the world economy in general expanded rapidly, and many less-developed countries elsewhere experienced relatively high growth rates. Now, against a backdrop of global economic recession, the outlook for all less-developed nations—but especially for the Sub-Saharan region—is grim. Although cyclical factors may push prices of some African exports up from their low levels of the recent past, mounting energy costs, slow growth in the industrial countries (which translates into diminished markets for the developing world), and reduced growth of international trade (factors that have plagued the global economy for the last half decade) will make renewed African growth difficult.

In sum, past trends in African economic performance and continued global recession together explain the pessimistic projections for African development in the 1980s. The *World Development Report 1981*, under its most optimistic set of assumptions about the expansion of the world economy, forecasts virtually no growth in per capita income for the continent in this decade[7]; under less favorable assumptions, a negative rate of growth (−1.0 percent per year) is projected for the poorest nations in the region.

These prospects and their political, social, and economic implications are not acceptable either to the countries concerned or to the international community. There is an urgent need to understand what has gone wrong and what must be done—by African governments themselves and the concerned international community—to assure a better future for Africa's people.

7. World Bank, *World Development Report 1981* (New York: Oxford University Press, 1981), Table 1.1.

Sources of Lagging Growth

Africa's disappointing economic performance during the past two decades reflects, in part, internal constraints based on "structural" factors that evolved from historical circumstances or from the physical environment. These include underdeveloped human resources, the economic disruption that accompanied decolonization and postcolonial consolidation, climatic and geographic factors hostile to development, and rapidly growing population. These internal factors are discussed further in Chapter 2.

Growth was also affected by a set of external factors—notably adverse trends in the international economy, particularly since 1974. These include "stagflation" in the industrialized countries, higher energy prices, the relatively slow growth of trade in primary products, and—for copper and iron-ore exporters—adverse terms of trade. External factors are the subject of Chapter 3.

The internal "structural" problems and the external factors impeding African economic growth have been exacerbated by domestic policy inadequacies, of which three are critical. First, trade and exchange-rate policies have overprotected industry, held back agriculture, and absorbed much administrative capacity. Second, too little attention has been paid to administrative constraints in mobilizing and managing resources for development; given the widespread weakness of planning, decisionmaking, and management capacities, public sectors frequently become overextended. Third, there has been a consistent bias against agriculture in price, tax, and exchange-rate policies.

New Priorities and Adjustments in Policy

A reordering of postindependence priorities is essential if economic growth is to accelerate. During the past two decades most African governments rightly focused on political consolidation, on the laying down of basic infrastructure (much of it tied to the goal of political integration), and on the development

of human resources. Relatively less attention was paid to production. Now it is essential to give production a higher priority—without neglecting these other goals. Without a faster rate of production increase, other objectives cannot be achieved, nor can past achievements be sustained. Three major policy actions are central to any growth-oriented program: (1) more suitable trade and exchange-rate policies; (2) increased efficiency of resource use in the public sector; and (3) improvement in agricultural policies.

Exchange-rate and trade policies, addressed in Chapter 4, are especially critical for African economies, which are uncommonly "open." Exports account for a large share of marketed production, and imports constitute a significant share of consumption. Moreover, Africa has more frontiers per square kilometer than any other region, and they are highly permeable. The framework of incentives created by trade and exchange-rate policies is thus especially decisive. With respect to agriculture, for example, overvalued exchange rates discourage local production: farmers obtain less in their local currencies for their export crops, while the price of food imports is reduced. The situation is similar in the industrial sector. Also, direct controls over trade (for example, import bans and quotas), which are widely imposed to deal with balance-of-payments problems, have proved extremely costly to apply, as they require many trained people and an enlarged administrative apparatus. Moreover, they have frequently been ineffective.

Chapter 4 also considers policy issues which bear on the efficiency of resource use in the public sector. When African states won independence, they inherited unevenly developed economies with rudimentary infrastructure. Markets often functioned imperfectly and foreigners dominated trade and most modern businesses. To speed up development and make their economies more "national," the new governments expanded the public sector. It is now widely evident that the public sector is overextended, given the present scarcities of financial resources, skilled manpower, and organizational capacity. This has resulted in slower growth than might have been achieved with available resources, and accounts in part for the current crisis. Without improved performance of public agencies, stepped-up growth will be difficult to achieve. The organization and management of economic activity need to be reviewed to determine how the resources and energies of *all* economic agents can be better mobilized for development—for example, by improving government policymaking institutions and procedures; by giving the public sector's development-related agencies—"parastatals"—clearer mandates and greater management autonomy; by giving wider responsibilities to the small-scale indigenous private sector; by allowing greater scope for decentralized cooperatives; and by defining an appropriate role for larger-scale private capital, domestic and foreign. Many governments have already acted in this area. In Guinea-Bissau, Mozambique, Senegal, Uganda, and Zaïre, among others, governments have decided on efficiency grounds that the scope of private sector activity should be enlarged.

In most of Africa, four out of every five people work in agriculture. It is the main economic sector, generating in most countries 30 to 60 percent of GDP, or even more, if national accounts value it properly. Because of its importance, agriculture is treated at length in the Report. A strategy for faster agricultural growth is set out in Chapter 5. Its main elements are: concentration of resources on smallholders; reform of incentive structures to ensure better prices, more open and competitive marketing systems, and greater availability of consumer goods in some instances; a focus in the medium term on making existing programs work better and on rehabilitation of existing infrastructure, small-scale irrigation, and rural roads; a major effort in research on crops and livestock; and expansion of pest control and related activities to reduce postharvest losses. The strategy also requires careful evaluation of means toward self-sufficiency in food.

One of the pervasive themes of the Report is the critical role of human resources in the

development of Africa. The development of human resources is the subject of Chapter 6: education, training, and health. With respect to education, one basic strategy issue is addressed: how to expand schooling most effectively in the face of severe financial constraints. The training discussion covers a wide range of questions: project-related training; expansion of on-the-job training; the need for special attention to management training; and technical assistance. In the discussion of health sector strategies a number of themes receive attention, including: experimentation with low-cost rural health care strategies and their gradual expansion, taking into account administrative and financial constraints; better use of existing resources through improved planning, policy analysis, and management; mobilization of private as well as public energies; rehabilitation of infrastructure and consolidation of existing health systems; and improving access to potable water and adequate sanitation.

Although expansion of agriculture is necessarily the centerpiece of any production-oriented strategy, opportunities for increasing output also exist in other sectors—energy, industry (manufacturing, utilities, construction), nonfuel minerals, and transport. Policies and programs for these sectors are considered in Chapter 7.

While the focus of the Report is on responses to the economic crisis of the 1980s, certain longer-term problems cannot be ignored. Perhaps the most critical of these is rapid population growth. The six children born on average to an African woman during her childbearing years represent the highest total fertility rate in the world. This high fertility, combined with declining mortality, has effects on agriculture, urbanization, and government spending, which are explored in Chapter 8. This chapter also considers the problems of Africa's rapidly growing cities, and the responses necessary *now* if urban resources are to be effectively marshalled and future urban crises headed off. Problems of soil conservation, reforestation, and fuelwood supply are briefly analyzed, and the chapter concludes with an analysis of the rationale for regional economic integration—the goal of the *Lagos Plan*—and the desirability of a positive donor role in support of moves toward closer regional economic cooperation.

Policy-related factors receive priority in the Report, because—for many of the countries involved—the prospects for more rapid and sustained economic development are slight without appropriate adjustments. Domestic policies can be altered, although it is recognized that changes of this sort require time and are not easy to achieve. Given a more suitable policy framework and adequate external support, the region's substantial economic potential could be realized. Agriculture, long neglected, could recapture the growth rhythms of the 1960s if the environment were more supportive. Also, some impact of agricultural research should be felt in the next few years; research now under way can yield results by the 1990s. In addition, there is the promise of the continent's largely unexplored minerals, its offshore resources in fish and fuel, and the unharnessed power of its great rivers.

Long-run Strategy Implications

The agriculture-based and export-oriented development strategy suggested for the 1980s is an essential beginning to a process of long-term transformation, a prelude to industrialization. It is not a permanent course for any country, but one that in Africa generates resources more quickly than any alternative and benefits more people. Without these resources, the foundations of future development cannot be established. The list of what must be done is formidable: administrative services have to be extended to the rural areas to increase social welfare and contribute to the building of a sense of national unity; critically needed social and economic infrastructure must be developed; roads must be built and maintained; suitable schooling must be offered to everyone; knowledge about the economy has to be increased by broader and deeper research and by pilot experiments on a wide front; and more people must be trained. Inter-African trade relations have to be de-

veloped and greater cooperation encouraged by means of joint programs. This will build mutual interests and the habit of common efforts, creating a sure basis for increased regional integration, such as is envisaged in the *Lagos Plan of Action*.

A strategy focused on agriculture and exports is thus open-ended, a necessary beginning. It will help generate the resources Africa needs to consolidate its political and administrative forces, educate and improve the health of its people, and find out what will work and what will not. It will bring forth human talent now neglected and uncover physical resources not yet imagined. And it will open the way to a future whose shape we cannot yet see.

While it is emphasized in the Report that African governments must review their policies and programs if their development objectives are to be achieved, it is also recognized that policy reform is difficult and delicate. In all societies, formidable obstacles prevent quick responses to even the most carefully reasoned calls for change. In some cases, consumers and producers, parastatal managers, civil servants, and industrialists have an interest in maintaining existing policies, however inefficient these might be from a national point of view. Further, reform often involves technical questions fraught with uncertainties. But, perhaps most of all, reform programs always take time. For these reasons and others, African governments will need additional outside assistance, and this matter is discussed in Chapter 9.

The first step for the international community, if it is to assist African countries through the present crisis and help the region realize its potential, is a commitment to larger aid flows in the 1980s. While per capita aid to Africa is already relatively high, the needs are particularly large and pressing when compared with those of most other developing regions which are at roughly the same level of per capita income.

The analysis in the Report suggests that a doubling of aid in real terms by the end of the 1980s, from $4.9 to $9.1 billion (from $4.9 to $17.8 billion in current prices), combined with an appropriate reorientation of domestic policy, could lead to a regional average annual per capita growth rate of almost 2.5 percent during the remainder of the decade. On the other hand, if the established patterns continue, the overall per capita growth rate will be zero or negative, with alarming possibilities for even steeper downward spirals in some countries.

Additional aid commitments will have to be made *now* if disbursements are to reach required levels by the mid-1980s. These inflows should be targeted to improve efficiency of resource use in the short and medium term. Quick-disbursing balance-of-payments assistance is critically needed in some countries to permit fuller operation and maintenance of existing productive capacity and infrastructure. A focus on completion of existing projects, on making recently completed projects work better, on rehabilitation, and on maintenance will lead to quick increases in output. Productive projects generally should have highest priority.

Both donors and African governments will have to change policies and attitudes if the large increases in aid recommended here are to come about, and if they are to have their desired effects. What is needed is a new kind of social compact, an agreement within the world community that the struggle against poverty in Africa is a joint concern which entails responsibilities for both parties. After all, foreign assistance has played a more substantial role in Africa than in most other developing regions, in terms of aid per capita, share of total investment, technical assistance, and project selection and design. Donors have thus contributed to some extent to the present crisis. Moreover, African states are among the world's newest and least developed. They face special economic problems handicapped by still-acute scarcities of trained and experienced people, fragile political systems, and untested institutions. They are, rightfully, a special concern of the com-

munity as a whole. On the donor side, therefore, assistance must not only be greater, but more effective. It will have to be accompanied by closer attention to project selection and design, by more flexibility in aid modalities (more financing of local and/or recurrent costs, for example), by more nonproject lending, and by greater attention to the policy environment. All of this also implies greater donor collaboration than in the past; no donor wishes to finance the recurrent costs of somebody's "unsuitable" project. It means also that donors must engage in more systematic policy dialogue with their African partners.

On the African side, aid inflows have not always been used effectively; their development impact has been diluted by inadequacies in the domestic policy environment. African governments, therefore, must be willing to take firm action on internal problems, be more open to proposals to revise policies in the light of experience, and be willing to accept the proposition that without policy reform higher aid will be difficult to mobilize.

2. BASIC CONSTRAINTS

When the Sub-Saharan states won independence some 20 years ago, they faced formidable constraints to development. These included underdeveloped human resources, political fragility, insecurely rooted and ill-suited institutions, a climate and geography hostile to development, and rapid population growth. And while the governments have scored considerable achievements, the legacy of history and the facts of geography continue to hamper African economic progress.

Obstacles to Growth: The Postcolonial Situation

Underdeveloped Human Resources

One of the most critical problems of the past 20 years has been the scarcity of trained manpower. Table 2.1 shows the great reliance on expatriates for trained manpower in general, but the supply of "high-level" (university-trained) manpower was even more limited. In most Sub-Saharan countries, over three quarters of this cadre were foreign. Senior executive and technical jobs in government were dominated by expatriates Zaïre, which was left without a single African doctor, lawyer, engineer, or army officer at independence was an extreme case, but foreigners occupied many positions of skill and responsibility even in the countries with the most advanced education systems; in Nigeria, Africans held fewer than 700 of the 3,000 senior posts in the civil service until the mid-1950s, and in Senegal, 1,500 French technical personnel occupied almost all of the top jobs in 1961. And where there were large numbers of settlers, even fewer Africans were trained in modern skills. In Kenya and Tanzania, for example, fewer than 20 percent of high-level civil service posts were in African hands in the early 1960s.

Table 2.1. Expatriate Employment as a Percentage of Total Employment of Trained Manpower in Early Manpower Surveys

Country	*Year*	*Percent*
Botswana	1967	42
Ivory Coast	1962	45
Kenya	1964	48
Malawi	1966	18
Nigeria	1964	13
Swaziland	1970	35
Tanzania	1965	31
Uganda	1967	21
Zambia	1965	62

Source: Adapted from Richard Jolly and Christopher Colclough, "African Manpower Plans: An Evaluation," *International Labor Review*, vol. 106, nos. 2 and 3 (August/September 1972), p. 210.

Throughout the region, trade and industry were almost entirely owned and managed by foreigners. As recently as 1975 there were only 80 African-owned shops in the Mozambican capital of Maputo, and after sixty years of colonial rule, African-owned and operated enterprises with more than ten employees were extremely rare, even in the relatively advanced economies of Kenya, Uganda, and Zimbabwe.[1] In the wage sector, the foreign

1. Shankar N. Acharya, "Perspectives and Problems of Development in Low Income Sub-Saharan Africa" in Shankar N. Acharya and Bruce Johnston, "Two Studies of Development in Sub-Saharan Africa," World Bank Staff Working Paper, no. 300 (Washington, D.C.: World Bank, October 1978), p. 11.

presence extended even to first-level supervisory positions: in 1960, for example, 300 of Ghana's 900 foremen were expatriates.

This pattern of underdeveloped human resources is partially explained by the fact that even by the end of the 1950s, advanced education was still largely unavailable to most Africans: local facilities did not exist or, where they did, African enrollment was often restricted. Thus, in 1958, less than 10,000 African students were attending universities at home or abroad (one student per 20,000 population), some 6,500 of whom were from Ghana and Nigeria. In fact, very few countries had more than 200 students in university training, which translates into less than 1 percent of the relevant school-age population (see Table SA.38).

The number of people educated at the secondary level was also limited. In the late 1950s, the entire region produced only 8,000 secondary school graduates per year, 40 percent of whom were in Ghana and Nigeria. In fact, only 3 percent of high-school-age students were being educated at the secondary level in Africa in 1960, compared with over 25 percent in the Philippines, 20 percent in India, and 10 percent in Burma.

The severe shortage of skilled labor and entrepreneurs was also the result of the immigration policies in the colonial period. Foreign workers at all skill levels were sought to meet specific labor shortages and later came to occupy dominant positions as traders and merchants, building contractors and artisans, industrial entrepreneurs, and skilled manual and clerical workers. While immigrant communities made important contributions to African development, their presence in the labor market blocked Africans from acquiring skills. Market forces also played a part: it was often cheaper to import and train foreign labor than to recruit locally. Moreover, because of colonial social conventions, Africans were rarely allowed to supervise non-Africans. As a result, the local population was prevented from moving up the skill ladder or assuming entrepreneurial roles.

Just as educational and training needs were not being met, so too were health needs neglected. In 1960, for example, there was just one physician for every 50,000 people in Sub-Saharan Africa as compared to one per 12,000 in other low-income countries. Rural-based programs were few and preventive care was very limited. Thus, for most of the population (which is located in the rural areas), medical care was provided by indigenous practitioners. Life expectancy was lower than the average for all low-income countries (39 years compared with 42), and child death rates (deaths of children from one to four years of age) were substantially higher (39 per thousand compared with 23). Colonial governments made valiant attempts to control endemic diseases in many parts of the region, but the majority of rural people were not affected; systematic efforts at malaria control, for example, were largely restricted to major urban centers.

The scarcity of managerial and technical cadres at the time of independence had strong adverse effects on public administration, industrial development, wage levels, and costs. Furthermore, the lack of education among the population reduced the stimuli for progressive change generally experienced where education is more widespread.[2] Finally, the debilitating effects of disease and sickness lowered the productivity of the labor force and the propensity to innovate.

Political Fragility

Over the past two decades, a sizeable portion of the Sub-Saharan region was the scene of political and military conflict. In some countries, the violence was sparked by liberation struggles, although in general the decolonization process was remarkably peaceful. In the wake of independence, violent internal conflict burst forth in many of the new nations, stemming from the pluralism of African societies and the difficulties of postcolonial political consolidation. Because cultures and languages are so diverse (probably more so in Africa than in any other region), the process of national integration—building new in-

2. See World Bank, *World Development Report, 1980* (New York: Oxford University Press, 1980), Chapter 5.

stitutions and loyalties—inevitably involved strife. Also, since the borders that the new governments inherited frequently cut across ethnic lines, clashes were almost assured.

Civil and military strife and the political fragility which it reflected had several negative economic effects. First, it forced the post-independence leadership to give especially high priority to short-term political objectives. Second, it triggered large-scale displacement of people. In the 1970s, the number of refugees who had fled across national frontiers in Africa rose from 750,000 to over 5 million, accounting for about half of all refugees worldwide.[3] In eight countries, the number of refugees during the peak year of flight numbered at least 3 percent of the total population.[4] Third, civil strife induced a diversion of resources to military spending. While the share of GNP devoted to military purposes remained fairly constant for the region as a whole in the 1970s (2.9 percent), the proportion nearly doubled among the poorest group (the low-income semiarid countries), rising from 2.3 to 4.3 percent of GNP (see Table SA.43).

Institutional Adaption

The institutional heritage of the postcolonial states had to be adapted to new political realities and harnessed to meet new needs. Two sets of problems were particularly relevant. First, colonial governments had created many subregional organizations that did not prove to be viable after independence. Some were functional groups, such as the West African Cocoa Research Institute, the West African Examination Council, the East African Railway and Harbour Authority, and the East African Airways. Others, more important, were supranational groupings—the Federations of French West and Equatorial Africa, the Central African Federation, and the East African Common Market. All proved no longer suitable to the new national realities and were disbanded. But the reorganization which this required imposed heavy costs on the newly independent governments.

The second and related problem was that of adapting existing national institutions, which had been closely patterned on those of the colonial power, to African needs. Systems of local government, general administration, health care, and education had to be restructured; the fashioning of "appropriate" institutions proved to be a mammoth undertaking, one that remains unfinished.

The Economic Inheritance

Modern economic growth has a relatively brief history in Sub-Saharan Africa. Colonial administration established itself in most cases in the last two decades of the 19th century. Economic expansion came quickly in a few countries—Ghana, Senegal, Uganda, and Zaïre, for example—and spread elsewhere later, with interruptions during World Wars I and II and the depression of the 1930s. However, general and sustained development came only after World War II in most of the countries of the region.

In part because of this time factor, the African economies at independence were unevenly developed and dualistic, more so than most other developing regions. Across the continent there were but few islands of modern economic development. For example, in West Africa, where peasant production of export crops was the primary motor of development, modern economic activity took place mainly in the forest and coastal zones extending 200 kilometers inland from the sea. In the vast interior, where most of the population was (and still is), evidence of economic change was barely visible, with the exception of groundnut production in Nigeria and Senegal. In Central, East, and Southern Africa, dualism was even more marked; the modern economy consisted largely of European-run mining enclaves and islands of settler agricultural activity. In the mineral-producing countries which had significant settler communities, the "native areas" were neglected and usually targets of discrimination. African farmers, therefore, produced little for the market.

3. U.S. Committee for Refugees, *1981 World Refugee Survey* (New York: Hudson Press, 1981).

4. Angola, Burundi, Chad, Ethiopia, Guinea-Bissau, Mozambique, Rwanda, and Zimbabwe.

Thus, as the postcolonial period began, most Africans were outside the modern economy. According to a 1950s United Nations study, over 70 percent of the land under cultivation was devoted to subsistence crops, while less than 10 percent was planted for export.[5] African labor was overwhelmingly concentrated in subsistence-oriented farming. In 1960, there were probably no more than 10 million African wage earners during any part of the year; only in Southern Africa was as much as 10 percent of the population engaged in paid employment in the modern sector. Moreover, "circular" migration (the practice of workers returning to their villages more or less regularly) was still quite common throughout the continent.

The dominance of subsistence production presented special obstacles to agricultural development. Farmers had to be induced to produce for the market, adopt new crops, and undertake new risks. Established farming systems, which had evolved over centuries and were well adapted to the local environment, had to be revamped if production was to increase. Little was known about new crops, new methods of crop rotation, seed protection, or more productive farming techniques. Agricultural research and experimentation were lacking, but so too was most basic information about rainfall, river flow, soil quality, farming systems, and patterns of land use. Accordingly, the experimental and intellectual raw material necessary for progress in agriculture was very sparse. The fragility of African soils, the irregularity of rainfall, and the ecological diversity that characterizes even small subregions in this part of the world make location-specific, detailed knowledge especially necessary; its absence presented an unusually severe obstacle to effective agricultural development.

Moreover, basic infrastructure was, in some areas, almost nonexistent: roads, railroads, ports, buildings, and communications systems were scant and did not penetrate the hinterland. Public capital investment had initially been limited by the shortage of local resources, as well as by the doctrine of "colonial self-sufficiency" that prevailed until World War II, its central tenet being that colonies should not be subsidized by metropoles. In addition, private capital flows into most African countries were much smaller than in other developing regions, and that which went to Africa was very unevenly distributed. According to a classic study, 40 percent of the total private foreign investment in Africa south of the Sahara between 1880 and 1936 went to South Africa; Zambia and Zimbabwe together received 18 percent; Zaïre 11 percent; and Kenya and Uganda together received 4 percent. Elsewhere, investment was negligible.[6]

Climate and Geography

Africa is "preeminently tropical."[7] The equator bisects the continent, and all of the countries that are the subject of this Report are located in the tropics (with the exception of Swaziland and Lesotho), a fact which creates special obstacles to development. First, the interaction of climate and geography is such that most African soils are delicate, deficient in organic materials, and in general only moderately fertile. Well-watered areas are only about one quarter of the total; elsewhere, rains are inadequate in volume and highly variable in time. Moreover, the absence of frost, "the great executioner of Nature," creates especially burdensome problems of weed and pest control.[8] Second, the search for minerals is more difficult in the tropics than in temperate zones, where rock formations are well exposed. Until two decades ago, prospecting technology was largely restricted to surface probing; little was known about how to explore for mineral formations where soil overburdens are substantial. Finally, because the tropical climate is especially hospitable to bacterial and parasitic diseases and to endemic

5. United Nations Department of Economic Affairs, *Enlargement of the Exchange Economy in Tropical Africa* (New York: United Nations, 1954).

6. Sally H. Frankel, *Capital Investment in Africa* (London: Oxford University Press, 1938).

7. Andrew M. Kamarck, *The Tropics and Economic Development* (Baltimore, Md.: Johns Hopkins University Press, 1976), p. 19.

8. Ibid., p. 17.

diseases such as malaria, schistosomiasis, and onchocerciasis, human energy and productivity are adversely affected.

Drought has also played a role: some of the poor performance of the 1970s has certainly been due to bad weather. The Sahel experienced a quick succession of drought years between the late 1960s and 1973–74, with only one or two years of recovery in between. A period of satisfactory weather in the mid-1970s was then followed by a number of poor years, starting in 1977–78, in both the Sahel and Northeastern Africa. These occurrences resulted in a sharp drop in crop production and severe losses in livestock.

Since the drought of the early 1970s, there has been extensive discussion as to whether this indicates long-term changes in the climate with ensuing changes in the ecology—an "advance of the desert." Present evidence provides inconclusive support for the hypothesis of a secular trend in climatic conditions.[9] Instead, there are indications that in some locations the natural plant population has been degraded through overgrazing, and that the expansion of cleared land areas has negatively influenced evaporation and rainfall. But these were the result of acts of man—a relative overpopulation and overgrazing in semiarid areas under the pressure of human and animal population increases—and not to autonomous changes of climate.

While there may be no discernible long-term trend in average rainfall levels, there may be a rise in their variability, with marked above- or below-average accumulation becoming more frequent. The fact that throughout Africa marginal zones are now used much more intensively than a generation ago exacerbates the effects of irregular rainfall even further. So, while the issue of long-term trends in climate and ecology remains open, there has been a definite increase in the vulnerability of the semiarid areas.

Another climate-related problem emerged following the 1950s and the first half of the 1960s, when it appears that there was better than the long-term average in total rainfall and distribution of rains. This long period of favorable conditions encouraged herders and farmers to adapt their husbandry techniques to a seemingly reliable situation. Then, with the abrupt and severe climatic changes of the 1970s, serious and painful readjustments were necessary, and this period of readjustment may not yet have ended.

Geography has also had an impact. Africa's large physical size and dispersed population create special transport needs and problems. In addition, fourteen of the world's twenty landlocked developing countries are located on this continent; almost one third of all Sub-Saharan countries are landlocked, often more than 1,000 kilometers from the sea by the shortest land route. These factors have obvious implications for road construction: long trunk routes generate relatively low volumes of traffic, and extensive feeder networks are required.

Population Growth

Most African agricultural systems involve very extensive use of land: shifting cultivation, long fallow periods, and limited use of manure and off-farm inputs. As long as land was abundant, the use of such technology was compatible with steady yields per capita, even as rural population grew. But land is no longer plentiful on most of the continent; in fact, population pressures have existed for many decades in parts of East Africa (Burundi, Kenya, and Rwanda), Southern Africa (Lesotho, Swaziland, and Zimbabwe), and West Africa (Mauritania and Niger). There are important pockets of high-density settlement in a few countries, such as in Southeastern Nigeria, the Western Highlands of Cameroon, the Mossi plateau of Upper Volta, and Senegal's northern Groundnut Basin. And in recent decades, very high population growth rates for Sub-Saharan Africa—2.5 percent per

9. Evidence contradicting a secular trend in climate is presented by two French scholars in a recent study of runoff patterns of the Senegal River. Noting the great variability of rainfall since prehistoric times, the authors argue that the Sahel has recently gone through a period of low rainfall. They predict that this dry cycle should end in 1985 with a cycle of normal rainfall peaking in 1992; another severe drought is predicted for 2005. See Hughes Faure and Jean-Yves Gac, "Will the Sahelian Drought End in 1985?" *Nature*, vol. 291 (June 11, 1981), pp. 475–478.

annum in the 1960s and 2.7 percent annually in the 1970s—have discouraged production and economic growth.

There is evidence, first of all, that returns to labor in agriculture are declining. Fallows are being shortened, undermining the regenerative power of soils. Cassava, which can be grown on soils too impoverished for other staples, is more widely cultivated at the expense of other crops. Fuelwood has become harder to find, and overgrazing and disputes between cultivators and pastoral people are more frequent.[10] In addition, more marginal land has been brought under cultivation, either in zones of lower uncertain rainfall or on slopes, which has led to soil erosion and degradation. It is thus likely that part of the decrease in agricultural output per capita in the 1970s can be explained by population pressure on arable land. Moreover, population growth has undoubtedly affected exports, as many tradeable goods (groundnuts and cooking oil, for example) are currently being consumed locally.

Also, rapid population growth has contributed to huge migrations from the rural areas to the cities, with the result that the urban population grew faster in recent decades than on any other continent (by 6 percent a year). Thus, in 1960, only three African cities had populations of 500,000; by 1980, there were 28. Government attempts to meet demands for basic services and to assure supplies of reasonably priced food in these areas have strained already tight budgets and hampered appropriate flexibility in food price and production policies.

Lastly, growing populations create special needs for the provision of basic services, particularly schooling. The number of children to be educated has grown so rapidly that it has been extremely difficult for governments to increase the proportion of children being educated.

10. See Bruce Johnston, "Agricultural Production Potentials and Small Farmer Strategies in Sub-Saharan Africa" in Shankar N. Acharya and Bruce Johnston, "Two Studies of Development in Sub-Saharan Africa," World Bank Staff Working Paper, no. 300 (Washington, D.C.: World Bank, October 1978), p. 80.

Progress since 1960

In the past twenty years, African governments have made great progress in reducing the impact of these basic constraints. The greatest strides have been made in the development of human resources; in particular, the population is significantly better educated than it was a generation ago. Since 1960, total school enrollments have grown faster in Africa than in any other developing region (see Table 2.2). Student population increased from 36 to 63 percent of the age group at the primary level, from 3 to 13 percent at the secondary level, and from virtually zero to 1 percent at the university level (see Table SA.38). Tens of thousands now graduate from the continent's secondary schools each year, and thousands from its universities.[11] In fact, the African record is unique: nowhere else has a formal education system been created on so broad a scale in so short a time.

The story is similar in medical care. Life expectancy, the most important indicator of general health status, increased from 39 to 47 years—a 21 percent rise in the Sub-Saharan region since 1960. At the same time, child death rates fell from 38 to 25 per thousand and the number of medical and nursing personnel per capita doubled, despite very high rates of population growth.

Table 2.2. Annual Average Growth Rates of Enrollments in Educational Institutions by World Developing Regions, 1960–76

	Percent			
Region	*Primary*	*Secondary*	*Higher*	*Total*
Africa	5.7	9.8	10.5	6.2
Latin America	4.8	10.0	10.9	5.9
Asia	3.9	5.0	9.1	4.2
North Africa and Middle East	4.9	7.6	8.0	5.4

Source: David Davies, "Human Development in Sub-Saharan Africa," World Bank Staff Working Paper, no. 406 (Washington, D.C., July 1980), p. 79.

11. In Nigeria in the mid-1970s, local universities were producing each year more graduates than those who had graduated from Nigerian and overseas universities during the whole period of colonial rule. See Paul Beckett and James O'Connel, *Education and Power in Nigeria* (London: Hodder and Stoughton, 1977), pp. 9–13.

New infrastructure also was created: ports, railways, roads, and buildings were constructed at unparalleled rates. Road-building received special attention, both for its economic effects and because African leaders knew that more and better roads would help unify their nations. All-weather road mileage and the number of vehicles tripled over the two decades, which indicates something of a transport revolution. Postindependence Africa was "opened up" with extraordinary speed; as a result, millions of formerly isolated villagers now have access to cheaper transport, which creates new options and opportunities for this population on a wide scale.

Significant political innovation has also occurred, not only in attempts at social transformation, as in Ethiopia, Guinea, Mozambique, and Tanzania, but in postcolonial adjustments of various kinds. While political violence has indeed scarred Africa's recent history, there have been many examples of peaceful change and ethnic accommodation as well. In some places, the wounds of civil war were closed with extraordinary speed and humaneness. In Nigeria and Sudan, unusual efforts were made to accommodate ethnic diversity, and in Zimbabwe, racial differences.

Enormous efforts have also been made to adapt organizational and administrative arrangements—civil service reforms, decentralized administration, planning systems, educational innovations, experiments in primary health care, and others—to the African setting. And the past two decades have been marked by a mobilization of resources and energies not known before. Thousands of dedicated people, African and foreign, contributed to this effort, which lay behind the achievements of the 1960–80 period.

The Persistence of Special Constraints

But, while African governments have energetically addressed many of the fundamental problems, twenty years is not much time; the same obstacles therefore continue to restrain development. The reach of formal education is still limited: for example, the 1978 primary school enrollment ratio was only 63 percent of the applicable age group for the region as a whole. In about one third of the countries, less than 50 percent of primary age children are in school; in only six are more than 20 percent of the relevant age groups in secondary school (see Table SA.38). And highly trained technicians, professionals, and managers remain in very short supply.

The health gap between Africa and the other regions also persists. The population continues to be more exposed to endemic disease (especially malaria) and to diseases stemming from poor sanitation, malnutrition, and poverty (intestinal parasites, gastrointestinal illnesses, and respiratory infections). Life expectancy in Africa is still 27 years shorter than in industrialized countries and less than in any other developing region. The probability that a one-year-old child will die before his fifth birthday is 25 times greater than in the developed world; the African child death rate is 67 percent greater than in South Asia and three times higher than in Latin America.

Geographic factors continue to impose special hardships on transport development. The existence of long routes with light traffic means that road maintenance is particularly demanding and expensive. Minimal maintenance costs are estimated to be about three times as high a proportion of GNP as in other developing countries, and about twice as high as in the industrialized countries.[12] And in Africa's landlocked nations, transport and road maintenance costs are greater still.

Population growth, already very rapid, threatens to become even more onerous in the future. Between 1960 and 1979, population rose by 63 percent in the Sub-Saharan region, to a total of 344 million. During the 1970s, when growth rates declined around the world, in Africa they rose—to 2.7 percent a year. Moreover, the figure may increase,

12. The median African requirement has been estimated at 0.7 percent of GNP (range: 0.3 to 1.4 percent). See World Bank, *The Road Maintenance Problem*, forthcoming.

since improved health and nutrition are reducing infant and child mortality at the same time as extremely high fertility persists. This has already occurred in Ivory Coast, Kenya, Liberia, Tanzania, and Zimbabwe, where population growth exceeds 3 percent a year (see Table SA.33).

Thus, unless there are significant improvements in agricultural technology, the population explosion will lead to further declines in per capita farm output. And government attempts to improve rural incomes, achieve food self-sufficiency, provide basic services, and enlarge and improve infrastructure will become even more difficult than before.

Part of the explanation for Africa's slow economic growth since 1960, then, stems from the internal "structural" problems listed in this chapter. Those amenable to direct attack, such as underdeveloped human resources, are being addressed. Nevertheless, all of these problems will continue to constrain growth in the 1980s and beyond, and the region's special needs should call forth special attention from the international community.

At the same time, it is important to stress that for most of the continent a bright economic future is within reach. The human potential of the region has only begun to be developed. The energies of its people, and especially its farmers, are a major resource, still imperfectly tapped. The continent's endowment in material resources is also promising; Africa's old image as a storehouse of great natural wealth is being increasingly verified, though its exploration has barely got under way.

Only a few years ago the potential of Sub-Saharan Africa as a source of crude oil was judged to be poor; now there appear to be major fields along the West African littoral, and potential also in the East African Graben, including Madagascar and the Seychelles. Proven reserves in oil-importing Africa are only 1 percent of the estimated potential. Even discoveries which are small by international standards will go a long way to satisfy domestic demand in most African countries, and even create an export capacity. It is much the same with nonfuel minerals; Niger and Botswana have been carried forward by recent mineral discoveries, and there is good reason to expect similar events in many other countries of the continent.

Africa has additional resources that can be counted on to facilitate its economic modernization. Its coastal fishing grounds are among the world's richest. Its great rivers contain a substantial share of the world's unexploited hydroelectric potential. The processing of its raw materials will one day be a major source of industrial expansion.

In agriculture, in petroleum, in other nonfuel minerals, as well as in the industrial sector, African economic potential is therefore very substantial; for most countries of the region the long-term future is thus not at all bleak. What the region needs now—and what is asked of the international community here—is help in realizing its economic promise.

3. EXTERNAL FACTORS

The 1970s was a decade of growing balance-of-payments deficits throughout Africa and external factors certainly played a part in this deterioration: oil prices soared, the growth of world trade in primary commodities slowed considerably, and some countries (mostly mineral exporters) suffered a severe terms-of-trade loss. Oil-importing African countries (including mineral exporters) were hit especially hard at the end of the decade, when a second round of oil price hikes combined with the collapse of the nonmineral commodity boom to reduce their terms of trade.

But external forces were not the chief factor behind growing deficits: for the oil-importing African nations as a group, poor export performance was more significant. During the 1970s, the volume of exports declined in two thirds of the African countries for which data are available (see Table SA.7), and Africa's share of world trade dropped accordingly.

Table 3.1. Oil-importing African Countries: Current Account Deficit and Its Financing, 1970–78
(billions of dollars, 1978)

Item	*1970*	*1973*	*1975*	*1978*	*1980*
Current account deficit[a] Financed by:	1.5	1.9	6.4	6.6	8.0
1. *Net capital flows*					
Official development assistance (ODA)	1.6	2.1	3.2	3.2	4.3
Private direct investment	0.4	0.4	0.4	0.3	0.3
Commercial loans	0.8	1.1	1.9	1.9	2.1
2. *Change in reserves and short-term borrowing*[b]	−1.4	−1.7	1.0	1.1	1.3
Memorandum items:					
Current account deficit as a percent of GDP	2.4	3.6	9.5	8.8	9.2
ODA as a percent of GDP	2.7	3.9	4.7	4.4	5.0

a. Excluding from current accounts net official transfers (grants), which are included in capital flows.
b. A minus sign indicates an increase in reserves.
Source: World Bank data files.

Balance-of-Payments Deterioration

Beginning in 1973, African oil-importing countries experienced a pronounced worsening of their balance of payments (see Table 3.1). Since that time, their current account deficits (excluding foreign aid grants) averaged about 9 percent of GDP—twice the figure for all oil-importing developing countries and conspicuously higher than any other region of the developing world. Oil-exporting African countries fared much better, of course, but even they ran a deficit during most of the decade: in 1978, it reached 7.5 percent of GNP, compared with only 4.4 percent in 1970. But the second oil price increase in 1978–80 transformed their balance-of-payments position: by 1980, they recorded a current account *surplus* equal to 8.5 percent of GNP.

Although official development assistance (ODA) to the African oil importers increased, it offset only part of the growing balance-of-payments deficit. The absolute value of their ODA receipts in real terms nearly tripled between 1970 and 1980, and the ratio of ODA to GDP nearly doubled.[1] Nevertheless, these

1. ODA is the net disbursement of medium- and long-term official loans and grants. Technical assistance is excluded. Real values of ODA and other items in Table 3.1 are based on the use of the OECD North GDP deflator.

Table 3.2. Terms of Trade and Export Trends, Selected African Countries, by Export Category[a]

Category	Average annual rate of growth: Purchasing power of exports 1961–70	Purchasing power of exports 1970–79	Net barter terms of trade 1961–70	Net barter terms of trade 1970–79	Export volume 1960–70	Export volume 1970–79
1. Oil exporters[b]	7.7	12.6	1.2	14.7	7.2	−2.0
2. Mineral exporters[c]	11.1	−7.7	6.5	−7.1	4.6	−0.7
3. Other primary exporters[d]	4.9	1.1	1.0	2.9	4.7	−2.1
Subtotal, oil importers (Categories 2 + 3)	7.6	−2.7	3.4	−1.5	4.7	−1.5
Total Sub-Saharan Africa	7.6	1.0	2.9	2.5	5.3	−1.6

a. Country group averages are weighted by value of country merchandise exports in 1970.
b. Angola, Congo, and Nigeria.
c. Liberia, Mauritania, Niger, Sierra Leone, Togo, Zaïre, and Zambia.
d. Benin, Cameroon, C.A.R., Chad, Ethiopia, Ghana, Ivory Coast, Kenya, Madagascar, Malawi, Mali, Rwanda, Senegal, Somalia, Sudan, Tanzania, Uganda, and Upper Volta.
Source: UNCTAD, *Handbook of International Trade and Development Statistics*, 1980.

countries were forced to expand commercial borrowing sharply and deplete foreign exchange reserves because ODA contributions, which more than covered the deficit in the early part of the decade, financed only about half of it at the end.

The balance-of-payments problem has other aspects. First, foreign exchange reserves fell dangerously low; by 1979 reserves were equal to the amount needed to cover about two months' imports, and by 1980 they had fallen even lower. Second, the external debt continued to swell, despite measures taken to restrain imports and keep the deficit within manageable bounds (imports indeed grew at a much slower rate in the 1970s than in the 1960s). Finally, the debt-service ratio for all African oil importers rose from about 6 percent in 1970 to 12.4 percent in 1979; of the total of 11 developing countries forced to renegotiate their multilateral loans in recent years, six were in the Sub-Saharan region.[2]

The main reason for oil-importing Africa's deteriorating balance-of-payments position is that the purchasing power of exports declined at an average rate of 2.7 percent a year during the last decade: −1.5 percent in the terms of trade and −1.5 percent in export volume (see Table 3.2).[3] The remaining sections of this chapter examine these trends in more detail, analyze their causes, and discuss how the external economic environment is likely to evolve in the 1980s.

Terms of Trade

Three major factors influenced the shifting terms of trade in the 1970s: the two large oil price hikes (in 1973–74 and 1978–80); the long slide in mineral prices (primarily in copper and iron ore); and the boom in certain commodities (coffee, cocoa, and tea), in 1976–78. (Table SA.15 shows price trends of the most important African exports.)

Over the last decade, the real price of oil increased fivefold. In 1970, net oil imports absorbed 4.4 percent of the nonfuel export earnings in eight African oil-importing countries and 1.3 percent of GDP (see Table 3.3). By 1978, however, oil imports absorbed 12.5 percent of exports and 3.0 percent of GDP. And

Table 3.3. Oil Imports in relation to Exports and GDP in Eight Oil-importing African Countries[a]
(medians)

Item	1970	1978	1980
Net oil imports as percentage of:			
Nonfuel exports	4.4	12.5	23.2
Gross domestic product (GDP)	1.3	3.0	5.9

a. The median ratios for Ethiopia, Ghana, Kenya, Madagascar, Senegal, Sudan, Tanzania, and Zambia.
Source: World Bank data files.

2. The debt-service ratio is interest and amortization payments as a percentage of export earnings.

3. The purchasing power of exports is the export value deflated by the import price index. This measure is also known as the income terms of trade.

between 1978 and 1980, the increase in real oil prices of over 80 percent raised oil imports to 23 percent of export earnings and to almost 6 percent of GDP.

The effect of oil and other commodity price changes on the terms of trade is shown in Tables 3.2 and SA.13. Several conclusions can be drawn from these and other data. First, the terms of trade of African oil importers as a group deteriorated by about 8 percent between 1978 and 1980. This loss of purchasing power will probably be permanent. Second, mineral exporters experienced a strong downward trend in their terms of trade from 1970–79 (−7.1 percent per annum). This more than offset a favorable trend in the previous decade for the group as a whole, and several countries suffered terms-of-trade losses over the entire 1961–79 period: Liberia and Mauritania were the most seriously affected. Third, most African countries, other than mineral producers, experienced favorable terms of trade during the 1970s. Oil exporters, of course, made spectacular gains, but other primary exporters also showed a strong upward trend. Finally, on average, African oil importers experienced less deterioration in their terms of trade in the 1970s (−1.5 percent per annum) than did most other oil-importing groups. The trend in the terms of trade for all oil-importing developing countries was −1.8 percent per annum, and the trend for industrialized countries was −1.7 percent per annum during the same period.

In brief, past trends in the terms of trade cannot explain the slow economic growth of Africa in the 1970s because for most countries—mineral exporters being the main exception—the terms of trade were favorable or neutral. All oil-importing countries suffered a strong and perhaps lasting downward shift in the terms of trade at the end of the 1970s, however. This compounded the balance-of-payments problems they all faced as they entered the 1980s.

Export Growth

The main cause of rising current account deficits and shortages of foreign exchange in the 1970s was not the terms of trade, but the slow growth of exports: of the 29 countries for which information is available, 24 recorded a lower rate of export growth during the 1970s than in the previous decade, and 19 had negative rates of export growth, compared with only one during the 1960s (see Table SA.7).

It must be mentioned that while the information available supports these conclusions, the data on exports contain some uncertainties. One problem is that country coverage is incomplete: Botswana, Guinea, and Zimbabwe, all important exporters, are omitted. Also, most of the data are pieced together from various sources, and these are not always readily reconcilable. For example, there are some preliminary indications from the import statistics for the industrialized nations that Africa's mineral and manufactured exports (many of which are diamonds or other resource-based products) in fact increased at the end of the decade, and that the total volume of exports may have been marginally higher in 1980 than in 1970. Similarly, national statistics from a slightly different group of African oil importers show a positive average annual growth of exports of 1.2 percent for the period 1970–78.

Nevertheless, the picture which emerges is one of nearly stagnant or declining export volumes for the continent as a whole during the 1970s. And, for the entire 20-year period, Africa's share of nonfuel world trade fell (see Table 3.4). Moreover, its share of developing-country nonfuel trade, which is perhaps a more meaningful indicator of performance, increased slightly during the 1960s but fell by more than half in the 1970s.

What accounts for this poor record? The

Table 3.4. Africa's Share of Nonfuel Exports

	Percentage share	
Year	*of world nonfuel exports*	*of developing-country nonfuel exports*
1960	3.1	18.0
1965	2.7	18.0
1970	2.4	18.6
1978	1.2	9.2

Source: United Nations, *Yearbook of International Trade Statistics.*

problem is partly structural. Africa is more dependent on exports of primary products than is any other region. Thirty-two major resource commodities accounted for about 70 percent of its nonfuel exports during 1976–78, compared with 35 percent for all developing countries and 10 percent for the world. And since world trade in most primary products grows more slowly than world trade in manufactures, Africa's share of total trade tends to fall. Also, its key commodities had lower than average worldwide growth during the 1970s: growth of world trade in the principal African nonfuel exports slowed from 4.5 percent a year in the 1960s to 1.5 percent a year during the 1970s, while world trade in a broader group of 33 nonfuel primary products grew at approximately 2.4 percent a year during both decades.

Then there are specific explanations for why trade in certain important products lagged. The copper industry in Zambia, for example, is at a mature and fully developed phase, cannot be expanded and, therefore, cannot maintain its share of the world market. Drought and civil strife affected the production of particular crops elsewhere.

Finally, there are external factors—trade restrictions imposed by the developed countries. As with terms of trade, it must be noted that, while these are important, they are not critical in determining export growth.

On the one hand, the Sub-Saharan countries *are* influenced negatively (as are other developing nations) by the industrialized world's trade restrictions, such as a tariff structure which escalates with the degree of processing of the product, agricultural price supports for its own products, and nontariff barriers to trade (see Table SA.16).[4] Many exports to the European Economic Community (EEC), for example, are subject to quotas, minimum price rules, or variable levies. Also, two provisions of the Lomé Convention may effectively limit the scope for future expansion of processed or manufactured exports to the EEC on a preferential basis. These are: (1) an open-ended safeguard clause, which states that restrictions may be imposed on a commodity that threatens serious disturbance to any economic sectors (within the EEC); and (2) rules of origin limitations, which remove the preferential access to manufactured goods derived from imports from outside the African, Caribbean, and Pacific (ACP) and EEC groups.

But the structure of African trade and special links with the EEC soften the effects of some of these policies and even turn them to African advantage. First, the most important restrictions are on temperate agricultural products or on manufactured goods; in neither of these does Africa have much production capacity. Thus, even if most of these restrictions were removed, such an action would benefit the more advanced or more climatically suited developing countries to a greater degree. For example, the Overseas Development Council estimated that a 60 percent cut in agricultural tariff and nontariff barriers by the developed countries would have increased African exports by only $292 million in 1974. This was only 7 percent of the estimated increase for all developing countries, or 1.8 percent of African nonfuel exports in that year.[5]

Second, the restrictions do not affect Africa as much as they do other developing regions because the Sub-Saharan nations receive preferential access to the EEC market for about 25 percent of their exports (including aluminum ore, bananas, coffee, cocoa, cocoa products, groundnut oil, palmoil, tobacco, and wood products), and the average preferential margin is about 16 percent. Moreover, most other products are admitted free under Most Favored Nation (MFN) or Generalized System of Preferences (GSP) provisions. Thus, on balance, protectionism by developed countries had little effect on African growth in the last decade.

The developed countries' policies, then, cannot account for Africa's overall poor export performance in the 1970s, when access to foreign markets actually increased. Other

4. See also *World Development Report 1981*. Chapter 3.

5. Thomas B. Birnberg, "Trade Reform Options: Economic Effects on Developing and Developed Countries" in William R. Cline (ed.), *Policy Alternatives for a New International Economic Order* (New York: Praeger, 1979), pp. 220-1.

Table 3.5. Africa's Share of World and Developing Country Exports of Selected Commodities

Commodity	*Exports of selected primary commodities of Sub-Saharan countries as a percentage*					
	Of exports of those products of all the developing countries			*Of exports of those products of the whole world*		
	1960	*1970–72*	*1976–78*	*1960*	*1970–72*	*1976–78*
Fuels						
Petroleum	0.3	7.6	8.6	0.3	5.5	7.7
Minerals and metals						
Copper	47.3	52.1	38.8	25.5	28.2	19.2
Iron ore	10.8	30.3	19.7	4.3	11.4	8.1
Bauxite	5.7	4.7	31.7	4.8	3.4	27.7
Phosphate rock	0.6	13.3	14.3	0.4	7.1	9.4
Manganese ore	22.2	53.1	36.9	15.5	29.8	14.1
Zinc	27.7	25.9	18.7	6.8	5.7	3.6
Tin	11.7	9.7	3.6	10.7	8.3	3.0
Lead	12.9	19.4	6.6	4.8	4.1	2.2
Food and beverages						
Coffee	19.3	29.3	29.1	18.8	28.3	26.8
Cocoa	72.8	80.1	72.3	72.8	80.1	69.3
Sugar	4.6	5.6	11.0	3.4	4.0	4.5
Tea	7.1	15.7	19.4	6.2	13.1	15.7
Groundnuts	87.1	74.8	63.5	76.8	53.5	35.5
Groundnut oil	77.3	72.2	56.8	57.0	55.7	43.2
Beef	4.5	4.0	8.6	1.3	1.2	1.6
Palmoil	65.7	22.6	6.7	63.2	20.8	5.7
Bananas	11.3	7.2	4.9	10.6	6.6	4.6
Maize	4.8	4.4	2.5	1.6	1.0	0.4
Nonfood						
Timber	44.7	22.8	18.5	36.1	5.7	5.1
Cotton	23.2	28.8	22.4	10.3	16.3	11.3
Tobacco	40.6	25.4	19.4	11.2	6.7	8.9
Rubber	7.4	7.9	4.9	5.9	7.7	4.8
Hides and skins	21.2	33.7	23.7	7.9	7.9	4.4
Sisal	68.5	58.3	52.8	62.9	56.8	51.8

Source: World Bank, *Commodity Trade and Price Trends.*

developing regions were able to surmount similar obstacles and expand exports; as noted above, Africa's share of developing-country nonfuel trade fell by half in the 1970s and its share of world trade for most individual commodities also fell (see Table 3.5). In fact, if Africa had maintained its 1970–72 share of world trade, its principal nonfuel commodities would have earned $2.2 billion more each year during the 1976–78 period (a 20.9 percent rise), its annual growth of nonfuel exports would have been 3.2 percent higher, and its total export growth 2.2 percent greater.[6]

6. In the case of a few commodities, such as bauxite, tea, and tobacco, Africa's share of world trade increased. Assuming actual growth rates in these products and constant market shares in all others, nonfuel commodity exports would have been $2.5 billion higher, the annual growth of these commodity exports 3.8 percent higher, and total merchandise export volume per annum 2.7 percentage points higher.

Three factors explain the region's poor export performance: (1) a policy bias against both agriculture and exports (examined in Chapters 4 and 5), which has led to slow overall growth in production; (2) rapid population growth, which, by increasing consumption, has reduced the exportable surplus of crops such as oilseeds and maize and raised the proportion of land used for domestic food production; and (3) the inflexibility of African economies, which has prevented their diversification into products with rapidly growing markets.

Prospects for the 1980s

The 1980s should be somewhat more favorable for African oil importers than the recent past. Much depends on the future path of oil

Table 3.6. **Projected Price and Volume of World Trade in Selected Commodities**

Commodity	*Percentage share of African merchandise exports 1976–78*	*Price index 1990 (1980 = 100)*	*Volume index 1990 (1980 = 100)*	*Value index 1990 (1980–100)*
Minerals and metals	**9.92t**	**127.7w[a]**	**137.8w**	**176.0w**
Copper	6.00	137.6	129.5	178.2
Iron ore	1.63	115.8	133.9	155.1
Bauxite	0.71	105.6	199.5	210.7
Phosphate rock	0.53	117.4	164.9	193.6
Manganese ore	0.45	90.2	138.6	125.0
Zinc	0.30	153.3	142.5	218.5
Tin	0.22	95.0	110.6	105.1
Lead	0.08	115.6	149.5	172.8
Food and beverages	**23.20t**	**88.8w**	**131.7w**	**116.9w**
Coffee	10.73	96.7	125.6	121.5
Cocoa	7.11	66.2	143.5	95.0
Sugar	1.63	69.8	128.2	89.5
Tea	0.93	96.1	128.6	123.6
Groundnuts	0.73	142.9	84.0	120.0
Groundnut oil	0.67	134.8	122.5	165.1
Palmoil	0.82	131.0	220.0	288.2
Beef	0.30	107.8	167.7	180.8
Bananas	0.17	90.6	135.6	122.9
Maize	0.11	158.5	113.8	180.4
Nonfood primary	**6.61t**	**126.7w**	**128.6w**	**162.9w**
Timber	2.57	135.7	138.3	187.7
Cotton	2.46	125.1	110.5	138.2
Tobacco	1.10	116.7	141.3	164.9
Rubber	0.48	109.4	140.3	153.5
Subtotal of 22 nonfuel commodities	**39.73t**	**105.1w**	**133.4w**	**140.2w**
Petroleum	43.47	137.0	123.6	169.3
Total commodities including petroleum	**83.20t**	**121.8w**	**128.3w**	**156.3w**
Memorandum				
Cereals		142.9		
Manufactures		100.0		

a. Commodity group averages are weighted by the percentage share of African merchandise exports, 1976–78.
Source: World Bank projections.

prices, which is highly uncertain. We have assumed, for purposes of this study, that the price of oil will increase by 3 percent per year in real terms during the 1980s.[7] At that rate the relative price of oil would increase by slightly over one third during the coming decade. This is small in comparison to the increases in the 1970s, but with the increased weight of oil in total imports, even relatively small price increases will have a large impact. For the typical oil-importing African country, a 3 percent annual increase in the price of oil implies a 0.7 percent annual decrease in the purchasing power of exports. Not all countries will be affected; some oil importers, such as Cameroon, Ghana, and Ivory Coast, have prospects for developing domestic petroleum resources which will at least satisfy their own requirements.

7. This and other projections are based on analysis done by the World Bank and incorporated into the global trade and commodity projections used in the *World Development Report 1981* and in this Report.

According to World Bank projections, world trade in the 22 nonfuel commodities of greatest importance to Africa is expected to increase by 2.9 percent per annum during the 1980s (see Table 3.6), which is substantially higher than the average annual increase of 1.5 percent for African nonfuel primary products in the 1970s. Moreover, the weighted price of Africa's nonfuel commodity exports is projected to rise slightly so that the average value of world trade in these commodities will increase by 3.4 percent per year. Broadly speaking, projected trends for minerals and beverages will be the reverse of the 1970s; the value of world trade in minerals is projected to increase by 5.8 percent per annum, with most of the increase coming in the latter half of the decade, while world trade in food and beverages will increase by only 1.6 percent per annum.

The projected rate of growth of trade in Africa's main exports is lower than that of overall world trade. This dependence on exports of slowly growing primary products is a disadvantage, but exports can be diversified and Africa's share of world trade in most commodities could be increased with relatively small effects on prices.

4. POLICY AND ADMINISTRATIVE FRAMEWORK

Although internal constraints and changes in the world economy are heavily implicated in Africa's slow economic growth, domestic policy deficiencies and administrative constraints have also been important—in many cases, decisive—and will continue to block economic progress unless changes are made.

Four concerns of this kind are discussed in this chapter. Trade and exchange-rate policies, which set the pattern of incentives for economic growth, are considered first. This is followed by a look at the planning and decisionmaking context in which public policy is determined and resources are allocated. Organization and management of the public sector are considered next, followed by a concluding section on the implications of the size of government on economic expansion.

The focus of the analysis is on the efficiency with which resources are used. Economic growth implies using a country's scarce resources—labor, capital, natural resources, administrative and managerial capacity—more efficiently. Improving efficiency requires, first, that a country produce those things which it can best produce as compared with other countries and, second, producing them with the least use of limited resources. While the analysis which follows will be restricted to these efficiency considerations, it is recognized that policymaking inevitably has to embody wider political constraints and objectives. However, the record of poor growth in most Sub-Saharan African countries suggests that inadequate attention has been given to policies to increase the efficiency of resource use and that action to correct this situation is urgently called for.

Trade and Exchange-Rate Policy

Trade and exchange-rate policy is at the heart of the failure to provide adequate incentives for agricultural production and for exports in much of Africa. Trade and exchange-rate policy comprises policies on the official exchange rate, import duties, export taxes and subsidies, food prices, quantitative restrictions on imports, and exchange controls. Although there are substantial differences among African countries with respect to both policy and circumstances affecting the availability of foreign exchange, the discussion here will focus on certain common patterns and on ways in which policies can be changed to stimulate efficiency and growth. Ensuring an effective structure of incentives is not a sufficient condition for reversing the downward trend of agriculture. Other requirements are discussed in Chapter 5, where, in particular, efficient domestic marketing is shown to be a necessary condition for an associated improvement in agricultural production.

Common Patterns

The most striking similarity in the trade and exchange-rate policies of African governments has been the tendency to let real official exchange rates become overvalued because of higher inflation at home than abroad. Acccording to a study by the African Centre

for Monetary Studies, exchange rates rose in all but one (Sierra Leone) of 19 Sub-Saharan African countries between 1963 and 1977–78.[1] Another study showed that they rose in 19 of the 27 African countries examined.[2] In three countries (Ghana, Uganda, and Zaïre), the exchange rate appreciated by over 100 percent. This statistical evidence along with the increasing use of trade and payments restrictions, the large profit opportunities offered by smuggling, the wide gap between official and black market exchange rates, and the slow growth and loss of market shares of many traditional exports, all indicate that overvaluation is widespread. Although not all African countries have overvalued exchange rates, foreign exchange problems are sufficiently widespread to suggest that most official exchange rates do not reflect its scarcity.

There has been a common pattern of response to foreign exchange scarcity in most African countries. Governments have relied increasingly on import restrictions rather than devaluation to conserve foreign exchange. More and more countries have imposed higher tariffs, quotas, and bans on "nonessential" imports. Quantitative restrictions have been the favored means of import restriction.

This dependence on import restriction has been reinforced by the import-substitution industrialization policies pursued by most African governments. Quite separately from balance-of-payments policy, governments have tried to promote industrialization through tariff protection for local industry against competing imports. This policy has been combined with low tariffs or duty-free imports on capital equipment and raw materials. With the recurring balance-of-payments crises of the 1970s and the resort to quantitative restrictions, foreign exchange management and industrial policy have interacted to intensify the bias toward import-substitution industrialization and to use quantitative restrictions as a protective device. Thus, an increasing number of African countries have been moving toward a trade and foreign exchange regime with the following characteristics: licensing of most imports; quotas or a complete ban on imports that compete with local production; automatic protection for any import-substitution industry; and priority allocation of essential imports to capital goods, raw materials for local industry, and food.

This system has not been used by some small countries (Botswana and Malawi), by CFA franc zone countries (where quantitative restrictions are usually applied only outside the zone), or by countries with a strong balance-of-payments position (Nigeria before 1977). It is, nevertheless, in widespread use in countries as diverse as Ghana, Ivory Coast, Kenya, Nigeria (since 1977), Senegal, Sudan, Tanzania, Zambia, and Zimbabwe. The policy is in danger of biasing the incentive system against objectives to which governments give high priority—agriculture, exports, food production, and rapid industrial development.

Shortcomings of Existing Policy

Bias against Agriculture. A trade and exchange-rate system that relies heavily on import restrictions biases the incentive system against agriculture in several ways. First, it forces farmers to purchase high-cost local implements. For example, in Upper Volta there is a 66 percent tariff on animal-drawn plows and a 58 percent tariff on engines used for irrigation pumps. Second, it raises the cost of consumer goods. Thus, in Kenya, imports of second-hand clothing have been banned and there is a 100 percent tariff on textiles. This measure has doubled the price of clothing and textiles and reduced real rural incomes by 10 percent. Third, and most importantly, this trade and exchange-rate policy serves to hold down the prices farmers receive for their

1. African Centre for Monetary Studies, *Balance of Payments Problems of African Countries and Their Effects on Development Objectives* (Dakar, Senegal: August 1979), p. 69. The PPP exchange rate is said to appreciate if a country's inflation rate exceeds the world inflation rate, unless it devalues by more than the differential inflation rate.

2. This calculation used 1970 as a base year and uses the special-drawing-right (SDR) exchange rate and the consumer price index of industrialized countries as the foreign comparators. The previously cited study used the U.S. dollar exchange rate.

export crops. Several African countries now find that producers of traditional export crops cannot be paid enough to cover the costs of production (e.g., cocoa in Ghana, sisal in Tanzania, and coffee in Madagascar), even though these are crops in which the countries have a strong comparative advantage. For the major agricultural exports of seven African countries (Ghana, Kenya, Nigeria, Senegal, Sudan, Tanzania, and Zambia), producers frequently receive less than half the real value of their crops (see Box A). Finally, the combined effect of overvalued exchange rates and low duties on food imports has encouraged a dependence on food imports at the expense of domestic production. In particular, wheat and rice imports have grown at the expense of local grains and root crops (a trend considered in more detail in Chapter 5) and in parts of West Africa traditional upcountry supplies of beef have been displaced by South American and Australian imports.

Bias against Exports. A second consequence

Box A: Agricultural Exports from Tanzania and Ghana

During the last 15 years, the volume of exports in Tanzania has declined dramatically. In 1980, the total exports of the country's major commodities (cotton, coffee, cloves, sisal, cashews, tobacco, and tea, which account for two thirds of the nation's export earnings) were 28 percent lower than in 1966 and 34 percent lower than in 1973. As a percentage of GDP, export earnings fell from 25 percent in 1966 to only 11 percent in 1979. And the drop in volume, when combined with deteriorating terms of trade, produced a severe balance-of-payments crisis.

Why such a poor record? In the case of tobacco and cotton, exports sagged because domestic consumption increased. But in general, it was the result of severe cutbacks in production which, in turn, were sparked by the low official prices paid to producers. These did not keep pace with world prices or domestic costs. Thus, terms of trade for the cash-crop farmers plummeted by almost one third in the last decade (or by 20 percent, if food and cash crops are taken together).

The marked drop in prices was not due to unfavorable world market conditions, but rather to heavy "taxes" on farmers—export duties combined with ever-increasing marketing and administrative costs accumulated by the parastatals handling the products. These bloated costs were important factors leading to a reduction in farmers' share in export earnings from coffee, cotton, tobacco, and cashews to below 50 percent.

As a result, producers diverted some of the crops (coffee, for example) into unofficial channels, neglected and even abandoned some tree and bush crops (coffee, sisal, and cashews), and shifted resources into subsistence production (in the case of cotton and tobacco).

To ameliorate the problem, Tanzania devalued its currency by 15 percent (devaluations occurred in October 1975 and January 1979); but this still did not reduce the wide disparity between Tanzanian costs and international prices. In addition, the Government increased producer prices somewhat, but the scope for such adjustments is limited by the current overvalued exchange rate. Thus, any further price hikes will have to be financed by domestic bank loans either directly to the parastatals or to the Government, since neither have the funds required for such a move.

The story is the same in Ghana. In the past 15 years, a dramatic and steady decline in cocoa production—from a peak of 566,000 metric tons in 1965 to 249,000 tons in 1979. Ghana's share in world production has shrunk from one third in the 1950s and 1960s to one sixth in 1979; from first place in cocoa, Ghana has fallen to third place, behind Ivory Coast and Brazil.

The main reason for this disastrous decline is the heavy "tax" imposed on farmers by Government through the Cocoa Marketing Board's price policies. Producer prices for cocoa lagged behind other relevant prices—far behind in most cases. Thus, the price index of all consumer goods rose 22 times between 1963 and 1979; food prices rose at about the same rate and the price of cocoa in neighboring countries rose 36 times. In contrast, Ghana's farmers received only 6 times more for their cocoa.

As a result, producers have been neglecting their cocoa trees, and shifting into other crops—particularly foodstuffs. They have smuggled cocoa to high-priced markets outside; perhaps 15 percent of production takes this route.

Since Ghana's fiscal situation has been difficult for many years, the Government has had to give high priority to its revenues, and this has contributed to the reluctance to raise producer prices and hence the maintenance of heavy taxation on cocoa.

This is where exchange rate policy comes in. The real effective exchange rate for cocoa, which is the number of units of local currency actually received by producers for a dollar's worth of cocoa exports, adjusted for inflation, declined drastically over the past fifteen years, which explains the disincentives to growing cocoa. Higher producer prices could have been paid without reducing government revenues, by adjusting exchange rates. Instead, the official rate of exchange of Ghana's currency has remained unchanged for long periods, despite persistent domestic inflation.

of the predominant trade and exchange-rate policy in Africa is that it is biased against exports. As with agriculture, export industries are sometimes burdened with high-cost domestically produced inputs that reduce their competitiveness in world markets. In Kenya, for example, a survey showed that the cost of locally produced cans alone was higher than the landed price of canned vegetables from Asian competitors located in the Arabian Gulf.

Producers of exports are discouraged by these policies, even when high-cost inputs are not a problem. High protection for local production combined with access to imported raw materials at lower rates of duty give high protection to import-substitution production. This makes producing for the local market much more profitable than producing for export. Thus, firms producing for the local market have an edge when bidding for scarce resources. This raises costs for exporters. African governments should continue to encourage efficient import substitution but this should not be achieved through policies which actively discriminate against exports. On the contrary, the possibilities for developing efficient export opportunities should be given comparable encouragement. This failure to provide incentives for manufactured exports is a serious shortcoming because it cuts African countries off from the fastest growing part of world trade and from trade with each other.

Distorted Industrial Development. There are two other ways in which the typical trade and exchange-rate system adversely affects the prospects for long-term industrial growth. First, it encourages import-intensive industry and discourages the development of domestic industries that consume local raw materials and labor. Protection typically favors packaging or assembly-type industries, which provide very few benefits to the economy either in foreign exchange, employment, or skill development. Second, the nearly complete protection given to industry gives no incentive for growth in productivity. Infant industries tend, therefore, never to grow up. As a result, they continue to impose high costs on consumers.

In brief, the trade and exchange-rate system of most African countries encourages the development of high-cost, import-intensive, and capital-intensive industries. The system is usually quite effective in encouraging simple import substitution industries, but, once these have been established, industrial development faces an impasse. Further growth through import substitution requires production of intermediate industrial products that frequently require larger amounts of capital and provide little employment. Economic integration can expand the scope for efficient import substitution, and efforts in this direction should be supported. However, integration will be a long-term process, and the limitations of overprotection in small domestic markets apply with delayed but equal force in larger regional markets. Industrial exports, which could provide a means of sustaining industrial growth, are discouraged by this system. In extreme cases, countries may even have trouble maintaining production of existing industries due to foreign exchange shortages that limit imports of essential raw materials and parts (see Box B).

Reduced Flexibility. Trade and exchange-rate policy also reduces the flexibility of the economy. Once all "nonessential" imports have been eliminated, only "essential" imports of capital goods, spare parts, and raw materials remain to be cut in the event that severe foreign exchange shortages require such a move. Political pressures have usually favored maintaining existing production or employment levels, even though this is predominantly in consumer goods industries. As a consequence, scarce foreign exchange is allocated to maintaining consumption instead of being allocated to high-priority investments. There are numerous instances in which bans or quotas on imports of whisky or electronic equipment have simply led to local bottling and assembly of these same items. To be effective, import controls must be supplemented by an excise or sales tax that reduces the incentive for both consumption and local production.

Box B: An Example of the Costs of Excess Protection

In 1979, an African firm producing synthetic yarns sought an increase in the protective tariff from 50 to 100 percent plus continued remission of duty on imported inputs. An analysis of production costs showed that the firm's foreign exchange costs alone were higher than the price of a comparable imported product. By the time the foreign exchange cost of imported raw materials, foreign managers, and capital charges abroad were paid, it cost $1.01 per kilogram more foreign exchange to produce the product locally than to import it. Moreover, local production was losing revenue for the treasury. At the existing 50 percent tariff, each kilogram of imports would have yielded $1.44 in revenue. This would have been sufficient to employ five times as many local workers (the local wage bill per kilogram was $0.27) as employed in local production. Finally, the high cost of the local product prevented other user firms from exporting. Thus, high-cost local production not only lost foreign exchange, but prevented other firms from earning foreign exchange.

Although this sample offers an extreme case, the existing trade and exchange-rate system in many African countries encourages countless other instances of "value subtracted."

Breakdown of Production Costs of Polyester Texturized Yarn
(dollars per kilogram)

	Total	*Local*	*Foreign*
Raw materials	2.56	.00	2.56
Wages and salaries	0.30	0.27	0.03
Other costs, including depreciation	3.43	2.13	1.30
Total costs	**6.29**	**2.40**	**3.89**
C.i.f. import price	2.88	—	2.88
Excess cost	3.41	2.40	1.01

A more balanced approach emphasizing foreign exchange earnings as well as foreign exchange savings provides greater room for maneuver to the authorities in a crisis.

Distortions and Dangers of Direct Controls. Reliance on quantitative restrictions and other administrative measures makes lavish use of administrative capacity, the scarcest resource many African economies have. In addition, import controls slow down decisions and create bottlenecks in production because critical inputs are not available in the right quantity or quality at the right time. Controls also deprive the government of revenue that could otherwise be captured through tariffs. Importers lucky enough to receive an import license pay a lower price for imports but are able to earn a high scarcity premium through resale or use of the cheap import in production of scarce goods—and this provides strong incentives for corruption. Further, bureaucratic delays are costly and the temptation to pay (and accept) a premium to get to the head of the queue is usually quite irresistible.

Special Cases

Not all African countries have the same trade and exchange-rate problems, nor is there a blanket policy prescription that fits all countries. A brief discussion of two groups of countries—the mineral exporters and members of the CFA franc zone—serves to illustrate these differences.

Mineral and Petroleum Exporters. Although mineral- and petroleum-exporting economies are generally not troubled by balance-of-payments problems while exports are expanding, this masks longer-term difficulties. The special problem that mineral exporters face is that their exchange rates can be valued too highly for long-term development. A strong balance-of-payments position makes importing too easy and this blocks the development of import-competing and export activities that are needed to generate employment opportunities and to sustain growth when minerals are depleted. Export diversification is particularly difficult in these circumstances (see Box C). The appropriate policy here is some form of tax on the principal export that captures the surplus income and channels it toward long-term diversification. In doing so, it prevents this surplus export income from being used to maintain consumption, wages, and nonproductive employment at levels above those sustainable in the long term. Niger, for example, has earmarked all uranium tax revenues for education and agricultural development to avoid these dangers.

Box C: Industrial Incentives in Zambia

Zambia's economy is characterized by extreme dualism between an urban-oriented, modern sector dominated by copper mining and a rural subsistence sector. Copper mining has generally contributed over 90 percent of exports, one quarter of GDP and (at least before the present economic crisis) about one third of government revenues. A persistent theme in Zambian development has been the need to generate sustainable growth in alternative sectors to diversify the economy away from dominance of copper, but to date little success has been achieved in developing agriculture or manufacturing. Since the world copper price peaked in 1974 (never again reaching as much as 60 percent of its peak level in real terms), Zambia has fallen into a prolonged economic slump characterized by falling real output, inflation, declining foreign exchange reserves, and a large amount of arrears in payment for imports.

Part of Zambia's difficulties in developing manufacturing may be traced to its system of incentives which has affected both the structure of production and production techniques. Tariffs are high on unessential and luxury consumer goods, low on foodstuffs, essential consumer goods, and capital goods, and zero on most intermediate goods. A system of import quotas and foreign exchange licensing reinforces the incentives generated by tariffs; foreign exchange is rationed to essential consumer goods and foodstuffs, intermediate and capital goods, while severely restricting allocations to less essential and luxury consumer items. Government policies have also affected the cost of labor and capital. The drive for higher mining wages following independence rapidly spread to other sectors, making the cost of Zambian labor high relative to most neighboring countries and to most other developing countries at a similar stage of development. On the other hand, because of low tariffs and interest rates, capital is relatively cheap.

The effect of this structure of incentives has been pronounced. Manufacturing output grew at more than 7 percent per annum from independence to the mid-1970s. Even so, manufacturing employment grew less than half as rapidly and the capital-intensity of manufacturing techniques grew consistently over time. Manufactured exports, which amount to less than 2 percent of total exports, have stagnated. Manufacturing production has been centered in final consumer goods and some intermediate goods using imported inputs. The expansion of manufacture for domestic use has not been based on the development of Zambia's considerable agricultural potential. Instead growth has been centered in textiles, rubber, and chemicals, all of which are highly dependent upon imported inputs.

The dangers of import-dependent manufacturing development are well illustrated by Zambia's current economic crisis. Because the basis of manufacturing is not firmly rooted in domestic resources, the possibilities for manufacturing expansion are severely restricted in times of foreign exchange scarcity. As copper export revenues fell, import volumes were severely restricted, falling about 50 percent between 1975 and 1980. The resulting shortages of imported raw materials and intermediate goods have led to a fall in manufacturing output, and most manufacturing subsectors are operating at less than two thirds of capacity.

Members of the CFA Franc Zone. The CFA franc zone countries face a rather different set of conditions than other African countries. As part of a common currency zone, they have benefitted from relatively free payments among members, from pooling of resources, and from the ability to run a deficit financed by the French Government through an account at the French Treasury—the so-called operations account. They also benefit from association with a major convertible currency. As a group, the CFA countries appear to have benefitted from the discipline imposed by the need to coordinate policies with partner states. However, the need for coordination also imposes constraints on individual countries; some policies, such as monetary growth, must be coordinated, while other policy options, such as exchange-rate changes, have not been available for use. This puts a greater burden on other policy instruments for maintaining balance-of-payments equilibrium, particularly on fiscal, monetary, and wage policy. The stresses of the late 1970s have somewhat changed the economic environment within which the franc zone operates. There are fewer countries with surpluses and more are seeking credit at the operations account. Moreover, uncontrolled parastatal borrowing overseas threatens future balance within the zone since individual countries build up heavy debt-servicing obligations.

Policy Changes

Improvement in trade and exchange-rate policy is essential for accelerated growth. The 1979–80 deterioration in the terms of trade and the prospect of further increases in the cost of

energy lend greater urgency to policy change. The key changes needed are: correction of overvalued exchange rates that have emerged in most countries; improved price incentives for exports and for agriculture; lower and more uniform protection for industry; and reduced use of direct controls. For those countries willing and able to use exchange-rate changes, devaluation is a powerful tool for restructuring relative prices and incentives, though some countries will find it possible to improve incentives without changing the exchange rate. The alternatives, however, require a combination of effective policies to keep the rise in incomes and in costs below the rise in other countries and budgetary policies to provide appropriate incentives. Budgetary action would in particular have to provide for export subsidies or reduced export taxes together with changes in both the level and structure of tariffs. Taken together, these actions are likely to have an adverse affect on the overall revenue situation of governments which are already facing major problems in this regard. Furthermore, the administrative burden of export subsidies is significant especially if abuse, such as smuggling for re-export, is to be avoided.

The fiscal and administrative burden would be less severe and the adjustment process made easier, however, if the official exchange rate were changed and kept at realistic levels. Devaluation permits higher prices to be paid to exporters without subsidies. If tariff reduction and relaxation of import restrictions are accompanied by devaluation, prices for import-substitute production can remain constant in local currency, thus easing adjustment for local producers. Devaluation, combined with tariff reduction or relaxation of import restrictions, enables the full effect of the exchange-rate change to be concentrated on exports.

Governments are sometimes skeptical that changes in trade and exchange-rate policy can affect economic performance. They also worry that the costs may be prohibitive—that attempts to restructure relative prices (especially if devaluation is involved) may create hardship for the poor and generate increased inflation. Although there is little experience with sustained attempts to restructure trade and exchange-rate policy in Africa, experience in other developing areas suggests that such measures can work, that they take time, and that change is eased and hardship reduced if substantial external assistance is available.[3] Responsiveness to changes in the real exchange rate has enabled several countries in Asia and Latin America to achieve very high rates of growth of both manufactured and total exports.[4]

For most African countries, trade and exchange-rate policy should be viewed as an instrument of long-term structural adjustment rather than short-term balance-of-payments adjustment. Policy changes to restructure incentives might not always have immediate and dramatic effects on economic performance, but the cumulative, long-term effects will be critical to Africa's effort to raise agricultural and export growth rates. The main effect of such reform on the import side will be to change the composition of imports and to ensure that imports are allocated more efficiently rather than to reduce the total import level. Moreover, the supply response to changes in incentives will take time. Producers will be reluctant to make necessary investments until they have been assured that the relative price changes will be permanent.

For all of these reasons, full reform of trade and exchange-rate policy cannot be undertaken at a stroke. However, in a few countries the exchange rate is so overvalued that a substantial devaluation is a precondition for be-

3. A study of 24 devaluations found that, on average, consumer prices increased by less than half the amount of the devaluation in the following year, while manufacturing wages increased by less than one fourth. See Richard N. Cooper, "Devaluation in Developing Countries" in Gustav Ranis (ed.), *Government and Economic Development* (New Haven: Yale University Press, 1971). Anne O. Kreuger, in *Liberalization Attempts and Consequences* (Cambridge, Massachusetts: Ballinger, 1978), found that devaluation tended to reduce inflation rates below what they would otherwise have been. See also Jagdish N. Bhagwati, *Anatomy and Consequences of Exchange Control Regimes* (Cambridge, Massachusetts: Ballinger, 1978).

4. Bela Balassa, "Export Incentives and Export Performance in Developing Countries: A Comparative Analysis," *Weltwirtschaftliches Archiv*, vol. 114, no. 7 (1978).

ginning the process of reform which will get the economy back onto the right track. And, in all countries, there is a need to keep trade and exchange-rate policy under continuous review to ensure that it contributes to the development of an incentive system which assists governments in achieving their economic management and development objectives. External assistance can play a critical role in helping countries bridge the difficult period between initiation of reform and realization of substantial benefits.

Economic Decisionmaking

Another requirement for more efficient resource use is strengthened economic decisionmaking capacity in the public sector. Experience indicates a pressing need to reinforce procedures and institutions in three key areas: the generation of development projects; the evaluation of expenditure requests, including project proposals, by central government coordinating agencies (finance and planning ministries); and the formulation of economic policies.

Project Generation

The ability to generate good projects—the basic units of development action—is essential for efficient use of investment funds. With few exceptions, this capacity is weak in Africa, which explains why many projects are developed by donor technicians and why donors and African governments have developed special project-preparation facilities. Notwithstanding these efforts, the lack of well-prepared projects constrains the flow of aid to a number of countries.

The shortage of good projects is accounted for in part by organizational factors: the inability to bring together available data for technical and economic analysis, and to package the outcomes in a form tailored to donor needs. But much more important is the sparse knowledge base. Successful project preparation often requires location-specific data generated over a fairly long period of time: port projects may require tidal flow data for several years; livestock projects may need information on labor utilization patterns among cattle-using sedentary farmers; for effective rice projects more may need to be known about the division of labor between men and women as well as how yields behave over a period longer than two years; rural self-help projects should be based on close sociological analysis. In short, in many sectors good projects cannot be developed quickly (in 3 to 9 months) by visiting teams of specialists. More lengthy, serious, and focused studies will be required if projects in these key sectors, especially agriculture, are to be more successful. World Bank sector work could play a role in identifying specific needs in data or basic studies related to potential new projects.

Screening Expenditure Proposals and Policy Analysis

Even more essential than the ability to generate good projects is the capacity to sort out those which are good from those which are not so good. This is the vital screening function, which involves appraising government investment proposals, and is the essence of setting priorities.

Two units of government normally have the responsibility for screening proposed investment projects and other development-related expenditure requests: planning agencies and ministries of finance. In practice, planning agencies in Africa, as in most developing areas, have generally played a minor role in the vetting of projects. They have been engaged mainly in the elaboration of medium-term plan documents. But during the process of putting them together, planning agencies rarely have the opportunity to give systematic appraisal of projects proposed by spending agencies. Frequently, the planners find it necessary to include in the plan most projects submitted to them by the technical ministries, even some which are little more than project ideas. In part for this reason, the plan's expenditure targets almost always exceed resources available for investment. This means that selection of investment proposals for financing (i.e., the real setting of priorities) is made outside the planning process, usually

by the finance ministry during the budget process. But ministries of finance typically are forced to focus on containment of aggregate expenditures and less on their "quality." Their budget bureaus are usually fully absorbed in the annual production of the budget document; few have succeeded in effectively reviewing new development project proposals. Finally, many technical ministries, eager to press forward with their sectoral programs, present finance and planning ministries with faits accomplis—expenditure commitments made outside the plan, often in collaboration with foreign aid donors.

Thus, in government after government, many investment projects and related claims on resources pass through the public sector's administrative machinery without proper evaluation. Improvement of project screening institutions and procedures is indispensable to better investment programming.

A related weakness in making public decisions is the very limited use of economic analysis in policy formulation. Fundamental policy questions such as price-setting for basic staples, wage changes in the public sector, and the granting of tax concessions to new investors are often decided on the basis of inadequate analysis. In part, this shortage of policy and program analysis is explained by lack of staff and data. But it also reflects poor use of existing analysts. In most of the countries of the region, planning ministries, major users of economists, are so absorbed in the elaboration and adjustment of medium-term plans that they can give little attention to policymaking. In finance ministries, similarly, staff units capable of providing analytic inputs into policy decisions are generally not well developed.

Strengthening of Priority-setting and Policymaking Capacity

Although no continentwide prescription can be equally applicable to all countries, the need to strengthen capacity in project vetting and in policymaking is a high priority in all African countries. Planning and finance ministries, the key agencies involved, need reinforcement if they are to play the important role demanded of them in the 1980s and the years beyond.

Planning Ministries' Priorities. Formal development plans, and the process by which they are elaborated, can be useful in charting national strategy and stimulating constructive dialogue on development issues. But there is virtually universal agreement in assessments of planning experiences in Africa (and in other poor regions also) that the impact of formal planning on actual policymaking and investment programming is slight.[5]

There are many reasons why formal planning has had such limited impact on decisionmaking, among them: shortages of planners; scarcities of data; bureaucratic weaknesses; exogenous shocks; the tendency for plans to be overambitious; the lack of well-defined projects; and the difficulties of linking medium-term plans to annual budgets. Underlying many of these difficulties is the failure to distinguish sufficiently between writing a plan document and actually trying to influence decisions, a process which means coming to grips with fundamental political and bureaucratic factors. Plan-writing is what most

5. Recent studies of plans from a large number of African countries have found that correlations between planned and actual macroeconomic variables are very weak. These studies conclude that plans have not actually been implemented, and that, according to one observer, "the numbers exercise which marks the course of macro planning in tropical Africa appears to be futile." A study of planning in Nigeria in the 1960s concluded that it "played a peripheral role in the Government's decision-making processes" and a recent evaluation of planning in Kenya came essentially to the same conclusion. See United Nations Center for Development Planning, "Implementation of Development Plans: The Experience of Developing Countries in the First Half of the 1970s," *Journal of Development Planning*, no. 12 (1977). See also T.Y. Shen, "Sectoral Development Planning in Tropical Africa," *Eastern Africa Economic Review*, vol. 7, no. 1 (June 1975) and "Macro Development Planning in Tropical Africa," *Journal of Development Studies*, vol. 13, no. 4 (July 1977); Edwin Dean, *Plan Implementation in Nigeria, 1962–66* (Oxford University Press, 1972), pp. 236–7; Eniola O. Adeniyi, "National Development Planning and Plan Administration in Nigeria," *Journal of Administration Overseas* (London), vol. 19, no. 3 (July 1980); and Wouter Tims and others, *Nigeria: Options for Long-Term Development* (Baltimore, Md.: Johns Hopkins University Press, 1974). For later similar conclusions, see Tony Killick and J.K. Kinyua, "On Implementing Development Plans: A Case Study," *ODI Review* (London), no. 1 (1980).

planning ministries do, and the fact that many economists and much of the available analytic capacity have been absorbed in this activity helps, in no small measure, to account for the shortage of policy-relevant analysis.

Observers and practitioners of planning in developing countries saw in the 1960s and 1970s that the plan-writing activities of planning organizations were without much effect. Many then concluded that the thing to do was to build up capacity at the levels of government where the action took place—the executing ministries. Thus, they recommended that governments emphasize sector planning and project work. But this may have contributed to a weakening of the project selection process since it left unchanged the "vetting" capacity of the center, while strengthening the capacity of spending ministries to generate projects. To the extent that this occurred, it contributed to a lowering of the quality of investment programs.

The appropriate response now is to reinforce the central planning agencies, and to endow them as quickly as possible with the investment evaluation capacities they need. For countries to which this analysis is applicable, one implication is that planning ministries should consider changes in their work priorities. Certain "traditional" planning functions might be given lower priority. Thus, medium-term planning exercises—now the major activity of most planning ministries—could be done less intensively without much loss of impact. The weight given to other activities, and their compatibility with the priority-setting functions of planning ministries, should also be reconsidered—project preparation, project monitoring, and regional planning, for example.

In general, it would seem appropriate that planning agencies concentrate on two tasks other than investment programming: policy analysis and the training of economic analysts. Their policy analysis role will be discussed below. As for training, in most countries planning agencies are well placed to take on the critical job of training practical economists for the government as a whole. The vocation of planning ministries, then, is to become true priority-setting agencies for development expenditures, respected contributors to policy discussions, and the training ministry for government economists (see Box D).

Finance Ministries and Policy Analysis. Almost everywhere the financial and budgetary instruments of African public sectors are overburdened. More effective execution of development programs and better policy formulation require stronger institutions in this area. This is a theme that will reappear in the discussions of training in Chapter 6 and technical assistance in Chapter 9.

Finance ministries also need greater capacity in policy analysis—for tax planning and policy, assessment of budgetary requests, and determination of overall fiscal and monetary policies. Finance ministries, like planning ministries and other bureaus at the center of government, have special roles to play in economic decisionmaking. They represent the general interest in the bureaucratic struggle for resources. They therefore should have the capacity to make credible technical contributions to policy decisions at both the macroeconomic and sectoral levels. The strengthening of budgetary review procedures and establishment of policy analysis units in finance ministries would help them perform their central role.

Policy analysis units in the technical ministries and parastatals would also make large contributions to improved decisionmaking. And two other elements are important. The first is better data; the pool of information available to support policy analysis is very limited. Statistical agencies have come under the same budgetary pressures as other arms of government. Turnover among qualified statisticans is extremely high and many work abroad. Many African services are therefore providing very limited supplies of data.

The second element is procedural. Even where data are at hand, they are frequently not brought to bear on policy decisions because the process of making decisions is inadequately structured—consultation procedures may not be well defined, the decision

Box D: Botswana's Planning and Budgeting System

The Economic Planning Department plays a central role in Botswana both in determining the investment program and in policy analysis. The most crucial factors have been, first, a steadfast commitment of the President and senior ministers to the planning process and, second, the full integration of the planning and budgeting system, which has ensured that Development Plan priorities were respected in both recurrent and capital budget decisions.

Throughout the 1970s, when Botswana achieved a real annual GNP growth rate of around 14 percent, the Ministry of Finance and Development Planning came directly under the control of the Vice-President. The Plan was regularly updated by the central planning organization (the Department of Economic Affairs), and a new Plan document, incorporating a rolling three-year public investment program, was issued promptly every two or three years. After approval of the Plan by Parliament, the Government was bound by legislation not to finance projects which had been excluded. The Plan spelled out in some detail the macroeconomic and sectoral objectives and the policies to be adopted for their achievement; it was essentially a pragmatic, action-oriented document firmly rooted to ongoing operations and elaborated with the close involvement of the technical ministries.

When economic planning was initiated in Botswana in 1966 at the time of independence, only two professional economists were employed throughout the Government. The central planning unit in the Ministry of Finance was first built up, and available competent staff were concentrated there to vet the list of investment projects submitted by the technical ministries. As more staff were recruited (both locally and internationally), economic planners familiar with the procedures were reassigned from the Department of Economic Affairs to the small planning units in the technical ministries. This resulted in a steady improvement in both the definition of the sectoral development strategies and in project preparation. However, all the economic staff employed by the Government belonged to a single economist cadre with the Director of Economic Affairs responsible for assignments and career development.

The Department of Economic Affairs has participated actively in setting overall and departmental budget guidelines and in projecting government revenues. It has also been responsible for negotiations with external aid agencies and for preparing and monitoring the capital budget. In addition, the Department has initiated policy papers and a broad range of economic issues including fiscal reform, incomes and employment policies, customs union and tariff negotiations, and monetary matters. Planning staff have also been nominated to the boards of the key parastatal bodies. Finally, close links have been forged with the Central Statistics Organization, which also comes under the Minister of Finance and Development Planning.

In summary, the successful impact of planning in Botswana in helping to rationalize economic management and to clarify development objectives may be attributed to: a strong political commitment to pragmatic planning and economic rationality in government decisionmaking; the close integration of planning, budgeting, and economic policy formulation under a powerful senior minister; the recruitment of a highly competent economist cadre to staff the planning organization; focusing planning efforts first and foremost on determining the short- and medium-term public investment program which was closely adhered to by the Cabinet; establishing a strong policy analysis capability; and the continuous and active involvement of the planning staff in budgetary and economic management decisions.

meetings may be called too quickly, staff memos may not be called for, or may arrive too late for consideration, and so forth. These are, of course, general problems in development administration; their solution requires long-term institution-building efforts.

Donor Contributions

Most of the implications for donors of the above analysis refer to training and technical assistance for the building of stronger decisionmaking institutions—planning agencies, budget bureaus, policy analysis units throughout the public sector. The building of solid statistical infrastructure is a long-term objective; the Economic Commission for Africa is giving systematic attention to the problems involved and action required. Donors should give sympathetic support to proposals aimed at institution-building in this area.

Donors should also recognize their special priority-setting responsibility in the African context. Official development assistance provides over a third of total public investment in this region, and more than that in the poorer countries. Donors therefore play a major role in project selection, and in shaping the project selection process. In their own operations, donors could give closer attention to the development of orderly local decision-

making procedures and institutions—a positive force for long-term development.

Finally, donors could do more than they have in the past to associate local analysts with their own technicians in their sectoral and macroeconomic work, and in project appraisals. The World Bank, in particular, should regard its economic and sector work as major vehicles for training local people, as well as for gathering information useful to the Bank.

Organization and Management

Economic progress in any society requires that resources be used efficiently by organizational units in both public and private spheres. This applies not only to the production of goods in agriculture, industry, and mining but also to the provision of services, such as marketing, transport, and health care. This requires that organizational structures and the important role of management be continuously examined (see Box E).

Agriculture is the most vital sector in Sub-Saharan Africa. Chapter 5 will emphasize the central role that will have to be played by smallholders if agricultural growth is to be stimulated. All the evidence points to the fact that smallholders are outstanding managers of their own resources—their land and capital, fertilizer, and water. They can be counted on to respond to changes in the profitability of different crops and of other farming activities (e.g., dairying). African farmers can "manage" the use of resources in the agricultural sector to achieve the objectives of higher food output and export growth, if the price, tax and subsidy structures are providing adequate and appropriate incentives, and input and output markets are efficiently operated and organized.

The incontrovertible evidence that smallholders are excellent managers has wider implications for the organization of production activities in Sub-Saharan economies. For historical reasons, there are too few experienced managers for large organizations. Their ranks are now being augmented by training and by the recruitment of foreign managers. However, equal attention needs to be given to possible opportunities for economizing on the scarcity of experienced managers required for running large organizations. In particular, organizational formats for the public and private sectors that are smaller and more easily managed, and are, therefore, more efficient need to be encouraged. The further development of cooperatives is one such possibility. The development of parastatals which are smaller and, perhaps, answerable to local governments, is another. More extensive reliance on the private sector is a third option.

Private Sector

This third option is in danger of being insufficiently examined and developed by African governments. The reasons for this are many and varied. One of these reasons is a fear that a greater reliance on the private sector will run contrary to other objectives of some African governments—in particular, a concern over the equitable distribution of income and improvement of the plight of those in absolute poverty. However, achievement of these objectives is heavily dependent on higher rates of growth of output in the private sector, particularly by small farmers, who are the largest occupational group in tropical Africa.

Possibilities for emerging private sector options are discussed in later chapters. The following are indicative.

Agricultural Marketing. As discussed in Chapter 5, rural areas are frequently served by de jure public monopolies that sell agricultural inputs, market outputs, and often even monopolize the sale of consumer goods. One justification for these agencies is that they prevent exploitation of farmers by unscrupulous private traders. To the extent that this is a problem, it is not solved by replacing private monopoly with public monopoly but rather by increasing the competitiveness of markets. The best way to increase competition is to encourage private trading. In fact, private traders now handle most trading activity almost everywhere, but often in semi-legality. Legalization and encouragement of private trade would reduce costs and uncertainties in the market environment, relieve

Box E: Macroeconomic Indicators, Economic Management and Growth

Statistical evidence from a number of African countries suggests that the quality of management of the economy probably had a significant impact on economic growth in the last decade.

The table in this box compares macroeconomic indicators for eleven African countries—five of which grew rapidly in the 1970s (6.6 percent per year), and six of which grew more slowly (1.0 percent per year). Both groups of countries exhibit similar tax ratios and used nearly the same percentage of GDP for government expenditure. Although the high-growth countries invested half again as much as a proportion of GDP as did the slow growers, this only partly explains why the former grew six times faster than the latter during the last decade. Of far greater importance is the fact that, on average, only $3 of investment was made for each additional dollar of output in the fast growing countries, while in four of the slow growers, an average of $16 was required to produce each additional dollar of output. An in two slow growing countries, nonwithstanding substantial investment, output actually declined. These relations are commonly referred to as incremental capital output ratios (ICORS)—the increase in investment divided by the increase in output. Had the slow growers been able to generate ICORS similar to those of the fast growers, they would have grown fairly rapidly, at more than 4.5 percent annually.

What can explain the disparity in ICORS? Poor climate (drought), political upheaval, or severe changes in the income terms of trade often account for high ICORS and low growth. But none of these factors operated more strongly in one group of countries than in the other during the 1970s*. Better public management of the economy in general and of government resources in particular has probably contributed to the lower ICORS of the fast growing countries. Better management may also have had some impact on the export performance of the two groups: the fast growing countries increased their volume of exports, on average, 2.5 percent annually, while the average volume of exports for the slow growers actually declined 1.7 percent per year.

*None of these countries experienced serious civil strife or, as was the case in Zaïre and Zambia, extremely adverse terms of trade. Two fast growing countries, Botswana and Swaziland, have been excluded because of their atypical integration with the South African economy.

Macroeconomic Indicators for Fast and Slow Growing Countries in the 1970s
(ratios as percentages)

Country	*Average annual growth rate of GDP 1970–79*	*Ratio of taxes to GDP 1973–77*	*Ratio of government expenditure to GDP 1973–77*	*Gross domestic investment to GDP 1970–77*	*ICOR*[a]	*Growth of exports (volume) 1970–79*
High-growth countries	**6.6**	**15.8**	**21.0**	**21.0**	**3.2**	**2.5**
Mauritius	8.2	18.6	23.8	24.0[b]	2.9	. .
Ivory Coast	6.7	20.6	24.0	19.0	2.8	5.2
Kenya	6.5	15.3	20.6	21.0	3.1	−0.5
Malawi	6.3	11.3	21.3	22.0	3.4	4.6
Cameroon	5.4	13.0[c]	15.3[d]	19.0	3.7	0.5
Low-growth countries	**1.0**	**15.4**	**19.9**	**14.3**	**16.2**	**−1.7**
Senegal	2.5	17.7[e]	19.4	15.0	6.0	−0.8
Sierra Leone	1.6	15.0	23.7	13.0	8.2	−6.5
Liberia	1.8	21.2[d]	24.9[d]	19.0	10.6	2.3
Ghana	−0.1	10.4	18.1	11.0		−7.2
Upper Volta	−0.1	12.9	13.7	16.0		3.1
Madagascar	0.3	15.2[d]	19.7[f]	12.0	40.0	−1.0

Note: Country-group averages are unweighted.
a. The incremental capital output ratio (ICOR) is defined as the increase in investment divided by the increase in output.
b. 1970–75.
c. 1974–77.
d. 1974–78.
e. 1975–78.
f. 1972–73.

the marketing parastatals of their most difficult tasks, and in some countries reduce budget drains arising from the deficits of grain-marketing agencies.

Transport. Transport has traditionally drawn on the resources and energies of small entrepreneurs in Africa. Recently there has developed a tendency by governments to exclude

private buses or vans and to introduce or extend monopoly rights for urban bus companies, almost always parastatals. There is also a tendency to discriminate against private truck operations in the allocation of foreign exchange, where public and private transport structures coexist. The experience in this area is unambiguous. Private trucking is dynamic and highly competitive; it tends to offer efficient and low-priced services, especially to disadvantaged groups. In urban areas, the experience in cities such as Abidjan and Nairobi offers a revealing contrast. In Abidjan, a public sector bus monopoly was imposed in the mid-1970s, leading to a tripling of the bus fleet and a heavy deficit, despite the fact that the system serves only close-in populations. In Nairobi, private vans were allowed to compete with the city's bus company, with the result that the entire city is efficiently served with transport facilities, including a public bus fleet, which has remained small in size and also profitable.[6]

Civil Works. No better training exists for construction industry entrepreneurs than the use of small contractors, and it is highly likely that greater efficiency will come from contracting out such activities as road maintenance and building repair. There are, of course, problems—in particular, the development of simple contract-letting procedures and controls. But these problems are easier to solve than are those involved in government maintenance.

Drug Distribution. In most African countries, rural distribution of drugs is legally restricted to the public health care network. But for reasons of budget scarcity, logistics, and difficulties of supervision and control, in many countries these legal sources are commonly without drugs for much of the year. In such countries demand for drugs is satisfied, very imperfectly, in black market transactions. A legalization of private drug sales would certainly result in lower prices and steadier, more widely dispensed supplies—though it would entail some risks. Rural areas in particular would be better served (see Chapter 6 for a further discussion of this point).

In market-oriented countries this approach could be developed further. For example, training paraprofessionals in health and sanitation, and encouraging them to set up on their own, would limit the public sector role to training, certification, and supervision. Rural health workers would then circulate, or establish themselves in the villages, and provide services for fees. In contrast, the public-sector strategy (village health workers serving a group of villagers) involves great financial and logistic difficulties, thus far unresolved in most of Africa, or indeed elsewhere. This example serves to illustrate a general point: much of the administrative burden in the public sector arises from the need to organize, motivate, and control people; and this burden could be reduced if the private sector were allowed a greater role under government leadership.

This kind of redefinition of the frontier between public and private sectors will, of course, be of varying acceptability or attractiveness to African governments. It should be underscored that the question is not one of radical shifts in the social division of labor, but rather of marginal changes. By shifting some activities to private hands, significant gains in output may be possible with relatively little sacrifice of sociopolitical objectives. It is for this reason that enlargement of the scope of private activity along those lines has occurred in recent years in many places—among them, China, Hungary, Mozambique, Zaïre, and Guinea-Bissau.

The Parastatal Sector

The parastatal sector grew rapidly after independence. Before then, African participation in the modern private sector, especially industry, was very rare. Following independence, change took two main forms: nation-

6. For an examination of alternative approaches to urban passenger transport, see A. A. Walters, "Costs and Scale of Bus Services," World Bank Staff Working Paper, no. 325 (Washington, D.C.: World Bank, April 1979). This analysis concludes that minibuses operated by small firms or owner-drivers are generally more efficient in meeting urban transport demands than larger buses and bus companies.

alization of existing enterprises, which were almost invariably foreign owned, and investment of a very substantial share of government resources in parastatal enterprises in transport, public utilities, and manufacturing. The hope was that these public enterprises would be self-financing, rapidly expanding institutions. They would not only generate surplus for additional investment, but could also play an important role in modernization by developing skilled labor and enhancing managerial capacity.

These expectations have not been realized. With the exception of the mineral-exporting parastatals and some of those trading in export crops, public enterprises have thus far caused serious fiscal burdens. They do not pay taxes. Most of their investment costs are covered by transfers (from government budgets, the banks, or marketing organization surpluses); in some cases their cash surplus is less than their depreciation; and in a few instances cash flow does not even cover running costs. A number of the manufacturing parastatals—and mixed public-private enterprises—are moderately profitable. But this is usually because they enjoy very high levels of protection from the world market, explicitly in the form of a heavy duty on competing imports, or implicitly because components are imported duty free. In many cases their value added at international prices is but a fraction of their value added at domestic prices; in some cases value added may even be negative. In general, because the parastatals in the commercial sectors generate so small a surplus, their growth has been limited by the availability of the resources they can command from governments.

There are many reasons for this poor performance. Managerial and technical capacities are not easily established even though parastatals theoretically have flexibility in their the ability to operate and, specifically, to hire staff autonomously. Managers and technicians frequently come from the civil service. Budget and account systems tend to be taken from the government administration, and budget analysts, auditors, accountants—few in number anyway—also tend to come from the government sector, so procedures end up very much like those of general government administration. In addition, parastatals are often undercapitalized and starved of working capital. And, most critical, policymakers have found it difficult to accept a "nonpolitical" role for parastatals. They are pressured to increase employment, to deliver outputs at low prices to key groups, and to shape investment decisions other than with economic and financial returns in view.

In the parastatal sector, what is needed is straightforward, at least on a general level:

- a clear definition of objectives and terms of reference;
- an explicit understanding between government and the parastatal entity defining the annual financial and production plan within the framework of agreed long-term objectives. The "contract plan," as it has evolved in France and some francophone countries, is an example (see Box F);
- an incentive system conducive to efficient performance;
- independence in day-to-day management;
- independent personnel management;
- proper accounts and records; and
- acceptance of the principle that under certain circumstances liquidation of an enterprise may be desirable.

Reform of parastatals, particularly in the industrial sector, has far-reaching developmental significance. Economic development inevitably implies that the nontraditional sectors grow fastest: manufacturing, public utilities, transport, and modern services. In Africa, these are predominantly in the parastatal sector. Unless there is a change in the operating effectiveness of parastatals, particularly in industry, they will not take their proper place as growth points. They will, instead, continue to be fiscal drains and major contributors to slow growth. Reform of the parastatals is, therefore, not just a question of increasing resources available to government in the short run, important as that is; it is far more fundamental, involving the whole question of long-term growth prospects.

Since improved performance in the parastatal sector is so important for faster growth

Box F: Public Enterprise Contracts in Senegal

One promising approach to improving operations of parastatal enterprises consists of performance contracting between government and individual firms. The enterprise contract is a negotiated agreement between government and a parastatal company describing the objectives government assigns to the parastatal as well as the resources it will provide and the degree of control which it will exercise. The company, in turn, promises certain results; performance is to be judged by indicators mutually accepted over a given period.

In Senegal, such contracts were first prepared in the transport sector (bus, airline, and railroad companies), in which quantification of objectives, means, and performance is relatively easy. Negotiations started in 1981 on company contracts between government and regional development agencies. Here quantification is more complicated, since performance depends in part on exogenous factors such as climate and world market prices for agricultural products.

Senegal's experience has already produced several useful lessons. First, effective use of enterprise contracts requires strong support at the highest levels of government: individual ministers and senior civil servants fear losing control over public enterprises, including the power to make fairly routine decisions. Second, company contracts are enthusiastically endorsed by company managers, who see them as a means of obtaining: (1) clear objectives on which their performance can be judged; (2) a precise definition of the role of subsidies and tariff increases in company operations; and (3) a reduction in the diversity of company objectives. Third, the negotiation of company contracts should be supervised by neutral government staff who report to the central political authority. Thus, conflicts between companies and government authorities can be resolved by the President or the Prime Minister. Moreover, once a company contract is negotiated these neutral staff must supervise its implementation and expose failures by any of the parties to fulfill their obligations under the contract.

The enterprise contract allows political choices to be made in full awareness of their costs: excessive employment, or selling output below costs will be less likely to persist if they are discussed in a forum of senior government officials and management and if they are subject to codification in a contractual relationship. Government leaders are usually reluctant to give enterprise managers autonomy in crucial decisions such as prices of output, employment, wages, or investments, because they fear substantial divergence between the goals of the managers and those of the community. But a contractual relationship, based on clear goals and criteria for good management performance, would permit reduction in the detailed controls of ministries and other central authorities. This would conserve their valuable time and energy, while giving the enterprises the autonomy needed to operate effectively.

and increased access to services, ways to achieve it warrant close attention by governments and donors. The most common approach to parastatal reform in Africa as elsewhere involves the appointment of one-time study commissions. While useful, this approach has a number of limitations, most notably with respect to implementation of recommendations. A more continuous and longer-term approach might be more productive: for example, the establishment of high-level organizational review bodies which could do ongoing studies and provide continuous advice to governments. Similar units, strategically placed (e.g., attached to the chief of state's office) have developed useful approaches to reform in some countries, as has been the case in Senegal.

In many African countries the parastatals present merely the most urgent and visible problems of public sector performance. The traditional ministries and agencies, too, tend to suffer from similar constraints—of shortages of managerial skills combined with overmanning, of wide responsibilities combined with inadequate administrative structures and insufficient resources.

Effective administrative reform is notoriously difficult to accomplish: nevertheless, there are four steps which can now be taken to accelerate the process of building public organizational capacity and to begin correcting some of the anomalies which have arisen in the decades of rapid administrative growth. Such measures are largely independent of particular policy choices about privatization, since the central responsibilities of government for economic development and human welfare will remain, even though the exercise of particular functions may change.

First, there is a need to improve the cost-effectiveness of government manpower, particularly near the top (where managers need longer tenures and more delegated authority)

and near the bottom (where the presence in the field of large numbers of thinly spread agencies often actually detracts from the population's effective access to productive and welfare services).

Second, delegation and consolidation of service output points require better definitions of who is accountable for performance, and an improved structure of incentives, to reward that performance rather than mainly to recognize hierarchy and length of service.

Third, resource constraints demand novel approaches to community involvement in service provision in cooperation with the administration—with the implication also that bureaucratic agencies will, in the long run, be answerable for their performance to their "clients" in the community as well as to their administrative heads.

Finally, while initiatives in some of these areas are already in existence in some countries, there is a great need for high-quality analysis and prescription suitable to each country's conditions—a need which is seldom satisfactorily met by periodic review. It may, therefore, be advisable to extend the responsibility of the high-level public sector units discussed above to include the problems of the public administration itself.

The Size of Government

There is a special set of concerns that relates to the growth of those government-administered activities which make heavy and increasing demands on financial resources. First, the mobilization of resources for these activities precludes their use elsewhere in the economy. Second, in order to finance these activities, governments must generate revenues—primarily through taxation—which will have adverse effects on production in the sectors that are taxed.

Growth since Independence

During the past 20 years the public sector has greatly extended its economic role in Africa, as it has elsewhere. This growth has come not only from expansion of government per se, but also by extension of the state into commercial or productive activities—manufacturing, mining, transport, marketing—activities which were largely in private hands before independence. A recent World Bank study, limited to seven countries for which data were available, showed that the public sector now employs between 40 and 74 percent of those recorded in paid employment and that public sector employment has grown much faster than that of the private sector (see Table 4.1). The growth of the government sector alone has also been very rapid. As indicated in Table 4.2, spending on public administration and defense, which are (with education) the largest components of the government sector, has grown far more quickly than national output. And as will be shown in Chapter 6, growth in expenditure on public education has also been extremely rapid.

The fast growth of the public sector since independence is also indicated by the high share of output commanded by governments. This feature is not reflected in the conventional ratio of tax revenue to GDP. For Sub-Saharan African countries these ratios are similar to those found in other low- and middle-income countries—a median ratio of 15 percent for low-income countries both in Africa and in the rest of the world and 21 percent for middle-income countries in Africa compared with 18 percent in the rest of the world. However, many African countries also generate substantial surpluses from government-owned mineral complexes or agricultural marketing parastatals. In the late 1970s, for example, Madagascar, Malawi, and Ivory Coast all generated financial surpluses from public agricultural marketing organizations that exceeded a quarter of tax revenues. Chapter 5 shows that "taxation" of farmers is relatively high; levies of 40–50 percent are commonly imposed on export crops (in addition to any "taxation" resulting from an overvalued exchange rate or from an inefficient marketing system).

On top of their considerable access to domestic resources, African governments also receive sizeable aid flows—excluding the oil

exporters, more than 6 percent of GNP in 1979, and equal to 38 percent of gross domestic investment. Total resources marshalled by governments, therefore, typically exceed a quarter and, in many cases, even 40 percent of GNP. This is a high share compared with other regions. In India, for example, in 1977, taxes of central and state governments com-

Table 4.1. Public Sector Employment and Growth Rates, Selected Countries

Country	Year	"Formal" employment as a percentage of working age population	Public employment as a percentage of "formal" employment	"Formal" employment growth rates (percent)		
				Public	Private	Total
Ghana	1957		51.4	4.9	−2.2	2.3
	1972	10.1	73.9			
Tanzania	1962		27.0	10.7	−4.8	2.3
	1974	6.3	66.4			
Zambia	1976	14.2	71.5			
Ivory Coast	1970	10.2				
Kenya	1963		29.6	6.0	2.4	3.7
	1977	12.4	41.7			
Malawi	1968		33.4	9.0	8.0	8.6
	1976	9.6	39.2			
Uganda	1962		41.8	4.0	4.8	4.5
	1970	5.9	42.2			

Source: World Bank data files.

Table 4.2. The Growth of Public Administration and Defense relative to GNP

Countries[a]	Expenditure on public administration and defense as percentage of GDP (annual average, 1970–79)[b]	Average annual growth rates, 1970–79		
		Expenditure on public administration and defense	relative to GDP	Expenditure on public administration
Mauritania	18.0	13.9	1.8	12.1
Kenya	17.1	8.4	6.5	1.9
Sudan	16.1	4.5	4.3	0.2
Tanzania	14.9	10.2	4.9	5.3
Chad[c]	14.2	6.1	−0.2	6.3
Somalia[c]	13.7	6.5	3.1	0.2
Congo	12.7	2.3	2.9	−0.6
Botswana[c]	12.1	16.3	13.5	0.5
Madagascar	11.5	0.2	0.3	−0.1
Benin	11.0	4.8	3.3	1.5
Rwanda[d]	10.3	6.5	4.1	2.4
Lesotho	9.2	3.3	7.0	−3.7
Upper Volta	9.1	6.2	−0.1	6.3
Uganda	9.1	5.9	−0.4	6.3
Sierra Leone	8.3	9.6	1.6	8.0
Ivory Coast	8.1	8.9	6.7	2.2
Liberia[c]	8.0	6.7	1.8	4.9
Cameroon[c]	7.1	6.2	5.4	0.8
Nigeria	6.4	13.3	7.5	5.8
Mauritius	4.7	12.9	8.2	4.7
Burundi	4.4	5.9	3.0	2.9
Mean (unweighted)	9.9	7.4	3.9	3.3

a. In descending order of proportion of expenditure devoted to public administration and defense.
b. Value added.
c. 1970–78.
d. 1972–79.
Source: World Bank data files.

bined came to 15 percent of GDP, foreign aid to 1.1 percent, and expenditures by central and state governments to 20 percent. African governments, therefore, have been very successful in mobilizing economic surplus for public uses.

The question of a large and growing volume of national resources being allocated to government uses would be a matter for examination by each government, even if national output were growing rapidly. However, with output rising so slowly, it is critical to compare the resources being allocated each year to basic government services (defense, public administration, education, health, and highways) with the use of resources to support, say, agriculture or industry. Furthermore, it becomes important to reexamine the financial cost of providing government services and, most especially, the wage and salary levels in the government sector.

Revenue Generation

The revenue generation problems posed by a growing government sector also need to be examined. Once again, in a rapidly growing economy, revenues generated by a given tax system would typically be sufficiently buoyant to generate adequate additional revenues. In the African situation of slow overall economic growth, the danger has arisen that the additional revenues required to finance increased government expenditure can only be generated by introducing new tax measures which then become a further drag on output growth. This is particularly worrisome in the case of agriculture, as discussed in Chapter 5. The answer to the revenue problem is to find forms of taxation that impose less of a burden on the "motor" sectors of the economy as well as to check expenditure by using fees and charges to a greater degree.

The development of sales and excise taxes on production which does not enter into international trade (services from hotels, restaurants, transport, banking, insurance, power, construction), which accounts for much of the two thirds of value added generated outside of agriculture, would contribute to a much-needed reduction in anti-trade and anti-agriculture bias in African tax structures. In most countries these sectors are taxed less heavily than agriculture, minerals, and industry. A shift toward heavier taxation of nontradeables would also give African tax systems more "buoyancy," that is, more automatic increases in revenues would accrue as output increases.

Sales taxes, for example, are very buoyant because their base rests on the rapidly expanding sectors in the economy. Properly designed, sales taxes are much simpler to administer than property and income taxes. A single-stage ad valorem sales tax collected at the point of local manufacture is especially suited to African circumstances. In some countries (Nigeria, Gambia, Somalia, Sudan) sales taxes have yet to be introduced and in many others they generate very modest revenues, usually because of failure to exploit the tax base fully. In contrast, Kenya, Malawi, Niger, and the Congo all generate more than one fifth of their taxes through the contribution of sales taxes alone.

Excise taxes also have the advantages of ease of administration and a base that in many cases grows more rapidly than national output. They can reinforce a more general sales tax by selective taxation of luxuries. For instance, Sierra Leone imposes excises on tobacco, petroleum products, beer, stout, and confectionary products, which amount to 15 percent of total revenues. In Zambia, the tax on beer alone came to 18 percent of the total taxes in 1976. The excise on motor vehicle fuels deserves particular attention. Administratively it is ideal since it is easily measured and collected at low cost, either at the refinery or the point of import. The tax has been very buoyant, it is progressive, and it is an important component of energy policy. Many African countries have yet to respond fully to the new economics of very expensive energy; compared with taxation in Western Europe, for example, motor fuel taxes in Sub-Saharan Africa are low. In 14 African countries for which data are available from 1979, taxes added 41 percent on average to the retail price of

gasoline, compared with 125 percent in France, Italy, and the Federal Republic of Germany. Simply replacing the specific taxes on petroleum, which are now used in many African countries with ad valorem taxes at a fixed rate, would ensure a very buoyant tax in the future.

Paying for Basic Services

One major goal of African as well as of other governments is to make basic services (sanitation, safe water, modern medical care, and education) available to all, although at present these services are enjoyed by few, usually the minority living in cities. This outcome was inevitable in that the governments have followed the current worldwide practice of concentrating on expanding free services through the use of public funds and public agencies. The public funds required for the provision of services in this traditional fashion exceed by far what governments are able to generate now or are likely to generate in the next several decades.

Public services are highly valued. African consumers are willing to give up other expenditures to buy such services as bus transport, irrigation water, health care, and education. But because many of these services are regarded as something only government should provide and should pay for, alternative modes of supply and of financing have remained unexplored. The outcome is paradoxical. While it is widely believed that goods of such fundamental importance should be supplied without payment, governments cannot afford to provide them; therefore, in the face of substantial demand, the services languish accordingly.

It is clear that the only hope of broadly based provision of services in a self-reliant Africa is through greater emphasis on charging beneficiaries for the services they receive. It is also clear that there is an increasing interest among African countries in examining alternative approaches, all of which would conserve government resources. The following possibilities should be among those more widely considered:

- In projects involving primary health care, a number of countries are experimenting with village revolving funds to finance medicines and other supplies.
- Some governments continue to encourage private sector activities, including those of nonprofit organizations, in such areas as education and health. Private schools, and especially clinics, are active in many rural communities.
- In some countries villagers provide both classrooms and teachers' houses. In others, village pumps and wells are constructed only if the village covers a large share of the costs of installation.
- Housing projects often include provision for payment in installments by the serviced sites, and users of irrigation and household water in some projects are charged according to the amount used.
- In Swaziland "study-loans" at the university level cover all costs to the student—tuition, board, books—and include a cash allowance. In the first five years after employment begins, the student repays half the study-loan. A government bureau is used to recover costs.

These examples do not suggest that services should be provided solely for payment. In many instances general welfare is also satisfied by services which benefit individuals. It obviously makes a great deal of sense to subsidize services such as preventive medical care and primary education.

The biggest barrier to cost recovery is administration. Just as many taxes are administratively too demanding, so too have various cost recovery schemes failed because of unsolved administrative problems. The World Bank's recent urban sites and services projects in several African countries illustrate both the difficulties and approaches to their resolution. These projects involve direct payment by beneficiaries for services (water, roads, street lighting, refuse collection) and goods (house construction or business loans) provided under the project. An organization had to be developed to bill clients and handle receipts. Sanctions—such as site repossession, or disconnection of services—had to be im-

posed on those of the clients who did not meet their payments.[7]

The development of adequate collection organizations and the willingness of beneficiaries to pay depend on the degree of support from political leaders and administrators. Continuing experimentation is needed to develop approaches that conserve fiscal resources while expanding the provision of basic services. Provision of primary rural health care through reliance on paramedicals funded by village revolving funds, village water supply, veterinary services, and education—all may lend themselves to decentralized, self-financing approaches. But they need a long time to evolve into low-cost replicable programs. Donors could play a substantial role in fostering such experimentation, both by providing resources to support new approaches and by assuring support for long enough to see which of these approaches work.

Donors can also play a basic role in designing projects so as to emphasize user charges and cost recovery. Until recently, too little attention has been given to this issue, which is now an important matter for discussion. Donors and governments together can bring about a wider awareness that user charges are a desirable means of achieving the governments' own social goals.

7. Similar problems arise in student loan programs, which are an indispensable accompaniment to higher fees at secondary schools and universities. These programs everywhere run into collection difficulties.

5. POLICIES AND PRIORITIES IN AGRICULTURE

Agriculture is at the heart of African economies. Most of the population earns its livelihood from agriculture. Officially its share of GDP in most countries of the Sub-Saharan region is between 30 and 60 percent. But this is an underestimate, since agricultural output is valued at the prices governments pay to producers, which are below export or import parity prices, and since the value of production in the secondary and tertiary sectors is overstated due to subsidies and protection. Moreover, the transport, processing, and trade sectors depend on the production of agricultural commodities, and incomes earned in this sector provide markets for domestically produced goods and services.

Thus, agricultural output is the single most important determinant of overall economic growth and its sluggish record of recent years is the principal factor underlying the poor economic performance of the countries of this region. For this reason, growth-oriented policies for this sector are crucial for improving overall economic performance. This chapter reviews trends over the last 20 years and then sets forth the main elements of a production-focused rural development strategy.

Trends in Agricultural Development, 1960–80

The crisis in African agriculture is reflected in five trends which evolved over the past two decades:

- the growth rate of agricultural production began to decline and, in the 1970s, was less than the rate of population growth almost everywhere;
- agricultural exports stagnated, and African shares in world trade declined for many commodities;
- food production per capita was at best stagnant in the 1960s and fell in the 1970s;
- commercial imports of food grains grew more than three times as fast as population, and food aid increased substantially; and
- more of the population shifted its consumption to wheat and rice (as evidenced by the soaring imports of these foodgrains), which increased food dependency and created in many countries a mismatch between local production possibilities and consumer demand, since wheat and rice in these countries can only be grown at costs far above import parities.

Overall Performance

In the 1960s, agricultural production[1] grew in volume by 2.3 percent a year, or roughly at the same rate as population growth. In the 1970s, however, production dropped to about 1.3 percent a year,[2] while population grew at about 2.7 percent. In the low-income and oil-exporting countries, agricultural growth was the slowest—about 1 percent annually—while the middle-income nations achieved a growth rate in line with that of rural population (which

1. Crops and livestock.

2. See the Statistical Annex for a discussion of some of the problems involved in estimating average growth rates in agriculture.

Table 5.1. Growth of Agricultural Exports[a]

Export	Annual growth rates (percent)					
	Sub-Saharan Africa		Oil-exporting countries		Oil-importing countries	
	1961–63 to 1969–71	1969–71 to 1977–79	1961–63 to 1969–71	1969–71 to 1977–79	1961–63 to 1969–71	1969–71 to 1977–79
Thirty main agricultural exports						
Volume	1.9	−1.9	−0.7	−8.6	2.6	−0.7
Unit value	2.3	16.2	3.1	16.8	2.1	16.1
Value	4.3	14.0	2.3	6.8	4.8	15.3
Value of other agricultural exports	4.6	8.9	33.4	−1.6	3.4	9.8

a. Crops and livestock.
Sources: World Bank data and FAO *Trade Yearbook* tapes.

is estimated to have increased by a little more than 2 percent a year). All groups of countries registered declining per capita production, however, and only eight out of the 39 countries for which data are available (which account for less than 15 percent of the region's population) showed rising agricultural production per capita (see Table SA.25).

While production statistics are highly tentative (particularly for subsistence foods) and must be regarded with caution,[3] other evidence substantiates the poor performance in this sector: the mounting domestic food prices in most countries; the steep rise in cereals imports; and the export crop figures, which are more reliable than production statistics and indicate a substantial decline (see Table 5.1).

Export Production

By the end of the 1970s, agricultural exports were no greater than in the early 1960s. In fact, a modest rate of increase of 1.9 percent a year in the 1960s was offset by an equal decrease in the 1970s. In terms of volume, the only crops registering gains were coffee, cocoa, tea, sugar, and cotton.[4] Sisal suffered a marked drop in response to shrinking world demand. Cattle and meat exports grew steeply in the 1960s, but, following the 1972–74 West African drought, failed to regain their previous levels. Timber also enjoyed a brisk increase in the 1960s, but then stagnated in the next decade. Perhaps the most spectacular decline in exports was in oilseeds—especially groundnuts—which was due to increased domestic demand (in Nigeria, in particular), the disintegration of Zaïre's rural economy, a switch from groundnuts to cereals in a number of countries (Mali, Niger, and Nigeria), and the spread of "rosette" (a plant disease).

As a consequence, Africa's share of world trade declined for most of these commodities. While world trade in those commodities exported by the Sub-Saharan countries grew in volume by 1.8 percent a year, and 3.3 percent in value (constant prices) over the two decades, the growth rates of exports from Africa were zero and 1.8 percent, respectively.[5]

Food Production

The key crops produced for domestic consumption are millet and sorghum in the Sudan and Sahelian countries, maize in Eastern and Southern Africa, rice in Madagascar and

3. Limitations of agricultural data are discussed in the Statistical Annex.

4. In terms of prices, coffee and cocoa recorded substantial real gains over the two decades, rising by some 5 percent annually relative to import prices, while the relative prices (net barter terms of trade) of the other export crops (when taken together) fell. Consequently, the share of cocoa and coffee in the total value of agricultural exports increased from one third to nearly two thirds between 1961 and 1979.

5. This applies to the 30 main agricultural exports (crops and livestock), accounting for more than 90 percent of the total. For the volume of total exports, the rate of increase was 1.6 percent a year.

Table 5.2. **Growth of Production of Selected Food Crops**
(in volume)

	Annual growth rate (percent)					
	Sub-Saharan Africa		*Oil-exporting countries*		*Oil-importing countries*	
Crop	*1961–63 to 1969–71*	*1969–71 to 1977–79*	*1961–63 to 1969–71*	*1969–71 to 1977–79*	*1961–63 to 1969–71*	*1969–71 to 1977–79*
Cereals						
Rice (paddy)	4.0	2.9	6.3	10.7	3.8	2.2
Wheat	3.8	−0.2	−1.2	−0.6	4.0	−0.2
Maize	5.2	1.3	5.1	0.9	5.2	1.4
Millet/sorghum	0.9	1.0	0.2	0.7	1.3	1.2
Roots and tubers	2.0	1.8	2.3	1.6	1.8	1.9
Pulses	3.3	1.1	5.2	0.0	2.8	1.4
Groundnuts	0.7	−0.9	−1.2	−14.0	1.7	2.7
Palmoil	1.7	2.2	0.1	2.7	3.7	1.6

Source: FAO *Production Yearbook* tapes.

parts of West Africa, roots and tubers (cassava, yams, and sweet potatoes) mainly in the forest zone of West and Central Africa, and pulses (cowpeas, in particular) throughout Africa, but largely outside the forest zone. Important oilseeds are groundnuts and palmoil.

Food production, as measured by the growth of these major crops,[6] rose by about 2 percent a year in the 1960s (see Table 5.2), or at approximately the same rate as rural population. In the 1970s, however, production increased only by an average of 1.5 percent a year and the drop was sharper among the oil-exporting countries, mainly because of the decline of groundnuts in Nigeria.[7] In fact, for Africa as a whole in the 1970s, growth of food production was not only well below the increase in total population, but also well below that of rural population.

Where output increased, it was due largely to an expansion of the areas under cultivation. On the other hand, productivity was stagnant, both in terms of land and labor. Yields, which grew in the 1960s (by 2 percent a year for roots and tubers and close to 1 percent for cereals), stagnated in the next decade. Though yield data are especially weak, they describe general tendencies, and the declining trend in Africa is in marked contrast to those in other developing regions, such as the Indian subcontinent (where, however, much of the growth has come on irrigated land). And while land productivity is not the decisive factor for a thinly populated continent such as Africa, when growth of total food production is compared to that of the rural population, it suggests that labor productivity stagnated in the 1960s and fell in the 1970s.[8]

What is significant is that this decline occurred over a period when the various governments and external sources of finance focused more strongly on food production projects than ever before. Between 1973 and 1980, about $5 billion in aid flowed into agriculture, $2.4 billion of which was from the World Bank.[9] These projects have so far failed to boost output or have been offset by declines in other parts of the food economy.

6. The main items left out are fruits and vegetables (including plantains) and meat and fish, for which data are very patchy and even more uncertain than for the staples discussed below.

7. Excluding groundnuts, the growth rate of food production in the oil-exporting countries would have doubled, from 0.8 percent a year in the 1960s to 1.6 percent annually in the 1970s.

8. The rate of growth of rural population does not take into account the changes in rural population structure, however—in particular, the decreasing proportion of able-bodied males.

9. Most of this aid was for food production; of the total incremental output expected from the assisted projects, export production accounted for only one eighth—or one-third, if crops such as maize and groundnuts (which are both exported and domestically consumed) are included.

Table 5.3. Growth of Imports of Selected Agricultural Commodities, 1961–63 to 1977–79
(in volume)

	Percent yearly					
	Low- and middle-income countries		Oil-exporting countries		Sub-Saharan Africa	
Commodity	1961–63 to 1969–71	1969–71 to 1977–79	1961–63 to 1969–71	1969–71 to 1977–79	1961–63 to 1969–71	1969–71 to 1977–79
Cereals[a]	7.4	6.8	21.5	18.2	9.0	9.5
Wheat	9.3	9.2	26.8	13.3	12.9	10.7
Rice	4.9	7.3	3.7	68.0	4.9	12.1
Maize	8.5	2.6	. .	47.3	8.7	5.7
Dairy products[b]	9.8	5.4	. .	17.0	7.2	7.2
Sugar	2.1	−0.1	6.0	23.4	2.5	5.8
Meat	1.1	5.4	2.3	33.1	1.3	13.3
Animal and vegetable oils	11.6	5.4	9.1	70.3	11.5	13.0

a. Including those not itemized below.
b. See technical notes for Table SA.29.
Source: FAO *Trade Yearbook* tapes.

Agricultural Imports

Food imports grew steadily over the past 20 years, except for sugar (see Table 5.3). Imports of cereals soared by about 9 percent a year since the early 1960s. Commercial imports increased from 1.2 million tons a year in 1961–63 to nearly 5 million tons in 1977–79 (see Table SA.29). If exports of cereals are deducted, net imports averaged about 4.3 million tons during the late 1970s. The fastest growing are wheat and rice, which together rose by about 11 percent a year in the 1970s, the increase partly reflecting Madagascar's shift from a position of net exporter to major rice importer. Cereals imports are heavily concentrated in ten countries: some of the most populous (Ethiopia, Ghana, Nigeria, Sudan, Tanzania, and Zaïre), several smaller ones with a marked European lifestyle in the cities and many expatriates (Ivory Coast and Senegal), and two with a high degree of urbanization (Congo and Zambia). Wheat and rice now account for 82 percent of gross cereals imports and their share is expected to rise further. While this is partly due to lagging growth of domestic food production, it is also the result of the rapid rate of urbanization and of economic policies. Consumption patterns shifted from the traditional staples to wheat and rice, a practice exacerbated by overvalued exchange rates which often make imported cereals the cheapest source of supply. To some extent, therefore, a low rate of growth of food production may be an effect rather than a cause of rising cereals imports; both factors are related to overvaluation of exchange rates.

Food Aid

The figures in Table 5.3 actually understate the real hike in imports, since, in a number of countries, food aid is not reported in foreign trade statistics; yet it now accounts for more than 20 percent of total net cereals imports (see Table 5.4). The bulk of the aid consists of wheat and wheat flour (75 percent of U.S. food aid in 1979–80), while maize and sorghum, the staple commodities in many of the countries, constitute only minor shares.

Food aid is targeted to the areas experiencing wars and refugee flows, and to the Sahelian countries (see Table SA.24). It rose from about 800,000 tons in the mid-1970s to more than 1.3 million tons in 1978, because of the poor crop year of 1977–78; and the World Food Program estimates that the volume reached 1.5 million tons in 1980, with pledges for 1981 placed at 1.8 million tons.

Sources of Slow Agricultural Growth

There is a fairly widespread consensus as to the main factors behind the present rural crisis, although perhaps not on the weight to be attached to each. These include (as discussed in Chapter 2) the disruptions caused

Table 5.4. **Food Aid and Commercial Imports of Cereals, 1975–79**

Item	*1975*	*1976*	*1977*	*1978*	*1979*
Food aid (thousands of metric tons)					
Low-income countries[a]	834.7	648.5	708.2	1,001.0	953.0
Middle-income oil-importing countries[b]	113.2	98.4	147.7	336.9	234.6
Total Africa[a]	957.8	752.0	868.6	1,359.2	1,201.5
Commercial net cereals imports (thousands of metric tons)					
Low-income countries	1,471.8	1,309.7	1,532.9	1,488.7	1,272.0
Middle-income oil-importing countries	646.9	779.5	1,324.0	1,389.9	1,439.1
Total Africa	2,818.3	3,050.5	4,212.6	4,747.2	4,282.6
Total net cereals inflow (thousands of metric tons)					
Low-income countries	2,306.5	1,958.2	2,241.1	2,489.7	2,225.0
Middle-income oil-importing countries	760.1	877.9	1,471.7	1,726.8	1,673.7
Total Africa	3,776.1	3,802.5	5,081.2	6,106.4	5,484.1
Food aid as a percent of total net inflow					
Low-income countries	36.2	33.1	31.6	40.2	42.8
Middle-income oil-importing countries	14.9	11.2	10.0	19.5	14.0
Total Africa	25.4	19.8	17.1	22.2	21.9
Food aid per capita (kilograms)					
Low-income countries	4.9	3.7	4.0	5.5	5.1
Middle-income oil-importing countries	2.2	1.8	2.7	5.9	4.0
Total Africa	3.1	2.4	2.7	4.1	3.5
Total net cereals inflow per capita (kilograms)					
Low-income countries	13.6	11.3	12.6	13.6	11.8
Middle-income oil-importing countries	14.6	16.4	26.6	30.2	28.3
Total Africa	12.4	12.2	15.8	18.5	16.2

a. Includes Comoros and Cape Verde.
b. Includes Djibouti, Equatorial Guinea, São Tomé and Principe, and Seychelles, but excludes Zimbabwe.
c. Includes oil exporters; excludes Zimbabwe.
Source: Food Aid Bulletin, no. 4 (Rome: FAO, October 1980), Table 2, pp. 8–10.

by wars and civil strife, drought and poor rainfall patterns during the 1970s, and rapid population growth, which pushed cultivation into less productive areas. Agriculture was also neglected for a long time by government and donors, as it was by development theorists. Further, there was a misallocation of investment, notably an excessive emphasis on large-scale government-operated schemes. Also, agricultural and economic policies and institutional frameworks were not conducive to increasing output: official prices were too low; marketing systems too uncertain, inefficient, and uncompetitive; input supplies too irregular; and participation of farmers in rural affairs too limited. The agricultural extension effort was weakened by unfavorable policies, deficient research output, and the organizational deficiencies of the public sector agencies which were responsible for spearheading rural development.

Low agricultural growth rates typify all but a few African countries in recent years (see Table 5.5). The downward trend is particularly ominous since it has occurred despite major investment efforts and additional use of off-farm inputs (see Table SA.28). The shift in consumption toward wheat and rice is also worrisome because it involves cereals that are more costly to produce than millet, sorghum, and maize, and—except for traditionally grown rice in some countries—have high costs relative to imports of the same products.

Action for Rural Development

A major action program for agriculture, the Food and Agriculture Organization (FAO) Regional Food Plan for Africa,[10] was written in 1978 and endorsed by the Organization for African Unity (OAU) in Arusha (1978), Monrovia (1979), and at the Extraordinary Economic Summit in Lagos (1980). It postulates a growth rate for agricultural production of

10. *Regional Food Plan for Africa* (Rome: FAO, 1980).

Table 5.5. Growth Rates of Agricultural Production, 1969–71 to 1977–79
(average annual growth rate in volume as a percentage)

4 +	*3–4*	*2–3*	*1–2*	*0–1*	*< 0*
Kenya	Cameroon	Benin	Botswana	Ethiopia	Angola
Malawi	Ivory Coast	Burundi	Chad	Gabon	Congo
Swaziland	Rwanda	Central African Republic	Guinea-Bissau	Gambia	Ghana
			Lesotho	Guinea	Mauritania
		Liberia	Madagascar	Somalia	Mozambique
		Upper Volta	Mali		Togo
		Zambia	Mauritius		Uganda
		Zimbabwe	Niger		
			Nigeria		
			Senegal		
			Sierra Leone		
			Sudan		
			Tanzania		
			Zaïre		

Source: FAO *Production Yearbook* tapes.

3.9 percent a year for 1980–85 and 4.2 percent for 1985–90. This amounts to a tripling of the growth rate achieved in the 1970s. To reach this level, the Plan calls for investments of $65 billion in 1975 prices, or $125 billion in 1981 prices, over a 15 year period (from 1975–90). Of the total, 45 percent is for food crops, 30 percent for livestock, and 25 percent for support services (storage and transport). These figures do not include complementary investment in infrastructure (marketing, processing, and feeder roads), other support services (research, extension, and training), or inputs.

The *Plan* is careful to note that its so-called maximum feasible demand and production hypothesis is highly optimistic; it postulates rapid economic growth, greatly accelerated agricultural production, and a high degree of government and external support. Moreover, the FAO contrasts this alternative with a much more dismal projection based on extrapolating existing trends which it considers the most likely result if major actions are not taken.

Nevertheless, it provides a useful macroeconomic framework and helps indicate the outlines of an investment program in agriculture as well as possible financial constraints. In this Report the emphasis is on the policy framework, a necessary supplement to the indicative investment plan adopted at Lagos. The action agenda described in this chapter includes the following:

- a focus on smallholder production;
- changing incentive structures (by hiking producer prices, developing more open and competitive marketing arrangements, and involving farmers in the decisions that affect them);
- expanding agricultural research; and
- undertaking quick-yielding activities in irrigated agriculture.

Focus on Smallholders

There are three reasons why the smallholder sector should be the focus of a growth-oriented rural development strategy. First, although it accounts for the bulk of agricultural output in most African countries, its massive potential has yet to be realized: use of off-farm inputs is still quite limited, yields are very low, and specialization is uncommon. Second, recent studies confirm what most of the literature on African economies suggests—that poverty on this continent, unlike in Latin America, is still predominantly a rural phenomenon.[11] Thus, raising the output and income of small farmers is the best way

11. See Deepak Lal and Paul Collier, "Poverty and Growth in Kenya," World Bank Staff Working Paper, no. 389 (Washington, D.C.: World Bank, 1980), pp. 12, 31, where it is shown that only 3 percent of the total urban population in Kenya live under poverty conditions. This compares with 30 percent of the total smallholder population living under such conditions in 1974.

Box A: Kenyan Smallholder Agriculture

Several lessons can be drawn from Kenya's rapid agricultural growth, which strongly attest to the desirability of promoting smallholder agriculture. Kenya's experience shows that African small farmers are very responsive to opportunities for profitable innovation, and that small farms are frequently far more productive than large farms.

In the mid-1950s, the colonial authorities reversed previous policy and began to encourage smallholders by lifting restrictions on coffee and livestock production and by land adjudication to provide freehold title. After independence, smallholder agriculture benefitted from widespread land redistribution and settlement. The result was a very rapid growth of smallholder output. Total agricultural production increased 4 percent per year from 1955–72 and a disproportionate amount of this growth came from smallholders. Two developments were especially noteworthy. The first was the expansion of hybrid maize production, which spread more quickly among Kenyan smallholders between 1964–73 than it had among American farmers during the 1930s. The increased yields per hectare raised total production of this staple food crop and freed land for other crops. Second, under the aegis of the Kenyan Tea Development Authority, smallholder tea production in Kenya grew from a negligible amount in the early 1960s to one third of the total by the mid-1970s. Prior to this, tea had been regarded strictly as a plantation crop. Smallholders also rapidly expanded output of several other products—coffee, pyrethrum, dairy products, and sugar cane—previously believed to be beyond their capacity.

These impressive increases were in part made possible by new production on redistributed land. But of greater importance is the increased production per hectare throughout both existing and new smallholder areas. Surveys of settlement areas in the 1960s showed that small farms tended to have both higher output and higher employment per hectare than large farms. Skeptics attributed this to differences in land quality. But a rural survey in 1974 showed that the smaller the farm the higher per hectare of both output and employment. For example, on holdings of less than one-half hectare, output per hectare was 19 times greater and employment 30 times greater than on holdings over eight hectares. The same general relationship held within areas in which all land was of equal quality. Nor was the higher output per hectare simply due to higher employment. Combining the value of labor, equipment, land, and other inputs, smallholdings were still generally more productive than larger farms.

This does not mean that smallholdings are always more productive than larger units. Coffee and tea estates in Kenya still have higher yields and provide just as much employment per hectare as small farms. In semiarid areas, too, more extensive farming may be superior under rainfed conditions. But over a wide range of mixed farming on land of medium to high potential, smallholdings have proven to be superior in Kenya.

to meet basic needs. Finally, attention to smallholders is a more cost-effective way to raise output than other alternatives currently allow—at least for most crops and areas (see Box A).

During the 1960s and 1970s, for example, many African countries directed a substantial proportion of their agricultural investment to large-scale, government-operated estates which involved heavy capital outlays for mechanization (as with the rainfed crops) or irrigation schemes, or both.[12] Why did they follow such a course? First, there was the notion that only a rapid transition to mechanized, high productivity schemes, as practiced in the industrialized world, would overcome the stagnation linked with the traditional low-input, low-output methods. Also, it was considered a reasonable solution to labor shortages, where these existed. Further, it was a response to the drought of the early 1970s, which convinced governments in the semiarid countries that a substantially larger share of total food requirements should be produced under drought-proof conditions (for example, modern irrigation programs were begun in Chad, Mali, Mauritania, Senegal, Sudan, and Northern Nigeria). And last, it was reasoned that while productivity was often lower on state farms, the share of marketable surplus would be much higher; thus an emphasis was placed on such enterprises in Congo, Ethiopia, Somalia, and Tanzania.

But most of these ventures did *not fulfill* expectations, and their contribution to growth was small when compared to their cost. They were beset with problems of management, overemployment of staff, underutilization of expensive machinery, and maintenance of equipment and infrastructure.

12. Examples can be found in Nigeria (irrigation), Ghana (state farms), Ivory Coast (sugar scheme), Congo, Ethiopia, and Zambia (all state farms), and in many other countries.

Priority attention to smallholders must be selective—targeting those areas where the physical resource base and existing human and physical infrastructure provide the preconditions for rapid payoff from additional investment (see Box B). In the 1970s, agricultural programs were often aimed at marginal regions, since the postindependence governments wanted to respond to the needs and aspirations of people in remote or disfavored regions of their countries. They hoped to achieve greater regional balance in development, since in the previous decade resources had been concentrated on the export-oriented sectors and regions. And while the 1970s' policy was applied unevenly, in the poorer countries it absorbed a significant share of the new investment in agriculture during the decade.

But the marginal areas are only suited for food production and, even then, not well suited; many are located in zones of low and unreliable rainfall, where knowledge about technical and social conditions of production is limited. Thus, these investments had low yields in terms of increased output. Even when "successful" in terms of meeting the social objectives, the opportunity cost was high. In many cases, these programs increased the peripheral regions' dependence on outside subsidies (since they could not return much of the invested resources in taxes) and destabilized agricultural production since the resource-poor areas generally have low and uncertain rainfall.

Priority to smallholders does not mean that *only* they warrant attention. The agricultural sector is highly dualistic in some countries, with larger private farms providing major shares of marketed output (as in Kenya, Malawi, Swaziland, Zambia, and Zimbabwe, among others); any growth-oriented strategy must include these islands of high productivity agriculture. Also, there is surely scope—at least in some countries—for larger-scale mixed public and private enterprises. Export crops are particularly suited to this option because the marketing skills and market connections that are often associated with foreign investment could be well utilized. Governments should also consider giving more room to agro-industrial enterprises (perhaps through concessions) whose external capital and technical know-how could be applied to plantation or irrigation crops as well as used in industrial processing.

Private investment—both domestic and foreign—need not be associated only with large-scale farming. In fact, some of the smallholder cotton growing schemes in francophone African countries are organized by agencies with mixed private-public ownership and are among the more successful ventures on the continent (see Box C). Sugar, tobacco, rubber, and oil palm projects provide additional examples of these kinds of initiatives.

In a smallholder-based strategy which places production first, larger farmers can be used to spearhead the introduction of new methods. (This has been done in many cases in the past, but the approach has been frowned upon in recent years, as it has conflicted with the equity concerns, not so much of governments as of foreign sources of finance.) In practice, this means a recognition that smallholders with a few hectares more than the average are legitimate beneficiaries of development efforts.

A more production-focused investment strategy, which concentrates on regions with relatively high potential in each country, does not mean neglect of disfavored regions. More intensive research should be launched which aims at finding technologies appropriate to these mainly arid and semiarid regions. Until this technology is discovered, these areas should be provided with basic economic and social infrastructure which will eventually enable the local population to make use of future opportunities. Finally, programs should be devised to facilitate the migration of people from the poorest regions to those which are better endowed.

Improved Incentive Structures

Smallholder energies and skills can only be mobilized voluntarily; the incentive structure must be right. "Incentive structure" refers to all those aspects of the farmer's environment

Box B: Northern Nigeria Agricultural Development Projects

In 1974–75, Nigeria launched the first three of a series of agricultural development projects assisted by World Bank loans. They were located in the Gusau, Funtua, and Gombe areas of Northern Nigeria. By the end of the 1970s, half a dozen other projects had been started in areas further south. In the early 1980s, the Government started to expand the development approach to entire states, thereby paving the way for the reintegration of the autonomous project structures into general administrative structures with an important role for local government administrations.

The three projects (costing $58 million, $42 million, and $37 million in 1974 prices, respectively) had the following objectives and components: provision of extension, input supply, and marketing services; agricultural credit; seed multiplication; rural road development; water resource development; and an administrative center, training facilities, and evaluation unit. The projects were executed through project management units with managerial autonomy; supervision, coordination, and review were assured by an executive committee at the state level and by a coordinating committee at the federal level. Project management was strengthened, in each case, by about one dozen expatriate technicians and managers, including the project director.

Over the project period (1975–80) the three projects constructed nearly 1,700 kilometers of feeder roads and 132 dams to provide water for domestic and livestock use. The roads linked a network of 163 farm service centers which were the hub of an input distribution system. Nearly 150,000 tons of fertilizer were distributed in five years, reaching 47,000 tons annually in 1980. Sales of other inputs were low as farmers were selective in adopting recommended practices and inputs. Evaluation results indicate farmer participation rates in excess of 60 percent and average production gains of more than 5 percent annually for the main crops—millet, sorghum, and maize. Only cotton production declined significantly. Compared with traditional plots, yields on fields cultivated with recommended practices and commercial inputs were more than twice as high. For sorghum and maize, results were particularly spectacular: improved local varieties reached 1,400 kilograms/hectare for sorghum and close to 2,000 kilograms/hectare for maize.

What were the main factors contributing to project success?

- *Location.* The project areas were selected on the basis of agricultural potential—areas of good soil and adequate rainfall. Pressure to include zones further to the north was resisted on the grounds that there were no valid technical packages for those regions, and the application of a new approach would have constituted an enormous risk.
- *Project Design.* The project focused on rural roads, water resources, farm inputs, and improved extension. The foregoing, at the time of evaluation, reflected the order of priorities as perceived by farmers. Effectiveness was enhanced by the high population density in the areas selected. The projects also did not ignore larger farms, which had political clout and provided an informal channel to the Government for reporting successes, obstacles, and failures. Eventually, the larger farms provided a demonstration (over the fence) to smaller farmers. This trickle-down theory worked because the larger farmers proved to be the greater risk-takers and thus were more innovative.
- *Size.* The projects were very large and thereby affected a "critical mass" of people, both farmers and nonfarmers. They were thus highly visible and attracted the attention and interest of authorities to a higher degree than small pilot projects could have done.
- *Incentives.* The projects were conceived as services offered to farmers, with no pressure to adopt certain techniques or crops. The main inputs (fertilizer, seed, seed dressings, and chemicals) were made available at many accessible outlets. The fertilizer was heavily subsidized. The initial subsidy undoubtedly popularized fertilizer sales, but it could have been quickly removed with little adverse effect because, except for cotton, farmgate prices of crops were high. Marketing of all crops, again with the exception of cotton, was in the hands of private traders and, except in circumstances of unexpected surpluses due to the project's impact, crops were moved out of the project area quickly. (Not surprisingly, cotton is the only crop whose production declined in the project period.)
- *Management.* The projects contained few novel elements. Success was due in a large part to the reasonable autonomy granted in day-to-day operational matters and to the Government's willingness to compensate local manpower deficiencies through liberal recourse to expatriate managerial and technical skills.

Not all features of these projects are replicable. First, many countries lack the critical mass for setting up rural development projects of this size and must thus forego the economies of scale that go with them. Second, many countries lack the agricultural potential, i.e., well-watered areas with good soil and moderate population density. Third, few governments can afford the 80 percent subsidy on fertilizer which Nigeria pays out of its oil-based wealth. (It is true that the subsidy was not a decisive element in the project's success—in fact, it was partially offset by the scarcity of subsidized inputs, which in turn drove up the consumer price—but it certainly helped to attract farmers in the beginning.) Finally, Nigeria is aiming at plowing part of the oil wealth back to the rural areas and, therefore, does not attach great importance to cost recovery and a financially self-sustaining agricultural sector. Other countries will have to strike a more delicate balance between farmers' incentives and governments' limited financial means.

Box C: Cotton-based Projects in Mali and Upper Volta

Two cases illustrating the development potential of projects based on cotton as well as the contribution private enterprises can make in the context of mixed public-private companies are the Mali-Sud project and the West Volta project in Mali and Upper Volta, respectively. The two project areas are contiguous, located in a zone where annual rainfall equals or exceeds 900mm.

In Mali, cotton and cereals production is promoted by the Compagnie Malienne des Textiles (CMDT), in which the Government has a 60 percent majority holding; the remaining 40 percent are held by the Compagnie Française pour le Développement des Fibres Textiles (CFDT), a company with long experience in cotton growing in a large number of African countries. CMDT covers the whole range of activities from extension and input supply to the marketing and processing of cotton. Exports are handled by a separate state agency. In Upper Volta, the corresponding agency is the Société Voltaïque des Fibres Textiles (SOFITEX), which is 63 percent government-owned, 36 percent CFDT-owned, and 1 percent owned by Voltaic banks. SOFITEX is involved only in marketing, processing, and input supply, while extension, credit administration, and other tasks are handled by provincial development organizations, the Offices Régionaux de Développement (ORD).

Both projects are assisted through IDA credits. The West Volta Agricultural Development Project ($20.2 million) seeks to improve cereals and cotton production, establish a financial and administrative unit, build a ginnery as well as 75 small village grain stores, supply inputs to farmers, develop low-cost irrigation schemes, and advance the educational and economic status of women. The Mali-Sud Agricultural Project ($15.5 million) aims at expanding the production of cotton, kenaf, maize, and rice; developing applied research, livestock, and health; and establishing a blacksmith training program. At the Government's request, project activities were extended to cereals production during the project's implementation.

Through the use of well-known suitable packages of improved cultural practices, both projects have achieved substantial increases in cotton production during their first three years (1976/77 to 1979/80). In 1979/80, seed cotton production peaked at 65,000 tons for the West Volta project and 142,000 tons for the Mali-Sud project—increases of 40 percent and 22 percent, respectively, over three years. Yields have been remarkable for rainfed cotton: about 1,000 kg/ha in Upper Volta and about 1,150 kg/ha in Mali. This is twice the average recorded for Sub-Saharan Africa as a whole.

Both projects have achieved substantial progress in cereals production as well, but data are less reliable as most of the production is not marketed through official channels. In Upper Volta, production of millet and sorghum is estimated to have increased by 25 percent over the last four years, partially due to the residual effect of fertilizer from cotton production in the area. In Mali, millet and sorghum yields on some 120,000 hectares of the project area are estimated to be 40 percent higher than yields under traditional methods of cultivation. In recent years when the state grain marketing agency (OPAM) found it difficult to purchase the desired amounts of cereals at the unattractive official producer price, CMDT agreed to act as OPAM's buying agent and was able to persuade farmers to deliver some 10,000 tons of cereals annually at this price. In addition, the Mali-Sud project successfully introduced hybrid maize to the project area. The response surpassed all expectations: maize production now covers 24,000 hectares with average yields of about 2,000 kg/ha.

Both projects have actively encouraged village participation. In the West Volta project, village organizations act as the primary marketing agents of cotton, marketing about half of the entire crop; they also have collective fields, responsibility for credit, and some social service activities, such as construction of dispensaries. In the Mali project, *Associations Villageoises*, with the help of CMDT, are extending their activities to health care (such as self-financed maternity centers) and water supply (through the collective purchase of pumps). The project trains blacksmiths who operate and maintain village grain mills. Functional literacy programs are also important elements in the community development program.

There are four main reasons for the success of these projects; two relate to cultural and human conditions, and two to the structural and organizational characteristics of the project. First, both projects are located in a region with relatively high agricultural potential: good soils, sufficient and reliable rainfall, and adequate transport infrastructure. Climatic hazards, while not absent, remain within tolerable limits. Second, both projects are based on populations known for their industriousness and community spirit; this facilitates collective action. A third feature of key importance is the well-established structure of cotton projects, which is based on a proven system of extension organization and a confirmed technical message. This structure also provides farmers with an assured outlet, prompt cash payments at fixed dates, and considerable external economies through the aftereffects of fertilizer on cereals production. Finally, the minority partner, CFDT, can claim credit for a good portion of the success. The company provides technical know-how and management (about half a dozen expatriates hold technical or managerial positions); the international structure of the company permits it to keep abreast of market developments and research results in other countries and to take advantage of CFDT's expertise in bulk buying of certain inputs.

which affect his willingness to produce and to sell: the level, structure, and predictability of prices; the efficiency, fairness, and stability of marketing arrangements; the availability and prices of off-farm inputs and of consumer goods; and (especially in societies where nonmaterial incentives are stressed) the degree of participation in decisionmaking. While all of these are important, price and marketing policies are the most general, and these will be the center of analysis here.

Problems of Pricing Policy

It is now widely agreed that insufficient price incentives for agricultural producers are an important factor behind the disappointing growth of African agriculture. The importance of price policy comes out strongly in project experience. A recent review of 27 agricultural projects undertaken by the World Bank noted "the almost overriding importance of producer prices in affecting production outcome and production levels, often cutting across the quality of technical packages and extension services. Seven out of nine projects implemented under favorable prices achieved or surpassed their production objectives; 13 of the 18 under unfavorable prices failed to do so."[13] This idea is also borne out strongly in micro-level studies, which indicate substantial farmer responsiveness to price.[14]

Despite this general appreciation of the importance of good prices, export crop producers have been heavily taxed, and prices of food crops have been systematically set at below-market levels for most of the past decade. These aspects of price policy are discussed below.

Pricing of Export Crops. Export crops are heavily taxed; African producers have received only a fraction of the world market prices of major exports. Their tax burden, defined as the ratio of farmgate producer price to economic value at the farmgate, is on average in the 40 to 45 percent range (see Box D). Subsidies on inputs and other services provided by government partly compensate for taxation of cash crops, though they soften the tax impact very little—by 10 to 15 percent in most cases.

Available information does not permit broad generalization about how farmers' relative prices and incomes have changed over time. Data for 12 countries suggest that stagnation or decline was the most general tendency in the 1970s, both for farmer terms of trade and the purchasing power of farmer cash incomes (see Table SA.31). These data provide some confirmation for the view, widely expressed in Africa and outside and implied in the production and population growth data, that farmer real incomes have fallen in many countries in recent years.

Heavy taxation and unfavorable terms of trade do not necessarily have quick and/or observable effects on output trends. But the high level of taxation of export crops through export taxes, marketing board levies, excessive marketing costs, and overvalued exchange rates have kept export production in many countries below what it could have been, and hence contributed to the steep fall in Africa's share in the world market noted earlier (see box on agricultural exports from Tanzania and Ghana in Chapter 4).[15] Since in the case of most export crops African countries

13. *Sixth Annual Review of Project Performance Audits, September 1980,* paragraph 3.71.

14. Hossein Askari and John Cummings, *Agricultural Supply Response: A Survey of the Econometric Evidence* (New York: Praeger, 1976). The literature and common observation indicate that farmers respond strongly to changes in *relative* prices. The question of *aggregate* supply response is more nuanced. In the short term, farmers' possibilities are indeed sharply constrained, and they respond to changed incentive structures by switching to the more profitable crops [see Raj Krishna, "Agriculture Price Policy and Economic Development" in H. Southworth and B. F. Johnston (eds.), *Agricultural Development and Economic Growth* (Ithaca, New York: Cornell University Press, 1967), especially pp. 505 ff]. In the longer run, a more congenial set of marketing conditions will motivate them to invest in equipment, to hire labor, to work harder, and to find other ways of breaking those "constraints" which derive from inadequate motivation rather than from inadequate technology.

15. See also John Levi, "African Agriculture Misunderstood: Policy in Sierra Leone," *Food Research Institute Studies,* vol. 13, no. 3 (1974).

Box D: "Taxation" of Export Crops

A good measure of the degree to which crops are taxed is the "Nominal Protection Coefficient" (NPC), defined as the price paid to the producer divided by the amount he would have received had he sold his crops at the world price minus transport, marketing, and processing costs. An NPC value of more than one means that the crop is being subsidized; and the more it is above one, the bigger the subsidy. An NPC of less than one indicates taxation; the lower it is below one, the heavier the tax. The table at right shows NPCs for major crops in 13 countries, representing more than half the region's population.

The actual level of taxation of export crops is higher than shown in two important respects. In the first place, the economic farmgate value of these crops has been derived on the basis of actual marketing costs. These costs are, in most cases, those of monopolistic agencies working without competitive pressure, and thus are generally inflated. If the marketing cost of an efficient marketing system were used instead, the economic value of crops would be higher and the degree of implicit taxation even greater. The level of taxation is also higher than shown because the NPCs do not reflect the influence of overvalued currencies, which reduce the proceeds of exports in terms of domestic currency. Taking into account the effect of an overvalued currency, producers in a number of countries listed in the table received less than half the real value of their crops in recent years.

Nominal Protection Coefficients of Selected Export Crops

Crop	*1971–75*	*1976–80*
Cocoa		
Cameroon	0.37 (2)[a]	0.45 (2)
Ghana	0.47 (5)	0.40 (4)
Ivory Coast	0.56 (2)	0.38 (1)
Togo	0.50 (5)	0.25 (4)
Coffee		
Cameroon (Arabica)	0.72 (2)	0.60 (2)
Cameroon (Robusta)	. .	0.36 (1)
Ivory Coast	0.68 (1)	0.36 (1)
Kenya	0.94 (1)	. .
Tanzania	0.80 (5)	0.59 (4)
Togo	0.42 (5)	0.23 (4)
Cotton		
Cameroon	. .	0.79 (1)
Ivory Coast	0.79 (1)	1.05 (1)
Kenya	1.07 (1)	. .
Malawi	0.68 (5)	0.75 (2)
Mali	0.55 (2)	0.44 (4)
Senegal	0.65 (2)	. .
Sudan	0.78 (2)	0.60 (1)
Togo	0.62 (5)	0.79 (4)
Upper Volta	. .	0.79 (1)
Groundnuts		
Malawi	0.70 (5)	0.59 (2)
Mali	0.57 (2)	0.43 (4)
Senegal	0.48 (4)	0.66 (4)
Sudan	0.85 (3)	0.67 (1)
Zambia	0.70 (5)	0.71 (4)
Maize[b]		
Kenya	0.96 (1)	1.33 (1)
Malawi	1.68 (5)	1.34 (2)
Zambia	0.72 (5)	0.78 (4)
Sesame		
Sudan	0.83 (1)	0.59 (1)
Upper Volta	. .	0.88 (1)
Tea		
Kenya	0.89 (1)	. .
Tobacco		
Malawi	0.42 (5)	0.28 (2)
Zambia	1.09 (5)	0.88 (4)
Wheat[b]		
Kenya	. .	1.43 (1)

. . not available.

a. Figure in brackets indicates number of observations (years).

b. Maize and wheat have been alternately exported and imported in these countries.

Source: World Bank data.

have distinct comparative advantages, this implies a loss of growth opportunities for the economy as a whole.

Pricing of Food Crops. In most African countries producer and consumer prices for basic foodstuffs are legally controlled. Governments have dual policy objectives in setting and regulating their prices. They want to provide adequate incentives for increasing food production, and they seek to protect the interests of consumers at the same time.[16] In practice, the objective of ensuring a regular supply of staples at "affordable" prices for consumers has been the dominant criterion in most countries. This is accomplished in various ways: producer prices are fixed at below market levels; subsidies are provided by selling imported foods at below landed costs; food imports are encouraged when domestic food price levels rise; and imported foods are given an implicit subsidy because of currency overvaluation.

In most instances over the past decade, official food prices in African countries have

16. See *Lagos Plan of Action*, paragraph 33.

been set "too low"; prices in parallel markets are often two to three times as high. The official prices have thus been only partially effective; producers have been able to sell part of their marketings at the free market prices and most consumers have been forced to buy at open market prices. This happens despite the existence of state marketing organizations that are frequently endowed with legal trading monopolies—especially in grain trading. While direct price effects on production are thus diluted, the policy of setting low official producer prices undoubtedly has negative effects on farmer incentives to produce and to sell basic foods.

The effect of government import policies is in many cases much more important than low controlled prices of staples. Imported wheat and rice are now becoming steadily cheaper than domestic staples because of the overvaluation of many African currencies. Moreover, intent on keeping urban food prices low, many governments have in recent years had periodic recourse to massive injections of food imports, thereby causing sharp reductions of domestic prices (see Box E). These policies, which stimulate wheat and rice consumption and discourage producers of substitutable local cereals, have been reinforced by food aid, which has been maintained at consistently high levels after a brief reduction in the mid-1970s. Relative price changes favorable to domestic staples have been checked, and urban preferences for wheat and rice reinforced.

These pricing policies are widely attributed in the scholarly literature as well as in donor circles to an urban bias among policymakers. But a balanced assessment has to recognize the constraints at work, and the conflicts of objectives involved. Policymakers in Africa are fully aware that the raising of producer prices for export crops would stimulate production and is in general therefore a desirable objective. But they are also aware that other objectives may be sacrificed. Thus, the "taxes" levied on export crops are a principal source of finance for public sector activities; for non-mineral economies there is no other important domestic source. Moreover, the scope for higher producer prices is obstructed on two sides: overvalued exchange rates mean that the foreign currency obtained from exports is converted into a relatively small amount of domestic currency, making it difficult for governments to pay higher producer prices. And on the domestic marketing side, marketing margins absorb large shares of total proceeds, reducing the share available to producers.

Box E: Nigerian Food Imports

Government trade policy in Nigeria has had a particularly strong influence on prices for major staples. Wheat and flour imports grew from 400,000 tons in 1975 to 1.3 million tons in 1978, and then declined to an estimated 1.0 million tons in 1980. Rice imports have grown even faster: volumes increased elevenfold between 1976 and 1978—from under 50,000 tons to over 550,000 tons—then dropped sharply due to import restrictions. In October 1979, licenses were issued for only 200,000 tons for 1980. Prices tripled by September of that year. The Government responded to this surge in rice prices by lifting import quotas on rice, cereals, and flour. The same pattern had occurred earlier: in 1979, wheat and flour prices fell markedly as a result of big increases in imports.

In short, the sharp increases in imports in recent years help explain the fall in prices in 1979 while later import restrictions fueled their recovery in 1980. Government trade policy, particularly for rice, has changed frequently in recent years as indicated in the table below.

Summary of Rice Trade Policy

Prior to April 1974	66.6% tariff
April 1974–April 1975	20% tariff
April 1975–April 1978	10% tariff
April 1978–June 1978	20% tariff
June 1978–October 1978	10% tariff
October 1978–April 1979	Imports in containers under 50 kilograms banned.
April 1979	Imports in containers 50 kilograms and above under restricted license.
September 1979	Six-month ban imposed on all rice imports.
January 1980	Import licenses issued for 100,000 tons.
October 1980	Rice placed under general import license—no quantitative restrictions.

Erratic trade policy not only has had a dramatic effect on price levels, sending confused price signals to producers, but also has increased the risk to traders who market domestic supplies.

Finally, a positive price policy for export crops might lead to reduction—at least in the short run—in food crop production, and this would have consequent effects on food self-sufficiency objectives.

Similar conflicts of objectives—real or supposed—underlie food price policy deficiencies. Abundant worldwide experience in the past decade certainly indicates that the political risks involved in raising food prices are hardly negligible. Moreover, there exist genuine concerns over the impact of higher food prices on real incomes and the nutritional status of the poor. To see food price policies solely in terms of political will or commitment is too simple.

It is true, nonetheless, that the price policies described above have proved self-defeating. The policy of attempting to control prices and supplies of foodstuffs has, by and large, succeeded in securing only a limited supply of low-priced (and often low-quality) foodstuffs for a relatively small group of urban consumers. It has increased farmers', and traders', risks in producing and marketing food surpluses. It has failed to stabilize and indeed has actually destabilized supplies over the course of the year. Further, through its effects on farmers' supply response, it has probably resulted in a higher overall level of food prices than would have pertained without government attempts to control supplies.

Reliance on imports, moreover, is creating a potentially very costly structural dependence on wheat and rice. These now account for 82 percent of net commercial cereals imports, wheat alone for nearly half the total. Projections of Africa's cereals import requirements in 1990 vary from 6 million to 28 million tons, depending on the assumptions used. Most estimates cluster around 11 million to 12 million tons, most of which would be wheat and rice. This is a conservative estimate since the 1981 imports may already be 6 million to 7 million tons (including nearly 2 million tons of food aid). Except in Sudan, Ethiopia, the East African Highlands, and parts of Southern Africa, wheat cannot be grown or can be grown only at prohibitive costs. Rice can be grown in a wider range of countries, but often only at high cost. It can be grown efficiently under rainfed conditions or in small-scale schemes in swamps or riverine valleys while large-scale irrigation schemes are extremely costly both in terms of initial investment and recurrent costs. Therefore, import substitution of these crops, where technically feasible, will preempt a substantial proportion of investible resources. Since urban consumers would be the main outlet for these cereals, ambitious rice and wheat production programs will reinforce the traditional bias against the rural populations. In addition, this trend toward rice and wheat consumption, unchecked by suitable pricing policies, will maintain the traditional rainfed cereals (and roots and tubers) in the position of inferior goods, reducing the extent and stability of their markets.

Problems of Marketing and Input Supply

The central problem in marketing and input supply is the very general tendency to give too large a set of responsibilities to public sector institutions, and too few to other agents—individual traders, private companies, and farmers' cooperatives. It is the major manifestation of the organization and management problem discussed in the preceding chapter.

Marketing Agencies. Export crops are almost everywhere in Africa marketed by state trading organizations; often they use "licensed buying agents," private traders, to help in village-level purchases. Government monopolies also exist in many countries for food crop purchases, though these are generally less well organized than export-crop marketing and are in most cases unable to purchase more than a minor share of marketed output.

The performance of the export crop marketing agencies is of major importance in several respects. First, their degree of efficiency affects the share of export proceeds that can be paid to producers. Because of long distances and the frequently difficult problem of

access, the cost of marketing tends to be high even under conditions of efficient marketing operations.[17] Second, the crop marketing agencies are the major point of contact between peasants, the money economy, and the state bureaucracy. Unless the marketing transactions are done fairly and efficiently, there are high risks of peasant disaffection from both the bureaucracy and the market economy.

Serious inefficiencies characterize the operation of most marketing agencies. Some of these arise from problems found in almost all parastatals—overmanning, inadequate nonsalary budgets, and management scarcities. There are also inefficiencies peculiar to the export crop parastatals due to the lack of competition. And there are additional problems in these agencies when marketed volumes stagnate or decline: decreasing turnover is compensated by higher overhead per unit, the producer price being the residual. The result is an upward spiraling of costs and a parallel downward spiraling of exports. Classic examples of this are groundnuts in Mali and several export crops in Tanzania.[18]

In food-crop marketing, parallel marketing channels exist in many countries of the region; the legal and official marketing agency coexists with a semiclandestine private trading sector. This is most often the situation with respect to foodgrains. In these markets, attempts at controlling marketing and prices are most extensive but they are effective to varying degrees. In countries importing wheat, price controls are often fairly effective for flour and bread; for rice, the degree of control depends primarily on the share of paddy grown in government-controlled schemes. For domestic cereals, the share of official trade in marketed production may be as high as 25 to 50 percent (in some East African countries), or as low as 1 to 2 percent. Price and marketing controls are conspicuously absent for roots and vegetables, no doubt because of the problems and risks associated with the perishability of these crops. Most governments do not put much trust in the private sector's ability to cope with the task of providing stable supplies of food to the urban masses, although private traders handle the bulk of the trade almost everywhere. In most cases private traders are tolerated openly or tacitly as indispensable partners but are not allowed to work in an economic environment that would enable them to realize their full potential. The uncertainties associated with the ambiguous position of private trade and traders discourage full-time involvement in food marketing, investment in transport and storage, and a systematic approach to developing an adequate supply network.

Official marketing agencies are responsible for collection, transport, sometimes processing (as with rice), and distribution to the wholesale and sometimes even retail level. But producer prices and consumer prices are fixed by government with little regard to the actual cost of collection and distribution. Marketing agencies are also not always or not fully reimbursed for losses incurred in the process. Several of them have accordingly accumulated large deficits reflecting operational inefficiencies and the cost of government-imposed subsidization of consumers. In several cases, deficits have reached striking proportions, given the rather modest quantities of foodstuffs controlled by these agencies. Some agencies are passive, buying whatever small quantities are offered to them at official prices in postharvest periods when market prices are low, or during bumper crop years, buying all they can pay for. Others exercise varying degrees of compulsion, occasionally bordering on outright requisition.

Input Supply. Input distribution agencies are another part of the rural marketing system that has contributed to the poor performance of agriculture. Unless farm inputs are made

17. In Kenya, for instance, charges for marketing, storage, transport, and administrative overheads averaged 34 percent of the f.o.b. border price for maize, 23 percent for wheat, and 48 percent for rice during the 1972–79 period—and the agency in question is not regarded in Kenya as a particularly inefficient marketing institution.

18. See Frank Ellis, *A Preliminary Analysis of the Decline in Tanzania Cashewnut Production 1974–79: Cases, Possible Remedies and Lessons for Rural Development Policy* (Economic Research Bureau, University of Dar es Salaam, December 1979).

Table 5.6. Relative Frequency of Government and Private Sector Control in the Procurement and Distribution of Agricultural Inputs, 39 Countries

Item	Percentage of countries			
	Fertilizer supply	*Seed supply*	*Chemicals supply*	*Farm equipment supply*
Government control[a]	64	61	47	42
Private sector control[a]	11	11	17	22
Mixed government and private sector involvement	25	28	36	36
Total	100	100	100	100

a. Procurement and distribution activity is considered "private" if more than 80 percent of it is in the hands of the private sector, and "government" if more than 80 percent of it is in the hands of the public sector.

Source: World Bank data files. (See Table SA.32 for country-specific information.)

available to farmers on a regular basis and at the right time, there is little chance that agricultural production and productivity will move forward.[19] Unfortunately, there are only a few countries in Africa where this important condition is fulfilled. Procurement and distribution of inputs is another field monopolized by governments or parastatal agencies. In more than 60 percent of African countries, governments reserve full control of the procurement and distribution of fertilizer, seeds, and most other services as well (see Table 5.6). The motives for entering this field are similar to those advanced for government involvement in food crop marketing: inputs are seen as vital commodities that should not be left to the care of the private sector, which is regarded as exploitative and unreliable. Policymakers also frequently perceive a need to subsidize the service provided, which is a rationale for monopolizing its distribution.[20] Many officials also believe that only by public distribution will inputs be made available to the remote areas that private trade is assumed to neglect because of low profitability. While this may be true in some cases, it is mainly the policy of panterritorial pricing—fixing official prices of inputs uniformly for the entire territory without regard to actual transport costs—which impedes private trade from effectively competing in remote areas.

There is no a priori reason why government agencies should not be able to fulfill the input supply functions efficiently, but due to the structural problems besetting many public agencies—scarce management, lack of incentives, conflicting objectives, overstaffing, and lack of control—they have rarely succeeded in meeting the rigorous requirements of their clients—input delivery at the right time, at the right place, and in the right amounts.

Government agencies have failed to meet these needs because they have difficulties in adapting bureaucratic, financial, and administrative procedures to commercially oriented operations. For example, they fail to buy inputs on a phased basis because they are geared to the time of release of funds from the budget, and these are not necessarily the optimal times. Likewise, pay scales and hiring and promotion procedures tend to be similar to those in government. This leads to reduced individual initiative, unwillingness to make quick and independent decisions, and consequent efficiency losses.

The absence of competition in input supply also leads to a lack of innovation. Inputs are ordered in routine fashion without regard to location-specific requirements. A recent study in Senegal has revealed considerable scope for savings in fertilizer cost to farmers, notably by tailoring the nutrient content more closely to their needs, by eliminating ineffective elements, by reducing transport cost

19. Input supply involves more than just the provision of fertilizer and seeds. It can include the supply of farm equipment, fencing and building materials, tractor hire services, and spare parts.

20. Subsidies need not involve monopolization. The market mechanism can be used. But most officials do not believe that markets work well enough to be utilized this way. They believe, in this case, that subsidies granted to importer-wholesalers or to private traders would not be passed along to farmers.

through higher concentration, and by determining optimal dosage and composition on economic rather than on technical grounds. Such adjustments, and the supply of inputs in variable package sizes convenient for farmers, would be introduced more readily and on a broader base in a system leaving more scope for private sector participation in input supply.

The general problems outlined above are exacerbated by the common practice of government, subsidization of inputs, in particular fertilizer. This has a number of negative consequences. First, in monopolistic input distribution systems the funds budgeted for input subsidies limit the total amount of fertilizer made available; under the budgetary constraint that many countries experience, the actual amount of inputs that can thus be purchased remains far below the quantity desired by farmers at the subsidized price. Therefore, rather than supplying more farmers than can be served under private trade conditions, governments end up serving considerably fewer. Second, since the quantity delivered remains well below the level of demand, price is driven up and, in spite of the subsidy, some users may pay as much as—or conceivably more than—they would under free-market conditions. Third, even where the input distribution agency has a source of finance independent of the budget (such as bank credit or sufficient working capital as equity), subsidization ties its operation to the budget year, causing delays in procurement and untimely delivery to farmers.[21]

Reform of Price, Marketing, and Input Supply Policies

While there is not much disagreement with the general propositions that higher producer prices would stimulate production and sales, or that marketing systems should become more efficient, pushing beyond these propositions is not easy because the problems are complex and involve broad aspects of development strategy. For example, the appropriate level of producer prices, the relationship between prices of export crops and food crops, and between prices of individual crops in each category are all a function of a government's development goals and social policy objectives. Nonetheless policy changes are needed and the directions of change are discussed in the following paragraphs.

Export Crops

Trade data for the 1970s and the level and trend of export taxation suggest that in many countries there is scope for increasing producer prices for export crops. The slow growth of world demand for many primary commodities is not a valid argument to the contrary as long as Africa does not even maintain its market share. Higher producer prices in real terms would stimulate production directly. It would also allow elimination of most of the subsidies on inputs, equipment, credit, or water that now hamper the distribution of these commodities and services and distort the allocation of resources.

Four objections to a high price export crop policy were noted earlier: the need for government revenues; the limited freedom for maneuver on producer prices due to overvalued exchange rates; high marketing costs; and the conflict that develop with food self-sufficiency objectives.

With respect to government revenue, a number of observations are in order: first, revenue preservation should take second place to the need for maintaining or increasing the pace of export production; second, reduced taxes should raise export levels so that higher volumes would to some extent compensate for the reduced rates; finally, and even more significantly, higher producer prices should still leave scope for taxing some of the "rent elements" prevailing for some crops—coffee, cocoa, tea, and even cotton.

The exchange rate issue has to be confronted directly or indirectly, as noted in Chapter 4. In many cases, lagging export

21. Many of the problems and symptoms associated with the distribution of subsidized inputs also apply to rural credit institutions administering heavily subsidized credit.

growth and soaring food imports are attributable to this factor. An adjusted exchange rate, or revised tax and tariff policies with equivalent effects, would allow better incentives for export crop production and would, if the resulting increase in import prices is passed on to consumers, curtail demand for imported cereals and put food production programs aimed at import substitution on a sounder economic basis. At the same time, a corrected price relationship would boost and stabilize demand for traditional staples, which usually can be grown at lower cost than wheat and rice. Although there are supply problems for traditional staples as well, these problems are not unrelated to the mismatch between the structure of cereals demand in African countries and the associated structure of domestic supply.[22]

More will be said about marketing problems in later sections. Two points suffice here. First, the export crop monopolies suffer greater propensities to inefficiency than the food marketing agencies, because they are exposed to no market pressures pushing them to reduce costs. This means they risk becoming a steadily growing drain on export proceeds, with producers paying the price.

Second, the situation has evolved since the first years after independence, when many or most of the export crop monopolies took their present form. The export crop marketing monopolies arose because, except where there were public agencies, the export trade was almost entirely in the hands of foreign firms and immigrant merchants. Few societies, much less those newly independent, would accept that control over trade in vital commodity exports be so completely dominated by foreigners. Since nongovernmental alternatives were scarce, governments took control. It is now evident, however, from 20 years of experience in many different settings, that a high price is being paid to keep the export monopolies in place. Since new abilities, both private and organizational, have now developed, it would seem time to make export crop marketing more competitive. Cooperative marketing could be more widely encouraged, as among coffee growers in Cameroon (see Box F). And private traders might be allowed fuller entry, perhaps for sale to a state export agency. In this, as in all proposals for structural change, it should be stressed that there are no ideal solutions. Rural markets function imperfectly in many respects, and there are risks that some farmers may suffer from unequal bargaining power. But the present arrangements have proved so generally inadequate and the costs are so high that new departures are justified.

There is, finally, the issue of export crop–food crop price policy interactions. If export crop prices rise, it is feared that food crop production will fall. This is, however, not necessarily so, and even if export crop output were to grow at the expense of food crop production, it is not necessarily bad.

Empirical evidence does not support the hypothesis that expanding export production leads to declines in food production. This may occur in some cases (the northern groundnut basin in Senegal may be one), especially in the short run. But the bulk of the evidence points the other way. Countries that have been doing well in cash crop production have also been among the most successful in expanding food production. This is confirmed by aggregate data as well as by examples at the level of individual countries.[23] This com-

22. "Efforts undertaken for the development of irrigated agriculture should not be relaxed. Otherwise we may witness a major increase in the rice and wheat deficits *with a corresponding increase in the need for food assistance.*" See *The Development of Irrigated Agriculture in the Sahel* (Ouagadougou, Upper Volta: Club du Sahel/CILSS, April 1980), p. 33. (Emphasis added.) This statement suggests that it is a legitimate aim of food aid to assist not only people in distress but also to supply urban populations with a preferred food that cannot be grown domestically except at high cost, if at all.

23. In both Mali and Upper Volta, for example, resource-poor countries where a tradeoff might be most likely, cotton output has grown substantially in the past decade and the areas specializing in cotton production are also major producers of marketed cereals (see Box C). More generally, if the hypothesis that food gaps are attributable to "excessive" cash crop production were true, there ought to be a negative correlation between countries ranked according to progress in food and nonfood production. An analysis based on FAO data for some 40 countries in Africa shows no positive correlation between strong growth performance in export

Box F: Arabica Coffee Marketing in Cameroon's Western Highlands

Since 1958, arabica coffee producers in Cameroon's Western Province have marketed their production through six cooperatives under the leadership of the Union of Arabica Coffee Cooperatives of the West (UCCAO). In recent years, about 100,000 smallholders have used the cooperatives to market about 18,000 tons of coffee and to purchase about 20,000 tons of fertilizer annually.

Although chartered by the Government, both the cooperatives and UCCAO fully control their own affairs including finances and terms of employment of staff.

Members of each cooperative elect a delegate assembly which in turn elects directors of the cooperative who appoint an executive committee and a chairman to manage routine operations. These include the purchase of coffee at the collection centers throughout each district, where the coffee is weighed, graded, sorted, sacked and shipped to central warehouses to await sale abroad. The cooperatives also distribute fertilizer and equipment, and administer the seasonal credits which are used by members to finance the purchase of production inputs.

UCCAO has a board of directors—the chairmen and selected executive directors of the cooperatives—and is run on a day-to-day basis by a director general and a central secretariat. Its primary function is to market coffee overseas. It also arranges for a line of credit to finance the purchase of the crop, and when coffee is delivered performs additional electronic sorting to improve quality. UCCAO also is the central buying agent for the fertilizer and agricultural material required by its members. In this, it arranges for delivery and distribution to cooperatives and helps defray the distribution costs from the 1 percent commission it takes on the value of the coffee sold.

UCCAO also represents the interests of the growers with the Government, which sets coffee prices to producers and determines the amount to be paid from the price stabilization funds at the end of the crop year. UCCAO also maintains vehicles and equipment and keeps the central accounts. Finally, UCCAO manages the reserves accumulated from the difference between the f.o.b. price for coffee and the payments made to producers minus the operating costs of the Union. By law, about 20 percent of these reserves must be retained as long-term protection for coffee producers' incomes. Most of the remainder can be invested in developmental projects with Government approval.

In 1978, UCCAO became the implementation agency for an integrated rural development project which was supported by IDA. As part of the project, the cooperatives of UCCAO also made additional investments in their infrastructure, and are diversifying their participation in the development of rural areas to include food crop promotion.

plementarity is not surprising. First, export crops are the nucleus around which extension, input supply, and marketing services are built; these also benefit food producers. Second, food production directly benefits from aftereffects of fertilizer expended on the commercial lead crop. Third, the existence of a commercial crop facilitates the propagation of productivity-increasing equipment. Finally, where individual farmers undertake cash crops to such an extent that they develop a food deficit (which they usually do only if there is a reasonably well-developed local or regional food trade), cash crop production creates a local market for food crop producers that is often more secure and stable than distant urban markets. The general point is that the benefits of a changing, dynamic agriculture are not restricted to a single crop or sets of crops. When change accelerates, the productivity of the whole farming system also increases.[24]

Even if it could be demonstrated that export crop increases have come at the expense of food production, the conclusion would not necessarily follow that a strategy of self-reliance requires a substitution of food production for exports. Most African countries

production and poor performance in food production. On the contrary, the relationship between performance in food and nonfood production is positive although the correlation is rather weak (Spearman rank coefficient of 0.42 for the 1969–71 to 1977–79 period).

24. A detailed analysis by John Cleave provides convincing evidence based on nearly 50 farm management studies that in most areas a substantial expansion of export production was superimposed on the traditional farming system in such a way that the level of food production for subsistence was maintained. And for the areas that have increased their reliance on purchased food, there is related evidence which suggests that this has not led to a decline in food consumption. See John H. Cleave, *African Farmers: Labor Use in the Development of Smallholder Agriculture* (New York: Praeger, 1974), pp. 27–30 and Appendix B.

have distinct comparative advantage in export crop production. An export-sacrificing policy of self-reliance would therefore have costs in terms of income (see Box G). And a policy aiming at food security at the price of lessened emphasis on exports has a further pitfall: most methods of intensification imply increased use of inputs such as fertilizers, insecticides, and fuel for pumping (in irrigation schemes), i.e., they rely heavily on imported inputs. Thus, agricultural production under these known methods of intensified cultivation becomes more vulnerable to external disequilibria. If the pursuit of food self-sufficiency diverts resources from export crops to food crops, declining export earnings may lead to balance-of-payments problems jeopardizing the self-sufficiency objective itself. Sudan and Tanzania are countries that have, in recent years, deliberately sacrificed export expansion for the sake of increasing food production (see box on Tanzanian exports in Chapter 4). Their present balance-of-payments crises, as severe as those of some mineral exporters, are partly related to that policy.

Food Crops and Input Supply

While many details regarding food price policies can only be assessed in the context of individual country situations, two principles are central. First, food imports should be subject to duties, so that the import price reflects at least the true cost of foreign exchange. Otherwise, low-price imports will continue to replace domestic production, with negative effects on rural income and growth. Second, there should be a gradual freeing of domestic food markets, to encourage greater competition. This would in most cases merely recognize the existing reality, which is that, whatever the legal or formal situation regarding public monopoly, the main part of the cereals trade goes through private channels and, consequently, the great majority of consumers already pay "free market" prices.

With regard to food marketing and input supply, the proposal to allow a fuller degree of competition means encouraging cooperative actions by farmers and allowing private traders an increased role in these markets. Some observers object to proposals for more competitive marketing arrangements on the grounds that rural African markets function imperfectly, that traders would therefore exploit farmers, and that indigenous traders are still few in number in parts of the continent, so that trade in foodstuffs might once again come to be dominated by nonnationals. But many recent studies suggest that African food markets are reasonably competitive, that trader profits are rarely "excessive" and that farmers are usually well protected against "exploitation" by market information and the availability of alternative points of sale.[25] But even if this were not so, governments can more efficiently protect farmers by making markets more competitive through better information, roads, and marketing facilities than by acting as substitutes for traders.

In any case, it is important to recall that in a large number of African countries, food markets continue to operate, as they have in the past, without much public control. Performance is generally impressive; in Nigeria, private trade suppliers two very large cities (Lagos and Ibadan) and many more towns of 100,000–500,000 people. In Mali, despite the uncertainties of public policy, private trade in the mid-1970s supplied two thirds of the cereals consumed in the Sixth Region, the most remote part of the country.

Indeed, even the most casual visitor to a market town in Africa has to come away impressed by the range of goods and services available for sale, their variety and quality

25. See Henry Hayes, *Marketing and Storage of Food Grains in Nigeria*, Samaru Miscellaneous Paper no. 50 (Samaru, Nigeria: Institute for Agricultural Research, Ahmodu Bello University, 1979) and IDET-CEGOS, *Pre-étude de la commercialisation des produits vivriers au Cameroun* (République Unie du Cameroun: Ministére de l'Agriculture, avril 1980). See also Van Roy Southworth, William O. Jones, and Scott R. Pearson, "Food Crop Marketing in Atebubu District, Ghana" in *Food Research Institute Studies*, vol. 17, no. 2 (Palo Alto, California: Stanford University Press, 1979), J.T. Mukui (ed.), "Price and Marketing Controls in Kenya," Institute of Development Studies Occasional Paper no. 32 (Nairobi, Kenya: University of Nairobi, 1979); and Guy Nicolas, "Processus d'approvisionnement vivrier d'une ville de savane: Maradi (Niger)," *Travaux et documents de géographie tropicale*, no. 7, decembre 1972.

Box G: Measuring Comparative Advantage

A country is said to have comparative advantage in a given commodity when it can produce that commodity relatively more efficiently than most other commodities. Comparative advantage can be assessed with the help of a measure called "Domestic Resource Cost" (DRC); this measures the cost of domestic resources (labor, materials, etc.) used to save or earn a net unit of foreign exchange. The lower the DRC. the more efficient the activity.

The table at right compares DRCs for food and export crops in 11 countries. It shows a pattern of strong comparative advantage in exports. These results are based on price relationships, input costs, and technologies of the mid-1970s, and can change over time. But projections for the 1980s do not predict changes in price relationships on world markets which would significantly alter these conclusions.

Domestic Resource Costs per net unit of Foreign Exchange for Export Crops and Food Crops in Selected Countries[a]

Export crops		
Cocoa		
Ghana	(1972)	0.30
Ivory Coast	(1972)	0.36
Coffee		
Ivory Coast	(1972)	0.51
Kenya	(1975)	0.44
Cotton		
Ivory Coast	(1972)	1.12
Mali	(1972)	0.21
Senegal	(1972)	0.42
Togo	(1977)	0.37
Zambia	(1974)	0.53
Zambia	(1977)	0.34
Groundnuts		
Mali	(1972)	0.23
Senegal	(1972)	0.36
Palmoil		
Ivory Coast	(1972)	0.36
Nigeria	(1979)	0.39
Tea		
Kenya	(1975)	0.67
Tobacco		
Zambia	(1974)	0.54
Zambia	(1977)	0.82
Food Crops		
Groundnuts		
Nigeria	(1979)	1.40
Zambia	(1974)	0.50
Zambia	(1977)	0.94
Maize		
Nigeria	(1979)	1.76
Zambia	(1974)	0.58
Zambia	(1977)	1.16
Millet		
Mali	(1972)	0.62
Nigeria	(1979)	1.21
Senegal	(1972)	0.62
Rice		
Ivory Coast	(1972)	1.50
Ivory Coast	(1975)	1.80
Mali	(1972)	0.67
Mali	(1976)	0.56
Nigeria	(1979)	2.55
Senegal	(1972)	1.02
Sorghum		
Mali	(1972)	0.62
Nigeria	(1979)	1.66
Senegal	(1972)	0.62

a. At official exchange rates.
Source: World Bank data.

gradations, as well as by the evident dynamism and liveliness of the bargaining that characterizes the simplest transaction. What is particularly striking is that one finds in these markets almost everything *except* goods which are sold by monopoly suppliers of the public sector: fertilizer, seed for main crops (though one finds seeds for vegetables), and animal-drawn implements.

The keystone of any marketing reform, then, must be to capitalize on the indigenous trading system, a proven asset, and let it play a bigger role in the distribution system. The private sector, with its small-scale, decentralized and flexible structure, is particularly well suited for this task. Devolution of marketing functions to private enterprise may be more difficult in some parts of Africa, where the tradition of indigenous entrepreneurship is weak, but this should affect only the pace of change, not the objective.

In most instances, governments will be reluctant to allow food marketing to become exclusively a private sector activity. A variety of agents can, of course, coexist; indeed, it should be encouraged. Cooperatives can take on many activities in this area and the state role in food marketing would remain substantial even after considerable liberalization. Governments could improve market functioning, easing market access by both traders and farmers through greater emphasis on rural road development and maintenance, by providing better information on crop size and prices, via radio and otherwise, and by gradually introducing uniform weights and measures, a task that governments have neglected. State grain agencies would also continue to have other major functions: they could manage grain imports; they might buy and sell in

the open market for special purposes (e.g., localized production crises); they might operate buffer stocks for seasonal price stabilization; they could do grain storage extension work, especially for new grains (e.g., maize in parts of West Africa); they could constitute and operate a reserve stock of cereals as a first line defense in case of drought or other food emergencies;[26] and they could provide for the needs of collective consuming units, such as the army. This is obviously a large set of tasks; to carry them out well would strain existing capacities in public sector food marketing organizations. But they cannot perform those tasks well while they are grappling with the intractable problems of trying to control trade in food grains.

The role of the private sector in input procurement and distribution should also be enlarged. The private sector should contribute to the distribution of inputs down to the farm level, and to their importation and wholesale distribution. While the latter is a task for larger commercial enterprises, distribution offers scope for small traders as well (see Box H). The private sector is a major partner in input supply activities only in a few African countries, and a subsidiary partner in a few more. There are many reasons for this, besides frequent lack of encouragement by governments. The shortcomings of research and extension work have held back farmer demand for farm supplies; in countries experiencing foreign exchange shortage import quotas on raw materials have limited the possibility of local fabrication of simpler equipment. An important issue is the "critical mass" factor. A private company is not prepared to establish, for example, research or demonstration plots for sales of a few thousand tons of fertilizer. Yet, in many parts of the world, private corporations' research efforts and demonstrations parallel, or even surpass, those of government institutions. Therefore, some African governments might find it useful and acceptable to create incentive schemes designed to attract private companies willing to provide these services.[27]

A field with broad possibilities for private sector participation is production and distribution of quality seed; poor seed quality and irregular and late renewal of seed are important sources of agricultural stagnation, for instance in groundnut cultivation. In many countries, there has been a marked deterioration of seed quality through improper production and multiplication practices by parastatals (Mali, Niger, Senegal, and Tanzania are examples). The success of the Kenya Seed Company may be replicable elsewhere.

Before governments began to monopolize input distribution, rural traders handled this function in association with produce marketing and retailing of consumer goods. Input supply activities can be more attractive for private trade, and costs of distribution could go down in the process, if private traders could engage in marketing of food and export crops. The more functions private trade is encouraged to fulfill, the more scope there is for spreading transport costs and overheads, and this will reduce cost to farmers. A broader variety of goods brought to rural areas is also an effective way of inducing farmers to produce a marketable surplus of produce on a more sustained basis.

But a marketing system based on competition of government and private sector is inconsistent with the principle of applying uniform producer prices throughout the territory (panterritorial pricing), a system currently applied almost universally in Africa. This system has been adopted mainly to help poorer regions. It does so imperfectly and at

26. While there is also a need for additional storage facilities at various levels, a large part of apparent storage needs is the outcome of the current system of food marketing and could be much reduced, shifted to the farm level, or left to the private sector, in a regime with more appropriate price and marketing policies. Major public investments in storage should be considered only after a liberalized system of food marketing has come into being: the regional and seasonal pattern and level of commodity flows may turn out to be quite different from those observed under present distorted marketing conditions.

27. An excellent example of useful innovation by private firms in Africa is the introduction of the ultra low volume, hand-held sprayer by leading chemical companies. These sprayers have tremendous possibilities for insect and weed control.

Box H: Privatizing Input Supply Systems: The Bangladesh Experience with Fertilizer Distribution

The Government of Bangladesh has recently introduced reforms in fertilizer distribution arrangements which shift functions from government agencies to private traders and may have some lessons for Africa.

Due to heavy population pressure on land, growth in agricultural production in Bangladesh depends largely upon the increased use of modern inputs; the achievement of a 3.5 to 4 percent rate of growth of output depends on an annual increase of about 15 percent in fertilizer use. The Bangladesh authorities concluded in the mid-1970s that without reform of the fertilizer distribution system such increases were not likely.

Under the Old Marketing System (OMS), the Bangladesh Agricultural Development Corporation (BADC), an autonomous body under the Ministry of Agriculture, was responsible for the procurement and marketing of all agricultural inputs, including fertilizers, pesticides, seeds, irrigation pumps, and various types of agricultural machinery. BADC employed almost 7,000 people in its fertilizer marketing operations alone, drawing supplies from three ports and three factories from which it moved fertilizer to 67 intermediate warehouses ("godowns") or directly to 423 thana-level warehouses. (The "thana" is an administrative unit 100 to 150 square miles in size with an average population of about 22,000 comprising about 10 unions or 150 villages.) The final distribution level was private dealers. Of the 32,000 licensed dealers in 1978, 20,000 were active, each selling an average of about 25 tons per year under a price structure which gave them too small a profit to provide a real incentive to promote sales. Dealers accounted for about 75 percent of total sales, cooperatives for the remaining 25 percent. Dealers were required to register at the thana warehouse of their area, to purchase from that warehouse, and to sell only within their union. BADC held all the storage space at transit points and intermediary warehouses, as well as in most thanas.

While the major problem under the Old Marketing System was inadequate supply of fertilizer, the fertilizer distribution system was also handicapped by inadequate planning and coordination and unavailability of sufficient transport and storage facilities. Consequently, there were frequent local or national shortages. In order to develop a system capable of effectively distributing greater quantities in the future, BADC and the U.S. Agency for International Development (USAID) set up a small pilot distribution scheme in 1976. This was followed by a detailed study of fertilizer marketing and distribution, financed by the IDA. This study provided basic information concerning fertilizer use by season and district, storage utilization, seasonal and geographical flows, prices, and so forth, to help BADC plan its fertilizer marketing storage program. This program was developed into a USAID-financed project which included, among other things, construction of 350,000 tons of additional storage capacity, and a phased program to develop greater private sector involvement in fertilizer distribution.

In 1978, BADC and USAID undertook lengthy and detailed field studies to develop specific proposals for a New Marketing System (NMS). The NMS is designed to reduce restrictions on private traders and move toward a more open fertilizer distribution system. Under the NMS, BADC is gradually withdrawing from fertilizer sales. BADC sells mainly to wholesalers at "primary distribution points" while retaining responsibility for sales to retailers in remote and inaccessible thanas. All private dealers and cooperatives are permitted to buy from all BADC warehouses. Private movement of fertilizer is unrestricted except in the five-mile border area. The Government agreed to develop a system whereby private dealers can obtain sufficient credit from commercial banks, although credit has not yet proved to be a problem for traders. USAID also financed consultants to help BADC set up and monitor the new private sector fertilizer marketing system, and to devise measures to reduce internal transport and storage problems.

In 1978 and 1979, BADC took the first steps to liberalize marketing. It increased official dealers' margins, permitted farmers to buy from any traders, whether or not in the farmer's own thana, and made it easier to become a trader. Backed by a USAID Fertilizer Distribution Improvement Grant, BADC introduced the NMS as a large-scale pilot operation in December 1978 in the Chittagong Division, which accounts for one fourth of the area of the country and a third of total fertilizer consumption.

The marketing system introduced in the Chittagong Division enjoyed a reasonably successful start. Sales increased over the previous year and forty-five thana warehouses became redundant, leaving mainly those in remote thanas which did not attract wholesalers; retail prices dropped in areas around the primary distribution points and were below official prices, except in remote thanas. The new fertilizer wholesalers demonstrated their ability to move fertilizer cheaply and effectively from surplus to deficit areas, selling to both farmers and retailers.

Based on the successful pilot in the Chittagong Division, the NMS was adopted and extended to the rest of the country. Major accomplishments of the NMS as of mid-1980 include the following:

- BADC's fertilizer points of sale will be reduced by 55–60 percent; about one third of the original 130 thana warehouses have been closed.
- In the Chittagong Division, farmer access to fertilizer points of sale has greatly increased.
- Prices paid by farmers for fertilizer under the NMS are lower than under OMS.
- A new class of private wholesalers developed as intermediaries.

(continued overleaf)

- Despite the change in system and a local drought, fertilizer sales in the Chittagong Division, as a percentage of national sales, remained unchanged.

There have been problems: the NMS has worked poorly in underdeveloped areas where transport and communications are inadequate and fertilizer sales low; whether or not dealers assume the distribution function has often depended on whether transport facilities are good. Commercial credit programs for assisting dealer sales to farmers have not developed as expected. The BADC has not yet worked out a new staffing program for staff rendered unnecessary by the NMS.

Bangladesh's experience shows the importance of careful preparation of a marketing reform and also how long a process it can be. It has taken five years of intensive effort to bring only the wholesale function successfully into the private sector. BADC is now transferring its seed and pump operations to the private sector through similar long-term programs.

heavy cost. First, the pricing policy either absorbs scarce public resources (if the transport cost differential is covered by a subsidy) or it penalizes producers in more favorable locations (if the extra cost is covered by averaging the producer price). With transport costs skyrocketing in recent years, the principle of panterritorial pricing has become more costly than ever.[28] The same conclusion applies to the pricing of inputs such as fertilizer. Second, uniform producer prices, without regard to transport costs, are an impediment to regional specialization. Finally, the system of panterritorial pricing distorts competition between private and government trade both in crop marketing and in input supply: private traders occupy profitable markets and leave unprofitable ones to the state agency. The private traders buy in the most productive regions and sell where unit marketing costs are low, while the state agency is constrained to buy and sell everywhere, and at the uniform national prices. There is no way that the state agency could avoid deficits under these conditions.

It is also important to give special emphasis to transport policy in making distribution systems more competitive. After a decade of rural development projects the crucial role of transport, in particular feeder roads, is gaining enhanced appreciation as a decisive element in the chain of conditions linking farmers' motivation to produce to the existence of stable and permanent market outlets—which is not only a matter of prices and marketing institutions but also of physical access to markets.[29] Since the early 1970s, investment in feeder roads has been intensified, often within the framework of rural development projects, but the initial impetus has been blunted by the lack of local financial and organizational resources needed to maintain them. An increasing share of resources spent on transport development is now devoted to maintenance and rehabilitation. Rural road development and maintenance should continue to hold prominent places in rural development. They are vital complements for the liberalization of marketing and input distribution advocated above. A complementary necessity is to help farmers equip themselves with means of transport (carts), increasing thereby their capacity to deliver produce to an accessible spot without inordinate expense in terms of labor. If a larger number of farmers owned, or had access to, animal-drawn transport, this would expand the zone of effective coverage along both sides of a feeder road. This process would also increase the economic rate of return to road development.

28. In Zambia, for instance, comparison of costs of transport in an accessible and in a remote area showed that each hectare of maize grown on the farm costs the nation K28 in crop and input transport in the former location, and K128 in the latter. Net revenue to the nation is K36 per hectare in the first location, but there is a net loss of K188 per hectare on maize grown in the remote area.

29. In a number of countries, in particular in East and Central Africa, more feeder roads will not have much impact without more trunk roads, which makes road development a costlier proposition than in other countries where the basic network exists, or where distances are short. Moreover, feeder road development by itself is no remedy if import policies and foreign exchange allocations are not handled in such a way as to give priority and encouragement to the importation of trucks and spare parts; in many countries, feeder roads are presently underutilized because of a pervasive lack of spare parts, which has effectively reduced the number of operating vehicles. Nor will feeder road construction do much good unless the roads are maintained.

Donors have a major role to play in helping African governments move toward a restructuring of incentives in agriculture. Infrastructure—especially rural roads—is a high priority almost everywhere. In some countries, import credits for rehabilitation of the road network and the transport system are preconditions of renewed growth. Such credits can suitably be provided within the framework of a structural adjustment loan, which involves policy discussion between donor and recipient, as in the World Bank Export Rehabilitation Credit to Tanzania.

Changes in food policy everywhere pose especially sensitive problems. Donors can help governments that need to make adjustments by providing technical advice and bridging finance—for example, to smooth efforts to align domestic prices for foodgrains more closely with world market prices.

Donors can also help by responding sympathetically to African concerns about food security. Without greater assurance on this score, indeed, governments may be reluctant to engage in restructuring incentives.

African governments, in their quest for food security, tend to emphasize buffer stocks of cereals. However, buffer stocks are an expensive and risky road to food security.[30] They are, therefore, best limited to a bridging role, a first line of defense, until imports arrive. Donors should explore with African governments more cost-effective alternatives, including the possible use of futures markets as insurance devices.[31]

Adequate food security facilitates policy changes, but should be designed so as to minimize negative influences on domestic production. The most effective food security objective in Africa today is, after all, a reversal of the declining trend of production. If Africa had maintained a 1 percent annual growth rate in cereals yields from 1961 to 1979, cereals production would be 6 million tons higher; this is more than 1979 commercial imports and food aid combined. Real food security comes from a dynamic agriculture.

Agricultural Research and Extension

With the exception of a few crops, yields in Africa are markedly lower than in other continents. They are also generally stagnant, if not falling, while regions like the Indian subcontinent have recorded substantial increase in yields. This reflects a failure of research to provide answers to the problems which confront African agriculture. Too little money has gone for research in the past two decades; expenditure in the mid-1970s was estimated to be 1.4 percent of the value of agricultural output in Sub-Saharan Africa, about half the proportion of the industrialized countries.[32] Despite very considerable achievements in export crops, much of the recent research effort has been inadequately focused, lacking in continuity, frequently academic, and generally has suffered from recurrent funding scarcities. What is needed is a larger, more focused thrust, at both national and international levels, and for export as well as food crops. At the same time, agricultural exten-

30. Initial investment is high and annual costs (losses, interest, treatment, overheads) may amount to 15 to 20 percent of the investment. Stocks need to be rolled over every 2 to 3 years in order to avoid deterioration, which could disrupt the domestic grain market. Administration is demanding, and there are high risks of additional losses through inadequate management.

31. African countries could protect themselves against steep increases in world market cereals prices in case of increased import needs, by making use of the futures market in grains, for instance, by rolling over a certain volume of cereals orders (adjusted continuously in the light of harvest prospects). The costs of such a strategy (which could be operated jointly by a group of countries and contracted out to an international broker) would consist of fees plus the balance of positive and negative margins realized on forward contracts. This cost could be established with a reasonable degree of precision, for instance, by export-simulation for the 1975–80 period. The costs would probably be only a fraction of the holding costs of those buffer stocks that could be spared through such a scheme, and could be absorbed by external sources of finance. An intermediate solution would be to hold African buffer stocks in the cereals-exporting countries with temperate zones. The advantage would be lower losses due to more favorable climatic conditions, and advanced storage technology.

32. James K. Boyce and Robert E. Evenson, *National and International Research and Extension Programs* (New York: Agricultural Development Council, 1975), p. 8.

sion services should be consolidated and adapted, with further expansion dependent on the availability of better technological packages. Pest control should continue to be a major area of research and program activity. And in some cases, better utilization of existing technology—for example, improved seeds—may require associated changes in seed multiplication institutions.

The Present Situation

Effective technical packages are scarce in Africa. It is true that for decades research concentrated on plantation crops, such as palmoil, coconut, tea, coffee, cocoa, rubber, and other industrial crops, such as cotton and groundnuts, producing new varieties that were quick and high yielding. Despite these achievements, average yields remain relatively low: for cocoa, they are less than half of those achieved in parts of Asia, and for palmoil, only about half of those found in the Far East, even when grown under fairly comparable farm management conditions. This may reflect differences in underlying potential (ecological conditions), or differences in scale and effectiveness of research efforts, or both. Moreover, the need for defensive research to support and maintain improved technologies has been neglected. Without this capability, so-called improved technical packages may be shortlived in their impact. Improved plant varieties, for example, will break down in the face of new strains of disease or pests. Research capacities in most African countries are unable to provide the back-up research to maintain higher levels of production, particularly when new technical packages are introduced from beyond Africa.

A related problem in export crop research is the decline in the quality of disease control, though this is only partly a matter of knowledge; organizational and incentive factors enter, too. The rapid spread of tree crop diseases along the west coast of Africa, for instance, suggests that plant quarantine measures have not been very effectively enforced. Also, many countries have fallen behind the present state of the art with regard to the techniques of disease control. In countries with more sophisticated research environments, there has been a marked shift from broad to narrow spectrum chemical pesticides, so as to cope with the increasingly serious resistance problem. In Africa, only some agencies have been able to do this, because such approaches are dependent on detailed scientific study of the natural factors conditioning pest and disease incidence. This research effort is costly and not worthwhile below a certain "critical mass." Also, the more specific pest control programs are costly to administer and require a very complex organizational effort regarding the method and timing of application. These considerations call for intensified internationally financed research efforts. These should be divided suitably between national, regional, and international research agencies.

In the field of food crops, the problems are even broader. Since the early 1970s, when these were recognized as a national priority in virtually every African country, efforts directed at increasing food production have assumed three forms. First, increased attention has been paid to the food crop component of the farmers' households within the framework of existing export crop-based agricultural projects, e.g., integrating the food crop component in cotton or groundnut projects, abandoning the block farming system in cotton,[33] and introducing hybrid maize in the rotation, making systematic use of the residual effect of fertilizers deployed on the lead crop. Second, new projects have been launched in locations previously neglected, which were mostly those with marginal soils and/or low and erratic rainfall where cash crops were insignificant. Thus, these innovations were not only untested but also intrinsically hazardous. Third, increased attention was given to irrigated food crops, either through diversification and shifts of emphasis in the crop-

33. That is, organizing all cotton plots of a village in one consolidated block, separate from food crop fields. While this has obvious advantages for the treatment of cotton, it puts additional burdens on farmers (distance between cotton and food crop plots, etc.) and tends to discourage cotton growing.

ping pattern of existing irrigation schemes (Sudan, Office du Niger in Mali), or through creation of new schemes (Mauritania, Niger, Nigeria, and Senegal).

Food crop promotion in projects based on a commercial lead crop has often been more successful than in the case of pure food crop projects. This is partly explained by the fact that many successes are associated with hybrid maize, which can be grown only in areas with sufficient rainfall on relatively good soils. Where these conditions exist, there is usually an export crop as well (often cotton) and an agency taking the lead in assisting the introduction of the new food crop.

In the less-favored agricultural areas, development efforts had to fall back on traditional or slightly improved varieties of millet and sorghum, cowpeas, and traditional types of maize. The accumulated results of research are limited here. Also, the more marginal the ecological conditions, the more a variety needs to be adapted to the very specific conditions of the zone. Thus, tradeoffs have to be made between yield increases and drought resistance, and agricultural research has not yet succeeded in producing varieties adapted to these special conditions.[34]

Priorities

Because the development of research institutions will take time, given the general scarcity of skilled manpower, a systematic buildup should begin now. Attention must be paid to strengthening and reorientating national research systems and establishing closer supportive linkages with appropriate regional and international programs. It is also crucial that the extent to which present research programs are directed toward high priority regional and national production requirements be evaluated. Some programs could be cut back, but many more will need to be created and others expanded. National programs should be geared largely to testing and validating, under individual country conditions, the improved technology developed by regional and international research organizations, such as the International Institute for Tropical Agriculture (IITA) at Ibadan, the International Centre for Research in the Semi-Arid Tropics (ICRISAT) at its substation in Upper Volta, the International Center for Maize and Wheat (CYMMET) in Zaïre and Tanzania, and the International Centre for Insect Physiology and Ecology (ICIPE) in Kenya. These should continue to undertake and expand the more basic, long-term research required on African agricultural problems, providing national programs with promising new technology for subsequent location-specific testing and validation. Another possible source of basic study is the research establishment of the industrialized countries. As of yet, the potential of directing capacities to specific African needs has not been sufficiently considered and the Consultative Group on International Agricultural Research (CGIAR) or a similar body should explore this idea.

While this Report does not propose a priority list of detailed research needs, it is certain that future agricultural research programs must focus on social and economic aspects as well as on technical considerations. Programs must be designed to solve farmers' production problems, i.e., they should give due attention to labor of both men and women, the rationale of traditional cropping patterns, the impact of land tenure systems on production opportunities, emerging changes in the relative value of crops, farmers' perception of risks, input and output prices, and similar questions. This implies that research must be based on key commodities in the context of the farm system as a whole. Given the diversity of social customs, farm systems, soils, and climate, this makes the coordination of research activities no easy task. It emphasizes the need for the development of clear channels of communication between economic planners, producers, extension workers, researchers, and farmers to ensure the continued relevance of research work in hand.

34. One essential element of a "technical package" for the drier areas already exists, namely contour ridging, deep plowing, and other techniques which retain moisture in the soil. These methods have received little attention from extension services, in part because they are not regarded as "modern."

Experience over the past two decades highlights the importance of localized testing and fine tuning of technical recommendations, especially for annual crops. Such testing needs to take account of local physical and socio-economic conditions to establish relevance and acceptability. Thus, short season drought-resistant cereals developed at international research centers may need some genetic modification at regional or national centers to meet localized taste preferences. General fertilizer recommendations may need fortification to meet localized micronutrient deficiencies, and so on.

A good deal of agricultural research is underway at the international, regional, and national levels. Some of it may not adequately reflect farmers' needs. What is mainly required now is a critical review of the relevance of research programs, better coordination and division of labor, better monitoring and control, efforts to achieve continuity of staffing, and expansion of key programs, especially those directed at food crops. Special research attention should be given to crops which have important nutritional impacts.

Further, the international agricultural research centers financed through CGIAR provide a powerful international and regional base for broad, basic research programs together with valuable training facilities for national researchers. The most recent addition to the CGIAR, the International Service for National Agricultural Research (ISNAR), has been created to assist governments to develop and strengthen their research organizations. Such assistance can take the form of preparing investment proposals for funding by international or bilateral agencies, together with providing top research administrators for national programs. The services of ISNAR could well prove invaluable in supporting national research initiatives contemplated or under way in Nigeria, Senegal, Sudan, Tanzania, and other countries in the region. International support for agricultural research in Africa, although already substantial, is one of the fields which calls for more technical assistance, particularly at the national level.

Box I: Controlling the Desert Locust in East Africa

In 1962, Djibouti, Ethiopia, Kenya, Somalia, Sudan, Tanzania, and Uganda established the Desert Locust Control Organization for East Africa (DLCOEA) to eliminate the infestations of locusts and grasshoppers, which in the past devastated the crops of these nations. Armed with a fleet of 12 spraying, transport, and communications aircraft, and large numbers of vehicle-mounted spraying machines, DLCOEA has effectively performed this role: no major plagues of desert locusts have occurred since the catastrophic outbreak of 1949–52; the outbreaks in 1967–69 and 1977–78 were both stopped before much damage was done.

DLCOEA's success is explained by superior forecasting and painstaking development of techniques to control locusts through large-scale research funded by substantial contributions from both member countries and foreign donors.

The DLCOEA Council recently decided to widen the scope of the organization to include control of army worms and quelea birds. To this end, FAO and the Centre for Overseas Pest Research (COPR) are supporting DLCOEA in expanding the forecasting service; in developing a smaller and more efficient aircraft unit; and in improving DLCOE's capacity to rapidly execute large-scale campaigns.

Country financial contributions to DLCOEA have been paid fairly regularly, although at times several member governments had broken diplomatic relations, or were even at war! This can be taken as a measure of the importance of the organization to its members. The DLCOEA is a useful model for other regions or for countries striving to control migrant pests.

Also, research on pest control is essential. The FAO *Food Plan for Africa* and the *Lagos Plan of Action* have put much emphasis on the importance of, and scope for, reducing food losses. Pending the development of further improved technologies in rainfed food production and the consolidation and rehabilitation of existing irrigation projects, more attention to pest and disease control (and farm-level storage improvement) may be one of the most productive investments to be made in agriculture. In recent years, many governments have given only half-hearted support to various regional agencies dealing with these problems, which have been rendered largely ineffective due to a chronic shortage of funds. A notable exception is the Desert Locust Control Organization for East Africa (see Box I).

With more support, regional agencies could coordinate efforts and exchange and pool information on plant quarantine and other matters.[35]

The crucial role of seed multiplication and distribution should be noted. In many countries, there has been a marked degeneration of useful varieties through improper seed production and multiplication practices. More attention should be given to alternative institutional arrangements in this area—for example, delegating seed production and multiplication to cooperatives and contracting out seed production to individual growers are allowing private sector activity in this area, leaving to government the important function of quality control and certification.

Research needs in agriculture-related animal husbandry are also substantial. Technology for raising productivity of forage crops is inadequate. Existing research on vaccination has resulted in useful technology for the four or five major animal diseases, but much remains to be done, particularly tsetse control.

The presence of tsetse flies and the resulting disease, trypanosomiasis, virtually preclude the use of some 10 million square kilometers of higher rainfall areas for livestock or agricultural production. Methods of control of tsetse which have been used or are proposed for use include: clearing of vegetation which harbors flies; breeding and release of sterile male flies; and use of fly traps. Large-scale campaigns to free extensive areas of Sudanese savanna country from tsetse by the use of insecticides have been undertaken in a number of countries. The most extensive program has been in Northern Nigeria, where large areas had been freed of tsetse in the second half of the 1950s. Another project is underway on the Adamawa Plateau in Cameroon. Implementation of such campaigns requires highly efficient organization to meet logistic problems, and continuing vigilance to maintain tsetse-free status. In Nigeria, for instance, it has not been possible to prevent the resurgence of trypanosomiasis. Tsetse eradication by insecticides also has undesirable effects on the environment. Continuing research on this and on alternative methods (sterile males, fly traps) is needed to devise methods that are effective and durable, unobjectionable from an environmental point of view, and economic. Although the cost of eradication by insecticides seems low ($20 per hectare for eradication, and $5 per hectare per year for maintenance), it is more than the projected benefits from increased animal production alone. For agricultural purposes, however, the cost would seem to be very acceptable. It is mainly the lack of a technically sound method of disease control which stands in the way of a broadly based attack on the tsetse in the near future.[36]

Given the vast scope for expanding rainfed agricultural production in well-watered areas, the payoff of intensified research on eradication and control measures would seem to be high. For several countries, there are important issues of possible tradeoffs between high-cost investment in irrigation and expanding the area usable for rainfed agriculture under fairly good rainfall conditions. Once a technically sound and economic method of tsetse eradication has been found, an international consortium, such as the one promoting the international river blindness

35. The Desert Locust Control Organization for East Africa (DLCOEA), an intergovernmental body, was established in 1962. The Organisation Commune de Lutte Antiacridienne et Antiaviaire (OCLALAV), established in 1965 (Mali, Mauritania, Niger) has the same status. Other regional agencies include: the International Organization for the Control of the African Migratory Locust (OICMA), established in 1962; the International Red Locust Control Organization for Central and Southern Africa (IRLCO-CSA), established in 1969, the Commission for Controlling the Desert Locust in North-West Africa, established in 1971; and the Interafrican Phytosanitary Council (IAPSC), established in 1956. At present the IAPSC has a membership of 48 African countries. The FAO has also created a Panel of Experts on Integrated Pest Control, which held its first meeting in Rome in March 1980.

36. A breakthrough in control of the disease may be foreshadowed by recent genetic engineeering research which affects the impact of the trypanosome on the blood cells of host animals. Genetic engineering is an example of the potential value of applications of basic research from the industrialized countries, wider use of which is recommended above.

eradication program in the Sahel, could be an appropriate form of organizing a concerted effort in this field, since in most cases parallel and concerted measures in neighboring countries are of the essence.[37]

Extension Services

There has always been some diversity in organizational approaches to rural development, but generally in Africa agricultural extension services have been a major organizational instrument. Agricultural ministries or parastatals have spread new technology via extension workers, who usually provide inputs and credit as well. But a successful extension effort requires an appropriate incentive structure, an ability to "deliver" what the farmers need, and an attractive "package" to offer. These elements rarely coexist—which explains why resources put into extension have produced limited results.

No extension effort will be successful if the price of the target crop is fixed by the government at a level which makes the crop unattractive for farmers. Although this appears self-evident, many extension services have been fighting uphill battles against low producer prices. Marketing uncertainties also have the same counterproductive effects on the extension program.

The rural development agencies which run extension operations suffer the organizational weaknesses characteristic of almost all public sector units. But these are aggravated by special problems. Distance from the urban centers hampers recruitment of capable managers and middle-level technicians, and this has affected the quality of the advice and the farmers' acceptance of the services. The agencies need many employees dispersed over large distances, who must be physically mobile and capable of adjusting to diverse environments. Even before the recent budgetary constraints, many extension services were typically short of operating funds which immobilized staff and undermined morale. In Kenya in the early 1970s, for instance, some staff were operating only the first two months out of a six-month budget period due to lack of fuel for their vehicles, and the situation in Kenya was better than in most other countries. Further, there are very few women extension officers, despite the fact that women in many cases are heads of household and almost always provide a substantial part of the rural labor. Male extension staff, however, have limited access to women in many cultures and therefore talk to the wrong people.[38]

Perhaps the most important problem is that, in many instances, the staff does not have a valid message to extend. Where land and water resources are poor, improvements that can be proposed based on current knowledge are often marginal. This is in itself an impediment to successful innovation because a substantial gain is usually required if a technical package is to be readily accepted by farmers: farming systems operating under harsh conditions have lower flexibility and farmers, therefore, need a stronger incentive to change. The risk factor, in particular, assumes considerable significance, given the fact that many projects involve attempts to persuade farmers to incur debts for annual inputs or equipment. Failure to appreciate the risk factor fully and other constraints in a traditional farm system account for misguided extension efforts to introduce early sowing and high-density planting or to eliminate intercropping practices. Improved understanding of these subjects has led to a thorough reappraisal of these themes

37. A Commission on African Animal Trypanosomiasis Control has been set up under FAO auspices.

38. The following recent description of one country situation is thought to be fairly representative:

> "The extension work program is usually of an *ad hoc* nature, defined by the sector chief. Little guidance is available on its content, presentation, or means of execution. There is no monitoring of program effectiveness. The extension agent is a 'general agricultural agent,' with tasks that range from promoting new technology, organizing credit schemes, and supplying inputs, to general administrative duties. The wide-ranging responsibility normally results in little organized work being done. Since the working conditions, general support facilities, and supervision of extension agents are poor, salaries low and education requirements for recruitment minimal, it is not surprising that, in general, extension results are negligible, and morale in the service is low."

and a rehabilitation of some traditional practices—although these insights have not yet found general entry into extension advice.

These considerations do not apply, of course, to all crops and all regions. Valid technical packages exist for crops such as tea, tobacco, sugar cane, cotton, rubber, and—the outstanding food crop example—hybrid maize. But the technological packages are generally weak for traditional food crops and are especially uncertain in the climatically harsher regions. So, for these crops and areas there is at present an imbalance between potentials of the technical packages and the extension apparatus set up to spread these packages. In projects based on commercial crops, such as cotton, extension overheads are absorbed by the lead crop. Thus, where projects focus entirely or predominantly on food crops, continued extension efforts should be subject to careful assessment.[39]

Within these limitations, there is still considerable scope for disseminating existing technology. In addition to the export crops mentioned earlier, this is the case for such food crops as rice and maize in Guinea and savanna-type zones. But for Africa's food staples, it is very unlikely that the next decade will yield dramatic production breakthroughs. In fact, renewed and greatly enlarged research efforts are needed *now*—if there are to be better results in the 1990s—since the development and validation of new technical packages normally take at least a decade. Pending the development of new messages, donors and African governments together should review and rationalize the existing extension services. Among other things this should include testing the relevance and sharpening the focus of existing extension messages, giving more weight to pest and disease control, training staff more systematically, developing feedback from farmers to researchers, and experimenting with alternate information delivery systems, for example, through the news media, input suppliers, and unpaid rural community leaders.

Until results of intensified agricultural research are forthcoming, rural development projects should, to the extent feasible, be built around a commercial lead crop (cotton, for example) which offers a confirmed technical package, an assured outlet, a means of cost and credit recovery, and favorable aftereffects on cereals production from the fertilizer applied to the lead crop. Projects based entirely on food crops should, during this interim period, be smaller and of a pilot nature.

Over the last decade, it has been recognized that labor bottlenecks are a key constraint to agricultural progress in Africa, but rural development strategies have not fully reflected this insight. Instead, most of the methods encouraged still aim to increase productivity of land (fertilizer and seed packages). More emphasis should now be placed on measures that increase labor productivity, in particular, use of farm implements, ox-drawn cultivation,[40] use of cereals processing equipment (winnowers, threshers), and equipment aimed at reducing the labor input of women's tasks (mills, improved water sup-

39. It is often argued that, even in the absence of a technical breakthrough, extension efforts are justified if they only succeed in spreading the so-called best farmers' practices to all farmers. This argument has some merit, although the scope for progress may be smaller than appears from comparing yields between "best farms" and average farms. Best traditional practice is visible to all farmers and, to the extent that they are willing and able to emulate the example, they can be expected to do without extension advice. This suggests that differences in natural ability and assiduity are responsible for part of the observed differences in yields, and differences in land quality, structure of the family labor force, etc., for another part. The part due to information gaps is probably relatively small.

40. A breakthrough in ox-drawn cultivation would obviously have the most powerful effect on labor productivity. However, progress has been strikingly uneven in different countries, and on the whole disappointing. This is another field in which too little is known about the conditions governing acceptance or rejection of this innovation and where more research is warranted in order that officials can better target future efforts. Prime factors appear to be: varying costs of maintaining cattle in the off-season; varying costs of destumping fields, which is a function of density of vegetation and frequency of rotation in shifting cultivation systems; and familiarity with animals and social taboos attached to handling animals. In addition, there are some 10 million square kilometers in Africa where ox-drawn cultivation is not feasible due to trypanosomiasis.

ply).[41] This does not mean that research aimed at raising productivity of land should be curtailed; the land constraint exists in some areas now, and will surely become more pervasive in the future.

Irrigation

Irrigated agriculture has a small place in African economies, except in Sudan and Madagascar. Irrigation plays a significant role in some of the Sahelian countries (Mali and Senegal), to a lesser extent in the northern zones of Cameroon, Ivory Coast, and Nigeria, and in the river valleys of Ethiopia, Mozambique, Somalia, and Zimbabwe. Estimates of areas under irrigated cultivation differ widely, since there is no generally accepted definition of "irrigated cultivation." In some cases it includes only full water control (storage or pumping), in others, partial water control. Sometimes only areas in formal schemes with some kind of organized administration and field services are counted, in others, formal and unassisted schemes are included. Counting only formal schemes with full water control, total irrigated area amounts to some 2.5 million hectares, of which 65 percent is in Sudan and a further 15 percent in Madagascar. In Madagascar, irrigated land occupies 50 percent of cultivated areas, in Sudan, 75 percent; in all other African countries the figure is below 10 percent and in most cases below 5 percent. Apart from the paramount role of cotton in the irrigation sector of Sudan, and sugar schemes scattered all over the continent, irrigation schemes are used predominantly for rice cultivation.

There is a natural tendency for people in poor countries dependent on dryland farming to see in irrigation the brightest hope for agricultural development and in particular an answer to problems of lagging food production. It is equally natural for people to perceive the irrigation solution in large-scale terms—big dams and full water control over thousands of hectares.

For many African countries, large-scale water control will undoubtedly animate agriculture in the future. But recent experience and economic analysis suggest that this will only happen with proper preparation and with the right sequence of policies and programs.

Recent Performance

The development of irrigation has made some advances in the last two decades, yet the net impact of irrigation on total agricultural production has remained modest in all cases except Sudan and Madagascar. The problems which irrigated agriculture is experiencing in the modern sector have been summarized for the Sahelian countries by the Club du Sahel and Comité Inter-Etat de Lutte Contre la Sécheresse dans le Sahel (CILSS) in a recent document.[42] To a striking degree, the deficiencies and problems identified apply also to other countries with an important irrigation sector (Madagascar, Mozambique, Nigeria, Somalia, and Sudan).

In spite of considerable investment in irrigation development in the 1970s, total cultivated areas hardly increased in a number of countries. While there appears to have been a net increase in total cultivated areas throughout the 1960s and early 1970s, subsequent additions to the developed area were offset by others that had to be abandoned and require rehabilitation, and this was in spite of considerable investment in a number of countries. Moreover, not all developed areas are farmed, and not all farmed areas are harvested, either because water control is not complete, or because of deficient water management. In Sudan, extensive restoration is now being prepared in the White and Blue Nile pump scheme areas and the improvements required in Madagascar's irrigation

41. In some cases (for example, Malawi), it was found that the main income effect of agricultural projects resulted from the return to labor in activities outside the sector, made possible by the labor-releasing effect of innovations.

42. *The Development of Irrigated Agriculture in the Sahel* (Ouagadougou, Upper Volta: Club du Sahel/CILSS, April 1980).

perimeters are no less extensive. These major rehabilitation needs are the result of omitted or insufficient maintenance. This applies not only to the established operations dating from the 1930s (Office du Niger in Mali, or Gezira in Sudan), but also to very recent schemes such as those in the Senegal delta. Poor maintenance is attributable to inadequate organizational capacities and lack of money—the latter due to low rates of cost recovery and/or the failure to set aside collected revenue for maintenance purposes. (In Sudan, macroeconomic problems leading to a lack of foreign exchange, and hence of spare parts, fuel, and machinery, have been an additional contributing factor.)

While yields have generally been disappointing, in particular those in rice, there are some exceptions. Sugar schemes have recorded varying results but have often achieved yield levels comparable to those achieved in other parts of the world. In paddy production, yields of more than five tons per hectare were obtained in the Mwea scheme in Kenya and the Semry scheme in Cameroon,[43] with a substantial proportion of double-cropping. High yields have also been achieved in several minor schemes along the Niger river in Niger and on the upper Senegal river in Senegal (although here too problems of maintaining soil fertility emerged after a few good years). In these cases, there is pressure on land, the plots owned by individual farmers are small, and cultivation intensity is high. The Semry and Mwea projects are noted for good management, and the small schemes on the Senegal river for a high degree of farmer participation in management.

In most cases, however, yields have stagnated or even fallen over the last decade. Not more than 3 tons per hectare of paddy are achieved per hectare harvested, and not more than 2.0 to 2.5 tons per hectare cultivated. Apart from poor water management, insufficient leveling of land, soil problems, input supply bottlenecks, and use of varieties not adapted to local needs, poor economic incentives are a prime factor in this performance. Since irrigated rice growers cannot avoid the official marketing channel with the same ease as growers of rainfed crops (at least not in government-assisted schemes), rice farming is often carried out without enthusiasm. Farmers concentrate on more remunerative side activities such as vegetables, livestock, and rainfed farming. The lack of economic incentive also helps explain why, in these semiarid areas with recurrent drought, cultivation intensities are not higher.

Besides lack of price incentives, weak support from the agencies operating the irrigation schemes is an important factor explaining poor performance of farmers. All the problems identified with regard to input supply impinge with particular severity on irrigation agriculture. In addition, there are important training deficiencies. The CILSS report on Sahelian irrigation observes of extension workers: "their theoretical training is sometimes barely credible to farmers whom they are supposed to guide." Under African, and especially Sahelian conditions, this shortcoming is more acute than in other parts of the world. Only Madagascar has a deep-rooted tradition of irrigation; in most of Sahelian Africa, farmers admitted to formal irrigation schemes are usually without prior experience in irrigation and the peculiar discipline it requires, and most are drawn from a peasantry practicing a very extensive type of farming in areas with hazardous rainfall. Thus, expansion of irrigation is also limited by the speed with which farmers not accustomed to irrigation can absorb new techniques and the required cultivation discipline. The gap between developed and cultivated areas in many schemes (for example, in Northern Nigeria) is telling in this respect. Poor water management, partly due to deficiencies of the infrastructure but also to lack of expertise and management control, gives rise to irregularities in water supply which increase farmers' risk and undermine

43. In Semry, Upper Volta, yields and cultivation intensity appear to have been sagging in recent years, however, and the area actually cultivated has remained well below the developed area: this reduces yields per developed area to less than 3 tons per hectare.

their willingness to cultivate intensively. At the same time, these factors severely limit both farmers' willingness and ability to pay the water charges required for financing maintenance.

Rehabilitation Needs

These experiences, combined with present urgency for quick-yielding programs and the need to prepare for large-scale irrigation efforts in the future, suggest that priority be given to raising production in existing schemes to levels justifying the very substantial investments planned in the subsector. Unless close to 6 tons of cereals are grown per hectare per year, investments of $10,000–$20,000 per hectare cannot be justified. Required consolidation and rehabilitation measures include:

- improving the operation of existing projects with respect to water management and agricultural services, and closer study of soil conditions;
- improving economic incentives for farmers and increasing their participation in operating and maintaining the irrigation schemes;
- rehabilitating infrastructure (drainage, water distribution, land leveling);
- reducing the size of holdings where they are too large to be cultivated intensively, and introducing double-cropping where feasible; and
- increasing the rate of cost recovery.

Efforts in these directions have been urged from various sides (FAO, CILSS, for example) since the early 1970s and were initiated in a few cases, but rehabilitation programs have fallen seriously behind schedule. The so-called First Generation Projects of CILSS (focusing on rehabilitation) have made little progress to date and may continue to move more slowly than anticipated. The problems and delays encountered in redressing the infrastructure and overall organization of the Office du Niger, the oldest and largest project in the Western Sahel, are indicative of the situation; the organizational and technical problems of Société d'Aménagement et d'Exploitation des Terres du Delta (SAED) in Senegal provide another example. CILSS, in a remarkably sober assessment of the situation, concludes that "due to the delays in implementation, irrigated agriculture will not be in a position to contribute in an important way to the Sahel food picture before the 1990s, and it will only play a significant role in providing food and security for the region toward the end of the century."[44] Thus, rehabilitation of existing projects, involving the issues listed above, will take the remainder of the 1980s under the best of circumstances. Moreover, increased yield levels, when attained, must be shown to be sustainable before further large-scale investment can be justified, and preliminary evidence with some projects suggests that maintaining soil fertility may pose problems.

Rehabilitation involves many tasks for which external sources of finance can provide useful assistance. First, restoring infrastructure is expensive and may amount to several thousand dollars per hectare in individual cases. Second, technical assistance will be required for water management, soil studies, and training of agricultural and infrastructure maintenance staff.

River Basin Development

Large-scale irrigation through the development of river basins has received high priority in the economic planning of many countries, in particular since the early 1970s. Mali, Mauritania, and Senegal are preparing to develop the Senegal valley through dams at the estuary (Diama) and upstream (Manantali). The total cost of the two dams (without counting any irrigation infrastructure) is now estimated at $890 million. The Kandadji dam, at a less advanced stage of preparation, is to increase the irrigation potential of the Niger valley in Niger; its feasibility is still under review. For the Sahel countries as a whole, CILSS had set a target of 550,000 hectares to be developed by the year 2000. Major schemes planned in Eastern Africa include the Kagera basin (Tanzania) and the Badhera dam (Somalia), the latter estimated to cost $600 mil-

44. "Strategy for Drought Control and Development in the Sahel" (Washington, D.C.: World Bank, September 1980), processed. See also *The Development of Irrigated Agriculture in The Sahel.*

lion. In Nigeria, the Sokoto Rima and Hadejia- Jama'are river systems are being developed, and several schemes of smaller scale are under way in the Middle Belt of that country; the potential of Lake Chad is being tapped by a further large scheme in northeastern Nigeria.

River basin development has been attractive to governments and donors alike since it seems the obvious way to food security and agricultural expansion for resource-poor and arid countries. But without a solid preparation in irrigation agriculture and close assessment of economic, social, and ecological effects, and without restructuring policy to improve yields on existing projects, building new dams will prove to be costly, and, indeed, contrary to the quick-yielding investments most countries require to overcome the present state of stagnation in agriculture.

The financial aspects of river basin development need special mention. Most irrigation schemes are built with the goal of growing food crops, and thereby increasing the proportion of cereals grown under droughtproof conditions. But the question must be raised whether import substitution is economically justified for these commodities even assuming that higher levels of efficiency and yields can be achieved. In Sudan, due to special natural conditions and the effect of existing large infrastructure, new areas can be developed at costs in the $5,000–$10,000 per hectare range. But, generally, costs are higher. Recent projects in Niger, Mauritania, and Northern Nigeria have all cost more than $10,000 per hectare in 1980 prices, some even more than $20,000 per hectare. Even assuming efficient production, a ton of rice produced in a modern irrigation scheme developed at $10,000 per hectare is estimated to cost not less than $600 per ton. But imported high quality rice cost $400–$450 per ton in coastal countries of Africa in 1980; the kind of rice ("brokens") imported in Senegal, Gambia, and Mauritania —the largest rice-consuming area in Africa outside of Madagascar—is 40 percent cheaper. Thus, unless consumer prices of wheat and rice are raised by a very substantial margin, production would have to be subsidized. Indeed, subsidies might easily surpass debt service for the irrigation infrastructure. The Organisation pour la Mise en Valeur du Fleuve Sénégal (OMVS) program in Senegal, Mali, and Mauritania is a good illustration of this. Thus, raising domestic consumer prices of cereals to the projected cost of locally produced substitutes will be indispensable if such schemes are not to lead to permanent large subsidies.

New river basin developments, then, should be undertaken when the technical and institutional foundations have been laid and tested, and the decision has been made that the domestic price structure will be brought more in line with the prospective cost of the planned production programs. Given the extensive rehabilitation and consolidation needs discussed above, governments should prepare future schemes more thoroughly than in the past, giving due attention to pedological issues, watershed management, ecological impact, other economic activities (livestock, fishing, rainfed farming), and land tenure issues, and preparing future irrigation farmers for their tasks, including maintenance. Rehabilitation of existing schemes may be viewed, for many purposes, as a first step for new schemes since it will provide a training ground for both government staff and farmers, some of whom can fulfill pilot functions for future larger schemes.

The international donor community can play a useful role in financing studies, encouraging international cooperation between countries concerned, and providing direct technical assistance to both national and supranational development agencies. In the past, most supranational agencies (Lake Chad Basin Commission, Niger Basin Authority) had a somewhat uncertain existence, since most member countries preferred to pursue projects directly and enlisted donor support without recourse to these agencies.[45] The effectiveness of these agencies will depend mainly on the support and responsibilities African countries are willing to give to them in the future, though external assistance can play a significant facilitating role.

45. The OMVS is an exception.

Small-scale Irrigation

While formal irrigation schemes struggle with the technical, human, and financial problems outlined above, there has been vigorous growth of informal small-scale irrigation in flood plains and swamps. In Nigeria, the area is estimated to have more than quadrupled between the late 1950s and 1970s. Similar developments, in proportion to local potential and country size, have occurred in Ivory Coast, Liberia, Senegal, and Sierra Leone, to name only a few. The informal schemes have made a much larger contribution to food production, for instance in Nigeria, than the formal irrigation schemes. In Madagascar they are the predominant form of production. The main types are seasonally inundated depressions, shallow swamps, and river valley bottomlands. Most of these lands have been developed by the farming population with little, if any, help from governments, which demonstrates the overall attractiveness of this cultivation system.

The potential for such schemes is far from exhausted in many African countries. In Nigeria alone, for instance, the area which could be expanded is estimated at 2 million hectares, and of the existing 800,000 hectares, many schemes could benefit from structural improvements and intensification. But the potential use of riverine bottomlands and swamps is determined by factors such as land titles and tenure, availability of labor, and allocation of labor between rainfed and irrigated crops. The question of land tenure, particularly on acquired and improved land, is a matter which determines the degree of improvements farmers are willing to provide. More attention ought to be given to these issues, since the degree of self-help that can be mobilized will have a strong impact on project design, construction method, and, above all, costs.

This type of traditional small-scale irrigation depends on readily available water resources in the form of rainfall, run-off, and natural storage, which is carried over into the dry season. Irrigation systems may range from simple water diversion and redistribution works which provide supplementary wet season irrigation, particularly for rice, to blocking run-off by contour ridging or bunding for water conservation which increase residual moisture for the benefit of rainfed crops planted at the end of the rainy season. All are low-investment improvements which can be undertaken by farmers with appropriate extension advice as an integral part of a service package that accompanies the assistance. An aspect deserving special attention is the organization of effective maintenance services with farmers' participation, because this is still the critical element in pump-based smallholder irrigation.

Utilizing irrigated bottomlands, rice could be grown as a wet season crop. Sufficient technology is available to reach, with a reasonable amount of water control, average yields of close to 3 tons per hectare. Suitable dry season crops are vegetables (onions, tomatoes, carrots, and so forth), cowpeas, and maize. In several countries, there is also substantial scope for small-scale irrigation based on groundwater development through pumping: by hand-operated pumps in simpler cases, by small-motor pumps in other cases. Systematic efforts to tap these resources are now being undertaken in Nigeria, where the farmers are responding positively, and government is shifting the emphasis of its irrigation policy from the large-scale schemes favored in the 1970s to support for small-scale ones.

Donors can help primarily through technical assistance for watershed management and land-use planning (including the use of satellite pictures, which has proved useful for this purpose); transfer of technology (tools, pumps), with special reference to the technology available in Asia; and training of middle-level irrigation technicians to help farmers in surveying and laying out irrigation plots. Donors can also help by studying the alternative organizational forms which exist in large-scale water control schemes in Latin America and Asia; smallholder-based organizational arrangements are frequently used in these regions in ways that might be adaptable to African circumstances.

6. HUMAN RESOURCES

The importance of the human factor in African development has been repeatedly stressed in this Report. This chapter discusses policy issues in education and training, as they relate to African economic development, and in health strategies.

Education

Education as an Economic Investment

To begin, a few points need to be stressed regarding the complex role of education in development. As defined here, education covers all schooling (both formal and informal), and must be considered as an investment as well as a consumption good. For policymakers, this means that educational costs should be balanced against potential private and social benefits.

The impact of education extends beyond the traditional production sector into the household. Educated women, even if they do not participate in the labor force, can have a significant impact on the country's economy through lower fertility rates, health information, and more "household production."[1]

Moreover, education does not relate only to the modern wage sector. Farmers and self-employed people in the urban sector are now thought of as contributing more to the country's economy if they have a higher level of education. Nor is the impact of education on development limited to economic growth. Increasing attention is being paid to its effect on distribution and social equity.

The African Context

Faster economic growth in Africa requires accelerated development of human resources. This involves more and better formal schooling and intensified training. There is agreement among African and other experts that schooling systems must be expanded and improved, especially at the primary level. In about one third of all Sub-Saharan African countries, fewer than half of all primary school age children are in school (see Table SA.38). Secondary education should also be substantially extended; in only about 40 percent of the African countries are more than 15 percent of the relevant age group in secondary school. And while university education has spread rapidly in the last two decades, there are numerous places where the output of university graduates is still far short of demand. In Nigeria, for example, recent manpower estimates indicate that in certain specialties there are almost twice as many high-level job openings as there are university graduates.

Expenditures on schooling already claim a large part of GDP—around 4 percent in two thirds of the countries for which data are available. And, more important, they claim a sizeable share of public expenditure—about 16 percent of the total, on average, more than any other government function except general administration (see Table SA.41). In a

1. See T. W. Schultz (ed.), *The Economics of the Family* (National Bureau of Economic Research, 1974).

Table 6.1. The Social Returns to Education in Africa

Education level	*Rate of return (percent)*
Primary	29
Secondary	17
Higher	12

Source: George Psacharopoulos, "Returns to Education: an Updated International Comparison," in Timothy King (ed.), "Education and Income," World Bank Staff Working Paper, no. 402 (Washington, D.C., 1980).

significant number of African countries, recurrent expenditure on education is between 25 and 35 percent of total recurrent spending. In the 1970s, when government revenues and expenditures rose rapidly in most of the continent, the average African country's incremental share going to education was 13 percent—again larger than any other single item except general administration (see Table SA.42).

That educational expenditures claim a large and, in some countries, growing share of resources does not necessarily mean that governments are giving "too much" to education. On the contrary, a recent review of the economic returns to educational investment in African countries has shown the returns to be substantial (see Table 6.1). If one measures the output effects of more education by rate-of-return analysis, investment at all levels of education still appears to produce a relatively high yield.

As far as allocation within the education sector itself is concerned, the general order of priority runs as follows: first, primary; next, secondary; and last, university—although individual country requirements differ, and countries particularly short of university-trained people would find fault with this ordering. All in all, there is much evidence that generalized primary education has far-reaching modernizing effects.[2]

In spite of the results of educational cost-benefit calculation, there exists widespread concern on several aspects of educational strategy. Is it possible, for example, to reduce costs without impairing educational quality? Has the pace of certain levels of education been too rapid? These and other issues are discussed below.

The Inadequacy of Resources

Given Africa's extreme shortage of fiscal resources and the many claims on revenues, all educational strategies must have as a key objective greater efficiency in resource use. African education is expensive not only in the sense that it absorbs a significant share of public sector resources; it is expensive also in terms of average costs per pupil, especially at the higher level. African governments spend as much per university student as countries with per capita incomes at least three times and as much as eight times higher. By contrast, primary education is cheap in comparison with industrialized countries. Table 6.2 shows that primary education costs (per student year as a percent of per capita GNP) in Africa are about twice as much as in other developing areas; secondary education costs are 4 to 5 times as much, and higher education costs 5 to 10 times as much.

Costs are high in terms of years of instruction per graduate, since dropout and repeater rates are high in most of the region. At the primary level, it commonly takes 10 pupil years to produce a primary school graduate on a six-year course; only between one third and one half of students who enter primary school complete the usual six-year cycle. Dropout and repeater rates are lower at secondary

Table 6.2. Costs of a Student-year as a Percentage of GNP per Capita

Region	*Primary*	*Secondary*	*Higher*
Eastern Africa	20	124	927
Western Africa	24	142	1,045
Asia	11	27	205
Europe, Middle East, and North Africa	15	47	306
Latin America	11	22	121

Source: World Bank, *Education Sector Policy Paper* (Washington, D.C., 1980).

2. World Bank, *World Development Report, 1980* (New York: Oxford University Press, 1980), Chapter 5.

Table 6.3. Relative Teaching Costs and Student-Teacher Ratios, Public Primary Schools, Selected West African Countries

Country (year)	Ratio of teacher salaries to per capita GNP[a]	Student-teacher ratio	Teaching costs per student as a percent of per capita GNP	Teaching-implied costs of universal primary education (percent of GNP)
Liberia (1977/78)	3.8	51	7	1.4
Togo (1978)	6.3	60	10	2.0
Sierra Leone (1973)	4.1	32	12	2.4
Cameroon (1976/77)	6.7–11.6	52	18	3.6
Ivory Coast (1975)	6.8–10.8	44	20	4.0
Nigeria (1976)	6.2	30	20	4.0
Upper Volta (1978)	24.0	51	47	9.4

a. Includes apprentice teachers and monitors.
Source: World Bank data files.

school level, though still substantial. At the university level, these rates vary. For example, they have been high in Liberia, very high in Ivory Coast (10 student years required for one three-year graduate), and low in Kenya and Nigeria.

The principal factor behind high unit costs is high teacher salaries, which typically make up 75 to 90 percent of total recurrent costs in education. In some countries, salary costs are high in part because expatriates are still widely used at the secondary and university levels. But even at the primary level, salaries are high in relation to per capita income. It should be noted that the salary weight is so high because *all* modern sector salaries are high relative to average incomes. In any event, Table 6.3 gives some West African cost figures; scattered evidence suggests that costs are lower in East and Southern Africa. Since about one fifth of the population is of primary school age, universal primary education at the cost ratios of Table 6.3 would imply teaching costs alone ranging from 1.4 percent of GNP in Liberia to 9.4 percent in Upper Volta. This is to some extent a reflection of market forces; educated people remain scarce, and the demand for teachers has grown rapidly in the 1970s. But in many instances it is a reflection of the rigidity of public sector salary scales. Wage rates in the public sector are tied to levels of educational attainment and do not readily adjust to market conditions. Thus, in many countries, the increase in the supply of educated people in the 1970s is not yet fully mirrored in public sector wage rates.[3]

Given this situation, African governments would need to reduce unit costs by increasing pupil-teacher ratios to the extent possible, without reaching the threshold where quality would be adversely affected. Other cost-saving systems (e.g., double-shift, multigrade teaching, and so forth) should also be considered. Wider use of textbooks and other reading material deserves special consideration (see Box A).

African educational planners and policymakers and their outside partners can also avoid costly mismatches between types of schooling offered and social demand. One example is the tendency to establish technical secondary schools in systems where places in general secondary facilities are few relative to demand. These technical schools are much more expensive to build and to operate than general secondary schools. Since the career prospects for general secondary school graduates are usually better than for graduates of technical school, the technical schools often end up serving disaffected people who wanted a general education but were denied entry to a general secondary school. In this case, the technical schools provide more general in-

3. It is interesting that Liberia had no formal civil service wage structure until very recently. Government salaries there were not rigidly linked to levels of education. This helps explain its position in Table 6.3.

Box A: Ethiopia's Campaign against Illiteracy

Ethiopia's campaign to eliminate adult illiteracy has made rapid progress. In 1979, well over 90 percent of Ethiopia's population of about 30 million was illiterate. By early 1981, seven million Ethiopians—over 70 percent of them women—had benefitted from the National Literacy Campaign. The majority of these had attained basic literacy and numeracy. The campaign gained worldwide acclaim in 1980, when the International Reading Association, which is affiliated with Unesco, gave Ethiopia its annual literacy award. The Association was particularly impressed with the follow-up of the initial teaching of literacy and numeracy with courses using simply written books to teach hygiene, better farming techniques, and other skills.

The campaign has overcome formidable obstacles—notably diversity of languages and enormous financial and administrative constraints. About a quarter million instructors have been mobilized—primarily teachers, students, civil servants, and army personnel. Many of these are active in the campaign only in the summer. The instructors work out of about 35,000 literacy centers. Peasant associations across the country make the required logistic arrangements, including provision of food and lodging for the instructors. The government provides books and supplies such as chalk and blackboards for use by instructors. By September 1980, the Government had distributed some 15 million copies of literacy material in Amharic and four other languages. Total government costs under the program have been extremely low—15 million birr up to September 1980, or less than 2 percent of annual government expenditure—according to one calculation. These low costs are partly explained by the fact that many of the instructors are unpaid, while the salaries of teachers on the public payroll and military acting as instructors are not attributed to the campaign.

The Government plans to continue the campaign enrolling up to several million new peasants annually in five-month programs until 1986, when the entire population will have been covered.

struction than they should, at much cost, to people who will rarely work as technicians. It would be much more economical and more educationally efficient to create additional *general* secondary capacity.[4]

Finally, a more generalized use of fees in the public system would certainly help, not only in financing a more rapid expansion of the education system, but in bringing social and private costs and returns closer together. This is especially relevant at secondary and university levels, where restriction of scholarships would bring substantial economies and make private and social returns more equal. But such changes, often proposed, have proved politically difficult to implement, and nowhere in Africa have student loan programs replaced scholarships.

Improved Quality

Better quality education stands high on the list of educational priorities. In more than half of the countries of the region, 50 percent or more of the teaching staff lacks formal training of the standard required in the countries in question. Textbooks are scarce, outdated, and often inappropriate. Buildings and equipment wear out more rapidly for want of maintenance. Clearly, more and better teacher training, textbooks, and maintenance of facilities would contribute substantially to improved quality of instruction. Adaptation of the curriculum to local needs and reform of the system of national examinations are also important factors.

Planning, Analysis, and Management Capacity

Cost reduction and quality improvement—central themes of all education strategies for Africa—require strong institutions and well-developed analytic capacities. Development of locally appropriate reforms, their implementation and evaluation, cannot be done

4. The same point applies to other programs. In Tanzania, a program to create Folk Colleges on the Swedish model was begun in the mid-1970s. This was an innovative attempt to provide practical adult education in rural areas. It has had some predictable problems in defining its role, but aside from that, its existence illustrates the inefficiency problem. The unit salary costs of these Folk Colleges are 2.5 times higher than those in general secondary schools. But Tanzania has one of the lowest rates of secondary school attendance in Africa and the world (4 percent of the age group, the same as Malawi, Somalia, and the Yemen Arab Republic). It also suffers acute scarcity of middle- and high-level manpower. In terms of efficiency, resources spent on the Folk Colleges would seem to be much lower yielding than those in general secondary education.

without strengthened institutions and analytic capacities. Larger donor efforts in training, technical assistance, and policy-focused research could contribute greatly to this end.

Challenge for the Future

The principal challenge facing African policymakers as they look toward the end of the century is how they can reconcile what their people want and need with what their societies can afford. A good example of this is the pace at which primary education should expand, at least in the short run.

As noted earlier, many recent studies find that people with primary education produce more and are generally more open to innovation than others, making primary education's economic rates of return relatively high almost everywhere. On the basis of these results, some people argue that African governments should concentrate resources on the expansion of primary education, to achieve universal primary education as quickly as possible. Other observers, however, are more concerned with the cost of universal primary education than with its potential benefits, and worry whether Africa can afford it now. Although rapid expansion to the entire population might eventually lower unit costs because of economies of scale, a study of the costs of expanding primary education in 27 countries in the 1950s and 1960s found that on average recurrent costs tripled when enrollments doubled, because of escalation in the teacher wage bill.[5] Of course, if efforts are made to improve the quality of teachers and other inputs at the same time, costs will be higher still, though the corresponding educational benefits should not be overlooked.

Another concern is that if numbers of primary school graduates rise, and no changes are made in curricula, pressures on secondary school places will increase. Since the major function of present primary curricula in most countries is to prepare pupils for entry into secondary schools, enormous pressures will arise for expansion of secondary education. The budget impact of some of these pressures can be deflected by allowing private secondary schools to expand. Recent experience in Kenya and Ivory Coast, however, shows that public secondary enrollments are ultimately expanded, and substantially. Since, as shown in Table 6.2, secondary school unit costs are many times higher than primary school costs, heavy expenditure obligations can be expected to follow. Given the constraints on financing, gradual expansion of primary education would therefore seem in order in countries where primary education has already achieved 50 to 80 percent coverage. Efforts to reduce unit costs should proceed at all levels, along with attempts to improve quality. At the same time, the search for better adapted, more economical systems of basic education should be intensified.

While different countries require different priorities, in all cases the objectives of better quality and management should receive special attention from donors, and in the framework of policy reforms, the cost reduction effort is particularly relevant. In general, donors should consider more lending for educational software—recurrent-cost kinds of expenditures—especially to improve planning and management. As a key sector and a major user of resources, education should be a high priority claimant for nonproject loans in the coming decade.

Training

Training outside the formal school system covers a vast set of activities, from in-service classes for civil servants to nutrition education for mothers in well-baby clinics. Some training matters are discussed in Chapter 9, particularly those related to externally aided projects and technical assistance. Here, training only in certain key skill areas will be considered: public management and economics. These are chosen because they bear so directly on one of the central themes in this Report—the need for increased efficiency of resource use.

5. Philip N. Coombs and Jacques Hallak, *Managing Educational Costs* (New York: Oxford University Press, 1972).

Virtually all African countries now have their own facilities for training in public management and administration, and there are a number of regional institutions with this as their principal function—the African Training and Research Center in Administration for Development (CAFRAD), the East African Management Institute, the Pan-African Development Institute, and several others. Numerous courses for African officials are offered by universities abroad, not only in Europe and North America, but also in Asia and the Middle East. Aid donors have helped to finance a great variety of training schemes for middle-level African managers and other professionals employed in the public sector. Several projects of the World Bank have been devoted exclusively to training for public service.[6]

Many of the African public administration schools have been going through a period of assessment, reviewing the suitability of their methods and curricula to the tasks at hand in African public administration. There are new efforts to more effectively combine teaching, research, and consulting roles and to relate these more closely to the workaday problems of government administration and/or public enterprise management. In some cases, healthy diversification is occurring—for example, in the new School of Management Science in Dakar, which may become a West African regional training center. This institution promises to provide an approach to public management training other than that of the traditional national administration schools, and hence offers some diversity in this field. Moreover, while training alone can never be an answer to management problems, there are some basic value-neutral skills and techniques that must be widely disseminated if government is to function efficiently.

6. One of the more ambitious ventures underway in this area is a program in Madagascar for the training of accountants and auditors, for which a national center has been established. In West Africa, three groups of consultants were engaged in 1979 to advise on the training of agricultural managers, and the Pan-African Development Institute is cooperating with the World Bank's Economic Development Institute (EDI) in launching a series of courses to address this particular need.

For example, one of the most crucial and pervasive weaknesses in development administration in Africa is in the area of financial management, and a sustained effort is required across the board to improve budgeting, accounting, and auditing standards, to augment the supply of qualified accountants, and to develop effective national systems of financial control.

These initiatives to broaden and diversify the supply of formal management training deserve the support of the donor community. Management problems in Africa, as in all developing areas, are only due in part to a scarcity of training facilities, but this part is amenable to elimination and should be addressed directly.

The training of economic analysts presents a somewhat similar picture. In the past 20 years, substantial resources have been invested in faculties of economics by African governments, bilateral donors, and private foundations. While this has resulted in some strong centers of economics education (Nairobi, Dakar, and Ibadan, among others) capacity generally remains weak. Meanwhile, most donors have reduced their support for various reasons, among them changes in priorities in their programs.

Strong faculties in economics (buttressed by science and technology faculties), are the cornerstone of formal training in public administration, business administration, and many of the social sciences. Stronger university training in economics is necessary but does not directly increase the supply of policy-oriented economists and policy analysts, people who are essential for strengthening decisionmaking procedures and institutions. Just how such people can best be trained is not well known. It is likely that the best training is on the job, and that it should be done mainly within government agencies. In the discussion of planning strategy (Chapter 4), the training role of national planning agencies was mentioned. These agencies have strong advantages in a training role; they could become the centers of training of economic analysts for government in general.

There is a widespread feeling among man-

agers and some educators that effective management training requires a greater "hands-on" character and that on-the-job training is in fact the best instrument. One problem with on-the-job approaches in the African context is that manpower-scarce and financially hard-pressed agencies cannot do a great deal of it. This is an area where donors might move in new directions. It would seem possible, for example, for bilateral agencies and international institutions to take in as trainees a significant number of African civil servants and parastatal staff and put them in operating assignments. Their on-the-job assignments could be supplemented by specially designed formal training at universities or, better, in-house at such facilities as the World Bank's Economic Development Institute (EDI) or other training institutions. Under similar "cadet," "intern," or "research assistant" approaches African trainees could also be placed in management consulting firms and other institutions with interests in Africa—banks and multinational industrial corporations in both industrialized and Third World countries—perhaps under some umbrella organization set up by appropriate donor agencies. The basic idea is simple: to use external institutions as instruments for managerial and technical training on the job. Of course, much remains to be spelled out in this proposal, which has some obvious pitfalls but merits further exploration.

Health

The African life expectancy at birth is 47 years, by far the lowest of any region in the world. Much of this is explained by the fact that so many children die before the age of five; infant mortality alone is on the order of 150 per 1,000 live births. Most of these deaths are caused by malnutrition and infectious diseases, diarrhea and dehydration, malaria, measles, and respiratory infections. Improved diet, sanitation, and health care would eliminate most of these deaths.

African health care systems are very limited. In 1977 there were 25,000 persons for every physician and 3,300 persons for every nurse in Sub-Saharan Africa (see Table SA.37). Physical resources are also scarce and poorly distributed within countries; the majority of health professionals and a disproportionate share of health facilities are located in urban areas, where only about 20 percent of Africans live. Most Africans simply do not have access to modern medical care.

Financial resources to expand health care systems are also scarce. In recent years, public expenditure per capita on health varied between $1 and $4, compared with $100–$500 per capita in industrialized countries.[7] Public spending on health has increased over the last decade, although it has barely kept pace with population growth. In 1979 it claimed 5 to 7 percent of central government expenditure in most African countries. Continuation of low rates of economic growth, coupled with high population growth, would make significant increases in government spending for health on a per capita basis unlikely.

Careful consideration of alternatives suggests four key areas where action can be most conducive to improving the health situation: increasing access to low-cost health care; consolidating and upgrading health systems; research improvements; and improving access to safe water and adequate sanitation.

A Strategy for Increasing Access to Health Care

The disparity between the need for care of the uncovered majority and the meager resources to provide it—not just financial but also technical and administrative—has led to emphasis on expanding primary health care systems—that is, community-based approaches stressing prevention, self-funding, and the use of paraprofessionals. This approach presents a special challenge to Africa. Worldwide, there have been numerous pilot projects for small groups but there are few

7. Estimates for private expenditures for 12 African countries in the early 1970s suggest that private health expenditures were, on average, about the same as public expenditures. Together, they accounted for 2 to 4 percent of GDP.

examples of successful organization and financing of such schemes on a nationwide scale. This is due not only to the fact that mass expansion of such demonstration projects is too expensive for Africa, but also that the needed administrative and managerial skills are so scarce in the region.

Because health resources in Africa are already spread thin, rapid expansion of experimental strategies could completely overwhelm existing structures and fail to provide the extra coverage that is their aim. Thus, expansion of African health systems and the adoption of rural health strategies should proceed gradually, on a pilot basis. Donors should encourage a variety of approaches, aimed at finding answers to key questions, such as: the appropriate speed of expansion of health posts; suitable relationships between community health workers (CHWs) and staff in the formal health system; recruitment strategies for CHWs; alternative means of payment; and, particularly, the feasibility of revolving funds. One question should underlie the design of all projects in this area: Can an externally financed program survive financially and organizationally once the donor leaves?

It follows from the scarcities of financial and institutional resources that African governments would do well to use a variety of institutions and approaches in the health sector, and notably to mobilize private as well as public energies. Productive use of individual initiative is as possible in the health sector as in others, although there are also risks and inconveniences.

For example, African countries could also consider wider encouragement of voluntary agencies—local and foreign—many of which have done innovative and successful work in the field. In this context, experiences in Latin America could prove particularly relevant. Some governments might find other attractive possibilities along these lines—for example, freer trade in pharmaceuticals. In much of Africa, drugs can be legally bought only in government dispensaries or pharmacies. In rural areas, often the only legal source of drugs is the public sector pharmacy or dispensary. The public sector frequently offers inadequate and irregular drug supplies, however. In many cases, budget allocations for pharmaceuticals are used up in the first few months of the year. Most rural people must therefore either do without, or buy on the illegal market—if they can afford it. Reductions in the legal restrictions on sales of basic pharmaceuticals would increase the public's access to these drugs and reduce their cost, making a major contribution to the health care of the majority of Africans.

At the same time, governments should seek ways to generate revenues from at least some beneficiaries of publicly provided health services. Methods such as industrial insurance schemes and user fees for public services may be unpopular, but may be the only alternative to systems which are too poor to provide many services at all.

Consolidating and Upgrading Health Systems

The credibility of primary health workers far from the cities depends on logistical and technical support, drug supplies and distribution, and appropriate referral mechanisms. African health systems, however, are weak with respect to all of these functions—particularly in rural areas. In a number of Sub-Saharan countries, hospitals, clinics, and equipment have fallen into disrepair. Facilities are often staffed at levels far below what is needed, by persons who have worked too long at their posts without benefit of "refresher courses" to improve their skills. Essential health service support systems, including supervision, drug supply, and manpower development, have been underfinanced. As a consequence, services have generally deteriorated.

Arresting and reversing this trend has become a central need in many countries if the systems are to provide reasonable services, much less support new efforts at outreach. This requires, among other things, rationalizing staffing patterns and consolidating and rehabilitating hospitals and equipment, as well as the rural clinic systems. Another crucial aspect of consolidation is the simplification and standardization of procedures. For example, simple criteria for diagnosing specific

or by soiled water containers. With respect to sanitation, successful use of the simple low-cost technologies most appropriate in Africa will require fundamental changes in behavior that are very difficult to bring about.

This situation suggests that an appropriate long-term strategy should focus on training and the development of viable institutions, adoption of low-cost technologies and realistic goals with respect to levels of service, and the development of hygiene education programs. In the short term, an attack on water and sanitation problems in urban areas is most technically feasible and is capable of rapidly improving the welfare of a large number of people. Experience in smaller towns in Botswana, Ivory Coast, and Kenya, for example, suggests that there is potential for mobilizing community support in these efforts. Moreover, technologies appropriate to local financial and administrative capabilities are receiving official acceptance; an example is the transformation of the Dar es Salaam (Tanzania) "Sewerage Masterplan" into a "Sanitation Masterplan." The original plan recommended comprehensive waterborne pipe sewerage at very high cost. The revised plan proposes onsite, low-cost sanitation facilities (pit latrines, septic tanks, and so forth) for about 75 percent of the city's population, retaining piped sewerage only in the central part of the city. A similar revision is in progress for the Accra/Tema Masterplan in Ghana.

Experimentation in rural water and sanitation projects should continue broadly and receive more international support.[8] For example, rural water supply projects are being started or designed in Malawi and Kenya using simple, low-cost technologies, such as locally made plastic well screens instead of imported stainless steel, and handpumps instead of piped networks (see Box B). Pit latrine programs are taking hold in Botswana and Lesotho.

A durable supply of water and sanitation facilities depends on the development of decentralized local capacity. Shortage of skilled manpower for planning, design, operation, and maintenance will have to be overcome by intensive training and, in the short term, by technical assistance. International training is now being given to small private contractors in the construction of pit latrines in Tanzania (as in India and Bangladesh). In Kenya, a World Bank-financed water project is encouraging local "plumbers" to construct small sections of a water distribution network. In Ghana, a local contractor has been "loaned" construction equipment for major water works.

These efforts to build decentralized local capacities should be paralleled by programs of nutrition and hygiene education, which in the long run can have the most substantial impact on health conditions.

Box B: Provision of Rural Water Supplies in Malawi

In Malawi, a long-standing, relatively strong government commitment and effective community participation have brought about steady progress in the provision of rural water supplies. Initially, some 4,000 deep wells (more than 45 meters) were drilled with heavy machinery, and expensive handpumps were installed. More recently, light drills, plastic screens, and simple handpumps have been used to exploit shallow aquifers, replacing the earlier, more complex technology. In other programs government-supported private groups have supplied piped water to villages through gravity systems fed by mountain streams. As of 1977, community labor had laid some 750 miles of pipes feeding 1,800 communal taps, with a cost to the Government of only about $6 per person served. The program is well organized, with communities fully involved in planning, operation, and maintenance.

Mistakes were made at the outset, but the lessons were well learned. The Malawian experience clearly demonstrates that commitment, a disciplined approach, and genuine community participation can sustain a continuous, if modest, program. Service coverage had reached 70 percent of urban and 30 percent of rural areas in 1978, and there is every reason to assume that by the end of the decade all Malawians, urban and rural alike, will have reasonable access to safe and adequate water supplies at affordable cost.

8. Research and development programs coupled with sociocultural studies are being carried out by a number of agencies to find the least-cost and most acceptable solutions. Beyond research work, the UNDP Global Project is promoting pilot and full-scale projects in several countries in low-cost sanitation. Project Preparatory Teams financed by UNDP will commence work in Africa in early 1982 in an effort to assist governments to prepare projects for external finance.

diseases, treatment protocols, and criteria for referral might be established.

It should be noted that this emphasis on consolidation and gradual evolution differs from the traditional approach to health planning, in which planners use international "norms" to determine the "required" number of hospital beds per thousand people, dispensaries per health center, and nurses per clinic. They then calculate capital costs and the associated manpower and supplies, and end up with requirements for future capital and recurrent costs.

This approach is helpful in setting out the dimensions of "needs," but it has one disadvantage: it leads to misperceptions as to the nature of the problem and encourages diffusion of effort and excessively grand attempts in particular programs. The alternative approach sketched above, of consolidation and cautious expansion, can lead to closer analysis of priorities. It can more realistically assess administrative and financial constraints.

In fact, the shortage of funds for spending on health gives special urgency to improved planning, policymaking, and management. A useful beginning is a "sector analysis"—a study of the problems, policies, and resources in the health sector, its detail and depth depending on how much is already known. As in other key sectors, donors should expand assistance to strengthen capacity in health policy analysis and related data gathering, in planning and budgeting, and in program analysis and general management.

Research Needs

One key area requiring donor assistance is research on immunization technology. Many existing vaccines are unstable, must be kept chilled during all stages of transport and distribution, and often require that the immunized person return for one or more boosters. These problems increase the difficulties of carrying out immunization campaigns in tropical rural areas. Technology for the six diseases targeted for the Expanded Programme of Immunization (EPI)—measles, diphtheria, tetanus, whooping cough, polio, and tuberculosis—could be substantially improved. A better measles vaccine would be particularly beneficial, as this disease is more severe in Africa than elsewhere in the world; it affects more people than do the other EPI diseases, and delivery problems are especially constraining. In addition, millions of Africans suffer from afflictions for which no vaccine exists, above all malaria, schistosomiasis, and onchocerciasis; development of vaccines for these conditions is of particular interest to Africa. Although much support now flows to tropical disease research—including Bank financing—more resources can quicken the pace of discovery.

Until vaccines are discovered, research on control of the major vector-borne diseases should receive more attention—malaria, schistosomiasis, onchocerciasis, and trypanosomiasis, in particular. Present technology for the control of these diseases is expensive and requires complicated large-scale administrative and managerial structures. Research on methods of treatment, including chemotherapy, should also have high priority.

Diarrheal diseases are the most common cause of death in infants and children and an important contributory factor to malnutrition. Trials in several developing countries, which have documented that oral rehydration with sugar and salt preparations is effective in markedly reducing death and disability, should be replicated widely in Africa.

Water and Sanitation

According to World Health Organization (WHO) estimates, half of infant deaths are related to contaminated water and poor sanitation. In addition, collection of water from distant places severely burdens African women. Past efforts to improve water supply and sanitation have proven vulnerable to technical, organizational, and social constraints, however. Pump maintenance and repair have become key problems, especially in rural areas; in many African countries over 60 percent of handpumps are inoperative within a few months after installation for want of maintenance and repair. In addition, clean water sources are often contaminated by animals at wellheads

7. OTHER PRODUCTIVE SECTORS

A turnaround in agriculture is the precondition of renewed growth for most of the economically lagging African countries. But vigorous growth will also require attention to productive sectors other than agriculture because they can contribute to more rapid growth in the 1980s and because of their long-term significance. Given the range and complexity of the questions involved, only some of the main issues are addressed in four major sectors: industry, nonfuel minerals, energy, and transport and communications.

Industry

Industrialization has a crucial role in long-term development: it is one of the best training grounds for skill development; it is an important source of structural change and diversification; and it can increase the flexibility of the economy and reduce dependence on external forces. Industrialization also provides employment, foreign exchange, and domestic savings. Although these developmental benefits justify incurring some additional cost to promote industry, they do not justify the promotion of industry at any cost. Manufacturing is only a small sector in Africa and can make only a modest, though growing, contribution to development during the next decade. Excessive investment in industry can starve other sectors of capital, foreign exchange, and high-level manpower, while expensive manufactured products can raise costs in other sectors and limit their growth.

Industrialization has failed to provide many of the benefits expected of it in Africa during the past decade. Respectable rates of growth of manufacturing production were achieved for several years after independence, but large savings of foreign exchange upon which much industrial investment was based have not materialized. Some of the specific shortcomings of the pattern of industrialization have been analyzed elsewhere in this Report: industry has tended to be a burden on agriculture rather than being supportive; it makes large claims on scarce foreign exchange; it has not generated domestic savings and government revenue as anticipated; and it has not provided as sound an industrial basis for future growth of the sector as would have been desirable because of high costs associated with stagnant productivity.

Chapter 4 examined the distorted incentive structure which has led to many of these shortcomings, particularly the trade and exchange-rate policies, which are systematically biased against exports and in favor of industries producing consumer goods with little local value added—packaging and assembly-type industries, for example—some of which actually lose foreign exchange rather than save it. Poor project selection has also led to investments with very low rates of return, particularly during the commodity boom of the late 1970s.

There are reasons for optimism about the future, however. Some countries have built up an industrial base, which will permit increased growth if an appropriate policy framework is established. Several efficient processing industries have been established

Box A: Industrial Growth in Malawi

Malawi is a good example of how a small African country with little apparent industrial potential can enjoy a high rate of manufacturing growth while following an agriculture-oriented development strategy. Malawi is one of the poorest countries in the world. It is landlocked, has no significant mineral resources, and has a very small domestic market (population 5.8 million). Its main natural resource is good land; but even good land has become scarce in relation to the dense and rapidly growing population.

The approach to industry has been far from laissez-faire—the Government has provided protection for infant industries and has actively promoted industry through parastatal investment—but strict limits have been set on industrial promotion. There is a moderate protective tariff, which ranges from 7.5 to 40 percent. Parastatals, which account for more than half of industrial output, have been profitable and have generally remained free from government interference. Most important of all, quantitative restrictions have not been used to restrict imports nor to protect industry, and the exchange rate has been kept at a level that not only encourages export growth but also maintains external balance.

These policies help explain why manufacturing has grown even faster than agriculture in Malawi. During 1968–77, total industrial value added in real terms grew at an annual average rate of 6.5 percent, while agriculture grew at 4.5 percent. Equally important, because of the kind of industry that has developed,* and because of a wage policy that has held down urban wages, manufacturing employment also grew at 6.5 percent per year during 1968–77. Few African countries have had a higher rate of growth of employment in manufacturing. Given the obstacles to industrial growth in Malawi, it is doubtful whether industrial output would have grown any faster with higher protection, while agricultural output, manufacturing employment, and total GDP would almost certainly have grown more slowly.

*Food processing, textiles and footwear, and tobacco and tea processing account for about two thirds of manufacturing output. Most other industries (metal manufacturing, plastics, paint, and chemicals) are also relatively labor-intensive.

(in Cameroon and Zambia, for example) and some have expanded manufactured exports to Europe (such as Mauritius). There are also some promising experiments with regional industrial cooperation in West Africa. Finally, few African countries have yet started the expensive stage of import substitution of intermediate products, and many small countries have not pushed industry to the detriment of agricultural development (see Box A). The central issue is how to build on these promising aspects to promote long-term industrial development.

Constraints

Five main considerations bear on industrial strategy: market size, population density, wages and productivity, management costs, and capital and infrastructure costs.

Market Size. The small population and low per capita incomes of most African countries severely constrain their choice of industries because most industries require markets larger than those existing in most African countries. Only eight African countries have populations greater than 10 million. Only one African country (Nigeria, with a population of over 80 million) has a GDP greater than that of Hong Kong (population 5.0 million).[1] The whole of Sub-Saharan Africa, including Nigeria, has a GDP which is only a third greater than that of the Netherlands, with a population of 14 million.

Population Density. Many African countries are very sparsely populated. This raises the cost of infrastructural development and limits the market for some industries—a cement plant, for example, usually only serves a 200- to 300-mile radius. High transport costs give natural protection to some industries but limit the achievement of economies of scale. At the same time, the difficulty of policing extensive frontiers leads to smuggling, which can undermine attempts to establish high-cost import-substitution industries.

Wages and Productivity. African wages are high compared with those of Asia. An ILO survey in 1979 showed that the median wage for textile workers in 10 African countries was

1. Nigeria's GDP is four times that of Hong Kong.

50 percent higher than in Pakistan and more than twice as high as in Bangladesh.[2] Higher African wages reflect both government wage policy, which in many countries sets industrial wages above the level they would otherwise be, and better opportunities for agricultural employment. African labor productivity also tends to compare unfavorably with many other parts of the world. A comparison of six African and four South American textile mills financed by the IFC showed that the average number of spinners per 1,000 spindle shifts and the average number of weavers per equivalent loom shift was more than twice as high in Africa. This lower productivity of labor is primarily a reflection of Africa's early stage of industrial development and should improve; meanwhile, it continues to slow development.

Management Costs. African industry relies much more heavily than other parts of the developing world on expatriate management and technicians. In manufacturing firms in Ivory Coast, for example, expatriate salaries account for one quarter of value added. European managers and technicians usually cost two or three times as much in Africa as in Europe. The survey of IFC-supported textile mills referred to above noted that South American mills used no expatriates, whereas expatriate wages added 25 to 50 percent to the African payroll.

Capital and Infrastructure Costs. Industrial projects in Africa typically require investment costs that are 25 percent higher than in developed countries, and for some industries the margin may be as high as 60 percent. This extra expense is associated with transport costs and construction delays. Although there is no evidence that the extra cost of investment is systematically higher in Africa than in other developing areas, supporting infrastructure, such as roads, ports, utilities, and financial institutions, is less available than in most parts of Asia and Latin America.

2. *ILO Bulletin of Labour Statistics* (Geneva: ILO, 2nd Quarter, 1980).

Strategy Options

These factors obviously have a profound impact on the industrial strategies open to many African countries. Not all countries are equally affected, of course. Nigeria, by virtue of its market size and density of population, has broader options than most other Sub-Saharan nations. The potential varies considerably over the rest of the continent, however, in countries as disparate as Niger and Zimbabwe. In spite of this diversity, it is possible to make some generalizations about desirable forms of industrial development.

Import Substitution. Import substitution can be a sound policy, and most industrialization has started on that basis. But in many African countries it has been badly implemented. There also is always the risk that the protection afforded in the early stages may be maintained for excessive periods. Most African countries will still find that the majority of investment opportunities with an acceptable rate of return will be in production for the local market. The challenge is to establish an incentive and institutional structure that directs investment toward industries that are productive and can be competitive in the future. This means that attention must be paid to costs and to growth in productivity from the beginning. Because of the importance of economies of scale, it also means that many import-substitution industries should be set up with a view to becoming exporters.

For countries that have nearly completed the first stages of import substitution, such as Kenya, Ivory Coast, and Tanzania, few new import substitution opportunities exist based on the internal market. The next step in import substitution usually involves going into intermediate goods production in which economies of scale are more important. But such import substitution in a small domestic market cannot sustain industrial growth. This is because even if high-cost intermediate industries are started, they will curtail the growth of other industries.

Regional Integration. Economic integration,

which allows production for a larger regional market, is one way in which small African countries can expand the scope for efficient industrialization. But there are four obstacles to such integration in the near future. First, transport and other links among African countries are poorly developed. Second, the distribution of industries is likely to be unequal in a union between countries at different levels of development or with different locational advantages. Unless counteracting measures are taken, industry will tend to concentrate in the more industrially advanced country, at coastal locations, and in the larger country. Third, inefficient industries may be unable to withstand competition from partner states following integration. Although a pruning of the industrial deadwood is an important benefit of integration, it naturally provokes resistance from the industry or country affected. Finally, political disputes, actual or potential, hamper prospects for integration, since they increase the risk of investing in an industry that depends on an integrated market.

Two conclusions can be drawn. First, it will probably be easier to approach integration through the least formal channel possible, such as a regional project, rather than through a formal customs union. This is the thrust of most of the integration efforts in West Africa at present. Second, regional integration is far more likely to succeed if costs of production are fairly close to world levels. Governments resent the foreign exchange and tariff revenue forgone when purchasing from a high-cost plant in a partner state. Full economic integration in the future will be much more difficult if governments establish high-cost industries that will be unprofitable or perhaps not even survive in an integrated market. Consequently, only those national strategies of development which emphasize efficient production for the domestic or world markets are likely to be compatible with the process of economic integration.

Processing Raw Materials for Export. African exports are dominated by primary products (see Tables SA.8 and SA.11), and although processed products were the fastest-growing category of African exports between 1963 and 1975, two thirds of the increase in value of processed products came from refined copper. There is much scope for increasing local processing. But the determinants of the location of processing (capital costs, structure of the market, tariffs, infrastructure availability) are so diverse that it hardly makes sense to speak of processing as a general industrial strategy as opposed to prospects for particular processing activities. Careful project analysis is necessary because of variations in local conditions, such as the quality of raw materials and other input costs.

Manufacturing for Export. Neither the past record nor newly uncovered special advantages suggests that concentration on exports of labor-intensive manufactures is a promising strategy for most of Africa. Africa's share of world manufactured exports is low (0.2 percent in 1977), and its growth rate of manufactured exports is the lowest of any developing region. Many of Africa's manufactured exports under the conventional definitions are in fact slightly processed resources: 30 percent are diamonds and precious stones. Labor costs and productivity plus high management costs place Africa at a severe disadvantage compared with Asia.

Nonetheless, important potential for manufactured exports does exist. African manufactured exports (excluding diamonds and special transactions) to industrialized countries grew at an average annual rate of 8.5 percent between 1970 and 1979. This was from a very small base and was partially offset by a decline in exports to other developing countries, but it is an encouraging sign of the potential for growth. In any case, past performance is no guide to future prospects because of the policy bias against exports and the low productivity of early-stage industrialization. Overvalued exchange rates and protective wage policy have contributed to a high wage level. Replacement of high-cost expatriate managers and technicians with personnel from other developing countries or local managers could lower these manpower costs.

Improved incentives at the macro and plant levels should stimulate growth of productivity. Moreover, preferential access to the European market offers an opportunity to expand some labor-intensive exports; Ivory Coast and Mauritius already export some clothing to the EEC. Finally, excess capacity in many countries could be turned to advantage if incentives were restructured to encourage exports.

This does not imply that any African country is yet in a position to follow the path of Korea or Taiwan. But there is no reason why some of the relatively more advanced countries, such as Ivory Coast, Kenya, Mauritius, and Zimbabwe, should not be able to increase the volume of manufactured exports by at least 10 percent per year. This might come more from resource-based than labor-intensive industries. It might also come from new import-substitution industries built with an eye to the export market as well. Breaking into export markets is not easy and considerable marketing and other support will be needed, but for many African countries export production will have to play a more important role in overall economic growth.

Increasing Industry's Contribution

No single industrial strategy will fit the diverse conditions, prospects, and goals of all African countries. There are, however, a few generally applicable principles. To begin with, a conscious effort should be made to seek out profitable industrial export opportunities. Even though the bulk of investment opportunities will be in production for the domestic market, sooner or later most countries will also have to increase manufactured exports to maintain industrial growth, expand employment opportunities, and diversify exports.

Moreover, the pace of industrialization should not be forced. In many cases the choice is not between having or not having an industry, but between having a small-scale, high-cost industry now or an optimum-scale, efficient industry a few years from now. Proper sequencing is vital. Rapid growth of metal engineering, for example, depends on competitive supplies, and this growth may, in time, provide demand for basic metal plants. But setting up a basic metal industry will retard the expansion of metal-using industries, for it is these which are the really important agents of development.

An agriculture-oriented development strategy with industry in a supporting role does not mean that Africa would forgo industrial development. Long-term industrial growth might, in fact, be higher with this approach. Although agriculture would be the driving force, industry would still grow faster than agriculture. In fact, higher agricultural incomes will stimulate demand for products from a number of industries—textiles, metal manufactures, building materials, and light consumer goods—that could be produced relatively efficiently in most African economies. Efficient industries generate their own momentum. And then export possibilities are opened up and the local market for intermediate goods widens.

In most countries, metal engineering and industries producing local materials for construction have substantial growth opportunities. Export processing, regional projects, import substitution, or any other kind of investment would be consistent so long as it had prospects of becoming efficient and did not burden agriculture. The historical experience of Denmark, which has essentially followed an agriculture-oriented development strategy, demonstrates that giving priority to agriculture does not impede industrial development. And the experience in Malawi shows that the same is true for small African countries (see Box A).

Promotion of Indigenous Entrepreneurship

Promotion of indigenous industry is a basic objective. It is important, therefore, to review how development of African entrepreneurship would be affected by policy reform or reorientation of industrial strategy.

Many African countries emphasize direct controls to promote large-scale import substitution, a policy which discriminates heavily against local small enterprises. Small indigenous firms typically lack the administrative

resources to deal with import and industrial licensing regulations or to obtain special concessions, such as duty drawbacks. The policy of keeping interest rates on loans and deposits artificially low also discriminates against local small business. Banks respond to low interest rates by rationing credit and favoring traditional large customers with low risk of default and low administrative costs. Any policy reform in this area would clearly benefit local small businesses.

An agriculture-oriented development strategy would also benefit many of the subsectors with greatest potential for small-scale development: footwear, clothing, furniture, food processing, manufacture of small implements, and production of local construction materials. The metal engineering sector is another in which opportunities for small-scale business are exceptionally promising. Many of these industries can also be decentralized in small towns or rural areas, thus providing an alternative source of income for the rural population. World Bank research in Kenya suggests that off-farm income, in turn, can be a major source of finance for agricultural innovation. In this way, agricultural and industrial expansion interact to boost the growth of income and output in both sectors.

Changes in Policies and Institutions

The first and major change needed to improve industrial performance and lay a sound er base for long-term development is a reform of the incentive structure for industry. The reforms have been spelled out in Chapter 4 and can be briefly summarized here. The essential requirements are to increase the incentives for industrial exports, to reduce protection for import substitution, to reduce the extreme variation in protection among industries, and to phase out direct controls. The method and pace of reform will be different for each country, but the direction of change needed is clear enough.

Second, procedures for selecting projects should be strengthened. The most important measure that can be taken here, too, is a change in the incentive system. The amount and duration of incentives available for new investment in each sector should be spelled out. Some promotional devices—lengthy exclusive production rights, bans on competing imports, and tariff waivers on inputs—should be ruled out. Discriminatory concessions among firms should be eliminated. Above all, the investment decision must be separated from the decisions concerning appropriate investment incentives. Guidelines for infant industry protection and tax incentives should be laid down in advance and not tailor-made for each new investment. In much of Africa at present, investors actively seek government participation in joint ventures because they realize that this is the most certain way to obtain protection and concessions and thus ensure financial success of their project, regardless of its economic desirability.

A third area of reform should be in policies concerning public industrial enterprises. The problems that parastatals typically encounter do not stem from their public ownership, but rather come from their not being treated as commercial enterprises. They should not be burdened by requirements to hire more people than they need, to provide services without payment, or to hold down prices of the goods and services they sell. Governments must still pursue social objectives, of course, but to the extent possible parastatals should be maintained as commercial enterprises and compensated for any social services they are required to perform. At the same time, parastatals should be subject to the same tax requirements as other private industrial enterprises. Parastatals should pay taxes on profits and on imported inputs, and they should receive only reasonable protection from outside competition.

Fourth, and finally, governments can use tax incentives more effectively to promote industrial investment. Tax credits can be limited to an amount that is some share of the investment, say 100 percent, although, in general, they should not be extended solely for equipment and fixed capital investment. Many countries have sought to avoid such fiscal waste and economic distortions by requiring substantial local value added before granting

tax benefits. Mexico, for example, has required that imported parts of assembly-type industries be less than 40 percent of direct costs. Some countries—Pakistan and the Philippines, for example—have simply excluded packaging and assembly-type operations from tax benefits.

The effectiveness of fiscal incentives to foreign investors should not be overestimated. Investors are attracted more by political stability, a low probability of confiscation, a stable, predictable, and reasonable tax regimen, and the ability to repatriate profits. The evidence is overwhelming that where the investment climate is favorable, including measures to avoid double taxation with the home country, most foreign investment will occur without a need for tax concessions.[3]

Donor Support

Donors should give priority to three areas. First, they should support reform of industrial incentives and other institutions. This will require assistance to existing industries, including technical assistance to improve productivity and loans to finance further investments or increased working capital requirements made necessary by price or exchange-rate changes. An obvious corollary of supporting policy change is that donors should help finance new investments with long-term development potential.

Second, donors should actively seek out regional industrial projects. Greater effort by outside agencies to find viable regional projects could make an important contribution to regional integration. More technical assistance, along the lines being provided by the United Nations Industrial Development Organization (UNIDO) to the Economic Community of West African States (ECOWAS), would also help overcome obstacles stemming from inexperience and shortage of high-level manpower.

A third objective of donor support should be assistance for rehabilitation and consolidation of the industrial sector. This is closely related to the first objective of helping industry adjust to new incentives, but it is broader. Much of African industry is plagued by low productivity, underutilized capacity, and poor management. Some of these problems stem from overall incentives, but others are specific to the subsector or individual firm. The problems are sufficiently widespread to suggest concentration on improving the performance of existing industry rather than on major programs of industrial expansion. New investments would still be made in industries with promising rates of return, but emphasis on consolidation implies continued support for institutions, such as development finance corporations and manpower and infrastructural development.

Nonfuel Minerals

The African continent has always been regarded as one of the great storehouses of mineral wealth, and some African countries have extensively exploited these riches. Africa is the prime supplier of Europe's minerals and contributes substantially to nonfuel mineral exports worldwide. The potential of exploration, however, has only begun to be realized in most countries of the region. Exploitation of existing mineral capacity is threatened by civil strife in some countries and exploration is proceeding very slowly. Moreover, the pace of mineral investment worldwide has slowed in the recent past; for this and other reasons, market prospects for many minerals may brighten considerably by the mid-1980s. Minerals production, therefore, can become a great source of growth in

3. A number of African nations have already signed multilateral treaties that standardize and coordinate incentives so as to avoid a revenue-losing competition in offering incentives, and to promote integrated areawide development. The Union Douanière et Economique de l'Afrique Centrale (UDEAC) treaty, for example, sets forth a standard incentives law for all member countries; multinational approval is needed for granting some of the incentives. The Economic Community of West African States (ECOWAS) treaty, in contrast, merely calls for coordination among member countries but does not set forth a model. These attempts at coordination prevent harmful competition in incentive granting and should be pursued.

Africa in the decade ahead. To make this happen, it is essential to rehabilitate existing mineral facilities, attract capital for new ventures, and give increased attention to exploration.

Rehabilitation of Existing Facilities

Top priority for many African producers is the rehabilitation of existing mines and processing facilities. During the past 10 to 20 years, investments in existing facilities in Africa have declined. Reasons for the decline are varied. They include reluctance of countries with balance-of-payments difficulties to reinvest in nationalized mining companies, declining profit margins, civil disturbances, and disagreements between foreign partners and governments on investment strategies. As a result, there is an investment backlog for many African mining enterprises. Rehabilitation is urgently needed in Ghana, Liberia, Zaïre, and Zambia, and, to a lesser degree, in Uganda. Under the Lomé II agreement a new mineral rehabilitation facility (SYSMIN) has been created that will provide up to 280 million European Units of Account (EUA)—or $365 million—over five years to African, Caribbean, and Pacific countries. Minerals covered by the scheme include copper, cobalt, phosphates, manganese, tin, iron ore, and bauxite and alumina. Although SYSMIN will play an important role in donor support for mining rehabilitation investment, limitations of funds and of coverage will certainly require lending for rehabilitation from other sources as well.

New Investment

There are large, well-known mineral deposits and energy sources in Africa that await commercial development. These include the substantial iron ore deposits in West Africa and the enormous hydropower potential for bauxite-alumina-aluminum development in Guinea and Zaïre. Unfortunately, economic and locational factors, as well as geological conditions, affect mineral development prospects. Since infrastructure investments and skilled manpower costs are important factors in determining cost competitiveness of potential deposits, the economic value of deposits depends heavily on their location, their accessibility to power and transport networks, and the presence of existing mining activities that have built-in managerial and technical know-how. In addition, the risk of political or economic instability affects the willingness of private investors to develop new mineral deposits. For all of these reasons, most African countries are at a disadvantage compared to other mineral-rich countries such as Australia or Brazil.

In these circumstances, the World Bank and other donors have a valuable catalytic role to play. Even their marginal participation can serve as a guarantee of fair conditions, providing governments with an independent, expert assessment of investment proposals, and assuring mining companies of an atmosphere in which to negotiate reasonable concession agreements. In exceptional cases, the international financial institutions could also consider financing some of the equity contribution, if this is necessary, to attract commercial investment. In fact, this concept of a catalytic role has been accepted; a minerals lending program of $700–800 million was approved by the Board of the World Bank for the fiscal years 1977 to 1981. Because of the depressed world mineral market and the shortage of commercially viable projects, less than half of this amount has been committed. However, with improved market prospects in the 1980s and with new opportunities arising from more exploration, lending to Africa and other developing countries should increase.

The role of external assistance in financing new mineral investments will necessarily be modest. In the first place, the capital requirements are enormous. Annual mining investment requirements in developing countries in six main minerals are estimated at an average of $4 billion per annum (in 1977 prices) in the 1980s, of which at least $3 billion will have to be sought abroad.[4] Africa's share of the

4. Marian Radetzki and Stephen Zorn, *Financing Mining Projects in Developing Countries: A United Nations Study* (London: Mining Journal Books Limited, 1979), p. 31. The six minerals are iron, copper, aluminum, zinc, nickel, and lead.

total might reach about 25 percent, but the proportion of external financing would be relatively greater. This is a very large amount in relation to flows of official assistance, and any attempt to finance the bulk of mining investment through foreign aid would require substantial cuts in the aid being made available for other purposes.

Such a tradeoff is not necessary. There is no evidence of a shortage of funds for commercially viable projects. Mining companies have ample proven reserves to meet near-term requirements, and the main constraint on new mining development recently has not been lack of finance but lack of viable projects with adequate rates of return. Few new mining projects provide more than a 12 to 14 percent rate of return. Because of high capital costs, shortage of skills, and underdeveloped infrastructure, deposits that are equivalent from a geological point of view tend to provide lower returns in developing than in developed countries. When the mineral market revives, as it is projected to do during the 1980s, financing from international mining companies and commercial sources is expected to be forthcoming.

What concerns the governments of many developing countries, of course, are the terms on which private capital will become available. After a period of hesitancy, host governments in many countries have come to realize that mining companies are valuable sources of technical and marketing expertise, that they bear very high risks, and that it is necessary to assure them an adequate rate of return and early repayment of foreign investment. The companies, for their part, have accepted that host countries have the primary right to their own natural resources and, in particular, to any exceptional profits after the foreign investment has been repaid. Thus, the basis for more stable and equitable investment agreements exists.

Exploration

In one final area, donors can make an even greater contribution to African mining development. In recent years, exploration expenditure for new minerals has been concentrated in a few developed or newly industrialized countries. This focus reflects the known distribution of mineral wealth, the availability of skilled manpower and low-cost infrastructure, the mining companies' perceptions of political risks, and the instability of concession agreements as well as slack demand and low prices for minerals. Exploration, basic mapping, and survey work all deserve higher priority, both from African governments and donor agencies. Based on UN and World Bank studies, an estimated additional $75–$100 million per year is needed in Africa to help finance minerals exploration.

Energy

The energy problem has three elements: the fuelwood crisis, expanding new commercial energy sources, and improving the efficiency of energy use.

The Fuelwood Crisis

During the early stages of development, increases in energy use generally involve movement away from reliance on noncommercial fuels (wood, dung, and agricultural residues) to use of commercial fuels, particularly those based on petroleum. Africa is still in an early stage; its per capita commercial energy consumption is at present only 2 percent of that of the developed world.

As a result of population growth, the need for agricultural land and fuelwood is increasing. This has caused serious shortages of fuelwood, especially in densely populated settlements. As a result, people in rural areas are spending more time on fuel collection, at the cost of productive activities. In parts of Tanzania, for example, provision of the annual fuelwood requirements for a household of five persons now requires 250 to 300 man-days of work. Fuelwood shortages in the vicinity of urban townships such as Niamey, the capital of Niger, have led to the gradual elimination of all savanna woodlands within

a 50-kilometer radius from the capital. A similar phenomenon is beginning to develop around Lusaka, Zambia, and a number of other major African cities. Indirectly, overcutting the savanna woodlands for use as fuelwood is a contributory factor to the "desertification" taking place in parts of the Sahel, since it leads to wind erosion of topsoil. It has been estimated, for example, that at the present rate of cutting, an area of more than 300,000 hectares of savanna woodland around Niamey will have been destroyed by the turn of the century, an area that otherwise would have been capable of sustaining something in the order of 3,000 farming families together with their livestock.

The growing scarcity of fuelwood is *the* energy problem in much of Africa. Except in a few countries—those located in zones of humid forest, such as Zaïre—potential fuelwood crises can be expected in the coming decades. According to estimates made by the World Bank, fuelwood consumption in the region is projected to increase to about 280 million cubic meters in the year 2000—an average annual increase of over 3 percent. Taking account of substitution possibilities of various commercial and other forms of noncommercial energy for fuelwood, residual fuelwood demand in the year 2000 would call for 19 million hectares of fuelwood plantations—100 times more than now exists in the region (0.2 million hectares).

Because this Report is focused on the 1980s, and fuelwood supply is a long-term concern, further discussion is deferred to Chapter 8.

Increasing Commercial Energy Supplies

In most of Africa, commercial energy is consumed by a very small fraction of the population. Per capita commercial energy consumption in the region is thus very low, about one quarter that of the developing world as a whole. Petroleum meets about 70 percent of commercial energy needs in the oil-importing countries of the region; only Malawi, Mozambique, Zambia, and Zimbabwe derive less than 60 percent of their commercial energy from this source (see Table SA.6 for data on oil-import dependency).[5] In the low-income countries, petroleum provides 80 to 90 percent of total commercial energy consumption; in the middle-income countries, the proportion is 44 percent.

Policies that encourage production of energy supplies are critical for economic growth and for reducing the dependence of African countries on oil imports. Oil-importing African countries must take further steps to identify and assess their domestic oil, gas, coal, and hydropower resources through geological surveys. Noncommercial and smaller-scale renewable energy sources, such as solar energy, also merit attention. Prospects for the various fuels are discussed below.

Oil and Gas. Oil has thus far been found in only a few African countries. At the beginning of 1981, the estimated proven oil reserves of the region were 19 billion barrels (see Table 7.1). But these proven reserves are not regarded as a true indicator of the region's oil potential, which has yet to be determined.

For most oil-importing countries, the petroleum prospects are judged fair to good by many geologists, though the uncertainties of these judgements are indicated by the fact that Ivory Coast, now so promising, was believed to have modest potential only a few years ago. As for gas, a recent study identified 16 countries in Sub-Saharan Africa with some potential for natural gas production.[6] Eight of these countries have proven gas reserves[7]; about 87 percent of these reserves are located in Nigeria, and most are not associated with crude oil.

5. In Zimbabwe and Zambia, the share of oil in 1978 was, respectively, 22 percent and 40 percent. The main source of commercial energy in these countries is hydropower, most of which is generated from the Zambezi River.

6. These countries include Angola, Benin, Cameroon, Chad, Congo, Gabon, Ghana, Ivory Coast, Madagascar, Niger, Nigeria, Rwanda, Senegal, Sudan, Tanzania, and Zaïre. See Bureau d'Etudes Industrielles et de Coopération de l'Institut du Pétrole (BEICIP), "Survey on the Utilization of Gas in the Developing Countries" (Paris: March 1980).

7. Angola, Cameroon, Congo, Gabon, Ghana, Ivory Coast, Nigeria, and Zaïre.

Table 7.1. Proven Reserves of Oil and Oil Production

Country	Proven reserves (billions of barrels)[a]	Estimated oil production (thousands of barrels a day)			
		1977	1978	1979	1980
Angola	1,200	171	147	144	150
Cameroon	200	—	12	34	57
Congo Republic	660	34	47	53	56
Gabon	450	223	210	196	145
Ghana	6	—	—	—	2
Ivory Coast	50	—	—	—	3
Nigeria	16,700	2,079	1,905	2,301	2,100
Zaïre	130	23	18	21	22
Total	19,396	2,530	2,339	2,749	2,535

a. As of January 1, 1981.
Sources: Oil and Gas Journal and other petroleum industry sources.

Exploration efforts have already begun in a number of countries (Gambia, Ghana, Kenya, Mali, Mauritania, and Sudan, for example). But unless exploration activities can spread soon to many other countries, there is little chance of substantial, broadly based increases in domestic production during the coming decade, given the time needed to mount an exploratory campaign and develop a discovery to the point of commercial production. To attract risk capital from private sources, some African governments may need to revise legislative and contractual provisions that deter foreign participation.

Hydropower. Hydropower accounts for nearly 70 percent of installed electricity-generating capacity in the region, and 30 percent of total primary energy consumption. Hydropower resources in Africa are believed to be vast: present potential is estimated at 223 gigawatts. Only 2 percent of this potential so far has been exploited.

The large increases in oil prices have given new urgency to development of hydro resources on the African continent. Present oil prices justify a capacity cost approximating 1.5 to 3.5 times that of recently built hydro plants in developing countries. Moreover, not only is there a substantial opportunity for exploiting hydroelectric potential on a regional basis in Africa, but also the potential for small-scale hydroelectric power has only been touched and could benefit from large amounts of engineering and economic analysis from donors.

Coal. Although geological coal resources are considerable—close to 135 billion tons—economically and technically recoverable resources are only a fraction of this amount. About 94 percent of this geological potential is located in Botswana and Zimbabwe. A large number of other countries have small coal deposits, primarily of steaming coal quality. Production in Sub-Saharan countries reached a total of about 7 million tons in 1979. Coal consumption in the region has remained very low—18 percent of commercial energy consumption in 1978—due largely to: the immense hydro potential of many African countries; low oil prices in the past; relatively small domestic demand; low coal quality and high coal development costs arising from difficult mining conditions; high transport costs; and lack of transport facilities to export coal to consuming centers.

Nevertheless, high oil prices have stimulated new interests in the exploration and development of coal for domestic use (in coal-fired power stations and in industry) and for export, primarily from Zimbabwe, Botswana, Swaziland, and Mozambique. Private companies, such as Anglo-American, Shell Coal, Union Carbide, and Rio Tinto, have negotiated exploration concessions in these countries. The success of coal development for export will depend on the results of the pre-

sent exploration campaigns, which will require at least two to three years, followed by four to six years of development work, and on the development of an extensive coal-transport network through Namibia, South Africa, and Mozambique. It will also depend on the willingness of potential consumers, primarily those located in Europe, to enter into long-term supply contracts with Southern African producers.

Renewable Energy. For a small number of countries with surplus production of molasses or sugar, alcohol has become a possible substitute for or a blend with gasoline. Among these countries are Kenya, Malawi, Mauritius, Sudan, Swaziland, Tanzania, Zambia, and Zimbabwe. The economic substitution of alcohol for gasoline will depend on a number of factors, including the economic price of gasoline, the cost of the agricultural feedstock, and competing uses of agricultural land. In most of the Sub-Saharan African countries with alcohol production potential, these factors need to be studied further.

Technologies that make direct use of the elements—sun, wind, and water—may become important sources of energy, particularly in rural areas, but in most cases large-scale, cost-effective technologies are some distance away.

Energy Planning. Most countries in Sub-Saharan Africa demonstrate a lack of planning for the efficient use of energy, and responsibility for policy and administration of energy resources is widely fragmented. Because energy concerns cut across usual administrative lines, control over energy programs often stimulates bureaucratic struggles. Most countries could benefit from a central energy planning unit or department to undertake the task of preparing a coordinated overall energy policy.

Increasing the Efficiency of Energy Use

Even though per capita consumption of energy is small in most African countries, demand management policies can shift consumption from lower to higher value uses, reduce the energy cost of output, and promote a switch from more to less costly sources of supply. Measures aimed at reducing oil dependence need to concentrate on improvements in the energy efficiency of the industry and transport sectors, and on determining suitable pricing policies.

The industrialization process usually entails a rapid increase in the use of petroleum. Industries such as oil refining, steel making, paper manufacture, and cement are all energy intensive and are logical targets for programs in energy conservation. Improved management and training will make significant energy savings possible within two to three years.

Transport is the largest consumer of petroleum in many developing countries. It is this sector for which alternatives to petroleum are the most difficult to identify. Many countries need sectoral studies to evaluate the energy intensity as well as the economies of current and alternative transport patterns and modes. Energy efficiency can be achieved through changing the mix of transport methods, shifting traffic from less to more efficient carriers (such as public passenger transport), increasing load factors, and adopting traffic control schemes. In all sectors, but especially in transport, changes in energy consumption will also require substantial public investment.

An essential tool for increasing energy efficiency is a pricing policy which ensures that, as far as possible, the price of energy in various uses reflects its real economic cost. In many cases, the achievement of economic pricing of energy products requires either the removal of inappropriate government-imposed pricing restrictions or adjustments in government policies. Relative energy prices in many African countries remain distorted. In particular, recent price increases have mostly been borne by gasoline, while relative prices of kerosene and diesel oil in many cases have declined.[8]

8. In most West African oil-importing countries, however, virtually *all* major products are at or above international ex-refinery prices.

Domestic energy prices in some countries need to be raised to bring them up to world prices, although many oil-importing African countries have raised prices substantially. Many countries could also significantly increase tax revenues from motor-fuel taxes.[9] The difficulty of increasing domestic prices to international levels in countries where there is substantial discrepancy between the two should not be underestimated: in some countries, it would take a doubling of domestic prices in real terms for four consecutive years or more to eliminate the subsidies implicit in the existing price structure.

There is also scope for fuelwood conservation measures. The demand for wood can be reduced by improving the efficiency with which it is used. Many traditional stoves waste 90 percent of their heat, and energy requirements for open fires are some five times those of kerosene stoves. Small improvements in chimney and stove design could double the useful energy obtained from fuelwood. Charcoal—which is now produced by felling live trees and burning them in sand-covered pits—could be made substantially more efficient by use of kilns. Conservation is probably the best medium-term path to reduction of total energy consumption and warrants closer attention by both local authorities and aid donors.

Regional Approaches

There are a number of areas where regional cooperation presents special advantages: in training for energy policymaking, in exploration, and in resource development. Donors should help African governments exploit these advantages of regional cooperation, which not only present viable options for energy development and independence, but which are in line with longer-term African objectives, as specified in the *Lagos Plan of Action*.

First, almost all countries in Africa lack the specialized manpower needed to undertake energy planning or to implement an energy policy. Economies of scale are significant in this kind of training activity. A study of the cost and feasibility of a regional training center in energy planning and policy analysis, or the development of such training in existing regional facilities would be useful.

Second, the development of some of Africa's abundant energy resources—coal, petroleum, and natural gas—may require regional cooperation, for example, in the import and export of electricity, as well as in the siting of energy-extensive industrial projects. The Bank and other donor agencies should help promote this approach, initially by financing feasibility studies.

Third, the regional approach could reduce costs through better use of oil refinery capacity. There are a number of small refineries in the region and most of them operate below capacity.[10] A number of new refinery projects are also being undertaken. Overall, the region is relying very heavily on small, inefficient, and expensive refining of crude oil to meet partial product demand. A comprehensive regional study might lead to acceptable proposals for a more economic approach.

Donor Support

The important role that external assistance can play in helping developing countries increase domestic energy production and adjust to higher energy prices has been described in other World Bank reports.[11]

9. As discussed in Chapter 4, part of the erosion in revenue from motor-fuel taxes is explained by the fact that most African countries use specific taxes on motor fuel whose real value falls as the general price level rises. Governments should move to ad valorem taxes at a fixed rate.

10. In 1978, the total installed capacity utilization of the region was 65 percent. In Zaïre, the 17,000 barrels per day (b/d) refinery operated at only 24 percent of its rated capacity. A small refinery in Mozambique (16,000 b/d) was operating at 52 percent of capacity. Some larger refineries operating below capacity also exist in the region; in Kenya, the 95,000 b/d refinery was operating at only 55 percent of capacity.

11. See *Energy in Developing Countries* (Washington, D.C.: World Bank, 1980) and Chapter 4 of the *World Development Report 1981*. The World Bank's involvement in hydrocarbon exploration in Africa is larger than in any other region. During FY1980–81, seven projects totalling $69 million were financed through IDA; four of them included energy planning assistance. For FY1982, 12 lending operations totalling $230 million are in preparation, 11 of which are for exploration.

Box B: Public Aid as a Catalyst for Private Capital: Petroleum in Mali

Recent experience in Mali illustrates how a small amount of public development assistance can stimulate private capital inflows from petroleum exploration.

In 1979, the World Bank's International Development Association (IDA) granted Mali a $1,000,000 advance under the Project Preparation Facility to prepare a petroleum exploration promotion project. The preparation focused on (a) a program of technical assistance to the Government to modernize existing petroleum legislation and reinforce Government technical and administrative capabilities in the sector; and (b) geophysical prospecting and exploratory drilling in the Taoudeni Basin, which had been subject to some studies, as well as limited exploration by the French company, Société Générale Elf-Aquitaine. The advance financed the reevaluation and updating of existing geological surveys in the light of more recent information and improved techniques. These were complementary to the work being done by Elf-Aquitaine and, together with it, provided a better assessment of the resources potential of the area. The advance allowed definition of a strategy for attracting foreign companies on the basis of adequate data, improving Mali's negotiating position, and at the same time making the country more attractive to foreign oil companies.

For the technical assistance component of the preparation, the Government hired a French consulting firm, Bureau d'Etudes Industrielles et de Coopération de l'Institut du Pétrole (BEICIP), which submitted its recommendations for hydrocarbon exploration in June 1980. Specific exploration targets were identified in the Southeast and the Northeast. In order to obtain from oil companies commitment to an intensive and rapid program of work, BEICIP recommended special incentives, such as accelerated depreciation and favorable financing of pipelines.

The Mali Government endorsed the approach proposed by BEICIP and undertook a promotion campaign aimed at attracting companies to explore the Taoudeni Basin. The technical report prepared by BEICIP on the Basin was advertised to industry during the summer of 1980. It elicited a good response: nine companies bought the report within a few months. In December 1980, the Government, with the assistance of BEICIP, began negotiations with Esso for an exploration agreement on the northern part of the Basin. A contract was signed in January 1981 providing for a seismic survey and the drilling of a well at a total cost of over $20 million. At the same time, Elf-Aquitaine decided to drill a well. Conclusion of the Esso contract provided an opportunity for cross-participation between the two companies. Agreement was reached in February 198 that Elf-Aquitaine and Esso would finance jointly 100 percent of the costs of a well at Yarba, which will amount to some $20 million.

- Foreign oil companies are sometimes reluctant to do business in developing regions, including Africa, fearing changes in the rules once significant discoveries are made. Participation by the World Bank can reduce this fear.
- Multilateral lending institutions are in a unique position to help in accelerating energy development. They can assist African countries to evaluate geological risks and develop exploration strategies, help oil companies and host governments to reach agreements on joint exploration and exploitation, and assure both parties that political risks can be minimized.
- The infrastructure financed by multilateral institutions can also encourage private companies to expand exploratory work. Multilateral lending institutions can have an important leveraging effect, and their contribution can be boosted by attracting additional private capital into the exploration phase (see Box B).

Few African countries can achieve the required increases in energy investment without affecting growth in the rest of their economies.[12] If investments are to be made without concomitant internal dislocations, substantial capital inflows and technical assistance will be required, even with increases in domestic savings. There are four priority areas where development assistance will be needed in the 1980s:

- *Oil and gas exploration.* The oil and gas potential of African countries is virtually unknown, despite exploration efforts begun in some countries. Appreciable amounts of oil and gas will undoubtedly be found, and, if the experience in offshore drilling in West Africa is any indication, more will be found than was earlier expected.

12. The *World Development Report 1981* estimates that, as a proportion of total developing countries' investment, energy capital requirements in the 1980s may rise from 5 percent in the past five years to 10 percent. In the African case, the required investment would absorb much greater shares of locally available investible resources.

- *Evaluation of renewable energy resources.* Such a review can help to identify some of the most promising options, in particular, reassessment of hydroelectric possibilities in the light of changing relative costs.
- *Improvement of rural energy supplies.* International technical assistance in forestry has received little attention, even though the application of modern field management methods could increase the contribution of forests to development and help discourage deforestation. Moreover, doubling or tripling of the current level of fuelwood planting is attainable in some African countries over the next five years.
- *Energy planning.* "Energy assessments," such as those undertaken by the Bank in Kenya and Mauritius, identify key policy issues, suggest responses, and provide a basis for future energy planning.

Transport and Communications

Transport has already been referred to in several different contexts: the disadvantage of long routes and light traffic, and the role of rural roads in agricultural development. Aside from the general growth effects of increased access and reduced transport costs, improvement of transport and communication facilities has special importance for Africa. Transport costs weigh very heavily on the one third of African countries which are landlocked. Better transport and communications systems contribute significantly to the process of political integration and administrative consolidation—high priority objectives everywhere in the region. Development of rural transport infrastructure also offers special opportunities for community action and enhanced self-reliance.

At the same time, many problems prevent the transport sector from making its full contribution. The first is resource scarcity. In most African development plans the construction of transport infrastructure absorbed 30 to 40 percent of total investment over the past two decades. During the 1980s, a lower proportion of development expenditure will probably be available. Moreover, the large national transport networks, the scarcity of operating funds, and the special demands of road and other maintenance in the African setting have combined to cause widespread deterioration of existing facilities.

Good planning machinery is especially critical in the transport sector because of the large volume of resources it absorbs and the complex problems of intermodal complementarity and competitiveness which have to be assessed—relations between roads and railways, between air and rural roads, between coastal and ocean shipping, and between telecommunications and road construction. Choices must be made about whether to favor operations that have high fuel costs per traffic unit, such as low-density aviation, or road transport, which is more fuel-efficient but may involve much larger construction costs and maintenance burdens. Foreign exchange budgeting is involved in decisions about which part of the vehicle fleet to keep in operation, and how to do it.

The critical role of transport and communications at Africa's present stage of development was explicitly recognized by African Governments in March 1977, when the Council of Ministers of the UN Economic Commission for Africa (ECA) declared 1978–88 a Transport and Communications Decade in Africa.[13] The proposal has since drawn strong support from many international bodies, most notably by the OAU in the *Lagos Plan of Action* and by the Southern African Development Coordination Conference at its meeting at Maputo in November 1980. The following paragraphs sketch out the main lines of a strategy for transport development in the coming decade. The discussion draws heavily on the *Global Strategy* prepared by the Economic Commission for Africa and included in the *Lagos Plan.*

Investment Priorities and Strategies

The possibilities in the transport sector are many. They clearly exceed the financial and

13. United Nations, *UN Transport and Communications Decade for Africa 1978–88,* Volume I: *Global Strategy and Plan of Action, First Phase, 1980–83* (Addis Ababa, Ethiopia: May 1979). Hereafter referred to as the *Global Strategy.*

manpower capacity of most governments in the decade ahead, even with a great deal of capital and technical assistance from outside. It is essential, therefore, to focus on the highest priority tasks, and to avoid activities that divert resources from them. Many worthwhile projects will have to be postponed, and improvements delayed.

In all modes of transport and communications, large-scale capital-intensive projects should be examined very critically by donors and governments, whether highways, airports, railways, seaports, or telecommunications systems. Tendencies in African countries to prefer capital-intensive solutions and, in donor countries, to seek projects offering markets for their manufacturers, have sometimes greatly reduced the real contribution of foreign assistance to development, and even imposed serious long-term burdens. Recipients and donors alike must be aware of these dangers and seek more economic alternatives, such as measures to improve operations and maintenance on the existing facilities, rehabilitation of existing infrastructure, improvement of traffic flow by better regulation and control, and reliance on less capital-intensive modes of communication, such as aviation and telecommunications.

Top priority should be given to maintenance, especially of trunk roads, which are now the mainstay of the transport systems of most countries. The *Global Strategy* puts it well: "As there is no economic substitute for timely basic maintenance, and since neglected roads can only aggravate the transport problems of the region, no effort should be spared by the road authorities in African countries and international agencies involved in road development to protect the existing road network from deterioration and destruction."[14]

Aid suppliers, in addition to financing projects oriented to maintenance as such—construction of regional offices and workshops, procurement of equipment, periodic maintenance, and training—should include components contributing to the development of maintenance capacity, even in projects mainly concerned with new construction. Ministries of works and their consultants should pay special attention to designing projects—especially surfaced road projects—in such a way as to minimize total system costs (construction, maintenance, and vehicle operating costs) with realistic, rather than theoretically or legally perfect, maintenance and axle-loading requirements.

In countries facing the severe budget constraints now characteristic of much of Sub-Saharan Africa, aid-supplying countries should take a liberal attitude toward financing recurrent costs, local or foreign, of routine maintenance. All costs of periodic maintenance, of course, represent capital costs, and this is now generally recognized by aid agencies. Such recurrent-cost financing is particularly important in cases where the participation of local contractors would otherwise be discouraged by the occurrence of unpredictable or delayed payments.

Now that basic infrastructure networks have been widely developed, that educated nationals are increasingly available, and that public policy is beginning to focus on strengthening domestic capacity to exploit transport opportunities, both public and private sectors should be fully utilized (see Box C). The *Global Strategy* refers to the need for special efforts "by Governments and lending agencies to develop local African civil works contractors."[15]

The same point applies to transport operators. It means enhanced attention to subdividing jobs so that they can be managed by local people, providing specialized training and appropriate on-the-job supervision, supplying credit to assist with bidbonds and the purchase or leasing of construction or transport equipment, technical assistance for small contractors, reduced economic regulations for transporters, and, above all, maintaining a clear and stable legal and financial framework in which local initiative can flourish.

Many governments have begun to use private agents more efficiently: Mozambique and Sierra Leone in trucking, and Sudan and Zaïre

14. Ibid., p. 45.

15. Ibid., p. 44.

Box C: Building Local Capacities

In earlier years aid agencies focused almost exclusively on the end-product of their project financing and on economic benefits. But now increased attention is being given to the *process* by which the end-product is achieved, and especially to participation of domestic enterprise.

Ghana provides an example. Despite extremely unfavorable macroeconomic conditions, the Ghana Government, with external assistance, increased participation of private domestic contractors in road works from a negligible amount to about 50 percent of the total expenditure for highways in a period of about five years. Deliberate government policy, allocation of external financial aid, and technical assistance developed a domestic road construction industry that now includes well over 100 active contractors.

One major aid project in this area emphasized active participation by domestic contractors. It contained a planning mechanism which assured a continuity of demand on regravelling and resealing work. And it had a number of other features: strongly enforced requirements on quality of work; close cooperation of the Ghana Highway Authority (GHA) and the Bank for Housing and Construction (BHC) in prequalifying contractors for road works; funds for procurement of equipment and spare parts (through BHC for private contractors) and working capital; equipment for hire from an Equipment Rental Pool, a subsidiary of BHC; managerial advice and training by a UNDP-financed expert attached to BHC; training of contractor personnel in technical skills by GHA together with its own personnel; and improvements in material supply in particular in quarry capacity.

Under this project, 29 contractors benefitted from BHC loans. In 1980, they carried out about 70 percent of their assigned work, while normally the Public Works Ministry could only accomplish about 20 percent. Encouraged by the performance of the private sector, which revealed initiative and absorptive capacity beyond expectation, the external donors are proceeding with further assistance.

Programs in Kenya have demonstrated that government ministries can also innovate. Labor-intensive construction methods have been used efficiently and economically in the execution of a Rural Access Roads Program (RARP) in that country. External assistance started in 1976; many agencies participated. The RARP originally included the construction and subsequent maintenance of 15,000 kilometers of rural roads by 72 construction units over an eight-year period in districts covering nearly 80 percent of Kenya's population. Construction units of 200 to 300 workers were established, with labor to be used to the maximum feasible extent. Due to significant differences in labor costs between Government (or local communities) and contractors, and organizational requirements (including necessary consultations with local communities), the work program could be carried out only by the Government's Public Works Department during this initial period. After the usual delays in starting such a huge program, its scope was reduced in 1977 to 44 construction units; its time horizon was extended to 1986. Now 42 units are operational and employ about 10,000 laborers. About 3,500 kilometers of rural roads had been constructed by December 1980; the actual construction costs amount to about $6,000 per kilometer, which is reasonably low. Progress is now largely determined by the availability of labor and the wages Government is willing to pay. The quality of work is satisfactory and considerable experience is being gained by maintaining 2,100 kilometers of rural road by labor-intensive methods.

One lesson to be drawn is that African countries have a significant untapped potential for supplying domestic resources to the construction sector. Another is that organizational innovations are possible in both public and private sectors.

in river transport. The Kenyan Government is encouraging transport services invented in the informal sector in response to local needs. In numerous countries, regulations that have proved inappropriate, such as controls on transport, tariffs in areas with poor roads, and on back-haul loading by own-account trucks, are being relaxed. In a number of countries,[16] greater attention is being given to the development of domestic contractors for road construction and maintenance, especially for rural roads. In Rwanda and Kenya, local communities have helped pay for the roads they use.

Road Networks. In support of agricultural production strategies and wider geographical spread of development, high priority should be given to improving rural access, mainly by roads. Rural access roads include all nonurban roads that link with the trunk network. These roads have been assuming a more important place in many countries' development plans and will continue to do so. It has been estimated, for example, that Nigeria's food self-sufficiency plan will require as much

16. Benin, Burundi, Cameroon, Ethiopia, Kenya, Lesotho, Liberia, Malawi, and Nigeria.

as 25,000 kilometers of new rural roads. Such roads need particularly careful maintenance to stay open year-round. Maintenance and renewal arrangements are therefore crucial. Interesting experiments exist in this area. Kenya's system of local resident "contractors," for example, is highly promising for populated areas. Each contractor is responsible for 0.5 to 2.5 kilometers of local road and paid a comparatively low part-time wage at the end of each month if the road is in satisfactory condition. The system is now applied to about 2,000 kilometers at a current annual direct cost of only $250 per kilometer. There is considerable scope and need in most countries for further experimentation with "appropriate technology" solutions to construction, maintenance, and transport on rural roads, adjusting standards to the vehicles that will actually be employed,[17] and using more locally available manpower, equipment, and supplies.

Telecommunications. Development of these services should receive higher priority than in the past: quality and quantity are grossly inadequate in most countries and basic costs of telecommunications are falling relative to costs of other forms of communication. Lack of speedy and accurate telecommunications systems is hampering growth in all sectors, prodigiously wasting managerial talent, and unnecessarily straining transport systems. Despite the dispersion of their populations, which would argue for more reliance on telecommunications, Sub-Saharan African countries in the same range of per capita incomes as the poor countries of South Asia have lower telephone densities, and the rate of growth in the number of telephones over the last few years has been much lower in Africa than in low-income South Asia (4 percent a year compared with 10 percent). The *Global Strategy* places major emphasis on strengthening management, staff training, maintenance (particularly important for rural links and long-distance networks), and the buildup of domestic networks. Continuing improvements in technology, such as more efficient telephone instruments, plastic-clad cables, integrated switching and transmission, solid-state technology, and solar batteries for VHF and UHF links, are lowering the capital costs of telecommunications expansion and simplifying maintenance.

Sub-Saharan African governments and aid-supplying countries should, therefore, give higher priority to the rapid development of telecommunications services, and, particularly, to the buildup of sound organizations for running them through training and management assistance. It is especially rare in this field that manufacturer-generated projects, involving simple supply of equipment and provision of directly related technical training, will on their own constitute a valid form of foreign assistance. A broader approach aimed, above all, at developing local capabilities is essential. Highest priority should go to expanding domestic local and long-distance telecommunication networks, to be complemented as soon as possible by the upgrading and the expansion of intercountry facilities.

Urban Transport. As African cities and towns grow by 6 percent a year, poorer people congregate in peripheral areas with poor access to transport, cars and congestion choke city centers, and public transit systems sink deeper into deficit. As noted earlier, the number of cities with more than 500,000 inhabitants increased from three in 1960 to 28 in 1980, and urban population may well exceed 40 percent of the greatly expanded total by 2000. The costly solutions to urban transport problems adopted in most industrialized countries, such as numerous grade-separated roads, and large, subsidized public transit systems, are clearly unsuitable. Rather, approaches must be in terms of traffic regulation schemes, such as Abidjan and Nairobi have initiated, parking controls and taxes, inexpensive arrangements for safe movement of bicycles and mopeds, construction of accessways into poorer quar-

17. For instance, African countries appear to have at most 10 bicycles per 100 households (and, in many instances, less), compared with twice that number in India, and ten times as many in China.

ters, reserved lanes for fast movement of buses on main arteries, and encouragement to the informal sector to develop safe paratransit services (shared taxis, minibuses, converted trucks, etc.) adapted to the city's particular needs and resources.

Railways. Railways continue to be of critical importance in about half of the Sub-Saharan countries and of some significance in two thirds of them. Railways have particular importance in Southern Africa, where mineral production in landlocked countries is important. Many railways have lost a greater share of traffic to other modes of transport than would have been the case due to inefficient operation; the operating efficiency of government-owned railways has seriously deteriorated over the last two decades, straining production and exports alike.

The *Global Strategy* relegates proposals for construction of link lines among the existing railways to a category of "possible study in the second half of the Decade." It urges, instead, major concentration on strengthening of management, on training of all types and grades of staff, and on maintenance, including track renewal. Lightly trafficked lines should continue to be closed when their economic role is eliminated by development of road services or exhaustion of mines. Equally, some line extensions will be required, mainly in connection with new mineral developments, such as the Nimba/Mifergui scheme in Liberia and Guinea and possibly the Ajaokuta iron and steel complex in Nigeria. The pooling of orders for equipment among groups of railways, so as to increase the railways' bargaining power on matters of appropriate design, price, and after-sales service, merits further investigation.

Ports and Shipping. Staff training, managerial improvement, and rehabilitation and provision of some complementary equipment to speed up traffic handling are also principal needs in the ports of Sub-Saharan Africa. These are urged in the *Global Strategy*, which underscores the prevailing low level of port efficiency. The possibility of improvement has been amply demonstrated by the port of Douala in Cameroon, where productivity in the movement of general cargo showed steady and substantial progress during the 1970s.

A few countries will need berthing capacity extensions and, in one or two cases, even the development of new port sites. Aside from the need to improve container-handling facilities in some places, however, the expansion requirements of most African ports are limited because of substantial investments during the 1970s in some cases, disappointing past rates of growth in international trade, and the possibility of improved productivity from existing wharfs. Shipping services for better regional distribution and collection of containers need to be improved—particularly for the island countries and for coastal trade. They could also provide valuable opportunities for the development of domestic enterprise if controls were reduced and credits were made available. On the other hand, investments in intercontinental ocean shipping need to be approached very cautiously because of the riskiness stressed in the *Global Strategy*, the typically very high cost per job so created, and the minor net savings in foreign exchange involved. Bulk shipping is a good entry-point for countries looking to shipping-line investments in the future. Shippers' councils with supporting technical secretariats should be set up more widely to strengthen African countries' capacity to bargain with the international transport companies they use. There have been some moves toward regional cooperation on port and shipping matters, but these need to be accelerated to secure an efficient development of container services, and to avoid the high freight rates that can result from the conference system and also from the application of the proposed UNCTAD "Code of Conduct."

Intercountry Transport. The most urgently needed steps to improve intercountry transport are the wide range of "facilitation" measures stressed in the *Global Strategy*—simplification of border-crossing, adoption of bilateral reciprocal arrangements on vehicle movements, strict control of unofficial tolls.

agreement on common axle-load limits, harmonization of driving rules and signs, introduction of some appropriate insurance arrangements, coordinated operation of intercountry railway services, and standardization of documentation—to which may be added the measures of simplified customs, currency, immigration, and phytosanitary regulations.[18]

The *Global Strategy* justifiably urges that higher priority be given to roads linking landlocked countries with the sea than to the designated Trans-Africa Highways,[19] and that the plan for the latter be "indicative,"[20] because intervening economic development may require changes of routing. Economically warranted improvements in routes that serve landlocked countries should be considered high-priority claimants for support from concessionary aid funds allocated for regional projects. Otherwise, such improvements will be slighted, since most costs fall on the transit countries, and many of the benefits accrue to the landlocked country, including intangible but important insurance benefits.

Air Transport. Despite relatively high fuel costs, conventional small aircraft still have potential for opening up isolated areas and for transporting managers and urgently needed spare parts to places with long surface links. This is also true for the larger countries still lacking in surface routes, such as Chad, Congo, Mali, Sudan, Tanzania, and Zaïre. In addition, experiments on use of lighter-than-air vehicles (airships) are now beginning in Latin America; they warrant attention for their potential applicability in Africa.

Operation and growth of domestic air transport has suffered severely in many African countries from two public policy problems: the failure of the users of national airlines to pay their bills, and tight governmental controls on national airline tariffs. Firmer policies on the bills problem and a loosening of controls is essential. As regards international service, the *Global Strategy* stresses training and the urgent need for fuller cooperation among African countries, such as that which the African Airlines Association (AFRAA) has successfully developed for maintenance of the B-737. In general, caution is called for in assessing expansion plans in this subsector.

Institution-building and Training

Project appraisals to be undertaken by donor agencies throughout the transport and communications field should always include a careful assessment of the adequacy of staff training. Where a project is expected to include a significant expansion of training, preparation should start well ahead of time.

African governments and the aid community should give very high priority to multinational training in transport management and planning for top-level staff from both public and private agencies. The Eastern and Southern African Management Institute at Arusha, Tanzania, which has received the support of 17 countries in the area since 1977, should be encouraged to develop courses extending beyond transport infrastructure planning and project appraisal to the management of transport operations. Second, West African governments, perhaps within the framework of ECOWAS, should also begin as early as possible high-level multimodal public and private sector courses in transport management in one or more centers in their region, as has been suggested above for Arusha. Existing physical facilities should be used to avoid the delay and expense of new buildings. In all cases, training should be aimed principally at staff already working in the sector so as to complement past higher education; initially, such training should not attempt to substitute for higher education in transport already available elsewhere. In the case of each institute, short seminars should be organized for chief executives of agencies concerned with transport and trade, as well as longer courses for senior management staff. The faculty of the institutes should also be available to act as "flying squads" to provide technical assistance in transport management.

18. See the two-volume report prepared by consultants to the Economic Commission for Africa, "Transafrican Highway: Study of Legal and Administrative Barriers," September 1974.

19. Ibid., p. 44, paragraphs 175–176.

20. Ibid., pp. 8 and 9.

Finally, in line with the emphasis given to extended on-the-job training in institutions both inside and outside Africa, the potential of such training in the transport field should be assessed by a suitable unit in the donor community, such as the World Bank's Transportation Department, among others.

Infrastructure and Policy Planning

Capabilities for setting and following reasoned and well-coordinated priorities among possible investments in transport and communications infrastructure and for developing policy improvements must continue to be built up.[21] Resource shortages make careful planning and policy analysis even more important than before—for instance, in the allocation of limited resources available for maintenance across a network, in concentrating upgrading efforts on highest-priority stretches, in making intermodal comparisons, and in projecting overall financial requirements over several years. Progress has been made, but most countries need to improve systems for collection of relevant data, such as regular, accurate traffic counts and road inventories, and many countries must strengthen institutional arrangements for assessing and screening projects. In addition to establishing planning units within modal agencies, arrangements are needed for coordinating investments and policies among different modal agencies.

21. Better arrangements must also be made than now exist for *coordination of activity among aid suppliers* in the transport and communications sectors, particularly because of the large number of small investments required in the coming years, the importance of consistent technical and financial assistance, and the many donors that will have to be mobilized if needs are to be met.

8. LONGER-TERM ISSUES

The preceding chapters have discussed measures for accelerating economic growth in the short term. But the urgency of these immediate problems does not diminish the importance of certain longer-term development questions: the twin issues of rapid population growth and expanding urbanization; programs and policies to conserve Africa's soils and expand its forests and fuelwood supplies; and ways of encouraging more regional economic integration.

Table 8.1. Population Projections for Eight African Countries and Sub-Saharan Africa
(in millions)

Country	*1980*	*2000*	*2010*	*2020*
Zimbabwe	7	15	23	31
Cameroon	8	14	20	25
Ivory Coast	9	16	23	31
Ghana	12	23	34	45
Kenya	16	37	58	81
Tanzania	19	37	54	72
Zaïre	28	52	73	95
Nigeria	85	172	255	341
Eight-country total	184	344	540	721
Sub-Saharan Africa	353	679	980	1,411
	(100)	(192)	(278)	(400)

Note: The projection assumes constant fertility and declining mortality.
Source: World Bank data files.

The serious consequences of rapid population growth are increasingly recognized by African leaders. In 1973, nine Sub-Saharan countries supported family planning for reasons of health and as a human right. By 1978 this group had increased to twenty. Five of these countries had, in addition, explicit policies to reduce population growth. Nevertheless, within many African countries there is substantial ambivalence about population growth, and occasionally there is even the suggestion that Africa would be better off with more rapid population growth. A different view is presented here.

The consequences of rapid population growth for economic development and welfare are very negative. The numbers per se are dramatic. If fertility does not decline from its current average rate of 6.6 live births per woman, the population will grow as projected in Table 8.1. Forty years from now, Nigeria will have a population of 341 million, Zaïre 95 million, and Kenya 81 million. These projections are based on the assumption of constant fertility and declining mortality. While fertility will probably fall somewhat, the numbers illustrate the powerful momentum of high fertility.

The Next Two Decades

In the next two decades, Africa's population will continue to grow rapidly—by 3 percent a year according to World Bank estimates. It increased by an average of 2.7 percent annually in 1970–79—the highest rate of growth in the world—and is likely to grow even faster as improved health and nutrition reduce infant mortality (now estimated to be about 150 per thousand) and child death rates. Fertility may also increase because of improved maternal health. This is already the pattern in Kenya, Zimbabwe, and Zambia, where pop-

ulation growth exceeds 3 percent annually (see Table SA.34).

What are the consequences? Most of the additional people will begin life in rural areas because the urban population is relatively small (21 percent in 1980). Even if cities were to grow at unprecedented rates, they could only absorb a part of the rural increase. If just 60 percent of the increase remains rural, declining to 50 percent by the year 2000, the rural population would still be 50 percent greater in two decades. Thus, rather than decrease, rural population would grow very rapidly.

The population of African cities grew 6 percent a year in the last decade (see Table SA.36), in response to both opportunities in the cities as well as reduced incomes in traditional agriculture. An expanding rural population will push more people out of agriculture into cities, particularly in the many parts of the region where diminishing returns to traditional cultivation are already common (see Chapter 2). Urban pressures will grow in the 1980s and the 1990s, as city populations continue to expand, probably at close to current rates. Many cities will double their population each decade and it is almost certain that the majority of inhabitants will lack basic amenities—water, sanitation, and electricity. Other services will be very scarce: health care, waste disposal, street paving, and communications. The nonagricultural economy will need to generate jobs at an unprececented rate.

The question of food self-sufficiency will become more pressing. For example, if the population grows at 3 percent and per capita incomes grow between 1 and 2 percent, there will be an annual increase in food demand of about 4 percent. But in the last decade, agriculture grew at less than half this rate (1.8 percent annually). Thus, unless there is a radical increase in agricultural production, more rather than less imported food will be needed in the coming decade.

Then there is the issue of basic services. Rapid population growth slows progress toward universal education and health care. Merely maintaining the existing primary school enrollment ratio in the next two decades will require expanding the number of places available at nearly 4 percent annually. Expansion at 3 percent—ordinarily a welcome achievement—will mean that a decreasing share of Africa's children will be able to attend primary school.

Policy Implications

The above scenario for the remainder of the century envisages pressure on the land, extremely rapid urbanization with declining quality of life, and little increase in the share of population provided with basic services. It is true that population growth usually declines as urbanization proceeds and as education and other aspects of modernization become more widely available. Parents tend to want small families in urban settings where the extended family no longer exists to provide child care, where children are no longer producers but are "consumers" in school, and where mothers are more highly educated and have opportunities to earn income outside the home. In brief, modernization brings a decline in fertility—the "demographic transition." But, excluding Mauritius, no country in Sub-Saharan Africa is yet on this road.

Instead, population growth has recently increased in several countries because mortality from infectious disease has been reduced; the factors (listed above) that lead to a decrease in family size have thus far operated only to a small degree.

Thus, it is crucial to take steps now to reduce fertility. There is widespread recognition that efforts at family planning can be effective, even prior to modernization. Use of new contraceptive techniques has accelerated in many Asian countries, *in part as a result* of information and education campaigns. For example, in Indonesia, techniques were developed for gaining local community support: village leaders endorsed the programs and villagers staffed contraception distribution centers. These results, however, are due to two decades of experimentation.

In most of Africa, on the other hand, in both urban and rural areas there have been few efforts of this kind. Before 1972, there were no African "family planning experiments"—that is, attempts to provide family

planning services to large groups. And while the Asian experience can be a useful model, it must be adapted to the specific conditions in Africa. At present, the region has only begun to build a body of knowledge on how best to proceed.

The widespread and traditional practice of child spacing in Africa is accomplished through prolonged breastfeeding and abstinence. The practice of and desire for child spacing offer a vehicle to promote the acceptance of modern contraceptive techniques. In fact, there is already a small but significant use of modern contraceptives in West Africa for these reasons. To increase the use of modern techniques, the programs proposed must involve methods that can be easily reversed and do not interfere with lactation.

The traditional attitude toward spacing provides a rationale for incorporating family planning within maternal and child health programs. Once people use the new techniques to achieve traditional goals, they can adapt the technology to other goals, such as reducing family size, as external conditions change. In this context it is revealing that the World Fertility Survey has shown that although many African families have achieved desired family size, most are not using any type of modern birth control.

To conclude, emphasis on modern contraceptives to provide birth spacing appears to have great potential in accelerating Africa's demographic transition. These considerations suggest that population policy in Africa should be largely concerned with slowing population growth by the following actions:

- Family-planning advice should be recognized as the right of every couple, and providing such advice to all who desire it should be a basic goal of every government;
- Governments should encourage widespread family-planning services and supplies, including availability of contraceptives at a very low price, perhaps even free;
- Female education should be encouraged for many reasons, including the fact that it leads to reduced child mortality and eventually reduced fertility;
- Family-planning components should be built into the health care system;
- Activities in support of family-planning policies—notably dissemination of information—should be encouraged; and
- Governments should develop units—perhaps in planning ministries—to undertake policy analysis that would also emphasize the effects of future population growth on basic goals, such as employment, literacy, food, and security.

The basic point is clear. The population problem is not merely one of size; it is one of urgency. Where growth is rapid, time is of the essence. For example, if the time between children could be increased so that the average number of births per woman decreased from the current average of 6.6 to 4.8 by the year 2000, the total population in Sub-Saharan Africa would be 640 million rather than 679 million. And by 2010, assuming a further decrease in average fertility to 3.7 children, the total would reach 821 million rather than 980 million.

Urban Growth

Although most Africans currently live in the rural areas, and it is recognized that rural development is the key to economic growth, urban areas are rapidly expanding. This creates not only immediate problems but also urgent long-term concerns.

As increasing numbers of the population have flocked to cities to find employment, urban populations have mushroomed overall by 6 percent a year, and 8.5 percent annually for 35 major capitals—a rate at which they will double in size every nine years. There are now 28 African cities of over 500,000 population, where, just 20 years ago, there were only 3. In fact, the urban population is expected to quadruple again in the last quarter of this century.

Most of these urban populations are deprived of basic services. A large proportion live in slums or squatter settlements, very few households have interior water supplies, and large numbers have no access to running

water. Sanitation services are minimal. In Freetown, for example, 95 percent of the population use shared pit latrines, while in Abidjan, 65 percent use open pits or unlined water courses. Only 20 percent of Abidjan's residents are served by a sewage system—and this is much higher than is common throughout the region.

Until now, few governments have had resources to devise systematic strategies addressing urban problems; day-to-day demands have absorbed municipal authorities. Unless the new, sprawling urban population is integrated into the economy and its needs addressed, the situation is likely to be politically disruptive and to stunt economic progress. Further, the cities, which now produce about half of national output, will become less efficient, as labor productivity and economic growth will decline.

An urban strategy should focus on the following three areas: planning and administrative structures to cope with the cities' organizational and financial problem; mechanisms to provide jobs and services, and safe, sanitary, and affordable housing; and the encouragement of small- and medium-size secondary centers.

Many of the existing municipal institutions are vestiges of the colonial era. They were designed to serve only that small portion of the population which lived in the city centers, and in their present form are not equipped to deal with today's problems. The new governments have sought to provide a high level of services, for understandable reasons. But given the current scarcity of resources and the enormity of unmet needs, unless "standards" are set at modest levels, affordable for both the municipalities and the consumers, the urban masses will still be poorly served. In the provision of water supply or sanitation, for example, where per capita income is $350 a year, standards should set a minimum level of service that can be improved over time. Interim measures would be standpipes and aqua privies, instead of fully developed sanitation or water systems.

In housing, policies should also be aimed at reaching the largest numbers possible. In the 1960s, policies stressed relatively high-quality construction, often financed by external sources through housing parastatals. In former British colonies, the Colonial Development Corporation financed national housing corporations and building societies that built houses on the metropolitan model. In francophone countries, many *sociétés immobilières* were created with the same objectives. Ivory Coast's Société Ivoirienne pour la Construction et la Gestion Immobilière (SICOGI) was perhaps the most active, constructing 3,000 to 4,000 apartment units a year in the mid-1960s. Its Senegalese equivalent, Société Immobilière du Cap Vert (SICAP), built extensively in high-income areas of Dakar. Public housing construction under this type of policy never reached the mass of urban poor, or even the middle-income groups. Over 90 percent of the urban population in all African cities had to seek other solutions.

In the last decade, a "sites and services" approach to housing developed and evolved into "upgrading." These schemes provide rudimentary infrastructure but leave construction of housing (or units) to individual occupants. Between 1972 and 1981, a total of $533 million was spent on such projects in 15 different countries, the World Bank alone contributing about $270 million (see Box A).

With respect to employment, efforts must be made to encourage the informal sector and labor-intensive activities. This could involve promoting the construction industry and small-scale cottage industry, where the cost of job-creation is low. The cornerstone of such a strategy is the encouragement of small entrepreneurs. As noted in Chapter 7, private entrepreneurs have not only been ignored in many countries, but indirectly discouraged by unnecessary regulations. To encourage their growth, credit could be provided though quasi-governmental agencies, along with services like electricity and water. In this area, donor agencies can play a useful role by helping provide the capital for small-scale industry and also, through policy discussion, a more congenial local policy environment.

Box A: Two Approaches to Urban Housing

Squatter Housing in Lusaka. In Lusaka, the largest and fastest growing city in Zambia, housing problems are acute. Thus, a "sites and services" project was developed (with $3 million of World Bank funding) to upgrade and service 17,000 dwellings in four major squatter settlements, to prepare 12,000 residential plots, and to provide loans for home improvements and construction. It was also designed as a pilot project to demonstrate the feasibility of low-cost housing and infrastructure programs.

While the project was under way, the Zambian Government experienced an acute financial crisis which led to delays, cost overruns and, eventually, cutbacks in the original plan. Nevertheless, much was accomplished: over 31,000 plots—accommodating approximately 30 percent of Lusaka's population—were provided with basic infrastructure; half the sites and services units were allocated to low-income households—the poorest 40 percent of the population; upgrading reached over 90 percent of the households in the targeted area; plots and loans were allocated according to a point system which favored the poorest residents; and houses built under the project cost approximately one tenth of the amount required under conventional schemes.

The project succeeded for several reasons. First, technical assistance was provided to the Lusaka City Council and to a special office, the Housing Project Unit (HPU), which was set up to focus solely on this project. The budget was large enough to attract highly qualified staff, and cooperation from the community was carefully cultivated. The American Friends Service Committee and UNICEF, which had done similar community outreach elsewhere in Zambia, worked with the project, bringing to it their previous experience. Most importantly, the community was involved in the planning and did not feel the project was being imposed from above.

Once the project was completed, the HPU was disbanded. But a new office, called the Peri-urban Areas Unit, was created to repeat the program in other squatter areas on the outskirts of the city.

Collections have been a continuing problem. As of March 1980, 80 and 93 percent of the households were at least three months behind in service charges and loan repayments, respectively. This problem is not due to residents' inability to pay but to the lack of tradition of paying for these services (among all income groups in Zambia) and the weakness of the institutions and mechanisms required for the collection process. Thus, procedures are being strengthened and eviction measures initiated.

Francistown Urban Project. The Francistown Urban Project, approved in 1974, was Botswana's first attempt to develop a strategy for orderly urban growth. It sought to develop simple, low-cost, technically appropriate standards for urban infrastructure that would benefit the poor and immediately improve the living and public health conditions of the squatter population.

The plan called for upgrading existing squatter areas which contained about 1,000 households, providing 1,000 plots for traditional housing with minimum services, and offering 800 sites and services plots for which loans (for building materials) would be made available and deeds granted. It also involved constructing a small number of community centers, servicing areas for industrial and commercial plots and for 25 plots for high-cost residential settlement, improving electricity distribution, building roads, and installing water pumps and mains.

The targets were met. Almost 95 percent of the town's population had access to clean water, roads, street lighting, and tenure to the land on which they were squatting. A total of 800 sites and services plots were allocated and 1,000 upgraded plots were provided with infrastructure. A full 80 percent of the beneficiaries were low-income residents, previously without basic services. In addition, new jobs were created.

The project succeeded primarily because it was developed on a small scale and for a small town. Also, tasks were decentralized. While the central (national) bureaucracy was responsible for awarding construction contracts, the municipal government handled "people-related" aspects, such as allocating plots, providing loans for building materials, offering technical assistance in self-help construction techniques, and collecting loan payments and user fees.

Cost recovery still remains a problem and the self-help housing agency, which has been vital to community development, still requires technical assistance and a more clearly defined relationship with the central government.

Wherever possible, services should be associated with cost-recovery schemes, since surveys have shown that even in the poorest areas, much of the population can afford minimal charges and are ready to pay for basic services. However, unless these services are set at minimum standards, governments cannot afford to supply them nor can low-income groups afford to pay for them. User charges are crucial so that governments can generate the funds needed to provide additional services to the ever-increasing population. Also,

when populations are aware that they will be charged for water, electricity, and sanitation, they often reduce their expectations to the level provided. And while it is understood that cost recovery is no easy task, if reasonable standards are adopted it will become more feasible.

While the discussion above applies particularly to the larger cities, it is important to note the vital development role played by secondary centers. Small towns serve as a link between urban and rural development: they are natural distribution centers for agricultural goods produced in the rural areas and manufactured goods from the cities. When agriculture prospers, these towns become major providers of off-farm employment opportunities for rural people.

Resource Planning

Three issues in the natural resources area are of special significance: soil conservation, reforestation, and fuelwood supply. The fact is that Africa's people are primarily dependent on what the land provides for grazing and crops, shelter, and firewood. If we are to expect this fragile resource to continue producing into the next century, conservation steps must be taken now.

Soil Conservation

Rainfed agriculture will necessarily be the main source of incremental production in the great majority of African countries for some time to come. But the long-term potential of agriculture is being diminished—in some countries seriously—because of more intensive cultivation and grazing. Conservation of existing resources is therefore the crucial long-term task in agriculture.

A strategy to stop the accelerating degradation of soils and vegetation is overdue. The design and carrying-out of such a strategy, however, are hampered by political constraints, lack of data, and the rudimentary capacity of land-use planning institutions.

The knowledge of land tenure patterns and the demarcation between privately and publicly owned land is often vague. Local political and traditional interests are, of course, involved in land ownership and use, complicating the development of a coherent national policy regarding the demarcation and use of public lands. National policies and legislation dealing with the distribution and use of ground and surface water are also lacking, with the result that sharp conflicts between the various categories of users have become more and more frequent.

The resource data that are most relevant for soil and water conservation are: physical properties of soils; water retention capacity of soils and vegetation; quality and quantity of vegetation cover; drainage patterns; density of human and livestock population; and present land use (farming and grazing practices, use of forests and trees). This kind of information is rarely available, is patchy in time and space, and is only rarely synthesized in usable form.

Land use planning agencies, if they exist, are usually not equipped to use modern methods of land classification such as satellite images or infrared aerial photography. The application of these techniques should be far more development-oriented and geared to users' needs in rainfed agriculture, small-scale irrigation, forestry, and animal husbandry.

As regards erosion control and watershed management, it is useful to distinguish between micro-solutions, which are applied at the farm or village level, and macro- and long-term solutions on public lands, which aim at controlling erosion and runoff caused by indiscriminate tree-felling, overgrazing, and slash-and-burn cultivation. The methods to be propagated and supported at the village or farm level should focus on soil and water conservation techniques that are within the technical and economic reach of farmers and hold sufficient short-term benefits and incentives. Pilot efforts should be made an integral part of area-based agricultural development projects with due recognition of the role that the traditional local authorities or village organizations can play in mobilizing local labor

for implementation and maintenance. Experiments of this type in Upper Volta, for example, have had encouraging results. External assistance can play an important role in the compilation of resource data and the organization of land-use–planning units, in the dissemination of experience from other parts of the tropical world, and in developing large-scale methods of soil conservation, which have yet to be found.

Reforestation

Reforestation is, of course, an important element of watershed management and erosion control, but it is also justified in most countries to maintain or increase the supply of fuelwood, which is being seriously depleted.

Reforestation and soil conservation programs have in common that they can be stepped up in line with perceived needs only to the extent that countries make progress in organizing these works in a cost-effective manner. In most cases, this can only be accomplished by mobilization of the rural population; without active and voluntary cooperation, programs cannot be maintained. Contributing labor to works with long-term benefits often has high opportunity costs for farmers, however, and the key task is to arouse sufficient interest before the ecological situation becomes desperate and the need for action obvious. At that late stage, ecological deterioration may have become either irreversible or much more costly to redress.

There is a major role for foreign sources of assistance to help African institutions shift the emphasis in the training curricula toward rural and environmental forestry, and to organize training courses for African foresters. Funding of more training programs for forestry extension workers in farm forestry and support of forestry research are further priorities. A recently formed research agency, the International Council for Research in Agro-Forestry (ICRAF), located in Nairobi, is just getting under way.

Fuelwood

Current efforts at reforestation are much below the rate needed to solve the long-run fuelwood problem in Africa. The present rate of planting of fuelwood species in Africa is in the order of 70,000 hectares per year. But for African countries to gain self-sufficiency in wood energy by the year 2000, this rate would have to increase at least fifteenfold to a level of one million hectares per year. Furthermore, massive fuelwood programs are subject to the constraints of limited land availability, the weakness of forestry services and research programs, the lead time required to develop an institutional capability to handle the program, and budgetary constraints at the national level. Because the inputs into reforestation are largely land, labor, and time, rural people themselves can generate fuel supplies at low cost. Woodlots have to be selected carefully, however, as forests take land away from food crops or grazing. Moreover, since planting does not solve immediate wood needs, it is often difficult to enlist the cooperation of farmers and landless laborers, especially if they are not assured of their rights to the mature trees.

Nonetheless, a doubling or possibly tripling of the current (1980) levels of planting should be attainable in some countries. High priority should be given to farm forestry, including planting trees around homesteads and along farm boundaries. Achieving a doubling of the current rate of reforestation over the next five years in Africa as a whole would be expensive, requiring external investment funds of $350–$500 million. The main focus of such projects would be on creating the institutional and infrastructural framework needed for larger planting programs in the future. The justification for higher rates of planting depends, in each country, on the experience with past and ongoing reforestation programs, most of which nevertheless remain in the pilot stage.

Regionalism

In the *Lagos Plan of Action*, the African Chiefs of State approved the target of an economically unified, self-reliant continent by the year

2000. The donor community should help African governments move toward this objective, since regional economic cooperation and ultimate integration are important for the reduction of long-term obstacles to development, in several respects.

First, broadly speaking, small states have limited development alternatives. And most African states are small—in population and in market size. Only six have more than 15 million people (Ethiopia, Kenya, Nigeria, Sudan, Tanzania, and Zaïre). Twenty-four number less than five million each, and twelve fewer than one million.

It is true that much remains to be done in the short and medium run for which larger size is not a particular requirement: establishment of effective administrative machinery, development of a more productive monetized agriculture, creation of physical and social infrastructure, spread of suitable education, and similar tasks. But after the institutional groundwork has been laid and the agricultural and mineral potentials of small African countries are more fully exploited, further development, notably of industry, requires larger markets. This almost surely will entail larger inter-African economic units. Thus, economic integration is needed to widen the range of options available in the future.

Second, long-run solutions to the special problems of the landlocked, usually extremely poor states, require regional approaches. This is true for the Sahelian states, Swaziland, Lesotho, Rwanda, and Burundi, among others. The question of economic viability is highly relevant for these states and for those who think about their development options. Most of these states can achieve reasonable levels of economic welfare and growth only in association with the better-endowed countries in their regions. Market forces already reflect this reality—notably via migration flows. The point is that the economies of some of the landlocked states will develop more fully in a framework of regional economic cooperation or integration.

The record on economic cooperation and integration efforts thus far shows few successes, for three main reasons. First, the direct short-run costs and benefits of cooperation schemes are often not favorable. Whatever the activity—a regional research effort, a joint faculty, or a collaborative health campaign—high administrative costs are involved. It invariably takes longer to implement such efforts, as special legal and institutional questions arise. The benefits, moreover, may be uncertain or intangible: economies of scale may not be quickly obtainable. In addition, financing for these kinds of regional efforts is often sought from external sources; but donors usually find the execution of national projects challenging enough, and are reluctant to bear the risks, delays, and sometimes higher expense involved in regional programs. Second, during the past two decades, internal political consolidation has been the primary goal in most states, and the security, continuity, and political confidence required to push through economic cooperation schemes have not been adequate. Finally, because of well-known problems involved in equitable distribution of benefits, both potential gainers and losers have become more hesitant to enter into deep involvements with neighboring states if potential mutual gains are not both obvious and sure to those involved.

Regional economic cooperation then, while essential in loosening long-term development constraints facing many African states, will not come easily. It will require changes of great substance, including strengthening of transport links, reduction of monetary and commercial policies that inhibit and distort intraregional trade, promotion of joint projects in industry, education, and research, and regional institutions with adequate staff and budgets that could become major instruments of cooperation and integration.

Donor Roles

Some of the ways that economic integration and functional cooperation in Africa can be facilitated by external aid are indicated in earlier chapters: the financing of transport links between countries; shared hydroelectric facilities; factories serving integrated markets; multinational research and teaching institutes; and the provision of hydrological, me-

teorological, and other technical services, to name a few. Foreign aid donors could also provide support for regional institutions that have clear and sustained backing from African governments. Donors could play a catalytic role by financing feasibility and pre-investment studies of integration projects. This is an area in which financially hard-pressed African governments are often unable to commit scarce funds. Finally, donors can, in general, raise the level of priority they ascribe to integration and cooperation.

9. EXTERNAL ASSISTANCE IN THE 1980s

Only the joint effort of African nations themselves and the international community will lead to progress in solving the problems that face Africa today. A commitment from both partners will be necessary to transform stagnation into growth, and the prospect for endless poverty into hope for a better life. African governments must lead the way because domestic policy issues are at the heart of the crisis, and no real turnaround is conceivable unless these policy matters are dealt with. An equally profound commitment is necessary from the international community—a commitment to increase aid and to provide assistance in ways more suitable to Africa's needs than in the past and in support of the reform programs defined by the African governments. Policy reforms supported by substantially increased aid flows promise substantially improved growth prospects for Africa in the 1980s.

The Need for Increased Aid

External assistance to Africa is already at a relatively high level compared with other developing regions (net ODA per capita in 1980 was $13.70 for Africa compared with $9.60 for all developing countries), and has grown quickly in the past decade. Aggregate numbers on aid flows alone do not tell the full story of the contribution of donor agencies—both bilateral and multilateral—to the development of Africa. The extent to which outside personnel have played a role in projects, in policy advice, and in formulating development strategy has been much greater in Africa than elsewhere in the developing world. Thus, to the extent that Africa's problems are the result of unsuitable project concepts or perpetuation of inappropriate policies, the donor community shares in the responsibility. African states and donors have been bound together in development efforts to a unique degree, and so they must remain if the present crisis is to be solved.

Aid to Africa must be augmented in the 1980s because, first of all, the continent contains many of the poorest and most vulnerable people in the world. Twenty of the thirty least-developed countries are in Africa, and the remaining African countries are little better off. Oil-importing Sub-Saharan Africa as a whole has a per capita income of only $316. By almost any other indicator—life expectancy, child mortality, literacy, access to safe water, or supply of educated people—Africa is extremely poor. Second, Africa's medium-term prospects for growth are worse than those of any region. Projections in the *World Development Report 1981* indicate per capita income growth of only 0.1 percent per year for the period 1980–90, on optimistic assumptions (see Table 9.1). Third, Africa is even less well situated than other low-income developing areas to take advantage of the growth of world trade. The share of nonfuel merchandise exports is far higher in Africa, and the region is specialized in a group of primary commodities with slower growth prospects. Fourth, Africa remains highly dependent on concessional capital (aid) because of limited creditworthiness. Finally, increased aid *together with policy reform* holds the promise of

Table 9.1. Growth of GNP per Person, 1960–90

Country groups	GNP per person (1980 current dollars)	Annual growth of GNP			
		1960–70	1970–80	Low case 1980–90	High case 1980–90
Sub-Saharan Africa					
Low-income oil importers	260	1.7	−0.4	−1.0	0.1
Middle-income oil importers	520	1.7	0.4	0.0	0.3
Oil exporters	730	0.4	2.6	2.0	2.3
All developing countries	850	3.5	2.7	2.2	3.3
Low-income	250	1.8	1.6	1.5	2.6
Middle-income	1,580	3.9	2.8	2.2	3.4

Source: World Bank, *World Development Report 1981* (New York: Oxford University Press, 1981), Table 1.1.

a highly fruitful investment which will be able to accelerate growth during the 1980s.

The Impact of Higher Aid and Policy Reform on Economic Growth

As noted above, the *World Development Report 1981* projects a very gloomy economic outlook for oil-importing Africa in the 1980s—virtually no growth in per capita income for the decade even with optimistic assumptions about the external environment. While these projections are not simply an extrapolation of past trends, they assume no fundamental changes in domestic policy. They project a modest growth in exports corresponding to maintenance of constant shares of world trade of Africa's principal primary products and they assume stabilization of exports in countries which have experienced declines due to war. We have used the World Bank's global model to project development trends in oil-importing Africa assuming extensive domestic policy reform and different levels of aid.[1]

Table 9.2 summarizes the results of these simulations. With continuation of most present policies and only a small increase in aid—ODA to oil-importing Africa rising only slightly over the decade (see Table 9.3)—per capita GDP is projected to fall throughout the 1980s.

1. The "small aid increase" assumption is that annual ODA to African oil importers (excluding technical assistance) rises in real terms from $4.7 billion in 1980 to $5.8 billion in 1990. Under the "substantial aid increase" assumption, ODA rises to $9.0 billion (1980 prices) in 1990 (see Table 9.3).

Table 9.2. Projected Performance of Oil-importing African Countries, 1980–90

Performance indicator	Average annual growth 1980–90 (percent)			
	Without policy reform		With policy reform	
	Small aid increase	Substantial aid increase	Small aid increase	Substantial aid increase
Gross domestic product	2.4	3.1	4.2	5.0
GDP per capita	−0.5	0.2	1.3	2.1
Agriculture	2.3	2.8	3.5	3.8
Exports	2.6	3.3	4.1	5.2
Imports	0.7	2.3	2.3	3.9

Source: World Bank projections.

Without policy improvement there is insufficient structural adjustment to get the economy back onto a faster growth track. Import requirements remain high because of the import-intensity of industry, a growing share of energy imports, and continued importation of cereals. Export growth continues to be sluggish. Domestic savings stagnate. All that higher aid can do is help to sustain the level of imports and also that of investment.

With appropriate policy reforms, the prospects brighten. The reforms are those recommended earlier—changes in agricultural policies, improvements in the efficiency of resource use in the public sector and more open trade and exchange-rate policies. These changes in policy orientation are expressed in the model as follows:

- Increased incentives for agricultural production permit an expansion of production with minimal investment and at low foreign exchange cost;
- Reallocation of spending for essential maintenance and recurrent costs allows

existing capacity to be used more effectively and increases growth with minimal investments;

- Slower growth of government expenditure and higher private (including parastatal) savings result in more domestic savings and a higher investment/GDP ratio; and
- Increased incentives for exports enable export growth to increase and imports to grow faster, for a given amount of aid.

Policy reform without substantially increased aid, however, does not provide a satisfactory solution. Investment is required to take advantage of improved incentives for export and agricultural production and to produce and conserve energy. Policy reform can boost growth, but without greatly increased aid there will be insufficient foreign exchange and investment funds available to allow full structural adjustment. Higher aid permits African governments to increase maintenance and recurrent expenditure during 1980–85, while simultaneously sustaining investment levels that have a payoff in the latter part of the decade. This will further increase growth during the period and lay the groundwork for more sustained growth during the last decade of the century. Moreover, many African countries could not undertake reform without additional assistance. New policies and approaches often involve untried instruments whose feasibility and efficacy must be tested. There is always resistance to changes from bureaucratic inertia or vested interests. In short, outside help is necessary to lubricate the process of change and of policy adjustment, to finance new departures, and to help African governments soften the effects of change on groups that fear losses of income, such as urban consumers.

Table 9.3 shows the overall magnitude of ODA disbursements to Africa, and Table 9.4 indicates the level of ODA disbursements that will be required of multilateral and bilateral donors during the decade ahead. The "substantial aid increase" figure in Table 9.3, which helps bring about the faster growth shown on Table 9.2 (Column 4), represents an almost fourfold increase in net disbursements of ODA to Africa between 1980 and 1990—from $4.9 billion to $17.8 billion (a near doubling in real terms). This growth of aid combined with policy reform could increase per capita incomes in oil-importing Africa by nearly one quarter during the coming decade compared with virtual stagnation without it.

While these aid flows will require a major effort by all donors, the rate of growth is less than was achieved in the previous decade. It should be feasible to achieve these increases,

Table 9.3. Net Disbursements of Official Development Assistance (ODA) to Africa 1980–90[a]
(millions of dollars)

						Average annual growth rate		
		Small aid increase		*Substantial aid increase*			*Small aid increase*	*Substantial aid increase*
Net disbursements	*1980*	*1985*	*1990*	*1985*	*1990*	*1970–80*	*1980–90*	*1980–90*
At current prices								
Africa	4,883	7,740	11,889	10,219	17,839	18.7	9.3	13.8
Oil importers	4,706	7,482	11,482	10,101	17,627	19.9	9.3	14.2
Oil exporters	177	258	407	118	212	4.1	8.7	1.8
At constant 1980 prices								
Africa	4,883	5,269	6,044	6,956	9,069	5.0	2.2	6.4
Oil importers	4,706	5,093	5,837	6,876	8,961	6.1	2.2	6.7
Oil exporters	177	176	207	80	108	−8.0	1.6	−4.8
Africa as percentage of ODA to all developing countries	22.5	21.9	22.2	25.0	27.1			

a. Excludes technical assistance.
Source: World Bank projections.

but they will require early action to increase commitments. The World Bank will continue to give priority to Africa in the allocation of funds from the International Development Association (IDA). Approximately 30 percent of IDA funds are planned for Africa in FY82–86. However, the volume of resources that this share of IDA will represent depends on the successful implementation of the agreed sixth replenishment of IDA and the yet to be discussed level of the seventh replenishment. Bank lending to Africa will continue to receive priority, although the volume will be limited by creditworthiness considerations. Support from the International Finance Corporation (IFC) for private sector development in Africa is expected to grow.

Table 9.4. Net Disbursements of ODA to Africa, 1979 (Actual), and 1985 and 1990 (Projected)[a]
(millions of current dollars)

Source	*Actual 1979 net disbursements*	*Percent share of total ODA 1979*	*Projected ODA net disbursements[b]* 1985	1990
DAC bilateral	3,570	60	8,840	15,480
OPEC bilateral	270	5	680	1,190
Total multilateral of which:	1,830	31	4,540	7,940
Arab financed agencies	(370)	(6)	(910)	(1,590)
All other sources	270	5	670	1,160
Grand total	5,940[c]	100	14,730	25,770

a. Projections are calculated using the rates of annual increase of the substantial aid increase projections for ODA disbursements in Table 9.3. Technical assistance is included here; it is *not* included in the ODA figures of Table 9.3.

b. Total net disbursements of ODA in 1979 were 68.5 percent of commitments. Assuming that this relationship remains constant, total commitments of $21.5 billion will be required in 1985, and $37.6 billion in 1990.

c. Technical assistance is estimated to be between 20 and 25 percent of ODA.

Source: OECD, *Geographical Distribution of Financial Flows to Developing Countries*, various issues.

Assistance in Formulating and Supporting Programs of Action

Policy reform needs to be based on detailed macro and sector analysis. The level and structure of agricultural prices, structure of protection, wage and salary policy, marketing and storage programs, and other aspects of development policy require examination in the context of a particular country if precise policy measures are to be formulated and effective action is to be taken. In addition, attention needs to be given to the formulation of realistic public sector investment programs. These should reflect limitations on resources, sectoral priorities, and appropriate project selection criteria.

The capacity to undertake this policy-focused analysis should be a priority objective of governments. Donors can assist in building up this capacity and in so doing can help governments, both directly and indirectly, formulate macro and sectoral action programs. The World Bank is prepared to respond to all requests of this nature. This assistance will probably require an expansion of field staff of donor agencies. The World Bank, in the past few years, has considerably increased its own field resident staff in Africa and is willing to consider further expansion.

In addition, donors can provide assistance in examining specific policy issues when requested by governments. For its part the World Bank undertakes a continuous dialogue on economic and sector policy issues based on its regular economic work. This macro and sector analytical work is the basic documentation for consultative group meetings for those countries for which such a group exists. The importance of generating a policy framework, which is more growth and development oriented, implies that more policy-focused economic work will need to be undertaken. The World Bank is expanding its economic work in Africa, and is prepared to form consultative groups for countries that request this provided that effective donor participation is probable.

Donor Support for Programs of Policy Reform

The level and pattern of donor assistance to a country must be determined in the frame-

work of programs of action prepared by individual governments, which address the critical development policy issues outlined in this Report. In this way, donor financial assistance will effectively support the attainment of development objectives, and avoid financing projects that do not reflect a government's priorities or even run counter to these priorities.

Donor assistance can take many forms—project lending and nonproject lending (sector lending, program lending, structural adjustment lending); foreign exchange cost financing; local-cost financing; and recurrent-cost financing. All of these have a role to play in different countries and in different circumstances. Donors should be prepared to be flexible and use the tool most likely to increase the contribution of their aid to the process of development.

Project Lending

Conventional project lending will be an important vehicle of resource transfer from the developed world to African countries. Not only is this frequently the preferred form of lending for many donors; it is also particularly relevant to Africa's development needs in view of the limited planning, project identification, and implementation capacity. The need for increasing levels of project lending is most obviously seen in the case of agriculture, which has to be the centerpiece of development programs in Africa. For instance, the FAO *Regional Food Plan for Africa* called for major investments ($125 billion in 1981 prices) in food crops, livestock, and agricultural support services for the 1975–90 period (see Chapter 5). This emphasis on agriculture has been reflected in World Bank lending, where the share of agriculture in total lending to Africa rose from 20 percent in 1969–73 to 33 percent in 1974–78. It is expected to stay at about this level in the future.

In other sectors, too, the identification, preparation, and implementation of projects will continue to have high priority as a means of developing the institutional, human, technical, and physical capacity central to the development process. With appropriate assistance the priorities attributed to infrastructure (transport, telecommunications, and power), to urban development, to the provision of safe drinking water, and to mining, can be transformed into a supply of projects that can, and will, attract increasing amounts of financing from a variety of sources.

The formulation of sound projects, whether for domestic implementation or donor financing, should increasingly be within an agreed policy framework which assures that the project contributes to increasing the rate of development in the economy. This policy framework should encompass the issues discussed earlier, and should be in the context of a public investment program consistent with the resources available to the economy. Donors as well as African governments must have clear project selection criteria to ensure that projects support current national priorities and to avoid investments which have low rates of return.

Because project financing is the dominant means of assistance, it must be sufficiently flexible so that projects can be designed to respond to African realities. Three aspects are of particular importance.

Administrative Complexity. Programs and policies that will reduce the burden on the overextended administrative capacity of African countries have been a major theme of previous chapters. Donor financial assistance should be structured to support the development of smaller and organizationally more manageable operational units in both the public and private sectors. In particular, donors should support governments in devising arrangements through which external assistance can be channeled to small firms in industry, agriculture, and the ancillary service industries, such as transport. Assistance of this kind can partly be "projectized" through financial intermediaries—development finance companies, agricultural credit organizations, and commercial banks. Commercial banks, in particular, have a network of branches, and are generally well staffed and managed; they constitute an institutional capacity that could be much more widely used

for development financing purposes. Donors could assist in this process. In addition to investment funds, many small firms and farms simply need to be able to purchase supplies of imported spare parts, tools, and fertilizer. Availability of such inputs requires that foreign exchange be made available to a country in a form that does not tie its use to a specific project but which, at the same time, can be channeled to the intended beneficiaries.

Project designs, developed and supported by donors, need also to recognize more fully the overextension of administrative capacity which has occurred in many African countries. Whenever feasible, existing organizations should be used and their administrative and managerial capacity strengthened as part of project activity.

There is also a need for pilot studies. More good projects will be ready for financing only when there has been a large expansion of project-focused research. In agriculture this might mean a thorough review of the agronomic evidence, farm systems research, comparative and pilot studies, a deeper involvement of both borrower and lender in the preparation process, and use of high-level consultants on short-term assignments. The need for more experimentation with new technical packages and new forms of social organization has been underlined above. While the number of pilot projects financed by external sources has increased in recent years, there is scope for more experimentation.

Local-cost Financing. The volume of local-cost financing for projects has been growing in recent years; a survey of DAC members shows that local-cost financing averaged over 13 percent of gross disbursements in 1977.[2] Since projects in Africa typically have a high foreign exchange content, this implies that between one fourth and one third of local costs are being financed by aid. Because of the resource limitations of African governments, donors recognize that it is desirable to finance an increasing proportion of total project costs and they are increasingly abandoning their previous objections to local-cost financing. For the same reasons, the approach to local counterpart contribution is also changing. While a local contribution is often still required—usually 10 to 15 percent in the case of the World Bank—in-kind contributions are now more widely accepted by donors. Today, with heavy pressures on budgets and large investment expenditures ahead, these more flexible policies are appropriate.

Recurrent-cost Financing. In Africa, it is now widely acknowledged that the shortage of budgetary resources limits the operating funds available to utilize investments already made and causes inadequate maintenance of past investments. Vehicles and equipment frequently lie idle for lack of spare parts, repairs, gasoline, or other necessities. Schools lack operating funds for salaries and teaching materials, and agricultural research stations have difficulty keeping up field trials. Roads, public buildings, and processing facilities suffer from lack of maintenance.

As with the local-cost issue, donors now recognize that adequate external financing of recurrent costs may be necessary to ensure the successful completion, maintenance, and operation of development projects, and that expenditures along these lines frequently have higher yields than traditional capital projects. There is widespread acceptance of the need for donors to finance recurrent costs during the construction phase of a capital project. The difficult cases involve projects or sectors which are not directly productive, where no end to the need for recurrent-cost support can be foreseen. Rural development projects sometimes have this characteristic, but it mainly concerns such sectors as health and education. Here donors should remain sympathetic to recurrent-cost financing over relatively long periods, in recognition of the long-term returns possible from these expenditures. Prudence is required in adding new staff and starting new activities that must be absorbed by the government's budget, and whenever feasible priority should be on more

2. OECD, *Development Cooperation: Efforts and Policies of the Members of the Development Assistance Committee, 1979 Review* (Paris, 1979), p. 102.

productive uses of existing government staff and facilities. Budgetary implications should be explicitly addressed, since, ultimately, responsibility for financing current operations must be transferred to the regular budget.

Nonproject Financing. While project financing will continue to be the major channel of donor financial assistance to Africa, further development of nonproject lending will be desirable. This can take many forms, varying from subsector lending (which might in some cases approximate project lending) and sector lending, to lending for a range of imports.

The growing importance of nonproject lending is related to the importance of major changes in policies by African governments. Nonproject lending can generally be used more effectively than project lending for agreeing on a program of action that addresses major policy issues. The formulation of such programs can be made the sole focus of negotiation, and the disbursement of donor funds can then be made quickly in support of the agreed policy action. Formal arrangements between donors and governments will, of course, vary and some donors might be willing to make their own nonproject assistance available in support of an agreement reached by another donor.

The second important role of nonproject assistance is that it makes available foreign exchange that can be used for imports which are of high priority for development but which cannot easily be financed through project lending. Reference has already been made to this in the context of the need for donors to give support to changes in government policies that would stimulate the growth of small production units in the economy—farmers, artisans, small firms, road builders, and cooperatives. Many of these small producers have either no access to financial intermediaries or no need for such access. Certainly many of them would be excluded from conventional donor project concepts. They need to be able to purchase critical inputs for their operations through the regular distribution network of shops and traveling salesmen. In the very constrained balance-of-payments situation confronting African countries, foreign exchange for these purposes is typically squeezed out by the combination of the priority demands for debt servicing, food, and fuel on the one hand and project-tied foreign exchange on the other. Nonproject assistance which is linked to policy changes intended to stimulate the small producers would help to relieve this need.

There is a comparable need for nonproject assistance to meet the operation and maintenance requirements of ongoing projects. In part, these requirements can be met through regular project lending. For example, highway maintenance programs can be supported by flexible project lending. However, there will remain a range of needs for foreign exchange to meet operation and maintenance requirements which are too diverse and fragmented to be "projectized" in this way. These can best be financed by donor lending which is linked to this broad range of sectoral or economic needs.

The World Bank has recently introduced forms of nonproject assistance to address these needs. Structural adjustment lending (SAL) was introduced in 1980 to assist countries that had formulated comprehensive programs of adjustment to meet the deteriorated balance-of-payments prospects they would face during the 1980s. SAL has the distinguishing features of providing: (a) foreign exchange to finance imports not linked in advance to specific investment programs; and (b) finance over a number of years in direct support of specific policy reforms. Comprehensive programs of structural adjustment are required not only to enable countries to return to the growth path they had before the deterioration in their external economic circumstances occurred but, in addition, to improve on a previous unsatisfactory rate and pattern of growth. Structural adjustment programs comprise those changes in policy over a range of sectors (agriculture, industry, and energy in particular) needed to generate the required changes in the structure of output and growth in the medium term; policy changes must lead to a higher rate of growth of export earnings and a lower rate of import growth than would

otherwise occur. Such loans are being made to Kenya, Malawi, Mauritius, and Senegal in the early 1980s.

In cases in which a comprehensive adjustment program has not been formulated and adopted by a government, the Bank has provided assistance in support of programs of policy change that are more limited than in the case of SAL. These operations have had a sector or subsector focus and finance expenditure which is likely to yield quick returns and quick effects on production. In the case of Sudan, support has been given through lending for the rehabilitation of the agricultural sector. This assistance seeks to achieve a better upkeep of capital assets through adequate allocations for maintenance, rehabilitation, and rationalization of existing projects, to strengthen the planning and policymaking capacity of government at the national and sectoral levels, and to address the problems of policy framework and institutional environment that so frequently determine the success or failure of projects. A similar operation in Tanzania focused on the rehabilitation of the export sector with an emphasis on the required changes in incentives and in the allocation of budgetary funds to agriculture.

An intermediate form of financing can also be used more broadly for longer-term programs, whether in education, irrigation, or maintenance of infrastructure. It is possible for donors to review the longer-term program and, if it is mutually acceptable, to finance only a fixed number of years of its implementation. Thus, donors might finance three years of a six-year highway maintenance program, as is sometimes done already. The advantages are that a smaller amount of resources has to be committed at the outset and that the support can be provided for the total program rather than to select specific components for project financing and thus reduce the flexibility of the operating agencies in the use of funds. The risk involved is that the commitment cannot be made for the full period of implementation and thus it is possible that a portion of the program may be without adequate financial support in the later years. However, if the program is sound and donors have a long-term commitment to the country, this risk should be minimal.

Of course, development assistance is not the only source of nonproject finance. The IMF has played, and will continue to play, a major role in providing balance-of-payments assistance through its regular operations, the Extended Fund Facility, and the Compensatory Finance Facility. Under the Lomé Convention, nonproject assistance in the form of compensatory financing is available.

Another important source of freely available foreign exchange is the private capital market. Although relatively few African countries have adequate creditworthiness, one objective must be to improve debt management so that maximum use of this market can be made. Initially, borrowing in the private capital market may be limited to project-related finance, but as creditworthiness improves it can also be used in support of general sector programs and ultimately for general balance-of-payments financing.

Finally, the experience of the World Bank and the IFC demonstrates that there is a growing opportunity for private investment in Africa. Lack of knowledge and uncertainty on the part of investors restrict the flow of such capital and the associated managerial talent and technological know-how. The growing involvement of the IFC in Africa indicates that with appropriate assistance in these areas, private investment opportunities can be expanded and donor governments can do much to assist by expanding information flows to their business community and assuring that adequate insurance and credit facilities are available. The work of the World Bank, particularly in the areas of oil and gas and other minerals, suggests that the provision of geological information, analysis and restructuring of tax laws and other incentives, and relatively small financial participation to reduce political risk can attract foreign private investors. In turn, they will contribute not only their own equity but can obtain Bank capital that otherwise might not be available. The scope for action in this area is still very large and donors can assist in providing similar services to potential investors.

Debt Management

The *World Development Report 1981* indicates that overall debt-service ratios are likely to rise moderately for oil-importing Africa through the 1980s (see Table 9.5). (The debt-service ratio is the ratio of interest and amortization payments to export earnings.) While the ratios for the low-income countries are estimated to remain unchanged at around 19 percent, those for the middle-income countries are expected to rise from 13.6 percent in 1980 to about 19 percent in 1990. For oil-exporting countries the debt-service ratio is projected to rise through 1985 and then decline.

Projections of debt-service ratios are highly dependent on assumptions about trade prospects, import requirements, and capital flows. Further, aggregate projections often mask wide country variations. Some countries that experienced severe debt-servicing difficulties during the 1970s (Liberia, Sierra Leone, Sudan, Zaïre, and Zambia) are likely to continue to do so in the 1980s due in part to the impact of the earlier debt reschedulings and to amortization requirements for outstanding obligations. Other large borrowers in the 1970s (such as Cameroon, Ivory Coast, Senegal, and Tanzania) could face difficult debt-servicing problems if export performance falls.

Debt-service obligations are likely to become a more important element in the balance of payments of many African countries[3] and may compel more of them to use the Paris Club[4] and other arrangements for debt relief. It will also require that African governments strengthen their capacities in debt reporting and debt management, so that they can identify timely corrective measures to head off the emergence of debt problems.

Preventive actions that keep debt problems from arising are to be preferred to curative actions that must be taken once the debt and balance-of-payments situation becomes unmanageable. Actions of this nature that the African governments themselves can take include the following:

- strengthening their reporting systems to provide accurate information on the extent, composition, and trends of external borrowing to serve as a guide for policy;
- introducing or strengthening legislation to streamline and centralize the authority to contract debt; and
- actively reviewing debt-service implications of government financing plans, medium-term development programs, and the cost of borrowing for purposes (such as balance of payments or current budget support) that do not contribute to future foreign exchange earnings.

Donors, and particularly the World Bank, which has at its disposal extensive debt data and experience with rescheduling exercises, should significantly increase their training and technical assistance efforts in these debt-related areas.

Much closer collaboration than has existed up to now would be desirable between providers of ODA and other agencies of DAC and OPEC member governments who have responsibility for managing export or suppliers' credit. Given the economic prospects in most countries, and the fact that even with substantial changes in policy growth will accelerate significantly only in the second half of the decade, debt problems should be considered in the broader framework of the general problems of development, and longer-term solutions for debt crises should be sought. The present practice of separating aid and debt decisions may be counterproductive. It is in the interest of creditors and donors that economic and financial health be restored to the economies of the borrowing countries, and

Table 9.5. Actual and Projected Sub-Saharan African Debt-Service Ratios
(percent)

Category	*1977*	*1978*	*1980*	*1985*	*1990*
Oil importers	8.4	10.6	15.8	17.6	19.8
Low income	8.4	10.4	19.2	9.5	19.9
Middle income	8.1	10.1	13.6	16.2	19.3
Oil exporters	1.8	3.3	3.5	4.6	4.1

Source: World Bank projections.

3. The following African countries had recourse to multilateral debt renegotiations during the period 1975–80: Zaïre (1976, 1977, 1979); Sierra Leone (1977, 1980); Gabon (1978); Togo (1979); Sudan (1979); Liberia (1980).

4. The Paris Club refers to ad hoc meetings of representatives of the governments of western creditor countries.

that the separate treatment of aid and debt not jeopardize a promising attempt on the part of a debtor government to put through a viable policy-reform package.

Harmonizing Aid Procedures

Aid inflows have grown rapidly in the past decade—nearly 20 percent per year in current prices—and new donors, such as the OPEC countries, and institutions have become important contributors. The rapid build-up of aid volumes and the accompanying diversification of aid sources have created significant problems.

First, the stepped-up aid activity, injected into a situation of manpower scarcity and weak administrative structures, has compounded administrative problems and contributed to distortions in project execution. To bypass local administrative inefficiencies, donors tend to set up autonomous project authorities in one form or another. They also compete for scarce skills by bidding up salaries and fringe benefits. From each project authority comes a call for higher wages, not always tempered by the realization that higher wages in one sector cannot resolve the problem of generalized skill scarcity. These attempts to bypass the existing structures do not reduce problems of wage disparities and incentives; often they exacerbate them. A general result of the competition between donors for people and for projects is to raise the economic or opportunity cost of new projects, as scarce factors are made more costly, coordination is rendered more burdensome, and accumulating commitments tie up fiscal resources with little consideration of the costs in terms of sacrificed financing for existing activities.

Second, the multiplicity of donors, each operating independently, puts an especially heavy burden on small countries with limited administrative capacities. These burdens are well known: competition for projects among donors often undermines decisionmaking procedures and increases the difficulty of holding to sectoral and national priorities; different donor requirements and procedures regarding project identification, appraisal, procurement policies, and so forth, enormously complicate the tasks of national administrations; and under cofinancing arrangements, which are more and more common, individual donors often leave to the host agency the demanding task of arranging total project financing.

It is easier to identify these problems than to find practical solutions for them. National, organizational, and administrative styles are involved, as are a thicket of legal requirements imposed on aid transactions by donor governments. There are, nonetheless, certain ways to simplify things, and the adoption of streamlined procedures would help all parties.[5] Certainly one major contribution donors can make to Africa is to subordinate, to the extent legally and politically practicable, differences in style, documentation, criteria, and analyses, to the overall need for administrative simplicity.

Coordination of project selection criteria and aid allocations is a bigger problem. There are hesitations about greater donor coordination on both sides. Each donor institution sees things differently, and each has different constraints and objectives. Many find the idea of orchestration objectionable. Some African governments are also unenthusiastic. They fear "ganging up," as well as a loss of "maneuverability"; individual spending agencies would almost certainly see their scope of action limited by effective donor coordination.

Nonetheless, some coordination does take place and more would be desirable. The Arab-OPEC agencies have been particularly successful in harmonizing their activities through the concept of the lead-donor for each project. Local coordination arrangements that allow a more complete exchange of information and dovetailing of activities should therefore be encouraged.

Training and Technical Assistance

Accelerated growth in Africa depends more than anything else on training people and

5. See Chapter 7 of OECD, *Development Cooperation: Efforts and Policies of the Members of the Development Assistance Committee, 1979 Review* for a fuller discussion of progress being made in the simplification of donor procedures.

building institutions. Although technical assistance can help overcome particular scarcities in the short run, its major purpose is, and should be, training and the building up of institutions.

Training and technical assistance represent major areas of donor activity. In the late 1970s, about 25 percent of ODA was in the form of technical assistance grants. The identifiable project-related training in World Bank projects alone amounted to $55 million in 1979, or about 8 percent of total Bank/IDA lending to Sub-Saharan Africa in that year.[6] The African regions of the Bank spend three to four times as much as other regions on project-related training.

The contribution of technical assistance and donor-financed training programs has been substantial. Many, probably most, of the present cadre of experienced African technicians and managers have benefited directly from these training and technical assistance arrangements. Since trained people remain scarce in most of the continent, large tasks remain for technical assistance and large requirements for training. A production-oriented strategy will require greater reliance on technical assistance in the decade ahead. Substantial increases in project lending will require increases in technical assistance in most of Africa, as will the formulation of sectoral investment programs and the evolution of the policy framework.

Some modifications in the general approach do seem appropriate, however: strengthening project-related training; emphasizing on-the-job training, including training outside Africa; and shifting technical assistance more decisively in the direction of training. Special emphasis is given in Chapter 6 to training managers and economists (or policy analysts), since there are particularly critical needs in these fields.

The problems with project-related training are well understood: in many cases the training component has low priority in the project—often the lowest priority. Training usually begins late in the cycle of the project. Little in-service training occurs; most of it consists of sending local trainees abroad. Most donors and African governments are aware of the problems and are trying to make improvements. Some of what should be done is fairly clear: training needs should be identified very early in the project cycle, and trainees chosen quickly; the training component should receive substantially more attention in projects; and project supervision and evaluation should give greater weight to training performance rather than focusing overwhelmingly on the physical progress of projects. Donors and local governments should, either by sector or at the center, develop local training capacity, including training of African trainers, employ specialists to prepare training components, and employ training officers in large projects. Donors, including the Bank, must strengthen their own ability to provide adequate and responsive services in this area.

As noted earlier, the expansion of project aid to Africa requires enlargement of the already substantial flow of project-related technical assistance. Much of this would go to strengthening project management. Emphasis on the need for management assistance is especially strong among donor technicians, who tend to see in the presence or absence of good management the chief determinant of project success.[7]

It is worth noting that this stress on the management factor may be exaggerated. There is at any moment in any system a given stock of management skills. No project or other activity should expect more than the "average" level of management ability present in the available supply. If project success depends on finding a manager who possesses abilities far superior to the average, the project itself may be badly designed. In any case there are always scarcities of "superior" managers in any society, since they have special talents. Furthermore, there may be plenty of

6. While most sectors were involved, over half of training expenditures ($29 million) were in the agricultural sector and most of the rest ($20 million) were in transport.

7. In many World Bank ex-post project evaluations "good management" is the most frequently cited source of project success.

management ability present in a given country, but the environment (social, political, and economic) reduces the effectiveness of these abilities. It is commonly the case that an expatriate manager makes a project or an enterprise run better not so much because he is a better manager than his local counterpart, but because he is removed from many of the constraints of the surrounding system.

The implications of these considerations are, first, that project design should not proceed as though there were no local management constraints on the implicit assumption that managers will be imported. Project designers should generally make precisely the other assumption: that the project will be locally managed. Its scale and complexity should then be shaped accordingly. There may be technical or economic considerations that rule this out, particularly for capital-intensive projects and those necessarily embodying modern technologies (hydroelectric projects, large irrigation projects, airport operation, modern industries), but these should be explicitly assessed. Second, donors should avoid the creation of autonomous project management units, staffed with expatriates and operating more or less independently of the local organizational and political environment. Even though there may be some price in terms of lowered material output of the particular project, the long-term process of management improvement and institution-building is furthered only by integration of these projects into existing administrative systems.

Technical assistance needs will continue to be substantial through the 1980s and beyond. If this assistance is to be effective, certain problems must be recognized. The main difficulties are the maintenance of the supply of high-quality personnel willing to undertake technical assistance assignments, the particular need for people who can develop the "counterpart" relationship thereby emphasizing the training responsibility and avoiding becoming an executive, and the high cost of technical assistance which, in some parts of Africa, can reach $150,000 per year for a person hired through a consulting firm and which can be a source of stress (salary differentials between expatriates and that of senior local officials can be as high as 10:1 or even higher).

All of these factors, combined with a growing sense of confidence among local technicians, are lowering the threshold of acceptability of expatriate technical assistance, and they suggest that some shift in policy direction is in order. First, short-term technical assistance should be relied on more heavily to complement a greater reliance on local staff, systems, and institutions. Recruitment and logistic problems are much reduced in this way, and the injection of outside advice and help can, in some instances, be more effective. Second, local people should be employed more frequently as consultants and staff for externally financed projects. In the case of the World Bank, existing regulations permit the use of consultants. This has been tried in some projects and should be encouraged. Third, given the difficulties of combining the functions of management or technical expert and trainer, resident technical assistance people as well as those on short-term assignments should be explicitly named "trainers," except where they have another task of explicitly higher priority; in general, training should be their primary and, in some cases, their exclusive responsibility. The training components of programs should be reviewed to see how the training aspect can be strengthened. As noted above, future project-related training components should have heavier weight, and alternations should be made in the personnel mix of such projects.

Conclusion

Despite their enormous advances since independence, particularly in developing institutions, human resources, and even nations, Sub-Saharan African countries are in a crisis that can only be surmounted by the joint efforts of African governments and the donor community. The increased aid and related technical assistance recommended in this Report can only be mobilized if they support deliberate and well formulated programs to reverse the downward trend of development

in Africa. The policy reforms required in Africa will be technically difficult and politically thorny. African governments and the donor community will have to work out a relationship that recognizes these realities if the action program recommended in this Report is to be successful. But the rewards of taking these pains will be great. Policy action and foreign assistance that are mutually reinforcing will surely work together to build a continent that shows real gains in both development and income in the near future.

Accelerated Development in Sub-Saharan Africa: An Agenda for Action

STATISTICAL ANNEX

Contents

Aid, Debt, and Capital Flows

Agriculture

Social Indicators

Fiscal Data

Key

In the country tables, countries are listed in ascending order of income per capita within each country group. The reference numbers indicating that order are shown in the alphabetical list of countries below.

Figures in colored bands are summary measures for country groups.

The letters w, m, and t indicate weighted mean, median, and total, respectively. The following conventions apply: . . not available; (.) less than half the unit shown; n.a. not applicable.

Data for countries followed by a double asterisk were unavailable from the standard sources used elsewhere in the tables; in these cases, information from World Bank files has been used.

Angola	36	Mali	3
Benin	13	Mauritania	7
Botswana	33	Mauritius	34
Burundi	10	Mozambique	14
Cameroon	31	Niger	6
Central African Republic	19	Nigeria	38
Chad	1	Rwanda	12
Congo	37	Senegal	27
Ethiopia	8	Sierra Leone	15
Gabon	39	Somalia	2
Gambia	5	Sudan	24
Ghana	26	Swaziland	32
Guinea	18	Tanzania	16
Guinea-Bissau	9	Togo	23
Ivory Coast	35	Uganda	21
Kenya	25	Upper Volta	4
Lesotho	22	Zaïre	17
Liberia	29	Zambia	30
Madagascar	20	Zimbabwe	28
Malawi	11		

Introduction to the Annex

The Statistical Annex provides information on the main variables affecting social and economic development in Sub-Saharan Africa (SSA), including: Basic Indicators; Production; Trade; Aid, Debt, and Capital Flows; Agriculture; Social Development; and Fiscal Data. Within low-income countries, defined as those with a per capita income of less than or equal to $370, a distinction is made between (1) low-income semiarid countries and (2) all other low-income countries. For middle-income countries, defined as those with a per capita income exceeding $370, a distinction is made between (1) oil importers and (2) oil exporters. (There are no low-income oil exporters.) Worldwide averages or medians for low-income, middle-income, and industrialized countries[1] are usually included for comparison.

The country tables include 39 countries of Sub-Saharan Africa with population exceeding one half million in 1979. The six remaining Sub-Saharan African countries (Cape Verde, Comoros, Djibouti, Equatorial Guinea, São Tomé and Principe, and Seychelles) are not included because of lack of data. The alphabetical list of countries in the Key shows the reference number of each country.

Summary measures (means, medians, and totals) are calculated for the country groups only if there are enough countries with sufficient data to make the measures meaningful. Readers should exercise caution in comparing summary measures across country groups as well as indicators across countries. The quality of statistics is weaker in Africa than in most other parts of the world, and many of the statistics presented here are very approximate. National practices also vary, and country data are not always comparable.

The Technical Notes that follow the Tables outline concepts, definitions, and specific data problems and are followed by a Bibliography of Data Sources. Tables 1 through 9, 12, 17, and 33 through 38, and their technical notes, are derived from the World Development Indicators of the *World Development Report 1981*.

1. Industrialized countries exclude all centrally planned economies. The countries in these three groups are as listed in the Annex to the *World Development Report 1981* (New York: Oxford University Press, 1981), pp. 129–92.

Table 1. Basic Indicators

	Population (millions) mid–1979	Area (thousands of square kilometers)	GNP per capita: Dollars 1979	GNP per capita: Average annual growth rate (percent) 1960–79	Average annual rate of inflation (percent): 1960–70	Average annual rate of inflation (percent): 1970–79	Adult literacy (percent) 1976[a]	Life expectancy at birth (years) 1979	Average index of food production per capita (1969–71 = 100) 1977–79
Low-income countries	**187.1 *t***	**15,718 *t***	**239 *w***	**0.9 *w***	**2.8 *m***	**10.2 *m***	**25 *w***	**46 *w***	**91 *w***
Low-income semiarid	**28.0 *t***	**5,745 *t***	**187 *w***	**0.0 *w***	**3.3 *m***	**10.0 *m***	**17 *w***	**43 *w***	**88 *w***
1. Chad	4.4	1,284	110	−1.4	4.6	7.9	15*	41	91
2. Somalia	3.8	638	. .	−0.5	4.5	11.3	60	44	85
3. Mali	6.8	1,240	140	1.1	5.0	9.7	10	43	88
4. Upper Volta	5.6	274	180	0.3	1.3	9.8	5**	43	93
5. Gambia	0.6	11	250	2.6**	. .	. .	10**	42	77
6. Niger	5.2	1,267	270	−1.3	2.1	10.8	8	43	89
7. Mauritania	1.6	1,031	320	1.9	1.6	10.1	17*	43	75
Low-income other	**159.1 *t***	**9,973 *t***	**247 *w***	**1.0 *w***	**2.8 *m***	**10.7 *m***	**27 *w***	**47 *w***	**91 *w***
8. Ethiopia	30.9	1,222	130	1.3	2.1	4.3	15*	40	84
9. Guinea-Bissau	0.8	36	170	. .	. .	. .	7**	42	94
10. Burundi	4.0	28	180	2.1	2.8	11.2	25	42	105
11. Malawi	5.8	118	200	2.9	2.4	9.1	25*	47	100
12. Rwanda	4.9	26	200	1.5	13.1	14.6	. .	47	107
13. Benin	3.4	113	250	0.6	1.9	9.2	7**	47	97
14. Mozambique	10.2	783	250	0.1	2.8	11.0	. .	47	75
15. Sierra Leone	3.4	72	250	0.4	2.9	11.3	. .	47	87
16. Tanzania	18.0	945	260	2.3	1.8	13.0	66*	52	94
17. Zaire	27.5	2,345	260	0.7	29.9	31.4	15	47	90
18. Guinea	5.3	246	280	0.3	1.5	4.4	20*	44	86
19. Central African Rep.	2.0	623	290	0.7	4.1	9.1	. .	44	102
20. Madagascar	8.5	587	290	−0.4	3.2	10.1	50*	47	94
21. Uganda	12.8	236	290	−0.2	3.0	28.3	. .	54	90
22. Lesotho	1.3	30	340	6.0	2.5	11.6	52*	51	100
23. Togo	2.4	57	350	3.6	1.1	10.3	18	47	81
24. Sudan	17.9	2,506	370	0.6	3.7	6.8	20*	47	105
Middle-income oil importers	**65.2 *t***	**3,690 *t***	**532 *w***	**1.5 *w***	**2.4 *m***	**9.9 *m***	**34 *w***	**50 *w***	**95 *w***
25. Kenya	15.3	583	380	2.7	1.5	11.1	45*	55	92
26. Ghana	11.3	239	400	−0.8	7.6	32.4	. .	49	82
27. Senegal	5.5	197	430	−0.2	1.7	7.6	10*	43	88
28. Zimbabwe	7.1	391	470	0.8	1.3	8.4	. .	55	100
29. Liberia	1.8	111	500	1.6	1.9	9.4	30	54	101
30. Zambia	5.6	753	500	0.8	7.6	6.8	39*	49	99
31. Cameroon	8.2	475	560	2.5	4.2	10.3	. .	47	110
32. Swaziland	0.5	17	650	7.2**	. .	. .	65**	47	109
33. Botswana	0.8	600	720	9.1**	. .	. .	35**	49	89
34. Mauritius	0.9	2	1,030	2.3**	. .	. .	80**	65	100
35. Ivory Coast	8.2	322	1,040	2.4	2.8	13.5	20	47	102
Middle-income oil exporters	**91.6 *t***	**2,781 *t***	**669 *w***	**3.2 *w***	**3.3 *m***	**19.0 *m***	**. .**	**48 *w***	**86 *w***
36. Angola	6.9	1,247	440	−2.1	3.3	21.6	. .	42	85
37. Congo	1.5	342	630	0.9	5.4	10.9	. .	47	81
38. Nigeria	82.6	924	670	3.7	2.6	19.0	. .	49	87
39. Gabon	0.6	268	3,280	6.1**	. .	. .	12**	45	94
Sub-Saharan Africa	**343.9 *t***	**22,189 *t***	**411 *w***	**1.6 *w***	**2.8 *m***	**10.3 *m***	**27 *w***	**47 *w***	**91 *w***
All low-income countries	**2,260.2 *t***	**33,778 *t***	**230 *w***	**1.6 *w***	**3.0 *m***	**10.8 *m***	**51 *w***	**57 *w***	**105 *w***
All middle-income countries	**985.0 *t***	**38,705 *t***	**1,420 *w***	**3.8 *w***	**3.0 *m***	**13.3 *m***	**72 *w***	**61 *w***	**107 *w***
Industrialized countries	**671.2 *t***	**30,430 *t***	**9,440 *w***	**4.0 *w***	**4.3 *m***	**9.4 *m***	**99 *w***	**74 *w***	**110 *w***

a. Figures marked with an * are for years other than 1976. See technical notes.

Table 2. Growth of Production

	Average annual growth rate (percent)							
	GDP		Agriculture		Industry		Services	
	1960–70[a]	1970–79[b]	1960–70[a]	1970–79[b]	1960–70[a]	1970–79[b]	1960–70[a]	1970–79[b]
Low-income countries	**3.7 *w***	**1.7 *w***		**1.5 *m***		**1.5 *m***		**4.2 *m***
Low-income semiarid	**2.3 *w***	**2.2 *w***		**0.7 *m***		**1.0 *m***		**4.6 *m***
1. Chad	0.5	−0.2	. .	0.7	. .	0.2	. .	−2.6
2. Somalia	1.0	3.1*	−1.5	2.7*	3.3	−2.6*	2.5	6.8*
3. Mali	3.3	5.0	. .	4.2	. .	4.2	. .	6.1
4. Upper Volta	3.0	−0.1	. .	−3.3	. .	1.0	. .	2.9
5. Gambia**	5.4	2.8	4.6	7.0	2.1	3.3	6.6	−0.5
6. Niger	2.9	3.7	3.3	−1.5	13.9	10.2	(.)	4.6
7. Mauritania	. .	1.8	. .	−1.4	. .	0.1	. .	7.2
Low-income other	**3.9 *w***	**1.7 *w***		**1.8 *m***		**1.9 *m***		**4.0 *m***
8. Ethiopia	4.4*	1.9	2.2*	0.4	7.4*	0.4	7.8*	4.6
9. Guinea-Bissau	. .	. .	. .	. .	. .	. .	. .	. .
10. Burundi	4.4	3.0	. .	1.8	. .	7.7	. .	4.0
11. Malawi	4.9	6.3	. .	4.1	. .	7.0	. .	9.1
12. Rwanda	2.7	4.1	. .	. .	. .	. .	. .	. .
13. Benin	2.6	3.3	. .	. .	. .	. .	. .	. .
14. Mozambique	4.6	−2.9	2.1	−1.8	9.5	−5.6	6.4	−3.0
15. Sierra Leone	4.3	1.6	. .	2.3	. .	−3.8	. .	4.4
16. Tanzania	6.0	4.9	. .	4.9	. .	1.9	. .	5.9
17. Zaire	3.6	−0.7	. .	1.2	. .	−1.1	. .	(.)
18. Guinea	3.5	3.6	. .	. .	. .	. .	. .	. .
19. Central African Republic	1.9	3.3	0.8	2.4	5.4	5.1	1.8	3.3
20. Madagascar	2.7	0.3	. .	0.1	. .	1.0	. .	0.1
21. Uganda	5.9	−0.4	0.8		. .	−7.9	. .	0.1
22. Lesotho	4.6	7.0	. .	1.8	. .	7.0	. .	13.9
23. Togo	8.5	3.6	. .	0.3	. .	7.8	. .	4.0
24. Sudan	1.3	4.3	. .	2.7	. .	3.3	. .	6.9
Middle-income oil importers	**4.5 *w***	**3.1 *w***		**3.5 *m***		**3.5 *m***		**5.8 *m***
25. Kenya	6.0	6.5	. .	5.4	. .	10.2	. .	5.8
26. Ghana	2.1	−0.1	. .	−0.2	. .	−1.5	. .	1.0
27. Senegal	2.5	2.5	2.9	3.6	4.4	3.5	1.7	1.6
28. Zimbabwe	4.3	1.6	. .	−0.5	. .	1.8	. .	2.1
29. Liberia	5.1	1.8	. .	5.0	. .	−0.6	. .	1.9
30. Zambia	5.0	1.5	. .	2.3	. .	1.5	. .	1.2
31. Cameroon	3.7	5.4	. .	3.5	. .	6.5	. .	6.3
32. Swaziland**	8.6	4.6	7.5	3.7	13.4	3.2	6.0	6.4
33. Botswana**	5.7	13.5*	1.6	8.5*	12.6	16.6*	7.6	14.9*
34. Mauritius**	1.6	8.2	. .	−4.1	. .	11.8	. .	23.7
35. Ivory Coast	8.0	6.7	4.2	3.4	11.5	10.5	9.7	7.0
Middle-income oil exporters	**3.4 *w***	**4.6 *w***		**−0.3 *m***		**10.6 *m***		**−0.1 *m***
36. Angola	4.8	−9.2	4.0	−10.2	11.0	−3.9	4.2	−10.9
37. Congo	2.7	2.9	1.0	0.1	7.0	10.6	2.1	−0.1
38. Nigeria	3.1	7.5	−0.4	−0.3	12.0	11.2	4.9	11.0
39. Gabon**	4.1	7.7	. .	. .	. .	. .	. .	. .
Sub-Saharan Africa	**3.9 *w***	**2.9 *w***	. .	**1.8 *m***	. .	**3.3 *m***	. .	**4.2 *m***
Sub-Saharan Africa (excluding Nigeria)	**4.1 *w***	**1.6 *w***	. .	**1.8 *m***	. .	**3.2 *m***	. .	**4.0 *m***
All low-income countries	**4.5 *w***	**4.7 *w***	**2.5 *m***	**2.0 *m***	**6.6 *m***	**4.2 *m***	**3.8 *m***	**4.5 *m***
All middle-income countries	**6.1 *w***	**5.5 *w***	**3.6 *m***	**3.0 *m***	**7.4 *m***	**6.5 *m***	**5.5 *m***	**6.0 *m***
Industrialized countries	**5.1 *w***	**3.2 *w***	**1.3 *m***	**0.9 *m***	**6.2 *m***	**3.2 *m***	**4.8 *m***	**3.4 *m***

a Figures marked with an * are for 1961–70.
b. Figures marked with an * are for 1970–78.

Table 3. Structure of Production

	GDP millions of current dollars		Distribution of gross domestic product (percent)					
			Agriculture		Industry		Services	
	1960[a]	1979[b]	1960[a]	1979[b]	1960[a]	1979[b]	1960[a]	1979[b]
Low-income countries			**56 *w***	**44 *w***	**12 *w***	**16 *w***	**31 *w***	**40 *w***
Low-income semiarid			**61 *w***	**47 *w***	**11 *w***	**20 *w***	**28 *w***	**33 *w***
1. Chad	180	570	52	70	12	11	36	19
2. Somalia	160	1,030*	67	60*	13	11*	20	29*
3. Mali	270	1,220	55	42	10	11	35	47
4. Upper Volta	200	860	62	38	14	20	24	42
5. Gambia**	20*	132	43*	46	18*	9	40*	46
6. Niger	250	1,710	69	44	9	32	22	24
7. Mauritania	70	470	. .	27	. .	33	. .	40
Low-income other			**56 *w***	**43 *w***	**12 *w***	**15 *w***	**32 *w***	**41 *w***
8. Ethiopia	900	3,530	65	46	12	15	23	39
9. Guinea-Bissau**	. .	137	. .	54	. .	9	. .	34
10. Burundi	190	730	. .	55	. .	15	. .	30
11. Malawi	170	1,220	58	43	11	20	31	37
12. Rwanda	120	860	81	42	7	21	12	37
13. Benin	160	850	55	43	8	12	37	45
14. Mozambique	830	2,360	55	44	9	16	36	40
15. Sierra Leone	. .	790	. .	36	. .	23	. .	41
16. Tanzania	550	4,130	57	54	11	13	32	33
17. Zaire	130	6,020	30	33	27	24	43	43
18. Guinea	370	1,540	. .	41	. .	26	. .	33
19. Central African Republic	110	640	51	37	10	18	39	45
20. Madagascar	540	2,810	37	34	10	20	53	46
21. Uganda	540	8,410	52	55	13	7	35	38
22. Lesotho	30	240	73	36	. .	15	. .	49
23. Togo	120	1,000	55	25	16	23	29	52
24. Sudan	1,470	7,640	58	38	15	13	27	49
Middle-income oil importers			**30 *w***	**36 *w***	**30 *w***	**24 *w***	**44 *w***	**39 *w***
25. Kenya	730	5,280	38	34	18	21	44	45
26. Ghana	1,220	10,160	41	66	. .	21	. .	13
27. Senegal	610	2,480	24	29	17	24	59	47
28. Zimbabwe	780	3,640	18	12	35	39	47	49
29. Liberia	220	940	. .	35	. .	26	. .	39
30. Zambia	680	3,240	11	15	63	41	26	44
31. Cameroon	550	5,330	. .	32	. .	16	. .	52
32. Swaziland**	34*	243*	31*	. .	23*	. .	46*	. .
33. Botswana**	38*	410*	54*	21	11*	30	34*	49
34. Mauritius**	143	916	22	25	27	28	51	47
35. Ivory Coast	570	9,130	43	26	14	23	43	51
Middle-income oil exporters			**58 *w***	**23 *w***	**12 *w***	**44 *w***	**30 *w***	**33 *w***
36. Angola	690	2,490	50	48	8	23	42	29
37. Congo	130	1,120	23	13	17	36	60	51
38. Nigeria	3,150	75,170	63	22	11	45	26	33
39. Gabon**	167	2,988	33	6	34	65	34	29
Sub-Saharan Africa			**49 *w***	**32 *w***	**16 *w***	**31 *w***	**34 *w***	**37 *w***
All low-income countries			**51 *w***	**34 *w***	**17 *w***	**36 *w***	**32 *w***	**30 *w***
All middle-income countries			**22 *w***	**14 *w***	**30 *w***	**38 *w***	**47 *w***	**48 *w***
Industrialized countries			**6 *w***	**4 *w***	**40 *w***	**37 *w***	**54 *w***	**59 *w***

a. Figures marked with an * are for 1961.
b. Figures marked with an * are for 1978.

Table 4. Growth of Consumption and Investment

	Average annual growth rate (percent)					
	Public consumption		Private consumption		Gross domestic investment	
	1960–70	1970–79[a]	1960–70	1970–79[a]	1960–70	1970–79[a]
Low-income countries	**4.7 *m***	**4.5 *m***	**4.1 *m***	**3.2 *m***	**5.4 *m***	**3.1 *m***
Low-income semiarid	**4.4 *m***	**6.3 *m***	**2.8 *m***	**3.1 *m***	**4.3 *m***	**6.8 *m***
1. Chad	4.4	−1.7	−0.7	0.3	2.3	−0.5
2. Somalia	3.7	11.7*	−0.5	2.7*	4.3	8.5*
3. Mali	6.2	7.7	2.8	5.5	4.9	3.2
4. Upper Volta	. .	3.8	. .	1.1	. .	1.2
5. Gambia**	4.9	6.3	4.9	3.1	6.1	25.5
6. Niger	2.0	3.8	3.9	3.2	3.0	6.8
7. Mauritania	. .	18.9	. .	5.0	. .	6.9
Low-income other	**4.7 *m***	**2.9 *m***	**4.3 *m***	**3.8 *m***	**7.0 *m***	**2.3 *m***
8. Ethiopia	4.7	4.5	4.7	4.0	5.7	−1.8
9. Guinea-Bissau**	. .	. .	. .	. .	. .	. .
10. Burundi	19.2	6.0	3.2	3.1	4.3	16.5
11. Malawi	4.6	6.1	4.1	5.7	15.4	2.3
12. Rwanda	1.1	14.0	4.2	1.6	3.5	18.9
13. Benin	1.7	1.0	4.9	3.8	4.2	8.3
14. Mozambique	6.8	−4.0	4.4	−2.3	8.3	−8.4
15. Sierra Leone	. .	4.5	. .	1.5	. .	−1.3
16. Tanzania	[b]	[b]	5.2	6.0	9.8	3.0
17. Zaïre	8.5	−2.2	3.9	−1.8	9.6	−5.0
18. Guinea	. .	. .	. .	. .	. .	. .
19. Central African Republic	2.2	1.1	3.0	4.4	1.3	0.3
20. Madagascar	2.7	0.2	2.0	−0.6	5.4	−1.8
21. Uganda	5.9	1.3	5.6	1.1	9.8	−13.1
22. Lesotho	0.3	12.0	6.0	10.9	18.5	24.4
23. Togo	6.7	10.7	7.6	5.7	11.1	14.5
24. Sudan	12.1	−3.2	−1.2	7.3	−1.3	8.0
Middle-income oil importers	**6.7 *m***	**9.4 *m***	**3.9 *m***	**4.3 *m***	**8.2 *m***	**5.2 *m***
25. Kenya	10.0	9.0	4.6	6.9	7.0	1.2
26. Ghana	6.1	−0.2	2.0	0.3	−3.2	−7.9
27. Senegal	−0.2	[b]	3.2	3.3	1.1	1.8
28. Zimbabwe	. .	9.7*	. .	0.4*	. .	−2.1*
29. Liberia	5.6	2.3	1.7	4.3	−4.2	5.2
30. Zambia	11.0	1.8	6.8	−2.2	10.6	−5.6
31. Cameroon	6.1	5.4	2.7	5.3	9.3	7.9
32. Swaziland**	7.2	12.0	13.6	−0.7	10.6	13.3
33. Botswana**	10.8	16.9	6.9	10.6	25.3	5.6
34. Mauritius**	2.1	13.5	2.8	9.8	−6.7	16.1
35. Ivory Coast	11.8	10.0	8.0	7.3	12.7	13.8
Middle-income oil exporters	**8.8 *m***	**6.8 *m***	**2.6 *m***	**4.6 *m***	**5.2 *m***	**7.9 *m***
36. Angola	9.1	3.0	4.0	−7.9	9.7	−9.0
37. Congo	5.4	5.8	−0.3	2.8	2.9	0.2
38. Nigeria	10.0	12.4	1.1	6.3	7.4	17.8
39. Gabon**	8.5	7.8	8.8	9.7	−2.1	15.5
Sub-Saharan Africa	**6.0 *m***	**5.8 *m***	**4.0 *m***	**3.3 *m***	**5.7 *m***	**3.2 *m***
All low-income countries	**4.4 *m***	**4.5 *m***	**3.7 *m***	**3.7 *m***	**5.2 *m***	**6.4 *m***
All middle-income countries	**6.3 *m***	**7.4 *m***	**5.1 *m***	**5.2 *m***	**7.4 *m***	**7.0 *m***
Industrialized countries	**4.8 *m***	**3.7 *m***	**4.3 *m***	**3.6 *m***	**5.6 *m***	**1.4 *m***

a. Figures marked with an * are for 1970–78.
b. Public consumption is included in private consumption.

Table 5. Structure of Demand

	Distribution of gross domestic product (percent)											
	Public consumption		Private consumption		Gross domestic investment		Gross domestic saving		Exports of goods and nonfactor services		Resource balance	
	1960	1979[a]	1960	1979[a]	1960	1979[a]	1960	1979[a]	1960	1979[a]	1960	1979[a]
Low-income countries	**10 w**	**15 w**	**81 w**	**80 w**	**11 w**	**15 w**	**9 w**	**6 w**	**16 w**	**16 w**	**−2 w**	**−9 w**
Low-income semiarid	**11 w**	**18 w**	**84 w**	**78 w**	**12 w**	**23 w**	**7 w**	**4 w**	**13 w**	**22 w**	**−6 w**	**−19 w**
1. Chad	13	18	82	96	11	13	5	−14	23	33	−6	−27
2. Somalia	8	19*	89	79*	10	16*	3	2*	11	12*	−7	−14*
3. Mali	12	23	79	82	14	15	9	−5	12	16	−5	−20
4. Upper Volta	10	14	94	89	10	24	−4	−3	9	15	−14	−27
5. Gambia**	20	26	72	83	13	22	8	−9	59	65	−5	−31
6. Niger	9	9	79	72	13	28	12	19	9	25	−1	−9
7. Mauritania	. .	39	. .	47	. .	51	. .	14	. .	38	. .	−37
Low-income other	**10 w**	**15 w**	**80 w**	**80 w**	**11 w**	**13 w**	**10 w**	**6 w**	**17 w**	**15 w**	**−1 w**	**−8 w**
8. Ethiopia	8	17	81	87	12	10	11	−4	9	10	−1	−14
9. Guinea-Bissau**	. .	[b]	. .	102	. .	32	. .	−2	. .	10	. .	−34
10. Burundi	3	16	92	80	6	12	5	4	13	13	−1	−8
11. Malawi	16	17	88	70	10	29	−4	13	21	21	−14	−16
12. Rwanda	10	16	82	72	6	19	8	12	12	25	2	−7
13. Benin	16	12	75	87	15	21	9	1	12	27	−6	−20
14. Mozambique	11	15	81	85	10	10	8	(.)	14	13	−2	−10
15. Sierra Leone	. .	18	. .	78	. .	15	. .	4	. .	24	. .	−11
16. Tanzania	9	16	72	76	14	21	19	8	31	14	5	−13
17. Zaire	18	[b]	61	88	12	9	21	12	55	30	9	3
18. Guinea	. .	16	. .	70	. .	15	. .	14	. .	24	. .	−1
19. Central African Republic	19	20	72	72	20	20	9	8	23	18	−11	−12
20. Madagascar	20	17	75	73	11	22	5	10	12	17	−6	−12
21. Uganda	9	[b]	75	96	11	4	16	4	26	4	5	(.)
22. Lesotho	17	16	108	143	2	29	−25	−59	12	21	−27	−88
23. Togo	8	15	88	74	11	39	4	11	19	32	−7	−28
24. Sudan	6	11	85	84	9	14	9	5	12	9	(.)	−9
Middle-income oil importers	**11 w**	**15 w**	**67 w**	**68 w**	**22 w**	**19 w**	**21 w**	**16 w**	**37 w**	**27 w**	**0 w**	**−4 w**
25. Kenya	11	20	72	65	20	22	17	15	31	26	−3	−7
26. Ghana	10	9	73	86	24	5	17	5	28	12	−7	(.)
27. Senegal	17	[b]	68	98	16	21	15	2	40	34	−1	−19
28. Zimbabwe	11	13*	67	63*	23	15*	22	24*	. .	. .	−1	5*
29. Liberia	7	15	58	62	28	27	35	23	39	53	7	−4
30. Zambia	11	27	48	45	25	21	41	28	56	45	16	7
31. Cameroon	. .	10	. .	80	. .	25	. .	10	. .	25	. .	−15
32. Swaziland**	18	22	54	64	13	28	29	14	47	77	16	−13
33. Botswana**	15	25	88	63	8	43	−3	12	23	47	−12	−31
34. Mauritius**	15	14	79	61	30	38	6	25	32	50	−24	−13
35. Ivory Coast	10	17	73	56	15	31	17	27	37	35	2	−4
Middle-income oil exporters	**7 w**	**11 w**	**84 w**	**57 w**	**15 w**	**30 w**	**10 w**	**31 w**	**17 w**	**26 w**	**−6 w**	**1 w**
36. Angola	9	26	77	56	12	9	14	18	20	43	2	9
37. Congo	23	30	98	58	45	22	−21	12	21	. .	−66	−10
38. Nigeria	6	10	87	58	13	31	7	32	15	25	−6	1
39. Gabon**	10	12	40	36	50	30	50	53	32	. .	1	. .
Sub-Saharan Africa	**10 w**	**13 w**	**77 w**	**65 w**	**15 w**	**23 w**	**13 w**	**20 w**	**22 w**	**23 w**	**−3 w**	**−3 w**
All low-income countries	**9 w**	**11 w**	**78 w**	**66 w**	**18 w**	**26 w**	**16 w**	**23 w**	**7 w**	**11 w**	**−2 w**	**−3 w**
All middle-income countries	**11 w**	**13 w**	**70 w**	**62 w**	**21 w**	**26 w**	**19 w**	**25 w**	**16 w**	**20 w**	**−2 w**	**−1 w**
Industrialized countries	**15 w**	**17 w**	**63 w**	**61 w**	**21 w**	**23 w**	**22 w**	**22 w**	**12 w**	**19 w**	**1 w**	**−1 w**

a. Figures marked with an * are for 1978.
b. Public consumption is included in private consumption.

Table 6. Commercial Energy

	Average annual growth rate (percent)				Energy consumption per capita (kilograms of coal equivalent)		Energy imports as a percentage of merchandise exports		Petroleum imports as a percentage of total commercial energy consumption
	Energy production		Energy consumption						
	1960–74[a]	1974–79	1960–74	1974–79	1960	1979	1960[b]	1978[c]	1978
Low-income countries	**4.5 *w***	**21.2 *w***	**8.8 *w***	**0.1 *w***	**46 *w***	**70 *w***	**7 *w***	**. . *w***	**83 *w***
Low-income semiarid	**. . *w***	**. . *w***	**12.2 *w***	**8.5 *w***	**10 *w***	**48 *w***	**12 *w***	**. . *w***	**90 *w***
1. Chad	. .	. .	7.5	4.6	8	24	23	. .	62
2. Somalia	. .	. .	8.7	13.0	17	78	4	. .	96
3. Mali	. .	8.3	5.6	5.3	15	30	13	. .	92
4. Upper Volta	. .	. .	7.7	10.2	5	29	38	. .	94
5. Gambia	. .	. .	. .	. .	. .	. .	. .	. .	. .
6. Niger	. .	. .	14.8	12.8	6	48	6*	. .	92
7. Mauritania	. .	. .	21.2	5.5	18	185	39	. .	92
Low-income other	**4.5 *w***	**21.2 *w***	**8.6 *w***	**−0.5 *w***	**53 *w***	**74 *w***	**6 *w***	**. . *w***	**82 *w***
8. Ethiopia	14.1	2.3	14.0	−5.3	9	20	11	20	91
9. Guinea-Bissau	. .	. .	. .	. .	. .	. .	. .	19**	. .
10. Burundi	. .	22.0	. .	6.9	. .	17	. .	. .	. .
11. Malawi	. .	6.9	. .	5.7	. .	70	. .	22	59
12. Rwanda	. .	3.5	. .	10.4	. .	30	. .	. .	. .
13. Benin	. .	. .	9.5	−0.6	40	68	16	. .	91
14. Mozambique	3.2	60.0	5.2	1.1	113	139	11	. .	46
15. Sierra Leone	. .	. .	9.0	−1.1	31	89	11	. .	96
16. Tanzania	10.6	10.4	9.4	−2.9	43	53	. .	. .	90
17. Zaire	3.0	18.1	3.8	0.4	98	103	3	. .	. .
18. Guinea	16.0*	(.)	3.2	1.6	67	87	7	. .	66
19. Central African Republic	14.1	4.1	7.6	8.5	38	55	12	1	87
20. Madagascar	6.7	4.1	9.0	3.9	40	94	9	16	89
21. Uganda	5.2	−4.4	9.1	−8.2	43	39	5	. .	. .
22. Lesotho	. .	. .	. .	. .	. .	. .	. .	. .	. .
23. Togo	. .	22.3	12.7	11.8	23	117	10	13*	91
24. Sudan	. .	13.7	13.1	−0.9	54	141	8	24*	94
Middle-income oil importers	**3.4 *w***	**2.4 *w***	**6.9 *w***	**3.0 *w***	**249 *w***	**342 *w***	**8 *w***	**. . *w***	**56 *w***
25. Kenya	9.6	17.6	3.3	3.5	150	180	18	30	95
26. Ghana	. .	2.6	12.2	2.3	105	265	7	19*	66
27. Senegal	. .	. .	4.7	12.4	110	266	8	. .	96
28. Zimbabwe	2.5	−3.1	2.4	−0.3	1,346	791	. .	. .	22
29. Liberia	31.8	−1.3	18.9	−0.9	88	448	3	17	92
30. Zambia	. .	5.1	. .	5.2	. .	858	. .	11*	40
31. Cameroon	1.1	45.3	6.2	7.8	87	148	7	9	76
32. Swaziland	. .	. .	. .	. .	. .	. .	. .	. .	. .
33. Botswana	. .	. .	. .	. .	. .	. .	. .	. .	. .
34. Mauritius	. .	. .	. .	. .	. .	. .	. .	. .	. .
35. Ivory Coast	9.7	−12.2	14.3	5.5	75	234	5	10	95
Middle-income oil exporters	**36.1 *w***	**0.8 *w***	**9.5 *w***	**1.5 *w***	**36 *w***	**95 *w***	**7 *w***	**. . *w***	**. . *w***
36. Angola	35.5	−2.4	10.3	1.1	90	208	6	. .	. .
37. Congo	15.8	5.1	5.3	7.0	125	213	25	1*	. .
38. Nigeria	36.6	1.0	9.4	1.4	29	83	7	2	. .
39. Gabon	. .	. .	. .	. .	. .	. .	. .	. .	. .
Sub-Saharan Africa	**34.7 *w***	**1.2 *w***	**8.2 *w***	**1.7 *w***	**76 *w***	**128 *w***	**7 *w***	**. . *w***	**65 *w***
All low-income countries	**5.2 *w***	**8.4 *w***	**4.4 *w***	**8.1 *w***	**356 *w***	**463 *w***	**8 *w***	**. . *w***	**. . *w***
All middle-income countries	**12.7 *w***	**−0.5 *w***	**8.4 *w***	**6.3 *w***	**509 *w***	**1,225 *w***	**10 *w***	**20 *w***	**. . *w***
Industrialized countries	**4.1 *w***	**2.3 *w***	**5.3 *w***	**2.5 *w***	**4,486 *w***	**7,892 *w***	**11 *w***	**20 *w***	**. . *w***

a. Figures marked with an * are for 1961–74.
b. Figures marked with an * are for 1961.
c. Figures marked with an * are for 1977.

Table 7. Growth of Merchandise Trade

	Merchandise trade[a] (millions of dollars)		Average annual growth rate in volume (percent)			
			Exports		Imports	
	Exports 1979	Imports 1979	1960–70	1970–79	1960–70	1970–79
Low-income countries	**5,749 *t***	**7,613 *t***	**5.3 *m***	**−1.9 *m***	**6.0 *m***	**4.2 *m***
Low-income semiarid	**516 *t***	**980 *t***	**5.9 *m***	**4.4 *m***	**4.8 *m***	**5.5 *m***
1. Chad	. .	. .	5.9	−3.4	5.0	−0.1
2. Somalia	111	287	2.3	5.6	2.6	7.7
3. Mali	177	180	3.0	6.7	−0.4	5.5
4. Upper Volta	81	254	15.9	3.1	8.5	5.2
5. Gambia	. .	. .	. .	. .	. .	. .
6. Niger	. .	. .	6.0	11.7	11.9	6.5
7. Mauritania	147	259	50.7	−1.1	4.5	5.5
Low-income other	**5,233 *t***	**6,633 *t***	**5.0 *m***	**−2.7 *m***	**6.2 *m***	**−0.5 *m***
8. Ethiopia	418	567	3.6	−2.7	6.2	0.4
9. Guinea-Bissau**	14	61	. .	. .	. .	. .
10. Burundi	105	152	. .	. .	. .	. .
11. Malawi	233	399	11.6	4.6	7.6	4.3
12. Rwanda	115	190	15.8	1.6	8.1	10.5
13. Benin	190	357	5.0	−11.4	7.4	6.3
14. Mozambique	. .	. .	6.0	−16.6	7.9	−14.4
15. Sierra Leone	205	297	0.3	−6.5	1.9	−3.0
16. Tanzania	523	1,084	3.4	−6.6	6.0	−0.5
17. Zaire	1,324	597	−1.8	−1.1	5.4	−11.9
18. Guinea	373	347	. .	. .	. .	. .
19. Central African Republic	80	70	8.1	−0.5	4.5	−5.0
20. Madagascar	394	641	5.3	−1.0	4.1	−1.7
21. Uganda	427	230	5.0	−7.0	6.2	−10.5
22. Lesotho	. .	. .	. .	. .	. .	. .
23. Togo	251	441	10.5	−2.5	8.6	9.8
24. Sudan	581	1,200	0.1	−4.4	1.2	4.5
Middle-income oil importers	**9,341 *t***	**9,351 *t***	**7.1 *m***	**−0.5 *m***	**6.6 *m***	**2.3 *m***
25. Kenya	1,104	1,658	7.2	−0.5	6.6	−1.0
26. Ghana	1,096*	993*	0.2	−7.2	−1.5	0.1
27. Senegal	421*	756*	1.2	−0.8	2.3	4.5
28. Zimbabwe	1,194	940	. .	. .	. .	. .
29. Liberia	506	487	18.4	2.3	2.9	2.3
30. Zambia	1,377	755	2.2	−0.7	9.7	−8.1
31. Cameroon	1,129	1,271	7.1	0.5	9.2	7.0
32. Swaziland	. .	. .	. .	. .	. .	. .
33. Botswana	. .	. .	. .	. .	. .	. .
34. Mauritius	. .	. .	. .	. .	. .	. .
35. Ivory Coast	2,515	2,491	8.8	5.2	9.7	10.1
Middle-income oil exporters	**18,192 *t***	**12,641 *t***	**6.6 *m***	**−0.1 *m***	**1.6 *m***	**3.3 *m***
36. Angola	. .	. .	9.0	−7.9	11.5	−4.2
37. Congo	119*	242*	5.1	8.2	−1.0	3.3
38. Nigeria	18,073	12,399	6.6	−0.3	1.6	20.6
39. Gabon	. .	. .	. .	. .	. .	. .
Sub-Saharan Africa	**33,282 *t***	**29,605 *t***	**5.9 *m***	**−0.8 *m***	**6.0 *m***	**3.3 *m***
Low-income countries	**47,199 *t***	**49,699 *t***	**5.2 *m***	**−1.0 *m***	**5.0 *m***	**3.3 *m***
Middle-income countries	**272,496 *t***	**304,708 *t***	**5.4 *m***	**4.3 *m***	**6.6 *m***	**5.0 *m***
Industrialized countries	**1,028,279 *t***	**1,106,543 *t***	**8.4 *m***	**5.9 *m***	**9.3 *m***	**4.5 *m***

a Figures marked with an * are for 1978.

Table 8. Structure of Merchandise Exports

	Percentage share of merchandise exports									
	Fuels		Minerals and metals		Food and beverages		Other primary products		Manufactures	
	1962	1978	1962	1978	1962	1978	1962	1978	1962	1978
Low-income countries	(.) *w*	2 *w*	10 *w*	21 *w*	55 *w*	57 *w*	27 *w*	16 *w*	9 *w*	6 *w*
Low-income semiarid	1 *w*	0 *w*	(.) *w*	34 *w*	75 *w*	40 *w*	21 *w*	23 *w*	3 *w*	3 *w*
1. Chad	4	0	1	0	17	15	75	81	3	4
2. Somalia	0	0	0	0	87	96	11	3	2	1
3. Mali	0	0	1	0	81	47	16	52	2	1
4. Upper Volta	0	0	4	(.)	85	49	4	46	7	5
5. Gambia**	. .	. .	0	. .	100	. .	0	. .	0	. .
6. Niger	1	0	0	40	92	21	3	4	4	35
7. Mauritania	6	0	0	87	32	9	6	0	55	4
Low-income other	(.) *w*	2 *w*	10 *w*	19 *w*	53 *w*	58 *w*	27 *w*	15 *w*	10 *w*	6 *w*
8. Ethiopia	0	4	1	0	79	85	18	10	2	1
9. Guinea-Bissau**	0	0	0	0	96	96	4	3	. .	1
10. Burundi	. .	0	. .	8	. .	89	. .	2	. .	1
11. Malawi	. .	0	. .	0	. .	95	. .	1	. .	4
12. Rwanda	. .	0	. .	10	. .	87	. .	3	. .	(.)
13. Benin	0	2	0	4	94	40	3	45	4	9
14. Mozambique	. .	10	. .	2	. .	64	. .	21	. .	3
15. Sierra Leone	. .	0	. .	8	. .	47	. .	1	. .	44
16. Tanzania	2	2	1	2	34	65	49	25	14	6
17. Zaïre	0	1	16	71	49	18	26	2	10	8
18. Guinea	0**	0	70**	98	29**	2**	0**	0**	. .	0
19. Central African Rep.	2	0	0	0	36	32	41	30	21	38
20. Madagascar	0	2	4	6	82	83	9	2	5	7
21. Uganda	. .	0	. .	1	. .	92	. .	7	. .	(.)
22. Lesotho	. .	6	. .	26	. .	23	. .	9	. .	36
23. Togo	0	0	12	49	75	43	6	2	6	6
24. Sudan	. .	5	. .	(.)	. .	44	. .	51	. .	(.)
Middle-income oil importers	. .	5 *w*	. .	19 *w*	. .	59 *w*	. .	11 *w*	. .	7 *w*
25. Kenya	. .	19	. .	(.)	. .	60	. .	9	. .	13
26. Ghana	0	2	13	14	71	73	12	6	4	5
27. Senegal	(.)	1	6	12	90	72	1	8	4	7
28. Zimbabwe**	. .	. .	. .	25[a]	. .	. .	. .	62[b]	. .	13
29. Liberia	. .	0	. .	63	. .	6	. .	29	. .	2
30. Zambia	. .	(.)	. .	94	. .	1	. .	0	. .	4
31. Cameroon	(.)	3	21	3	59	74	16	17	4	4
32. Swaziland	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
33. Botswana	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
34. Mauritius**	. .	0	. .	0	. .	100	. .	0	. .	0
35. Ivory Coast	0	4	2	0	76	74	22	15	1	7
Middle-income oil exporters	11 *w*	90 *w*	2 *w*	1 *w*	59 *w*	6 *w*	21 *w*	3 *w*	9 *w*	1 *w*
36. Angola	. .	62	. .	2	. .	23	. .	6	. .	7
37. Congo	7	54	0	6	44	10	40	15	9	15
38. Nigeria	10	91	0	(.)	65	6	17	2	8	1
39. Gabon**	18	81	18	9	3	1	48	7	14	2
Sub-Saharan Africa	3 *w*	49 *w*	7 *w*	10 *w*	62 *w*	31 *w*	21 *w*	9 *w*	7 *w*	4 *w*

a. Includes fuels.
b. Includes food and beverages.

Table 9. Structure of Merchandise Imports

	Percentage share of merchandise imports									
	Food		Fuels		Other primary commodities		Machinery and transport equipment		Other manufactures	
	1960[a]	1978[a]	1960[a]	1978[a]	1960[a]	1978[a]	1960[a]	1978[a]	1960[a]	1978[a]
Low-income countries	**17 *w***	**15 *w***	**8 *w***	**12 *w***	**4 *w***	**3 *w***	**19 *w***	**33 *w***	**52 *w***	**37 *w***
Low-income semiarid	**23 *w***	**22 *w***	**7 *w***	**10 *w***	**2 *w***	**3 *w***	**19 *w***	**32 *w***	**49 *w***	**35 *w***
1. Chad	19	15**	12	14**	4	2**	19	28**	46	40**
2. Somalia	27*	25**	4*	7**	0*	6**	18*	28**	51*	34**
3. Mali	20*	19**	5*	14**	4*	2**	18*	30**	53*	35**
4. Upper Volta	21*	19	4*	9	1*	0	24*	43	50*	29
5. Gambia**	. .	24*	. .	9	. .	3	. .	14	. .	50
6. Niger	24*	10**	5*	12**	4*	2**	18*	33**	49*	43**
7. Mauritania	5*	. .	3*	. .	3*	. .	39*	. .	50*	. .
Low-income other	**16 *w***	**14 *w***	**8 *w***	**13 *w***	**4 *w***	**2 *w***	**19 *w***	**33 *w***	**53 *w***	**37 *w***
8. Ethiopia	. .	6	. .	12	. .	4	. .	35	. .	43
9. Guinea-Bissau**	. .	43	. .	5	. .	1	. .	29	. .	22
10. Burundi	. .	23*	. .	11*	. .	8*	. .	27*	. .	31*
11. Malawi	. .	5	. .	12	. .	2	. .	37	. .	44
12. Rwanda	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
13. Benin	17	15	10	15	1	2	18	22	54	46
14. Mozambique	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
15. Sierra Leone	23	21	12	12	5	1	15	24	45	42
16. Tanzania**	. .	11	. .	19	. .	4	. .	33	. .	33
17. Zaire	. .	17	. .	18	. .	. .	. .	38	. .	27
18. Guinea	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
19. Central African Rep.	15	17	9	2	2	2	26	38	48	41
20. Madagascar	17	17	6	14	3	3	23	31	51	35
21. Uganda	6*	8**	8*	30**	8*	2**	25*	27**	53*	34**
22. Lesotho	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
23. Togo	16	8	6	14	3	4	32	37	43	37
24. Sudan	17	19	8	1	3	2	14	36	58	42
Middle-income oil importers	**19 *w***	**11 *w***	**6 *w***	**15 *w***	**4 *w***	**5 *w***	**26 *w***	**37 *w***	**44 *w***	**32 *w***
25. Kenya	12*	7	11*	18	8*	3	27*	41	42*	31
26. Ghana	19	9*	5	16*	4	5*	26	26*	46	44*
27. Senegal	30	23	5	12	2	21	19	18	44	26
28. Zimbabwe	. .	2	. .	30	. .	5	. .	34	. .	29
29. Liberia	16	17	4	18	7	1	34	32	39	32
30. Zambia	. .	6*	. .	16*	. .	3*	. .	71*	. .	4*
31. Cameroon	20	10	8	7	3	2	17	39	52	42
32. Swaziland	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
33. Botswana	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
34. Mauritius**	. .	24*	. .	9*	. .	3*	. .	24*	. .	40*
35. Ivory Coast	18	13	6	10	2	2	27	39	47	36
Middle-income oil exporters	**14 *w***	**14 *w***	**5 *w***	**2 *w***	**5 *w***	**2 *w***	**25 *w***	**43 *w***	**50 *w***	**39 *w***
36. Angola	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
37. Congo	18	21*	6	1*	1	1*	31	32*	44	45*
38. Nigeria	14	14	5	2	6	2	24	44	51	38
39. Gabon**	. .	12	. .	(.)	. .	2	. .	39	. .	46
Sub-Saharan Africa	**17 *w***	**13 *w***	**6 *w***	**8 *w***	**5 *w***	**3 *w***	**24 *w***	**39 *w***	**48 *w***	**36 *w***
All low-income countries	**22 *w***	**17 *w***	**6 *w***	**11 *w***	**16 *w***	**20 *w***	**25 *w***	**24 *w***	**31 *w***	**28 *w***
All middle-income countries	**15 *w***	**12 *w***	**9 *w***	**17 *w***	**13 *w***	**8 *w***	**28 *w***	**32 *w***	**35 *w***	**31 *w***
Industrialized countries	**22 *w***	**13 *w***	**11 *w***	**19 *w***	**24 *w***	**10 *w***	**16 *w***	**25 *w***	**27 *w***	**33 *w***

a Figures marked with an * are for years other than specified.

Table 10. Principal Merchandise Exports of Sub-Saharan Africa

	1976–78 average			
			Principal exporter	
	Value (millions of dollars)	Percentage share of Sub-Saharan African exports	Country	Percentage share of exports from Sub-Saharan Africa
Fuels				
Petroleum	11,502	43.5	Nigeria	95.5
Mineral and metals				
Copper	1,589	6.0	Zambia	54.0
Iron ore	432	1.6	Liberia	67.9
Bauxite	188	0.7	Guinea	95.1
Phosphate rock	140	0.5	Togo	58.6
Manganese ore	120	0.5	Gabon	85.7
Zinc	79	0.3	Zaïre	57.7
Tin	59	0.2	Nigeria	43.8
Lead	20	0.1	Namibia	63.9
Food and beverages				
Coffee	2,838	10.7	Ivory Coast	22.5
Cocoa	1,882	7.1	Ghana	34.5
Sugar	432	1.6	Mauritius	48.5
Tea	245	0.9	Kenya	57.7
Groundnuts	194	0.7	Sudan	52.1
Groundnut oil	177	0.7	Senegal	80.8
Beef	78	0.3	Botswana	43.4
Palmoil	58	0.8	Ivory Coast	71.4
Bananas	45	0.2	Ivory Coast	32.8
Maize	30	. .		
Nonfood				
Timber	680	2.6	Ivory Coast	47.4
Cotton	651	2.5	Sudan	46.0
Tobacco	290	1.1	Zimbabwe	47.8
Rubber	128	0.5	Liberia	47.5
Sisal	50	0.2	Tanzania	52.8
All other exports	**4,553**	**17.2**		
Total exports of Sub-Saharan Africa	**26,458**	**100.0**	Nigeria	41.5

Table 11. Merchandise Exports by Degree of Processing

	Percentage share of exports by degree of processing 1977[a]	
	Sub-Saharan Africa	*Other developing countries*
Food products:		
Coffee		
Green, roasted	100*	95*
Essence, extracts	(.)*	5*
Cocoa		
Beans, raw, roasted	84	62
Powder and paste	15	29
Chocolate and products	1	9
Tobacco		
Unmanufactured	94	85
Manufactured	6	15
Groundnuts		
Green	24	53
Oil	76*	47
Nonfood agricultural products:		
Leather		
Hides and skins	77*	18*
Leather	22*	76*
Leather manufactures	1*	6*
Wood		
Rough logs	77	47
Shaped wood	15	25
Veneers, plywood	7	22
Manufactures	1	6
Cotton		
Raw	85	53
Grey yarn in bulk	1	18
Woven fabrics	14	29
Nonfuel minerals:		
Copper		
Ores, excluding matte	3*	21*
Unrefined	11*	35*
Refined	85*	42*
Bars, wires	(.)*	2*
Tubes, pipes	(.)*	(.)*
Iron and Steel		
Ore, concentrate	98	56
Pig iron	(.)	17
Ingots, primary form	0	6
Worked in various forms	2	21
Aluminum		
Bauxite	35*	32*
Oxide, hydroxide	13	48
Unwrought	50	11*
Bars, wire	0	7
Plate, sheet, strip	3	2
Phosphate		
Natural	98	88
Chemical fertilizer	2	12

a. Figures followed by an * are for years other than 1977.

Table 12. Destination of Merchandise Exports

	Percentage share of merchandise exports									
	Industralized market economies		*Sub-Saharan African countries*		*Other developing countries*		*Centrally planned economies*		*Capital-surplus oil exporters*	
	1960	*1979*	*1960*	*1979*	*1960*	*1979*	*1960*	*1979*	*1960*	*1979*
Low-income countries	**76 *w***	**64 *w***	**6 *w***	**8 *w***	**16 *w***	**22 *w***	**1 *w***	**3 *w***	**1 *w***	**4 *w***
Low-income semiarid	**76 *w***	**71 *w***	**18 *w***	**6 *w***	**6 *w***	**11 *w***	**0 *w***	**0 *w***	**0 *w***	**13 *w***
1. Chad	73	30	27	13	0	52	0	. .	0	5
2. Somalia	85	18	0	1	15	2	0	(.)	(.)	80
3. Mali	93	68	7	15	0	17	0	(.)	(.)	(.)
4. Upper Volta	4	75	96	9	0	16	0	. .	0	0
5. Gambia	97	93	3	1	0	6	0	(.)	0	0
6. Niger	74	97	26	1	0	0	0	. .	0	2
7. Mauritania	89	88	11	2	0	9	0	. .	0	1
Low-income other	**76 *w***	**63 *w***	**5 *w***	**8 *w***	**17 *w***	**23 *w***	**0 *w***	**3 *w***	**1 *w***	**3 *w***
8. Ethiopia	69	72	4	(.)	20	11	1	7	6	10
9. Guinea-Bissau**	. .	29	32	22	. .	38	. .	1	. .	0
10. Burundi	. .	89	. .	1	. .	9	. .	1	. .	0
11. Malawi	. .	84	. .	12	. .	4	. .	1	. .	. .
12. Rwanda	. .	80	. .	4	. .	16	. .	1	. .	. .
13. Benin	90	89	8	2	0	8	2	1	0	(.)
14. Mozambique	29	43	5	4	66	45	(.)	1	(.)	7
15. Sierra Leone	99	98	1	1	0	1	0	. .	0	(.)
16. Tanzania	74	57	4	4	21	36	1	2	0	1
17. Zaire	89	64	5	26	6	10	(.)	(.)	(.)	(.)
18. Guinea	63	69	10	3	9	26	18	. .	(.)	2
19. Central African Rep.	83	78	9	2	8	20	0	(.)	0	(.)
20. Madagascar	79	67	18	4	2	29	1	(.)	(.)	(.)
21. Uganda	62	67	7	3	31	27	0	1	0	2
22. Lesotho	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
23. Togo	74	67	26	8	0	17	0	8	0	. .
24. Sudan	59	36	2	(.)	27	45	8	9	4	10
Middle-income oil importers	**88 *w***	**75 *w***	**3 *w***	**9 *w***	**7 *w***	**13 *w***	**3 *w***	**3 *w***	**0 *w***	**0 *w***
25. Kenya	77	63	7	21	15	15	0	(.)	(.)	1
26. Ghana	88	70	2	2	3	15	7	13	(.)	(.)
27. Senegal	89	59	4	27	7	14	0	(.)	0	(.)
28. Zimbabwe	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
29. Liberia	100	86	0	(.)	(.)	14	0	(.)	0	(.)
30. Zambia	. .	82	. .	2	. .	16	. .	(.)	. .	(.)
31. Cameroon	93	84	3	6	3	8	1	2	(.)	(.)
32. Swaziland	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
33. Botswana	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
34. Mauritius**	97	95	2	4	1	1	0	0	0	0
35. Ivory Coast	84	78	3	6	13	11	0	5	0	(.)
Middle-income oil exporters	**89 *w***	**84 *w***	**2 *w***	**3 *w***	**8 *w***	**13 *w***	**1 *w***	**0 *w***	**0 *w***	**(.) *w***
36. Angola	64	33	7	(.)	27	66	2	0	0	1
37. Congo	93	72	(.)	1	7	27	0	(.)	0	(.)
38. Nigeria	95	87	1	2	3	11	1	(.)	0	(.)
39. Gabon**	87	60	6	8	7	32	0	0	0	(.)
Sub-Saharan Africa	**82 *w***	**78 *w***	**4 *w***	**5 *w***	**12 *w***	**15 *w***	**2 *w***	**2 *w***	**(.) *w***	**1 *w***
All low-income countries	**51 *w***	**61 *w***			**29 *w*[a]**	**29 *w*[a]**	**19 *w***	**5 *w***	**1 *w***	**5 *w***
All middle-income countries	**68 *w***	**67 *w***			**24 *w*[a]**	**26 *w*[a]**	**8 *w***	**4 *w***	**(.) *w***	**3 *w***
Industrialized countries	**67 *w***	**69 *w***			**30 *w*[a]**	**24 *w*[a]**	**3 *w***	**3 *w***	**(.) *w***	**4 *w***

a. Includes exports destined for Sub-Saharan Africa.

Table 13. Terms of Trade

	Net barter terms of trade (1975 = 100)			Income terms of trade (1975 = 100)			Average annual growth rate: Net barter terms of trade		Average annual growth rate: Income terms of trade	
	1960	1970	1979	1960	1970	1979	1961–70	1970–79	1961–70	1970–79
Low-income countries	**110 *m***	**117 *m***	**97 *m***	**62 *m***	**116 *m***	**105 *m***	**0.9 *m***	**0.8 *m***	**5.1 *m***	**−0.8 *m***
Low-income semiarid	**104 *m***	**117 *m***	**94 *m***	**38 *m***	**78 *m***	**82 *m***	**−0.1 *m***	**−1.3 *m***	**4.8 *m***	**3.0 *m***
1. Chad	98	93	100	62	116	78	−1.0	1.6	2.9	−1.7
2. Somalia	145	135	97	59	71	82	−1.6	−2.7	0.5	2.2
3. Mali	107	117	95	55	122	148	7.0	−0.6	4.5	5.7
4. Upper Volta	88	117	94	20	78	105	3.5	−1.3	15.6	6.2
5. Gambia	104	109	93	38	73	81	−0.1	−1.3	5.4	3.0
6. Niger	98	109	90	32	68	150	0.5	−2.2	4.8	9.0
7. Mauritania	149	133	78	3	102	77	−2.1	−5.2	38.5	−6.1
Low-income other	**114 *m***	**118 *m***	**104 *m***	**89 *m***	**140 *m***	**108 *m***	**0.8 *m***	**0.7 *m***	**5.5 *m***	**−1.3 *m***
8. Ethiopia	143	151	142	75	112	113	0.5	2.4	3.3	−0.7
9. Guinea-Bissau**	. .	. .	111	. .	. .	119	. .	. .	. .	. .
10. Burundi	. .	. .	. .	. .	. .	. .	−0.2	−0.9	4.7	−19.0
11. Malawi	115	99	84	40	83	112	−3.0	−0.5	7.9	3.5
12. Rwanda	111	125	145	21	115	140	0.8	6.3	15.1	7.2
13. Benin	114	129	97	127	208	84	1.2	−2.8	8.7	−14.5
14. Mozambique	90	88	75	89	167	32	. .	. .	. .	. .
15. Sierra Leone	121	136	108	146	158	75	1.5	−1.6	2.4	−6.6
16. Tanzania	98	103	102	118	152	104	0.2	0.7	3.8	−4.4
17. Zaïre	122	200	91	137	192	90	7.7	−7.8	7.2	−8.7
18. Guinea	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
19. Central African Rep.	109	118	108	64	124	113	0.9	1.3	8.0	1.1
20. Madagascar	136	115	105	64	111	89	−0.3	−0.9	4.1	−1.3
21. Uganda	123	130	136	119	211	158	1.3	3.1	5.5	−0.8
22. Lesotho	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
23. Togo	56	59	82	27	89	110	2.2	9.0	11.3	6.0
24. Sudan	83	83	78	96	140	105	0.8	1.4	2.1	−2.8
Middle-income oil importers	**112 *m***	**120 *m***	**105 *m***	**60 *m***	**119 *m***	**104 *m***	**1.6 *m***	**2.6 *m***	**6.4 *m***	**0.6 *m***
25. Kenya	133	119	110	67	120	113	−1.6	2.2	4.8	0.9
26. Ghana	111	121	144	90	125	144	2.3	6.9	1.5	−0.8
27. Senegal	71	79	76	52	71	46	1.3	1.4	1.3	0.2
28. Zimbabwe	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
29. Liberia	255	131	88	52	118	94	−4.7	−4.1	12.6	−2.2
30. Zambia	115	227	100	99	238	91	10.0	−9.0	12.3	−9.7
31. Cameroon	106	117	144	90	125	144	1.9	6.1	8.0	6.7
32. Swaziland	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
33. Botswana	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
34. Mauritius	57	47	49	30	48	89	−3.3	3.7	−1.6	8.6
35. Ivory Coast	113	127	129	31	85	138	2.0	3.0	9.2	8.2
Middle-income oil exporters	**54 *m***	**55 *m***	**109 *m***	**18 *m***	**32 *m***	**113 *m***	**1.0 *m***	**12.9 *m***	**7.0 *m***	**12.8 *m***
36. Angola	60	68	113	30	93	102	1.7	8.5	10.2	0.3
37. Congo	87	89	91	23	34	76	0.1	1.0	2.5	8.6
38. Nigeria	32	32	119	13	30	143	1.0	17.2	7.0	16.9
39. Gabon	47	42	105	11	25	124	1.0	17.2	7.0	17.0
Sub-Saharan Africa	**108 *m***	**117 *m***	**100 *m***	**57 *m***	**114 *m***	**105 *m***	**0.9 *m***	**1.2 *m***	**5.5 *m***	**0.6 *m***

Table 14. Exports: Commodity Concentration and Fluctuation in Values

	Percentage share in total exports of three principal exports[a]		Index of export fluctuations[a]	
	1961	1976–78 (average)	1955–65	1965–79
Low-income countries	**60.55 *m***	**79.6 *m***	**12.5 *m***	**12.85 *m***
Low-income semiarid	**60.5 *m***	**79.7 *m***	**17.6 *m***	**19.3 *m***
1. Chad	90.5	82.1	15.4	12.6
2. Somalia	60.3	90.6**	10.7	13.1
3. Mali	60.5	55.6[b]	13.9	14.6
4. Upper Volta[c]	14.3	43.6	27.3	19.7
5. Gambia	95.7	79.7	17.6	19.3
6. Niger	77.2	79.5[d]	73.2	59.3
7. Mauritania	28.5	86.1	73.2	59.3
Low-income other	**60.6 *m***	**79.1 *m***	**8.6 *m***	**9.3 *m***
8. Ethiopia	63.8	81.5	7.9	8.2
9. Guinea-Bissau[e]	78.9	76.6	17.3	15.4
10. Burundi	99.1	95.2	6.6	8.2
11. Malawi	93.8	83.1	7.4	8.2
12. Rwanda	91.9	86.5	16.0	18.0
13. Benin	36.4	32.0	10.1	20.6
14. Mozambique	46.9	25.6	5.1	6.8
15. Sierra Leone	19.6	79.1[f]	14.2	13.5
16. Tanzania	49.2	55.4	7.2	7.6
17. Zaïre	52.0	91.1	8.6	18.1
18. Guinea[g]	27.6	72.9	17.1	15.9
19. Central African Republic	74.8	54.0	16.9	0.2
20. Madagascar	43.3	48.1	8.1	8.3
21. Uganda	69.8	96.0	8.2	7.1
22. Lesotho	72.6	100.0	6.5	9.9
23. Togo	60.6	81.4	18.3	10.1
24. Sudan	60.3	70.6	11.1	9.3
Middle-income oil importers	**79.9 *m***	**62.8 *m***	**10.5 *m***	**9.4 *m***
25. Kenya	34.2	52.5	7.2	11.5
26. Ghana	84.5	62.8	5.5	6.3
27. Senegal	79.9	49.7	8.9	7.4
28. Zimbabwe	58.8	21.9	14.9	20.6
29. Liberia	84.3	82.1	13.3	10.4
30. Zambia	93.9	96.2	14.6	12.5
31. Cameroon	59.5	62.8	10.8	9.2
32. Swaziland	22.3	58.9	6.3	8.3
33. Botswana	20.0	99.1	6.3	9.9
34. Mauritius	91.6	71.9	12.0	9.4
35. Ivory Coast	81.2	68.1	10.5	8.1
Middle-income oil exporters	**59.9 *m***	**85.1 *m***	**76.7 *m***	**83.05 *m***
36. Angola	50.0	60.9	55.1	54.5
37. Congo	76.4	82.4	93.0	81.8
38. Nigeria	45.6	97.1	77.5	84.3
39. Gabon	69.8	87.8	75.9	87.7
Sub-Saharan Africa	**60.6 *m***	**79.1 *m***	**12.0 *m***	**11.5 *m***

a. See technical notes.
b. World Bank estimate = 86.4 percent.
c. World Bank estimates = 76.4 percent for 1961 and 91.3 percent for 1976–78.
d. Includes uranium = 86.8 percent (1976). See technical notes.
e. World Bank estimates = 84.0 percent for 1961 and 91.3 percent for 1976–78. The latter estimate includes fishing products.
f. Includes diamonds = 69.7 percent. See technical notes.
g. World Bank estimates = 76.4 percent for 1961 and 96.7 percent for 1976–78. Both estimates include alumina.

Table 15. Commodity Trade: Volume and Prices

	Volume				Price		
	Annual average growth rate (percent)				Annual average change	Annual average growth rate (percent)	
	Sub-Saharan Africa		World				
	1960–70	1970–79	1960–70	1970–79	1955–78	1960–70	1970–80
Fuels							
Petroleum	42.1	7.1	11.1	3.5	14.1	−2.2	18.2
Minerals and metals							
Copper	2.3	−0.3	2.9	2.5	18.6	8.8	−18.7
Iron ore	25.6	−3.9	7.7	1.7	8.5	−3.9	−13.0
Bauxite	12.5	25.0	5.8	3.0	8.3	5.6	2.2
Phosphate rock	20.2	6.7	7.7	2.7	17.6	−2.0	1.5
Manganese ore	14.1	0.2	5.8	0.0	10.3	−5.7	−1.1
Zinc	−0.3	0.2	5.5	3.2	17.9	1.5	−3.0
Tin	5.0	−11.4	0.8	0.9	10.2	4.0	4.6
Lead	−0.3	−6.4	3.2	0.6	15.8	3.0	0.3
Food and beverages							
Coffee	4.4	0.4	2.3	0.3	18.1	0.8	3.9
Cocoa	0.8	−1.1	0.5	−2.2	26.5	3.5	7.5
Sugar	4.4	−2.7	1.2	2.8	37.4	−3.7	−1.3
Tea	9.3	5.0	2.3	2.2	9.7	−4.0	−2.8
Groundnuts	−5.5	−8.4	−1.6	−1.9	10.3	0.1	−3.5
Groundnut oil	4.4	−3.5	3.2	1.9	12.6	−0.1	−3.1
Beef	5.2	4.5	5.4	5.4	12.3	4.8	−1.8
Palmoil	−7.7	0.2	4.1	10.2	14.0	−1.7	−2.4
Bananas	−1.2	−1.5	4.9	1.3	7.3	2.3	−3.1
Maize	6.5	8.3	7.0	11.0	9.9	0.9	−0.5
Nonfood							
Timber	4.4	−0.4	5.9	3.0	13.7	1.0	0.4
Cotton	6.6	−5.0	0.8	0.3	10.4	0.1	−2.2
Tobacco	−2.7	7.2	1.7	3.5	10.6	0.7	−1.0
Rubber	3.6	−0.5	2.9	1.9	16.5	−6.0	1.3
Hides and skins	0.1	−2.5	3.7	3.5	. .	0.3	−0.4
Sisal	0.3	−11.1	−1.7	−11.6	. .	−7.1	1.5

Table 14. Exports: Commodity Concentration and Fluctuation in Values

	Percentage share in total exports of three principal exports[a]		*Index of export fluctuations*[a]	
	1961	*1976–78 (average)*	*1955–65*	*1965–79*
Low-income countries	**60.55 *m***	**79.6 *m***	**12.5 *m***	**12.85 *m***
Low-income semiarid	**60.5 *m***	**79.7 *m***	**17.6 *m***	**19.3 *m***
1. Chad	90.5	82.1	15.4	12.6
2. Somalia	60.3	90.6**	10.7	13.1
3. Mali	60.5	55.6[b]	13.9	14.6
4. Upper Volta[c]	14.3	43.6	27.3	19.7
5. Gambia	95.7	79.7	17.6	19.3
6. Niger	77.2	79.5[d]	73.2	59.3
7. Mauritania	28.5	86.1	73.2	59.3
Low-income other	**60.6 *m***	**79.1 *m***	**8.6 *m***	**9.3 *m***
8. Ethiopia	63.8	81.5	7.9	8.2
9. Guinea-Bissau[e]	78.9	76.6	17.3	15.4
10. Burundi	99.1	95.2	6.6	8.2
11. Malawi	93.8	83.1	7.4	8.2
12. Rwanda	91.9	86.5	16.0	18.0
13. Benin	36.4	32.0	10.1	20.6
14. Mozambique	46.9	25.6	5.1	6.8
15. Sierra Leone	19.6	79.1[f]	14.2	13.5
16. Tanzania	49.2	55.4	7.2	7.6
17. Zaïre	52.0	91.1	8.6	18.1
18. Guinea[g]	27.6	72.9	17.1	15.9
19. Central African Republic	74.8	54.0	16.9	0.2
20. Madagascar	43.3	48.1	8.1	8.3
21. Uganda	69.8	96.0	8.2	7.1
22. Lesotho	72.6	100.0	6.5	9.9
23. Togo	60.6	81.4	18.3	10.1
24. Sudan	60.3	70.6	11.1	9.3
Middle-income oil importers	**79.9 *m***	**62.8 *m***	**10.5 *m***	**9.4 *m***
25. Kenya	34.2	52.5	7.2	11.5
26. Ghana	84.5	62.8	5.5	6.3
27. Senegal	79.9	49.7	8.9	7.4
28. Zimbabwe	58.8	21.9	14.9	20.6
29. Liberia	84.3	82.1	13.3	10.4
30. Zambia	93.9	96.2	14.6	12.5
31. Cameroon	59.5	62.8	10.8	9.2
32. Swaziland	22.3	58.9	6.3	8.3
33. Botswana	20.0	99.1	6.3	9.9
34. Mauritius	91.6	71.9	12.0	9.4
35. Ivory Coast	81.2	68.1	10.5	8.1
Middle-income oil exporters	**59.9 *m***	**85.1 *m***	**76.7 *m***	**83.05 *m***
36. Angola	50.0	60.9	55.1	54.5
37. Congo	76.4	82.4	93.0	81.8
38. Nigeria	45.6	97.1	77.5	84.3
39. Gabon	69.8	87.8	75.9	87.7
Sub-Saharan Africa	**60.6 *m***	**79.1 *m***	**12.0 *m***	**11.5 *m***

a. See technical notes.
b. World Bank estimate = 86.4 percent.
c. World Bank estimates = 76.4 percent for 1961 and 91.3 percent for 1976–78.
d. Includes uranium = 86.8 percent (1976). See technical notes.
e. World Bank estimates = 84.0 percent for 1961 and 91.3 percent for 1976–78. The latter estimate includes fishing products.
f. Includes diamonds = 69.7 percent. See technical notes.
g. World Bank estimates = 76.4 percent for 1961 and 96.7 percent for 1976–78. Both estimates include alumina.

Table 17. Balance of Payments, Debt Service, and International Reserves

	Current account balance before interest payments on external public debt (millions of dollars)		Interest payments on external public debt (millions of dollars)		Debt service as percentage				Gross international reserves		
					Of GNP		Of exports of goods and services		Millions of dollars		In months of import coverage
	1970	1979[a]	1970	1979	1970	1979	1970	1979[a]	1970	1979	1979[a]
Low-income countries					**1.1 *w***	**2.7 *w***	**6.0 *w***	**12.7 *w***			**1.7 *w***
Low-income semiarid					**0.6 *w***	**1.8 *w***	**2.5 *w***	**16.0 *w***			**1.9 *w***
1. Chad	2	−72*	(.)	4	1.0	3.3	3.9	14.4	2	17	0.5*
2. Somalia	−5	−205	(.)	1	0.3	0.2	2.1	1.1	21	54	1.4
3. Mali	−2	−64	(.)	3	0.2	0.7	1.2	8.5	1	17	0.5*
4. Upper Volta	9	−68	(.)	4	0.6	0.8	4.0	3.8	36	67	2.0
5. Gambia	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
6. Niger	1	−96*	1	7	0.6	0.8	3.8	3.6	19	137	. .
7. Mauritania	−5	−70	(.)	16	2.0	13.6	3.2	32.4	3	118	3.6
Low-income other					**1.3 *w***	**2.8 *w***	**6.3 *w***	**12.4 *w***			**1.6 *w***
8. Ethiopia	−26	−79	6	13	1.2	0.7	11.4	4.9	72	321	5.4
9. Guinea-Bissau**	. .	−68	. .	2[b]	. .	6.0	. .	59.0	. .	22	. .
10. Burundi	2	−38	(.)	1	0.3	0.4	2.3	3.1	15	95	5.7
11. Malawi	−32	−185	3	16	1.8	2.1	7.0	9.4	29	75	1.7
12. Rwanda	6	44	(.)	1	0.2	0.1	1.4	0.6	8	153	5.8
13. Benin	−1	−87*	(.)	3	0.7	1.4	2.2	5.1	16	20	. .
14. Mozambique	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
15. Sierra Leone	−14	−109*	2	12	2.9	8.6	10.1	22.2	39	47	1.3
16. Tanzania	−29	−457*	6	23	1.2	0.9	8.2	7.4	65	69	0.9*
17. Zaire	−55	−463	9	95	2.0	2.3	4.4	9.1	189	335	1.4
18. Guinea	−30**	−54**	4	24	2.4	5.7	26.7	22.2	13	35	1.0
19. Central African Republic	−11	−9	(.)	(.)	1.1	(.)	3.3	0.1	1	49	2.7
20. Madagascar	12	−425	2	8	0.8	0.7	3.5	3.9	37	5	0.1
21. Uganda	24	32	4	5	0.6	0.3	3.4	7.4	57	. .	. .
22. Lesotho	. .	−22	(.)	1	0.5	0.3	. .	0.6	. .	. .	. .
23. Togo	4	−219	1	16	0.9	6.9	3.0	24.4	35	71	2.0*
24. Sudan	−29	−151	13	86	1.3	4.5	10.7	33.0	22	67	0.7
Middle-income oil importers					**2.3 *w***	**4.1 *w***	**5.9 *w***	**12.2 *w***			**2.5 *w***
25. Kenya	−38	−419	11	60	1.7	1.8	7.9	7.5	220	669	3.7
26. Ghana	−56	282	12	26	1.1	0.5	5.2	4.2	58	404	4.8
27. Senegal	−14	−394	2	43	0.8	5.0	2.7	13.7	22	35	. .
28. Zimbabwe	−13	−61	. .	. .	. .	. .	. .	. .	. .	. .	. .
29. Liberia	. .	−91	6	22	5.5	8.1	. .	13.8	. .	55	. .
30. Zambia	131	264	23	93	3.2	9.7	5.8	19.7	515	193	1.8
31. Cameroon	−26	−290	4	65	0.8	2.5	3.2	9.5	81	141	0.5*
32. Swaziland	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
33. Botswana	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
34. Mauritius	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
35. Ivory Coast	−26	−560*	11	225	2.8	6.0	6.8	15.2	119	168	1.6*
Middle-income oil exporters					**0.7 *w***	**0.5 *w***	**. .**	**1.6 *w***			**4.4 *w***
36. Angola	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
37. Congo	. .	−144*	3	38	3.4	10.1	. .	7.3*	9	47	0.2*
38. Nigeria	−348	1,429	20	205	0.7	0.4	4.2	1.5	223	5,870	4.5
39. Gabon	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Sub-Saharan Africa					**1.4 *w***	**2.0 *w***	**5.0 *w***	**6.9 *w***			**3.3 *w***
All low-income countries					**1.1 *w***	**1.8 *w***	**12.6 *w***	**10.8 *w***			**4.2 *w***
All middle-income countries					**1.5 *w***	**3.2 *w***	**9.0 *w***	**14.2 *w***			**5.2 *w***
Industrialized countries											**5.0 *w***

a Figures marked with an * are for 1978.
b Figure shown is for 1980.

Table 18. Debt and Debt Service

	Public and publicly guaranteed private debt outstanding and disbursed (millions of dollars)							
	Official sources		*Private sources*		*Total*		*Debt service*	
	1970	*1979*[a]	*1970*	*1979*[a]	*1970*	*1979*[a]	*1970*	*1979*[b]
Low-income countries	**1,733.8 *t***	**9,683.9 *t***	**566.7 *t***	**4,619.0 *t***	**2,300.6 *t***	**14,304.0 *t***	**188.3 *t***	**943.9 *t***
Low-income semiarid	**406.9 *t***	**2,168.6 *t***	**24.3 *t***	**240.5 *t***	**431.2 *t***	**2,409.2 *t***	**11.9 *t***	**118.8 *t***
1. Chad	24.6	142.4	7.3	29.3	31.9	171.7	2.7	18.4
2. Somalia	74.9	544.6	2.2	1.1	77.1	545.7	0.9	2.1*
3. Mali	231.5	529.6	6.1	22.0	237.6	551.6	0.7	8.8*
4. Upper Volta	20.2	254.4	0.3	16.7	20.5	271.1	1.9	9.4*
5. Gambia	5.1	44.8	. .	. .	5.1	44.8	0.1	0.3
6. Niger	31.2	195.8	0.5	38.2	31.7	234.0	2.3	13.6
7. Mauritania	19.4	457.0	7.9	133.2	27.3	590.2	3.3	66.2
Low-income other	**1,326.9 *t***	**7,515.3 *t***	**542.4 *t***	**4,378.5 *t***	**1,869.4 *t***	**11,894.8 *t***	**176.4 *t***	**825.1 *t***
8. Ethiopia	140.2	603.2	28.7	16.8	168.9	620.0	21.1	26.3*
9. Guinea-Bissau	. .	64.1	. .	. .	. .	64.1	. .	. .
10. Burundi	5.8	90.8	1.5	12.2	7.3	103.0	0.6	3.5*
11. Malawi	87.8	311.8	33.3	111.5	121.1	423.3	5.8	27.0
12. Rwanda	1.5	134.0	0.4	0.8	1.9	134.7	0.3	1.6*
13. Benin	29.2	172.6	11.3	13.2	40.5	185.8	1.7	13.3
14. Mozambique	. .	. .	. .	. .	. .	. .	. .	. .
15. Sierra Leone[c]	32.4	168.1	27.0	130.2	59.4	299.3	12.0	49.2*
16. Tanzania	152.7	1,098.7	95.8	114.6	248.5	1,213.4	15.7	59.8*
17. Zaïre	95.3	1,607.7	215.8	2,471.9	311.1	4,079.6	36.8	169.2
18. Guinea	277.5	805.1	36.7	206.8	314.2	1,011.9	28.6	83.0*
19. Central African Republic	17.7	81.4	1.7	68.6	19.4	150.0	2.0	0.2
20. Madagascar	84.8	280.5	8.1	67.2	92.9	347.7	6.9	18.0
21. Uganda	106.3	243.3	21.5	1.7	127.8	245.0	7.4	27.4
22. Lesotho	7.6	44.4	0.5	7.4	8.1	51.8	0.5	1.4
23. Togo	31.9	384.4	7.8	466.7	39.8	851.1	2.3	68.2*
24. Sudan	256.2	1,425.2	52.3	688.9	308.5	2,114.1	34.7	277.0
Middle-income oil importers	**1,134.5 *t***	**5,922.9 *t***	**990.0 *t***	**5,948.4 *t***	**2,124.4 *t***	**11,871.0 *t***	**183.8 *t***	**1,751.8 *t***
25. Kenya	228.7	970.4	84.2	915.3	312.8	1,885.7	27.0	235.6
26. Ghana	264.2	744.1	225.1	242.9	489.3	986.9	23.7	54.6
27. Senegal	78.0	477.0	19.6	261.5	97.7	738.5	6.7	130.0
28. Zimbabwe	. .	. .	. .	. .	. .	. .	. .	. .
29. Liberia	124.0	308.4	33.9	146.0	157.9	454.3	17.6	76.5
30. Zambia	119.4	1,075.6	476.6	633.0	596.0	1,708.6	54.9	351.6
31. Cameroon	119.6	995.8	11.6	637.9	131.2	1,633.6	8.6	126.3
32. Swaziland	20.9	117.7	16.1	28.5	37.0	146.2	3.3	5.7
33. Botswana	14.2	132.0	0.6	3.6	14.7	135.6	0.6	10.1
34. Mauritius	21.4	134.7	10.3	104.2	31.7	238.9	2.9	24.3*
35. Ivory Coast	144.1	967.2	112.0	2,975.5	256.1	3,942.7	38.5	737.1
Middle-income oil exporters	**569.9 *t***	**1,884.0 *t***	**141.4 *t***	**4,097.2 *t***	**711.4 *t***	**5,981.2 *t***	**75.8 *t***	**793.1 *t***
36. Angola	. .	. .	. .	. .	. .	. .	. .	. .
37. Congo	121.7	565.5	20.8	233.1	142.5	798.6	8.8	106.4
38. Nigeria	381.8	1,016.9	96.2	2,952.2	478.1	3,969.1	55.7	341.0
39. Gabon	66.4	301.6	24.4	911.9	90.8	1,213.5	11.3	345.7
Sub-Saharan Africa	**3,438.2 *t***	**17,490.8 *t***	**1,698.1 *t***	**14,664.6 *t***	**5,136.4 *t***	**32,156.2 *t***	**447.9 *t***	**3,488.8 *t***
(Sub-Saharan Africa as a percentage of all developing countries)	**(9.7)**	**(12.7)**	**(9.6)**	**(6.0)**	**(10.0)**	**(8.4)**	**(6.8)**	**(4.9)**

a. Figures for 1979 are preliminary actual payments.
b. Figures followed by an * are actual payments. All other figures are scheduled payments.

Table 19. Outstanding External Debt of Sub-Saharan Africa

	Outstanding and disbursed in billions of dollars									
	1970	*1971*	*1972*	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*
Total concessional bilateral	**2.3**	**2.7**	**3.0**	**3.7**	**4.6**	**5.2**	**6.1**	**7.0**	**7.7**	**8.5**
DAC governments	1.6	1.9	2.0	2.3	2.8	3.1	3.5	4.0	4.4	4.6
OPEC governments	0.1	0.1	0.1	0.1	0.2	0.3	0.7	0.9	1.0	1.4
CPE governments	0.6	0.7	0.9	1.1	1.4	1.6	1.8	2.0	2.1	2.3
Other bilateral	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3
Total official export credits	**0.3**	**0.4**	**0.4**	**0.5**	**0.7**	**0.9**	**1.2**	**1.5**	**1.9**	**2.2**
DAC governments	0.3	0.3	0.3	0.4	0.5	0.6	0.9	1.1	1.4	1.7
OPEC governments	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.3	0.3
CPE governments	0.0	0.0	0.0	0.0	0.0	0.1	0.1		0.1	0.1
Other bilateral	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Total multilateral loans	**0.8**	**1.0**	**1.3**	**1.6**	**2.0**	**2.5**	**3.2**	**4.1**	**5.4**	**6.6**
IBRD	0.5	0.6	0.8	0.9	1.0	1.2	1.5	1.7	2.0	2.3
IDA	0.2	0.3	0.4	0.5	0.7	0.9	1.2	1.5	1.8	2.2
Regional banks concessional	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.4	0.5
Regional banks nonconcessional	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.4
Other multilateral concessional	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.9	1.2
Other multilateral nonconcessional	. .	. .	. .	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Total private publicly guaranteed loans	**1.7**	**1.8**	**2.1**	**3.2**	**4.0**	**4.8**	**5.6**	**7.3**	**10.4**	**13.0**
Suppliers credits	0.7	0.9	1.0	1.3	1.5	1.9	2.2	2.6	3.0	2.9
Financial institutions	0.3	0.4	0.7	1.3	1.8	2.5	3.3	4.5	7.3	10.0
Bonds	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Other	0.4	0.3	0.3	0.5	0.5	0.3	0.1			
Total public and publicly guaranteed loans	**5.1**	**5.9**	**6.8**	**9.0**	**11.3**	**13.4**	**16.1**	**19.8**	**25.4**	**30.3**
Total private nonguaranteed	**0.5**	**0.6**	**0.7**	**0.9**	**1.1**	**1.3**	**1.3**	**1.3**	**1.4**	**1.5**
Total public and private debt	**5.7**	**6.5**	**7.6**	**9.9**	**12.4**	**14.7**	**17.4**	**21.2**	**26.8**	**31.8**
of which:										
Total bilateral	2.6	3.1	3.4	4.2	5.3	6.1	7.3	8.5	9.6	10.7
Total official	3.4	4.1	4.7	5.8	7.2	8.6	10.5	12.6	15.0	17.3
Total private source	2.2	2.5	2.9	4.1	5.1	6.1	6.9	8.6	11.8	14.5
Total concessional	2.5	3.1	3.5	4.3	5.4	6.3	7.6	9.1	10.7	12.4
Total nonconcessional	3.1	3.5	4.1	5.6	7.0	8.4	9.8	12.0	16.1	19.4

Table 20. Gross Disbursements of External Loans to Sub-Saharan Africa

	Millions of dollars									
	1970	*1971*	*1972*	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*
Total concessional bilateral	**389**	**402**	**518**	**569**	**851**	**989**	**1,054**	**970**	**1,028**	**1,472**
DAC governments	261	283	299	328	450	599	499	507	651	726
OPEC governments	3	6	35	38	118	112	330	200	152	413
CPE governments	117	105	180	193	252	248	221	234	155	270
Other bilateral	8	9	4	9	31	30	3	29	70	62
Total official export credits	**42**	**46**	**72**	**141**	**237**	**328**	**259**	**277**	**283**	**468**
DAC governments	19	36	59	119	143	170	166	230	183	333
OPEC governments	. .	. .	. .	12	75	72	62	42	70	48
CPE governments	17	10	12	7	15	17	24	1	(.)	42
Other bilateral	7	. .	. .	3	5	69	7	5	30	46
Total multilateral loans	**150**	**206**	**316**	**291**	**414**	**616**	**728**	**955**	**1,390**	**1,939**
IBRD	75	124	185	131	154	274	284	291	363	348
IDA	61	63	84	108	133	204	281	339	323	367
Regional banks concessional	12	8	20	22	17	19	29	88	116	158
Regional banks nonconcessional	3	12	27	20	32	37	35	79	107	100
Other multilateral concessional	. .	. .	(.)	2	74	81	77	151	447	330
Other multilateral nonconcessional	. .	. .	. .	8	4	. .	21	10	35	25
Total private loans	**490**	**414**	**576**	**1,128**	**1,131**	**1,531**	**1,687**	**2,001**	**3,308**	**3,768**
Suppliers credits	144	229	250	328	448	626	587	630	440	365
Financial institutions	(37)	(177)	(319)	(787)	(682)	(905)	(1,098)	(1,366)	(2,868)	(3,403)
Bonds	(9)	(3)	(1)	(9)	(. .)	(. .)	(2)	(. .)	(. .)	(. .)
Other	300	6	6	4	1	. .	. .	5	. .	. .
Total public and publicly guaranteed loans	**1,070**	**1,069**	**1,482**	**2,129**	**2,632**	**3,463**	**3,728**	**4,202**	**6,008**	**7,035**
Nonguaranteed private sector credit	**140**	**140**	**220**	**230**	**363**	**361**	**272**	**248**	**390**	**391**
Total public and private disbursements	**1,210**	**1,209**	**1,702**	**2,359**	**2,994**	**3,825**	**4,000**	**4,451**	**6,399**	**7,426**
of which:										
Total bilateral	430	448	590	710	1,087	1,317	1,313	1,247	1,311	1,939
Total official	581	655	906	1,001	1,501	1,933	2,041	2,202	2,701	3,267
Total private source	630	554	796	1,358	1,493	1,892	1,959	2,249	3,698	4,159
Total concessional	461	473	621	701	1,075	1,294	1,441	1,545	1,913	2,326
Total nonconcessional	749	736	1,080	1,658	1,920	2,531	2,559	2,905	4,485	5,099

Table 21. Average Terms of Borrowing for Sub-Saharan Africa

	Average terms for new commitments of public and publicly guaranteed debt									
	1970	*1971*	*1972*	*1973*	*1974*	*1975*	*1976*	*1977*	*1978*	*1979*
Total public debt										
Interest rate (percent)	3.7	4.2	4.5	5.3	5.2	5.7	5.3	5.5	6.3	7.9
Maturity (years)	24.4	22.3	20.9	20.4	20.0	20.3	19.2	19.1	17.6	16.7
Grace period (years)	6.7	6.7	5.8	5.7	5.9	5.2	5.2	4.7	4.9	4.7
Grant element (percent)	46.3	41.5	37.1	33.1	33.8	29.9	31.2	30.1	25.4	16.7
Total official debt										
Interest rate (percent)	2.0	3.1	3.2	2.8	3.3	4.1	3.5	4.0	3.6	4.1
Maturity (years)	31.9	27.6	28.5	29.3	25.8	27.2	27.4	26.0	26.0	24.9
Grace period (years)	9.3	8.4	7.8	8.0	7.6	6.7	6.9	6.3	6.8	6.3
Grant element (percent)	64.1	53.3	52.1	55.7	50.0	44.0	49.1	44.2	47.0	42.3
Bilateral										
Interest rate (percent)	1.3	2.1	2.7	1.8	3.1	3.1	3.4	3.9	3.9	4.8
Maturity (years)	31.5	26.2	23.7	25.9	22.4	24.3	22.7	22.3	24.2	20.7
Grace period (years)	9.7	9.3	7.8	8.1	7.6	6.6	6.5	5.7	6.6	5.7
Grant element (percent)	69.8	59.8	53.0	61.0	49.4	49.0	46.6	42.5	45.0	35.3
Multilateral										
Interest rate (percent)	4.3	5.0	3.9	4.1	3.7	5.2	3.6	4.1	3.3	3.4
Maturity (years)	33.2	30.4	35.7	34.3	32.6	30.2	33.4	30.3	28.4	28.8
Grace period (years)	7.9	6.5	7.8	7.9	7.7	6.9	7.4	6.9	7.0	6.8
Grant element (percent)	46.3	40.0	50.8	48.1	51.2	39.1	52.4	46.3	49.7	48.9
Total private debt										
Interest rate (percent)	6.8	7.2	6.7	8.4	8.8	8.4	7.8	7.7	9.3	11.4
Maturity (years)	10.0	8.5	8.1	9.9	9.4	8.5	8.6	8.7	8.6	9.0
Grace period (years)	1.6	2.4	2.5	3.0	2.9	2.5	2.9	2.4	2.9	3.2
Grant element (percent)	12.0	10.5	11.7	6.5	4.3	6.0	7.9	8.8	2.0	−7.0

Table 22. Indicators of Aid and Total Resource Flow, 1979

	Population (millions)	Total recorded net flow of resources per capita[a] (dollars)	Net official development assistance[a] (disbursements)				
			Per capita (dollars)	Net bilateral[a] as a percentage of total	As a percentage of GNP	As a percentage of gross domestic investment	From OPEC as a percentage of total bilateral net ODA
Low-income countries	**187.1** *t*	**27.2** *w*	**21.1** *w*	**58.6** *m*	**7.8** *w*	**50.0** *w*	**4.0** *m*
Low-income semiarid	**28.0** *t*	**45.9** *w*	**36.8** *w*	**49.5** *m*	**18.4** *w*	**76.7** *w*	**8.8** *m*
1. Chad	4.4	19.6	19.8	56.8	18.0	117.3	0.0
2. Somalia	3.8	67.6	47.6	27.6	. .	109.6	60.4
3. Mali	6.8	29.9	27.9	49.5	19.9	103.7	8.8
4. Upper Volta	5.6	38.5	35.6	66.2	19.8	96.6	0.0
5. Gambia	0.6	67.0	59.5	37.0	23.8	162.3	23.3
6. Niger	5.2	51.5	33.1	67.8	12.3	35.9	(.)
7. Mauritania	1.6	133.6	103.4	21.4	32.3	69.0	61.1
Low-income other	**159.1** *t*	**23.9** *w*	**18.4** *w*	**60.0** *m*	**6.6** *w*	**47.0**	**3.9** *m*
8. Ethiopia	30.9	7.2	5.7	40.4	4.4	49.5	0.0
9. Guinea-Bissau	0.8	71.4	66.4	63.8	39.1	. .	3.9
10. Burundi	4.0	22.8	23.0	48.0	12.8	104.9	3.7
11. Malawi	5.8	31.5	24.0	66.0	12.0	39.4	0.0
12. Rwanda	4.9	29.9	29.9	60.4	15.0	89.5	0.7
13. Benin	3.4	30.4	23.9	60.0	9.6	45.5	4.1
14. Mozambique	10.2	15.5	15.1	74.2	6.0	65.3	8.0
15. Sierra Leone	3.4	15.7	15.3	54.1	6.1	44.0	12.4
16. Tanzania	18.0	40.4	32.2	78.8	12.4	66.9	0.8
17. Zaire	27.5	26.4	14.7	71.5	5.7	74.5	0.0
18. Guinea	5.3	11.8	10.8	24.8	3.9	24.8	15.5
19. Central African Republic	2.0	45.9	43.8	58.4	15.1	68.4	11.4
20. Madagascar	8.5	25.8	14.7	58.7	5.1	20.3	15.8
21. Uganda	12.8	2.7	2.9	44.0	1.0	10.9	4.2
22. Lesotho	1.3	47.7	48.8	68.8	14.4	91.2	0.7
23. Togo	2.4	91.0	46.5	61.7	13.3	28.6	0.0
24. Sudan	17.9	36.0	31.4	26.5	8.5	52.6	66.1
Middle-income oil importers	**65.2** *t*	**45.3** *w*	**26.8** *w*	**75.5** *m*	**4.6** *w*	**24.3** *w*	**0.8** *m*
25. Kenya	15.3	29.4	22.7	81.8	6.0	29.9	0.0
26. Ghana	11.3	17.6	15.2	51.8	3.8	33.7	15.8
27. Senegal	5.5	63.3	56.2	48.2	13.1	59.3	0.9
28. Zimbabwe	5.6	1.5	2.2	99.2	0.5	2.3	0.8
29. Liberia	1.8	185.4	45.7	37.0	9.1	32.4	32.7
30. Zambia	7.1	45.3	38.1	78.4	7.6	39.7	4.3
31. Cameroon	8.2	68.2	33.1	67.6	5.9	20.4	6.2
32. Swaziland	0.5	147.2	98.2	64.8	15.1	72.2	0.0
33. Botswana	0.8	164.8	116.0	79.3	16.1	52.6	0.0
34. Mauritius	0.9	64.0	35.8	75.5	3.5	9.3	0.0
35. Ivory Coast	8.2	65.6	19.8	85.4	1.9	5.7	0.0
Middle-income oil exporters	**91.6** *t*	**4.4** *w*	**2.1** *w*	**64.9** *m*	**0.2** *w*	**1.2** *w*	**0.0** *m*
36. Angola	6.9	16.1	6.2	69.0	1.4	19.0	0.0
37. Congo	1.5	40.2	54.9	60.8	8.7	33.4	7.4
38. Nigeria	82.6	3.5	0.3	41.2	(.)	0.1	0.0
39. Gabon	0.6	−90.8	60.7	73.6	1.9	4.1	0.0
Sub-Saharan Africa	**343.9** *t*	**24.6** *w*	**17.1** *w*	**60.8** *m*	**3.5** *w*	**20.7** *w*	**0.9** *m*

a. See technical notes for definitions.

Table 23. Disbursements of Official Development Assistance

	Net disbursements in millions of dollars										Grants as a percentage of net ODA (1978/79 average)	
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Total	Technical assistance
Low-income countries												
Low-income semiarid												
1. Chad	22	31	31	42	79	65	62	83	119	87	76	25
2. Somalia	28	31	24	36	82	153	105	256	163	181	56	16
3. Mali	21	30	39	70	118	145	89	113	162	190	86	24
4. Upper Volta	22	25	35	57	97	89	84	110	159	199	91	31
5. Gambia	1	4	5	7	10	8	12	22	35	36	57	23
6. Niger	36	38	43	70	137	141	129	97	157	172	95	26
7. Mauritania	8	12	9	25	88	62	180	165	217	166	92	11
Low-income other												
8. Ethiopia	40	47	47	67	121	135	141	114	140	175	64	18
9. Guinea-Bissau	7	7	5		4	19	22	38	50	53	. .	. .
10. Burundi	18	22	25	27	38	48	45	48	75	92	73	40
11. Malawi	37	32	36	30	42	64	64	80	99	139	97	23
12. Rwanda	22	25	30	39	47	91	79	96	125	146	87	34
13. Benin	15	29	20	27	38	54	55	49	61	81	78	26
14. Mozambique	19	58	51	(.)	1	22	72	80	105	154	46	23
15. Sierra Leone	7	10	10	14	11	18	15	26	40	52	57	30
16. Tanzania	51	61	59	100	163	296	267	340	424	580	94	24
17. Zaïre	89	109	121	140	181	205	194	261	317	404	66	42
18. Guinea	10	10	27	11	30	15	12	22	60	57	49	18
19. Central African Republic	14	16	26	26	37	57	38	42	57	88	89	44
20. Madagascar	48	47	56	53	63	85	63	61	91	125	63	29
21. Uganda	33	32	29	15	30	39	25	22	17	37	128	53
22. Lesotho	10	17	14	14	21	30	30	39	50	64	59	22
23. Togo	17	19	23	26	39	42	43	64	103	112	41	22
24. Sudan	6	10	37	43	134	299	369	224	316	563	64	15
Middle-income oil importers												
25. Kenya	58	67	72	96	118	131	160	166	245	347	66	31
26. Ghana	59	57	58	41	37	126	64	91	114	171	47	26
27. Senegal	43	53	49	79	139	133	127	123	226	309	61	34
28. Zimbabwe	1	1	1	1	2	4	6	7	9	13	48	27
29. Liberia	13	13	13	11	16	21	27	34	48	82	48	27
30. Zambia	13	22	22	46	58	87	62	109	185	270	100	94
31. Cameroon	59	48	64	61	62	125	134	176	178	272	38	26
32. Swaziland	6	2	9	11	16	19	16	28	48	49	44	24
33. Botswana	14	18	32	37	37	51	48	47	69	93	116	37
34. Mauritius	6	9	11	14	25	29	17	22	44	32	62	13
35. Ivory Coast	53	51	49	64	76	101	108	106	131	162	21	49
Middle-income oil exporters												
36. Angola	−2	13	70	(.)	(.)	5	38	48	47	43	100	30
37. Congo	16	17	23	27	38	56	73	49	81	82	70	38
38. Nigeria	102	107	83	77	73	83	53	42	37	26	139	124
39. Gabon	24	24	27	34	25	63	34	28	44	36	75	65
Sub-Saharan Africa	**1,046 *t***	**1,224 *t***	**1,385 *t***	**1,538 *t***	**2,333 *t***	**3,216 *t***	**3,162 *t***	**3,528 *t***	**4,648 *t***	**5,940 *t***	**65 *w***	**26 *w***

Table 24. Food Aid Imports[a]

	Thousands of metric tons, grain equivalent					Kilograms per capita				
	1975	1976	1977	1978	1979	1975	1976	1977	1978	1979
Low-income countries	**834.7 *t*[b]**	**648.5 *t*[b]**	**708.2 *t***	**1,001.0 *t*[b]**	**953.0 *t***	**4.9 *w***	**3.7 *w***	**4.0 *w***	**5.5 *w***	**5.1 *w***
Low-income semiarid	**396.3 *t*[b]**	**240.4 *t*[b]**	**207.9 *t***	**331.9 *t*[b]**	**249.7 *t***	**15.6 *w***	**9.2 *w***	**7.8 *w***	**12.2 *w***	**8.9 *w***
1. Chad	13.0	3.6	35.4	49.2	25.9	3.2	0.9	8.4	11.5	5.9
2. Somalia	109.8	61.5	75.0	79.0	86.2	31.4	17.2	20.5	21.1	22.5
3. Mali	113.6	39.1	4.2	32.8	24.8	18.8	6.3	0.7	5.0	3.7
4. Upper Volta	0.0	17.2	5.6	51.8	49.1	0.0	3.2	1.0	9.3	8.7
5. Gambia	9.0	2.9	5.7	19.6	9.4	17.2	5.4	10.3	34.3	16.0
6. Niger	74.8	90.5	53.1	21.5	23.2	16.3	19.1	10.9	4.3	4.5
7. Mauritania	47.9	25.1	28.9	51.0	31.1	33.7	17.2	19.3	33.0	19.6
Low-income other	**438.4 *t***	**408.1 *t***	**500.3 *t***	**669.1 *t***	**703.3 *t***	**3.0 *w***	**2.8 *w***	**3.3 *w***	**4.3 *w***	**4.4 *w***
8. Ethiopia	58.7	60.1	65.3	76.0	157.7	2.0	2.1	2.2	2.5	5.1
9. Guinea-Bissau	10.9	7.2	20.9	25.2	23.0	15.0	9.7	27.8	33.0	29.5
10. Burundi	5.5	1.7	5.9	4.2	16.0	1.5	0.4	1.5	1.1	4.0
11. Malawi	0.2	0.8	3.4	3.2	2.2	(.)	0.1	0.6	0.6	0.4
12. Rwanda	19.3	9.8	11.5	14.6	10.3	4.4	2.2	2.5	3.0	2.1
Comoros	0.8	3.6	5.1	6.4	7.4	2.4	10.5	13.8	16.6	18.6
13. Benin	8.8	6.4	6.3	11.5	5.0	2.9	2.0	2.0	3.5	1.5
14. Mozambique	34.0	62.2	94.7	133.1	125.9	3.7	6.6	9.8	13.4	12.3
15. Sierra Leone	9.5	6.0	7.7	7.0	5.6	3.1	1.9	2.4	2.1	1.7
16. Tanzania	147.8	124.1	134.5	104.9	53.2	9.4	7.6	8.0	6.0	3.0
17. Zaire	0.1	17.9	14.5	31.4	79.8	(.)	0.7	0.6	1.2	2.9
18. Guinea	48.9	34.9	14.3	36.9	33.0	10.4	7.2	2.9	7.2	6.3
19. Central African Rep.	0.6	1.4	0.5	2.5	1.2	0.3	0.8	0.3	1.3	0.6
20. Madagascar	7.1	1.2	15.8	6.2	8.6	0.9	0.2	2.0	0.8	1.0
21. Uganda	15.8	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0
22. Lesotho	13.9	18.5	11.5	23.6	37.8	11.7	15.2	9.2	18.5	28.9
23. Togo	0.0	5.9	6.5	20.8	9.1	0.0	2.6	2.8	8.8	3.8
24. Sudan	49.6	27.0	54.2	111.8	90.9	3.1	1.6	3.2	6.4	5.1
Cape Verde	6.9	19.4	27.7	49.8	36.6	24.2	67.1	93.9	166.0	119.6
Middle-income oil importers	**113.2 *t***	**98.4 *t***	**147.7 *t***	**336.9 *t***	**234.6 *t***	**2.2 *w***	**1.8 *w***	**2.7 *w***	**5.9 *w***	**4.0 *w***
25. Kenya	2.2	8.8	8.3	10.8	9.4	0.2	0.6	0.6	0.7	0.6
Equatorial Guinea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26. Ghana	43.1	29.8	57.5	88.7	73.3	4.3	2.9	5.4	8.1	6.5
Djibouti	0.0	0.0	0.0	2.9	7.5	0.0	0.0	0.0	9.7	23.1
27. Senegal	28.3	23.5	31.4	168.0	65.1	5.7	4.6	6.0	31.2	11.8
São Tomé and Principe	0.0	2.0	1.0	4.0	2.1	0.0	25.2	12.5	49.3	25.6
28. Zimbabwe	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
29. Liberia	3.4	1.9	0.6	1.3	1.1	2.1	1.1	0.3	0.7	0.6
30. Zambia	1.0	5.3	28.6	31.2	49.9	0.2	1.0	5.5	5.8	8.9
31. Cameroon	3.5	1.1	5.8	5.1	7.8	0.5	0.1	0.7	0.6	0.9
32. Swaziland	0.7	0.5	0.0	0.4	0.7	1.4	1.0	0.0	0.8	1.3
33. Botswana	5.4	3.4	3.4	8.4	8.8	7.8	4.8	4.7	11.2	11.4
34. Mauritius	21.6	21.8	9.2	13.5	6.0	24.5	24.4	10.2	14.7	6.4
35. Ivory Coast	3.6	0.1	0.1	0.6	0.3	0.5	(.)	(.)	0.1	(.)
Seychelles	0.4	0.2	1.8	2.0	2.6	6.8	3.3	29.1	31.6	40.3
Middle-income oil exporters	**9.9 *t***	**5.1 *t***	**12.7 *t***	**21.3 *t***	**13.9 *t***	**0.1 *w***	**(.) *w***	**0.1 *w***	**0.2 *w***	**0.2 *w***
36. Angola	0.0	0.1	9.6	17.7	7.1	0.0	(.)	1.5	2.6	1.0
37. Congo	2.1	2.6	3.1	3.2	4.2	1.6	1.9	2.2	2.2	2.8
38. Nigeria	7.3	2.2	0.0	0.0	0.0	0.1	(.)	0.0	0.0	0.0
39. Gabon	0.5	0.2	0.0	0.4	2.6	0.8	0.3	0.0	0.6	4.0
Sub-Saharan Africa	**957.8 *t*[b]**	**752.0 *t*[b]**	**868.6 *t***	**1,359.2 *t*[b]**	**1,201.5 *t***	**3.1 *w***	**2.4 *w***	**2.7 *w***	**4.1 *w***	**3.5 *w***

a Includes the six countries whose population is less than one half million.
b Includes food aid to unspecified Sahel countries.

Table 25. Growth of Agriculture

	Average annual growth rate of volume of production 1969–71 to 1977–79			*Average annual growth rate of total production per capita 1969–71 to 1977–79*		
	Food	*Nonfood*	*Total*	*Food*	*Nonfood*	*Total*
Low-income countries			**0.9 *w***			**−1.7 *w***
Low-income semiarid			**1.1 *w***			**−1.2 *w***
1. Chad	1.0	2.0	1.1	−1.0	0.0	−0.9
2. Somalia	0.6	−0.8	0.6	−1.7	−3.1	−1.7
3. Mali	1.0	9.8	1.4	−1.6	7.2	−1.2
4. Upper Volta	2.0	7.2	2.1	0.4	5.6	0.5
5. Gambia	0.1	. .	0.1	−2.9	. .	−2.9
6. Niger	1.3	−7.8	1.3	−1.5	−10.6	−1.5
7. Mauritania	−1.3	. .	−1.3	−4.0	. .	−4.0
Low-income other			**0.8 *w***			**−1.8 *w***
8. Ethiopia	0.4	1.3	0.4	−1.7	−0.8	−1.7
9. Guinea-Bissau	1.4	0.0	1.4	−0.2	−1.6	−0.2
10. Burundi	2.7	1.8	2.6	0.7	−0.2	0.6
11. Malawi	3.1	8.6	4.0	0.3	5.8	1.2
12. Rwanda	3.9	4.7	3.9	1.1	1.9	1.1
13. Benin	2.5	−5.2	2.3	−0.4	−8.1	−0.6
14. Mozambique	−0.6	−4.7	−1.0	−3.1	−7.2	−3.5
15. Sierra Leone	1.4	4.9	1.7	−1.1	2.4	−0.8
16. Tanzania	1.9	−0.5	1.4	−1.5	−3.9	−2.0
17. Zaïre	1.3	−0.6	1.2	−1.4	−3.3	−1.5
18. Guinea	0.5	−11.7	0.2	−2.4	−14.6	−2.7
19. Central African Republic	2.4	1.5	2.2	0.2	−0.7	0.0
20. Madagascar	1.8	0.7	1.7	−0.7	−1.8	−0.8
21. Uganda	1.7	−8.3	−0.5	−1.3	−11.3	−3.5
22. Lesotho	2.4	−7.0	1.4	0.1	−9.3	−0.9
23. Togo	−0.2	−4.2	−0.4	−2.6	−6.6	−2.8
24. Sudan	3.1	−3.9	1.8	0.5	−6.5	−0.8
Middle-income oil importers			**2.2 *w***			**−1.1 *w***
25. Kenya	2.9	7.5	4.0	−0.5	4.1	0.6
26. Ghana	−0.1	−4.5	−0.1	−3.1	−7.5	−3.1
27. Senegal	1.0	11.3	1.1	−1.6	8.7	−1.5
28. Zimbabwe	2.6	3.8	2.9	−0.7	0.5	−0.4
29. Liberia	3.5	0.2	2.7	0.2	−3.1	−0.6
30. Zambia	3.0	−0.9	2.8	0.0	−3.9	−0.2
31. Cameroon	3.3	1.8	3.1	1.1	−0.4	0.9
32. Swaziland	3.7	14.6	4.6	1.2	12.1	2.1
33. Botswana	1.1	2.0	1.1	−1.1	−0.2	−1.1
34. Mauritius	1.9	3.9	1.9	0.6	2.6	0.6
35. Ivory Coast	4.6	1.8	3.8	−0.9	−3.7	−1.7
Middle-income oil exporters			**1.1 *w***			**−1.4 *w***
36. Angola	0.2	−13.3	−3.3	−2.1	−15.6	−5.6
37. Congo	−0.1	1.9	−0.1	−2.6	−0.6	−2.6
38. Nigeria	1.7	−1.3	1.7	−0.8	−3.8	−0.8
39. Gabon	0.1	−13.3	0.1	−1.1	−14.5	−1.1
Sub-Saharan Africa			**1.3 *w***			**−1.4 *w***

Table 26. Production of Major Crops

Crop[a]	Average annual volume of production: Thousands of metric tons 1961–63	1969–71	1977–79	Rate of growth (percent): 1961–63 to 1969–71	1969–71 to 1977–79
Cereals:					
Maize					
Sub-Saharan Africa	8,105	12,132	13,438	5.2	1.3
Oil exporters	1,136	1,691	1,814	5.1	0.9
Other countries	6,969	10,441	11,624	5.2	1.4
Millet					
Sub-Saharan Africa	8,083	8,875	9,178	1.2	0.4
Oil exporters	2,689	2,870	3,083	0.8	0.9
Other countries	5,394	6,005	6,095	1.4	0.2
Rice (paddy)					
Sub-Saharan Africa	3,473	4,735	5,936	4.0	2.9
Oil exporters	232	380	856	6.4	10.7
Other countries	3,241	4,355	5,080	3.8	1.9
Sorghum					
Sub-Saharan Africa	8,203	8,591	9,768	0.6	1.6
Oil exporters	3,700	3,632	3,768	−0.2	0.5
Other countries	4,503	4,959	6,000	1.2	2.4
Wheat					
Sub-Saharan Africa	923	1,243	1,220	3.8	−0.2
Oil exporters	36	33	31	−1.1	−0.8
Other countries	887	1,210	1,189	4.0	−0.2
Total Cereals[b]					
Sub-Saharan Africa	31,518	37,701	41,669	2.3	1.3
Oil exporters	7,828	8,648	9,609	1.3	1.3
Other countries	23,690	29,053	32,060	2.6	1.2
Oils and Oilseeds:					
Coconuts					
Sub-Saharan Africa	1,350	1,451	1,563	0.9	0.9
Oil exporters	75	86	90	1.7	0.6
Other countries	1,275	1,365	1,473	0.9	1.0
Groundnuts (in shell)					
Sub-Saharan Africa	4,922	5,194	4,826	0.7	−0.9
Oil exporters	1,864	1,699	503	−1.2	−14.1
Other countries	3,058	3,495	4,323	1.7	2.7
Palm kernels					
Sub-Saharan Africa	806	/11	664	−1.6	−0.9
Oil exporters	439	306	310	−4.4	0.2
Other countries	367	405	354	1.2	−1.7
Palmoil					
Sub-Saharan Africa	970	1,112	1,321	1.7	2.2
Oil exporters	573	579	718	0.1	2.7
Other countries	397	533	603	3.8	1.6
Other:					
Pulses					
Sub-Saharan Africa	2,973	3,861	4,207	3.3	1.1
Oil exporters	616	925	923	5.2	0.0
Other countries	2,357	2,936	3,284	2.8	1.4
Roots and Tubers					
Sub-Saharan Africa	57,042	66,694	77,026	2.0	1.8
Oil exporters	23,162	27,674	31,488	2.2	1.6
Other countries	33,880	39,020	45,538	1.8	1.9
Seed Cotton					
Sub-Saharan Africa	1,315	2,279	1,867	7.1	−2.5
Oil exporters	136	268	195	8.8	−3.9
Other countries	1,179	2,011	1,672	6.9	−2.3
Sugar					
Sub-Saharan Africa	1,415	2,303	2,806	6.3	2.5
Oil exporters	88	179	109	9.3	−6.0
Other countries	1,327	2,124	2,697	6.1	3.0

a. Major crops that are totally or nearly totally exported (such as coffee, tea, cocoa, rubber) are shown in Table 30, which covers exports of agricultural commodities.

b. Includes cereals not elsewhere stated.

Table 27. Yields of Major Crops

Crop	Average annual kilograms per hectare			Index of yields (1961–63 = 100)		Index of relative yields (world = 100)		
	1961–63	1969–71	1977–79	1969–71	1977–79	1961–63	1969–71	1977–79
Beverages:								
Cocoa								
World	273	330	329	121	121	100	100	100
Developing countries	273	330	328	121	120	100	100	100
Sub-Saharan Africa	257	319	278	124	108	94	97	84
Coffee								
World	442	476	497	108	112	100	100	100
Developing countries	440	475	496	108	113	100	100	100
Sub-Saharan Africa	367	410	355	112	97	83	86	71
Tea								
World	863	827	881	96	102	100	100	100
Developing countries	868	1,006	1,236	116	142	101	122	140
Sub-Saharan Africa	781	1,153	1,245	148	159	90	139	141
Cereals:								
Maize								
World	2,140	2,558	3,090	120	144	100	100	100
Developing countries	1,197	1,376	1,509	115	126	56	54	49
Sub-Saharan Africa	893	1,020	977	114	109	42	40	32
Millet								
World	561	617	636	110	113	100	100	100
Developing countries	527	575	568	109	108	94	93	89
Sub-Saharan Africa	600	586	561	98	94	107	95	88
Rice								
World	2,026	2,320	2,612	115	129	100	100	100
Developing countries	1,628	1,846	2,101	113	129	80	80	80
Sub-Saharan Africa	1,249	1,349	1,419	108	114	62	58	54
Sorghum								
World	912	1,103	1,320	121	145	100	100	100
Developing countries	638	734	965	115	151	70	67	73
Sub-Saharan Africa	751	693	701	92	93	82	63	53
Wheat								
World	1,179	1,524	1,784	129	151	100	100	100
Developing countries	998	1,193	1,443	120	145	85	78	81
Sub-Saharan Africa	785	1,255	1,084	160	138	67	82	61
Oils and Oilseeds:								
Groundnuts (in shell)								
World	874	926	979	106	112	100	100	100
Developing countries	822	840	882	102	107	94	91	90
Sub-Saharan Africa	832	776	797	93	96	95	84	81
Other:								
Pulses								
World	615	694	704	113	114	100	100	100
Developing countries	520	531	524	102	101	85	77	74
Sub-Saharan Africa	439	381	393	87	90	71	55	56
Roots and Tubers[a]								
World	10	11	11	110	110	100	100	100
Developing countries	7	9	9	129	129	70	82	82
Sub-Saharan Africa	6	7	7	117	117	60	64	64
Seed Cotton								
World	923	1,067	1,214	116	132	100	100	100
Developing countries	665	790	842	119	127	72	74	69
Sub-Saharan Africa	425	565	528	133	124	46	53	43
Sugar Cane[a]								
World	49	54	56	110	114	100	100	100
Developing countries	47	51	54	109	115	96	94	96
Sub-Saharan Africa	49	58	59	118	120	100	107	105
Tobacco								
World	1,117	1,138	1,256	102	112	100	100	100
Developing countries	817	835	984	102	120	73	73	78
Sub-Saharan Africa	767	732	828	95	108	69	64	66

a. Metric tons per hectare.

Table 28. Fertilizer Consumption

	Average annual consumption (thousands of metric tons) 1977–78[b]	Average annual growth rate[a] 1962–66[b] to 1969–71	1969–71[b] to 1977–78
Low-income countries	**219.42 *t***	**12.0 *w***	**6.8 *w***
Low-income semiarid	**31.18 *t***	**31.0 *w***	**22.7 *w***
1. Chad	6.57	42.7	20.0
2. Somalia	. .	22.7	. .
3. Mali	13.00	47.6	19.7
4. Upper Volta	6.65	31.3	45.3
5. Gambia	2.95	22.5	37.8
6. Niger	0.81	18.4	30.7
7. Mauritania	1.20	. .	24.8
Low-income other	**188.24 *t***	**11.4 *w***	**5.9 *w***
8. Ethiopia	27.99	23.6	26.0
9. Guinea-Bissau	. .	. .	. .
10. Burundi	0.65	. .	10.9
11. Malawi	22.42	11.0	14.1
12. Rwanda	0.31	. .	8.4
13. Benin	1.50	40.6	−13.5
14. Mozambique	12.85	4.8	9.3
15. Sierra Leone	2.04	42.0	0.5
16. Tanzania	34.59	20.5	15.7
17. Zaïre	10.74	25.5	14.0
18. Guinea	1.45	0.5	−6.2
19. Central African Republic	2.20	27.8	1.9
20. Madagascar	9.60	22.5	−2.2
21. Uganda	2.13	8.7	−11.8
22. Lesotho	1.40	−0.8	19.1
23. Togo	2.37	. .	31.9
24. Sudan	56.00	8.8	5.3
Middle-income oil importers	**403.25 *t***	**27.0 *w***	**10.7 *w***
25. Kenya	52.71	16.6	3.3
26. Ghana	25.05	5.2	40.7
27. Senegal	45.05	−0.8	23.7
28. Zimbabwe	113.50	9.4	2.5
29. Liberia	4.69	52.5	14.0
30. Zambia	67.20	15.9	14.9
31. Cameroon	22.22	21.2	3.5
32. Swaziland	5.20	4.3	−0.5
33. Botswana	2.05	1.9	3.7
34. Mauritius	23.03	−1.1	0.7
35. Ivory Coast	42.55	9.5	14.4
Middle-income oil exporters	**95.80 *t***	**29.9 *w***	**12.3 *w***
36. Angola	16.05	34.8	7.0
37. Congo	2.38	30.1	−11.3
38. Nigeria	76.50	26.2	33.0
39. Gabon	0.87	. .	. .
Sub-Saharan Africa	**718.47 *t***	**23.1 *w***	**9.7 *w***
Developing countries	**16,381.45 *t***	**14.6 *w*[c]**	**10.2 *w*[c]**
World	**97,469.10 *t***	**9.0 *w*[c]**	**5.7 *w*[c]**

a Growth rates for groups of countries were calculated on the basis of those countries for which data on all three sub-periods were available.
b See technical notes.
c Nonweighted mean.

Table 29. Agricultural Imports

Commodity	Volume: Thousands of metric tons 1961–63	1969–71	1977–79	Average annual growth rate 1961–63 to 1969–71	1969–71 to 1977–79	Value (millions of dollars) 1961–63	1969–71	1977–79
Rice								
Sub-Saharan Africa	464	680	1,696	4.9	12.1	63	91	619
Oil exporters	6	8	511	3.7	68.0	1	1	269
Other countries	458	672	1,185	4.9	7.3	62	90	350
Wheat								
Sub-Saharan Africa	394	1,043	2,352	12.9	10.7	30	81	473
Oil exporters	52	347	940	26.8	13.3	7	28	215
Other countries	342	696	1,412	9.3	9.2	23	53	258
Maize								
Sub-Saharan Africa	197	385	599	8.7	5.7	12	32	102
Oil exporters	(.)	6	133	. .	47.3	(.)	1	26
Other countries	197	379	466	8.5	2.6	12	31	76
Cereals not elsewhere stated								
Sub-Saharan Africa	123	239	215	8.7	−1.3	9	21	40
Oil exporters	30	58	15	8.6	−15.6	2	6	3
Other countries	93	181	200	8.7	1.3	7	15	37
Cereals, total								
Sub-Saharan Africa	1,177	2,346	4,862	9.0	9.5	114	225	1,234
Oil exporters	88	419	1,599	21.5	18.2	10	36	513
Other countries	1,089	1,927	3,263	7.4	6.8	104	189	721
Dairy products								
Sub-Saharan Africa	. .	. .	. .	7.2[a]	7.0[a]	44	109	457
Oil exporters	. .	. .	. .	. .	17.0[a]	13	27	201
Other countries	. .	. .	. .	9.8[a]	5.4[a]	31	82	256
Sugar								
Sub-Saharan Africa	670	816	1,281	2.5	5.8	84	109	429
Oil exporters	68	108	581	6.0	23.4	9	17	216
Other countries	602	708	700	2.1	−0.1	75	92	213
Meat								
Sub-Saharan Africa	38	42	114	1.3	13.3	20	24	176
Oil exporters	5	6	59	2.3	33.1	3	3	96
Other countries	33	36	55	1.1	5.4	17	21	80
Animal and vegetable oils								
Sub-Saharan Africa	51	122	325	11.5	13.0	12	32	204
Oil exporters	1	2	142	9.1	70.3	(.)	1	81
Other countries	50	120	183	11.6	5.4	12	31	123
Total agricultural imports[b]								
Sub-Saharan Africa	. .	. .	. .	(4.3)[c]	(3.5)[c]	749	1,137	4,227
Oil exporters	. .	. .	. .	(1.5)[c]	(16.0)[c]	151	207	1,663
Other countries	. .	. .	. .	(5.1)[c]	(2.8)[c]	598	930	2,564

a. See technical notes.
b. Includes products not listed above.
c. Estimated from an average of price increases for the imports shown in the table and applied to the value of total agricultural imports.

Table 30. Agricultural Exports

Commodity	Average annual volume of exports: Thousands of metric tons 1977–79	Rate of growth (percent): 1961–63 to 1969–71	Rate of growth (percent): 1969–71 to 1977–79	Sub-Saharan exports as a percentage of total exports: Of developing countries 1961–63	Of developing countries 1969–71	Of developing countries 1977–79	Of the world 1961–63	Of the world 1969–71	Of the world 1977–79
Beverages:									
Cocoa									
Sub-Saharan Africa	687	0.2	−2.6	81.2	76.7	72.2	79.9	75.9	69.2
Oil exporters	167	1.7	−3.4						
Other countries	520	−0.3	−2.3						
Coffee									
Sub-Saharan Africa	929	3.4	−0.6	26.0	30.0	29.2	25.6	29.3	27.5
Oil exporters	72	3.5	−11.3						
Other countries	857	3.4	1.0						
Tea									
Sub-Saharan Africa	166	9.0	5.8	10.0	17.4	23.8	8.7	14.4	18.5
Oil exporters	0	23.0	. .						
Other countries	166	9.0	5.8						
Cereals:									
Maize									
Sub-Saharan Africa	396	−1.9	−0.1	7.9	3.9	3.5	2.5	1.4	0.6
Oil exporters	0	2.5	0.0						
Other countries	396	−3.9	5.9						
Wheat									
Sub-Saharan Africa	2	1.2	−33.3	1.4	1.4	0.0	0.1	0.1	0.0
Oil exporters	0	0.0	0.0						
Other countries	2	1.2	−33.3						
Rice									
Sub-Saharan Africa	21	0.7	−13.4	1.4	1.8	0.4	0.9	0.8	0.2
Oil exporters	0	−3.5	. .						
Other countries	21	0.8	−13.1						
Cereals not elsewhere stated									
Sub-Saharan Africa	123	−6.0	4.5	16.7	3.6	2.5	4.1	1.4	1.0
Oil exporters	0	−2.9	. .						
Other countries	123	−6.1	4.7						
Oils and Oilseeds:									
Groundnut oil									
Sub-Saharan Africa	202	2.2	−1.3	61.2	70.2	50.1	53.8	57.6	40.6
Oil exporters	(.)	3.2	−51.7						
Other countries	202	1.7	4.1						
Groundnuts (shelled)									
Sub-Saharan Africa	216	−6.1	−14.0	88.0	77.3	54.7	85.5	69.1	27.0
Oil exporters	(.)	−6.8	−58.1						
Other countries	216	−5.5	−7.6						
Oilseed cake and meal									
Sub-Saharan Africa	729	5.3	−2.8	15.9	17.1	6.3	9.5	8.3	3.5
Oil exporters	66	8.8	−12.0						
Other countries	663	4.6	−1.2						
Palm kernel oil									
Sub-Saharan Africa	79	8.9	−1.5	91.7	81.8	31.9	55.2	54.8	28.1
Oil exporters	35	31.8	0.9						
Other countries	44	3.9	−3.1						
Palm kernels									
Sub-Saharan Africa	175	−6.2	−9.3	90.8	82.4	84.2	90.4	82.2	83.7
Oil exporters	124	−8.0	−6.7						
Other countries	51	−3.1	−13.7						
Palmoil									
Sub-Saharan Africa	94	−8.6	−6.4	57.0	17.1	4.5	55.0	16.4	4.3
Oil exporters	1	−21.2	−30.5						
Other countries	93	−2.9	−4.7						
Sesame Seed									
Sub-Saharan Africa	90	3.8	−6.9	72.8	78.1	42.5	68.6	75.3	41.8
Oil exporters	3	−5.6	−17.1						
Other countries	87	5.3	−6.3						

(table continues on the following page)

Table 30. (*continued*)

Commodity	Average annual volume of exports: Thousands of metric tons 1977–79	Rate of growth (percent): 1961–63 to 1969–71	Rate of growth (percent): 1969–71 to 1977–79	Sub-Saharan exports as a percentage of total exports: Of developing countries 1961–63	Of developing countries 1969–71	Of developing countries 1977–79	Of the world 1961–63	Of the world 1969–71	Of the world 1977–79
Other:									
Bananas									
Sub-Saharan Africa	327	−1.7	−2.2	11.3	7.1	4.9	10.9	6.5	4.7
Oil exporters	50	40.0	4.3						
Other countries	277	−2.8	−3.0						
Cotton									
Sub-Saharan Africa	463	5.6	−3.4	18.4	23.1	23.2	10.8	15.5	11.0
Oil exporters	23	1.5	−8.9						
Other countries	440	6.0	−3.0						
Rubber									
Sub-Saharan Africa	156	3.0	−2.9	7.6	7.0	4.8	6.8	6.8	4.6
Oil exporters	30	−1.0	−7.5						
Other countries	126	5.1	−1.4						
Sisal									
Sub-Saharan Africa	139	−2.1	−10.1	65.4	61.1	57.1	60.7	59.7	56.2
Oil exporters	13	−0.8	−17.1						
Other countries	126	−2.4	−9.0						
Sugar									
Sub-Saharan Africa	1,189	3.2	0.3	11.4	12.8	9.7	4.7	5.6	4.3
Oil exporters	11	8.1	−23.8						
Other countries	1,178	2.9	1.3						
Tobacco									
Sub-Saharan Africa	137	−3.1	6.5	22.2	14.6	18.0	12.1	8.2	10.0
Oil exporters	2	6.9	0.3						
Other countries	135	−3.3	6.6						

Table 31. Domestic Terms of Trade of Export Crops for Selected Countries

	1971	1972	1973	1974	1975	1976	1977	1978	1979
				(1970 = 100 unless otherwise specified)					
Cameroon									
Barter terms of trade	98.2	90.5	85.2	81.2	74.5	73.4	77.5	88.2	. .
Income terms of trade (cocoa, coffee, cotton)	89.8	96.9	84.0	81.8	81.1	66.4	67.2	91.7	. .
Ghana									
Barter terms of trade	91.2	82.8	88.0	89.4	86.0	58.8	34.0	35.8	46.3
Income terms of trade (cocoa)	85.9	92.4	88.4	75.2	78.0	56.1	26.0	22.6	27.7
Ivory Coast									
Barter terms of trade	111.2	109.3	97.8	99.7	126.5	111.8	97.3	119.3	101.6
Income terms of trade (cocoa, coffee, cotton, palmoil)	113.4	134.1	111.6	134.3	171.5	178.0	144.3	170.6	131.2
Kenya									
Barter terms of trade	98.3	93.1	79.3	83.9	123.4	93.6	55.0	49.5	58.8
Income terms of trade (coffee, tea, pyrethrum, cotton, maize, wheat, sisal)	129.2	157.0	177.9	198.5	170.1	280.0	449.6	263.5	218.0
Malawi									
Barter terms of trade	105.9	129.1	123.0	100.1	94.3	115.4	119.0	116.7	. .
Income terms of trade (tobacco, groundnuts, cotton, maize)	108.3	122.2	139.4	104.5	104.6	98.6	120.5	124.6	. .
Mali									
Barter terms of trade	81.2	80.6	69.0	61.2	83.1	79.4	65.3	60.0	50.0
Income terms of trade (cotton, groundnuts)	99.2	98.8	76.8	55.7	94.1	135.8	123.5	90.1	76.4
Nigeria									
Barter terms of trade	. .	. .	96.5	119.2	125.2	95.9	119.1	93.0	109.0
Income terms of trade (cocoa, cotton, palm kernels)	. .	. .	75.0	102.5	104.6	79.4	80.0	43.6	58.1
Senegal									
Barter terms of trade	97.3	111.9	104.2	114.1	120.6	115.1	103.4	101.5	91.3
Income terms of trade (groundnuts, cotton)	77.3	146.1	81.4	84.5	141.1	204.2	148.7	72.2	104.7
Tanzania									
Barter terms of trade	96.9	95.3	88.5	76.0	63.5	90.7	110.0	79.5	67.4
Income terms of trade (coffee, tobacco, cashews, cotton)	101.8	102.8	96.3	78.8	68.8	84.5	102.5	73.7	62.7
Togo									
Barter terms of trade	98.5	92.8	88.5	80.0	79.2	76.2	68.4	80.6	90.1
Income terms of trade (cocoa, coffee, cotton)	110.5	92.8	64.1	57.2	57.0	62.0	49.4	48.8	57.8
Upper Volta									
Barter terms of trade	99.0	101.7	102.8	108.0	91.9	101.7	105.5	101.7	92.6
Income terms of trade (cotton, sesame)	106.9	130.7	110.0	140.2	181.6	214.0	156.0	229.5	245.8
Zambia (1971 = 100)									
Barter terms of trade	100.0	82.1	113.6	104.8	91.8	84.7	104.6	98.1	127.2
Income terms of trade (maize, groundnuts, tobacco)	100.0	142.6	97.9	126.1	125.6	169.6	133.1	92.9	90.4

Table 32. Procurement and Distribution of Agricultural Inputs

	Fertilizer supply			*Seed supply*			*Chemical supply*			*Farm equipment supply*		
	Private	*Govern-ment*	*Mixed*	*Private*	*Govern-ment*	*Mixed*	*Private*	*Govern-ment*	*Mixed*	*Private*	*Govern-ment*	*Mixed*
Low-income countries												
Low-income semiarid												
1. Chad		X				X		X			X	
2. Somalia		X			X			X			X	
3. Mali		X			X			X			X	
4. Upper Volta		X			X				X			X
5. Gambia		X			X			X			X	
6. Niger		X			X			X			X	
7. Mauritania		X			X			X			X	
Low-income other												
8. Ethiopia		X			X			X			X	
9. Guinea-Bissau		X			X			X			X	
10. Burundi			X			X			X			X
11. Malawi			X		X				X			X
12. Rwanda		X			X			X		X		
13. Benin		X			X			X			X	
14. Mozambique		..			..			..			..	
15. Sierra Leone		X			X			X				X
16. Tanzania		X			X			X			X	
17. Zaïre			X			X	X					X
18. Guinea		X			X			X			X	
19. Central African Rep.			X			X			X			X
20. Madagascar			X			X			X			X
21. Uganda			X			X			X			X
22. Lesotho		X				X	X			X		
23. Togo		X			X			X			X	
24. Sudan		X				X			X			X
Middle-income oil importers												
25. Kenya	X			X					X	X		
26. Ghana		X			X				X		X	
27. Senegal		X			X			X			X	
28. Zimbabwe	X			X			X			X		
29. Liberia			X	X			X			X		
30. Zambia		X			X			X				X
31. Cameroon			X		X				X	X		
32. Swaziland	X			X			X			X		
33. Botswana		X			X				X			X
34. Mauritius	X					X	X			X		
35. Ivory Coast			X			X			X			X
Middle-income oil exporters												
36. Angola		..			..			..			..	
37. Congo		X			X			X			X	
38. Nigeria		X			X				X			X
39. Gabon		..			..			..			..	
Percent of Sub-Saharan countries	**11**	**64**	**25**	**11**	**61**	**28**	**17**	**47**	**36**	**22**	**42**	**36**

Table 33. Population Growth, Past and Projected

	Average annual growth of population (percent)		Projected population (millions)		Hypothetical size of stationary population (millions)	Assumed year of reaching net reproduction rate of 1	Year of reaching stationary population
	1960–70	1970–79	1980	2000			
Low-income countries	**2.4 *w***	**2.6 *w***	**189 *t***	**334 *t***			
Low-income semiarid	**2.3 *w***	**2.3 *w***	**29 *t***	**49 *t***			
1. Chad	1.8	2.0	4	7	19	2045	2140
2. Somalia	2.4	2.3	4	6	17	2040	2130
3. Mali	2.4	2.6	7	12	35	2040	2130
4. Upper Volta	1.6	1.6	6	10	28	2040	2130
5. Gambia**	3.2	3.0	0.6	1	3	2045	2135
6. Niger	3.3	2.8	5	10	29	2040	2130
7. Mauritania	2.5	2.7	2	3	9	2045	2135
Low-income other	**2.4 *w***	**2.6 *w***	**161 *t***	**285 *t***			
8. Ethiopia	2.4	2.1	31	53	162	2045	2140
9. Guinea-Bissau**	2.6	1.6	0.8	1	3	2040	2135
10. Burundi	1.6	2.0	4	7	17	2040	2135
11. Malawi	2.8	2.8	6	11	36	2040	2110
12. Rwanda	2.8	2.8	5	9	29	2040	2110
13. Benin	2.6	2.9	4	6	19	2040	2110
14. Mozambique	2.2	2.5	10	20	51	2040	2130
15. Sierra Leone	2.2	2.5	3	6	17	2040	2130
16. Tanzania	2.7	3.4	19	35	97	2035	2100
17. Zaire	2.0	2.7	28	49	139	2040	2130
18. Guinea	2.8	2.9	5	9	23	2040	2130
19. Central African Republic	2.2	2.2	2	3	9	2040	2130
20. Madagascar	2.1	2.5	9	15	45	2040	2110
21. Uganda	3.7	3.0	13	24	67	2035	2100
22. Lesotho	2.0	2.3	1	2	5	2035	2105
23. Togo	2.7	2.4	2	4	13	2040	2110
24. Sudan	2.2	2.6	18	31	86	2040	2105
Middle-income oil importers	**2.8 *w***	**3.2 *w***	**69 *t***	**128 *t***			
25. Kenya	3.2	3.4	16	34	109	2035	2095
26. Ghana	2.4	3.0	12	21	52	2035	2100
27. Senegal	2.4	2.6	6	10	30	2045	2135
28. Zimbabwe	3.9	3.3	7	15	42	2035	2095
29. Liberia	3.1	3.3	2	4	11	2035	2095
30. Zambia	2.8	3.0	6	11	31	2035	2125
31. Cameroon	1.8	2.2	8	14	37	2040	2130
32. Swaziland**	2.2	2.6	0.6	1	3	2010	2075
33. Botswana**	1.9	2.2	0.9	2	6	2040	2130
34. Mauritius**	2.2	1.4	1	1	2	2010	2075
35. Ivory Coast	3.7	5.5	9	15	45	2040	2110
Middle-income oil exporters	**2.4 *w***	**2.5 *w***	**95 *t***	**177 *t***			
36. Angola	1.5	2.3	7	12	35	2045	2135
37. Congo	2.1	2.5	2	3	7	2040	2130
38. Nigeria	2.5	2.5	85	161	459	2035	2105
39. Gabon	0.4	1.2	0.7	1	2	2040	2155
Sub-Saharan Africa	**2.5 *w***	**2.7 *w***	**353 *t***	**639 *t***			
Low-income countries	**2.2 *w***	**2.1 *w***	**2,300 *t*[a]**	**3,275 *t*[a]**			
Middle-income countries	**2.5 *w***	**2.4 *w***	**1,008 *t*[a]**	**1,569 *t*[a]**			
Industrialized countries	**1.0 *w***	**0.7 *w***	**675 *t*[a]**	**744 *t*[a]**			

a. Does not include projections for countries of less than one million population in 1979.

Table 34. Demographic and Fertility-related Indicators

	Crude birth rate per thousand population		Crude death rate per thousand population		Percentage change in		Total fertility rate	Life expectancy at birth		Child death rate (aged 1–4)	
					Crude birth rate	Crude death rate					
	1960	1979	1960	1979	1960–79	1960–79	1979	1960	1979	1960	1979
Low-income countries	**48 *w***	**47 *w***	**26 *w***	**19 *w***	**−2.0 *w***	**−24.6 *w***	**6.4 *w***	**38 *w***	**46 *w***	**40 *w***	**27 *w***
Low-income semiarid	**49 *w***	**48 *w***	**28 *w***	**22 *w***	**−1.8 *w***	**−20.2 *w***	**6.5 *w***	**37 *w***	**43 *w***	**42 *w***	**31 *w***
1. Chad	45	44	29	24	−2.4	−18.4	5.9	35	41	45	35
2. Somalia	49	46	29	20	−5.9	−30.0	6.1	36	44	43	30
3. Mali	50	49	27	22	−0.8	−18.9	6.7	37	43	41	31
4. Upper Volta	49	48	27	21	−1.4	−19.2	6.5	37	43	41	31
5. Gambia**	48	48	26	23	−0.6	−14.8	6.4	37	42	41	34
6. Niger	52	52	27	22	−0.6	−18.1	7.1	37	43	41	31
7. Mauritania	51	50	27	22	−0.8	−19.4	6.9	37	43	41	29
Low-income other	**48 *w***	**47 *w***	**25 *w***	**19 *w***	**−2.0 *w***	**−25.4 *w***	**6.4 *w***	**39 *w***	**47 *w***	**40 *w***	**26 *w***
8. Ethiopia	51	50	28	24	−1.8	−13.2	6.7	36	40	43	36
9. Guinea-Bissau**	40	41	31	23	0.7	−26.7	5.5	32	42	. .	. .
10. Burundi	47	45	27	22	−3.2	−15.8	5.9	37	42	41	33
11. Malawi	53	51	27	19	−3.6	−31.0	7.0	37	47	41	25
12. Rwanda	51	50	27	19	−2.9	−30.5	6.9	37	47	41	25
13. Benin	51	49	27	19	−3.6	−30.2	6.7	37	47	41	25
14. Mozambique	46	45	26	18	−2.4	−29.5	6.1	37	47	41	25
15. Sierra Leone	47	46	27	19	−2.8	−30.5	6.1	37	47	41	25
16. Tanzania	47	46	22	15	−0.6	−31.5	6.5	42	52	32	18
17. Zaire	48	46	24	18	−4.6	−25.2	6.1	40	47	36	25
18. Guinea	47	46	30	20	−1.9	−32.8	6.2	35	44	45	28
19. Central African Republic	43	44	28	21	3.0	−23.8	5.9	36	44	43	30
20. Madagascar	47	46	27	18	−1.9	−31.6	6.5	37	47	41	25
21. Uganda	45	45	20	14	−0.4	−32.0	6.1	44	54	29	16
22. Lesotho	40	40	23	16	−1.7	−30.7	5.4	42	51	33	20
23. Togo	51	48	27	18	−5.3	−30.9	6.5	37	47	41	25
24. Sudan	45	46	25	18	0.9	−26.2	6.6	39	47	47	29
Middle-income oil importers	**48 *w***	**48 *w***	**24 *w***	**16 *w***	**−2.3 *w***	**−32.5 *w***	**6.7 *w***	**40 *w***	**50 *w***	**36 *w***	**21 *w***
25. Kenya	52	51	24	13	−1.3	−42.7	7.8	41	55	34	15
26. Ghana	49	48	24	17	−1.4	−30.0	6.7	40	49	36	22
27. Senegal	48	48	26	21	0.2	−18.0	6.5	37	43	41	31
28. Zimbabwe	47	47	19	13	0.6	−30.9	6.6	45	55	28	15
29. Liberia	50	48	21	14	−4.2	−33.0	6.9	44	54	29	16
30. Zambia	51	49	24	17	−2.8	−31.4	6.9	40	49	36	22
31. Cameroon	43	42	27	19	−1.2	−30.2	5.7	37	47	41	25
32. Swaziland**	49	48	27	18	−2.9	−31.5	6.4	38	47	41	27
33. Botswana**	50	51	24	17	2.0	−30.7	6.7	40	49	36	23
34. Mauritius**	41	25	10	6	−38.6	−37.0	3.0	60	65	11	4
35. Ivory Coast	50	47	26	18	−6.4	−32.0	6.7	37	47	41	25
Middle-income oil exporters	**52 *w***	**50 *w***	**26 *w***	**17 *w***	**−4.1 *w***	**−31.2 *w***	**6.8 *w***	**39 *w***	**48 *w***	**37 *w***	**23 *w***
36. Angola	50	48	31	22	−4.0	−27.5	6.4	33	42	49	33
37. Congo	46	45	27	18	−2.2	−29.8	6.0	37	47	41	27
38. Nigeria	52	50	25	17	−4.2	−31.6	6.9	39	49	36	22
39. Gabon**	32	33	28	21	0.9	−26.0	4.3	36	45	43	30
Sub-Saharan Africa	**49 *w***	**48 *w***	**25 *w***	**18 *w***	**−2.6 *w***	**−27.8 *w***	**6.6 *w***	**39 *w***	**47 *w***	**38 *w***	**25 *w***
All low-income countries	**40 *w***	**29 *w***	**18 *w***	**11 *w***	**−27.5 *w***	**−38.2 *w***	**4.5 *w***	**42 *w***	**57 *w***	**23 *w***	**11 *w***
All middle-income countries	**41 *w***	**34 *w***	**15 *w***	**10 *w***	**−15.7 *w***	**−32.7 *w***	**4.9 *w***	**53 *w***	**61 *w***	**19 *w***	**10 *w***
Industrialized countries	**20 *w***	**15 *w***	**10 *w***	**10 *w***	**−27.5 *w***	**−2.2 *w***	**1.9 *w***	**70 *w***	**74 *w***	**1 *w***	**1 *w***

Table 35. Labor Force

	Percentage of population of working age (15–64 years)		Percentage of labor force						Average annual growth of labor force (percent)		
			In agriculture		In industry		In services				
	1960	1979	1960	1979	1960	1979	1960	1979	1960–70	1970–80	1980–2000
Low-income countries	**54 *w***	**53 *w***	**87 *w***	**79 *w***	**5 *w***	**9 *w***	**7 *w***	**11 *w***	**2.0 *w***	**2.1 *w***	**2.8 *w***
Low-income semiarid	**54 *w***	**53 *w***	**93 *w***	**86 *w***	**5 *w***	**7 *w***	**4 *w***	**7 *w***	**1.9 *w***	**2.0 *w***	**2.7 *w***
1. Chad	57	54	95	85	2	7	3	8	1.5	1.8	2.4
2. Somalia	54	54	88	84	4	8	8	8	1.7	2.2	2.0
3. Mali	54	52	94	88	3	5	3	7	2.0	2.2	2.9
4. Upper Volta	54	53	92	83	5	12	3	5	1.2	1.2	2.7
5. Gambia**	54	53	85	79	7	10	8	11	. .	. .	. .
6. Niger	53	51	95	91	1	3	4	6	3.0	2.6	3.4
7. Mauritania	53	52	91	85	3	5	6	10	2.2	2.4	2.8
Low-income other	**54 *w***	**53 *w***	**86 *w***	**78 *w***	**6 *w***	**9 *w***	**8 *w***	**12 *w***	**2.0 *w***	**2.1 *w***	**2.8 *w***
8. Ethiopia	54	53	88	80	5	7	7	13	2.0	1.7	2.6
9. Guinea-Bissau**	61	61	. .	93	. .	1	. .	6	. .	. .	. .
10. Burundi	55	55	90	84	3	5	7	11	1.2	1.5	2.2
11. Malawi	52	49	92	86	3	5	5	9	2.3	2.2	3.3
12. Rwanda	53	51	95	91	1	2	4	7	2.4	2.4	3.2
13. Benin	53	51	54	46	9	16	37	38	2.1	2.3	2.6
14. Mozambique	56	53	81	67	8	17	11	16	1.9	1.7	2.4
15. Sierra Leone	55	53	78	66	12	19	10	15	1.5	1.8	2.7
16. Tanzania	54	51	89	83	4	6	7	11	2.1	2.7	3.1
17. Zaïre	53	53	83	75	9	13	8	12	1.4	2.1	2.7
18. Guinea	55	53	88	82	6	11	6	7	2.5	2.2	2.3
19. Central African Rep.	58	55	94	88	2	4	4	8	1.7	1.7	2.3
20. Madagascar	55	53	93	87	2	4	5	9	1.7	2.0	2.8
21. Uganda	54	52	89	83	4	6	7	11	3.3	2.5	3.3
22. Lesotho	57	55	93	87	2	4	5	9	1.6	1.9	2.4
23. Togo	53	51	80	68	8	15	12	17	2.2	1.7	2.9
24. Sudan	53	53	86	78	6	10	8	12	2.2	2.4	2.7
Middle-income oil importers	**53 *w***	**51 *w***	**79 *w***	**71 *w***	**7 *w***	**11 *w***	**14 *w***	**18 *w***	**2.3 *w***	**2.6 *w***	**3.1 *w***
25. Kenya	50	48	86	78	5	10	9	12	2.7	2.8	3.9
26. Ghana	53	51	64	54	14	20	22	26	1.6	2.4	3.2
27. Senegal	54	53	84	76	5	10	11	14	1.9	1.9	2.5
28. Zimbabwe	52	50	69	60	11	15	20	25	3.2	2.6	3.5
29. Liberia	52	50	80	71	10	14	10	15	2.4	2.6	3.5
30. Zambia	53	50	79	68	7	11	14	21	2.3	2.4	3.0
31. Cameroon	57	54	87	83	5	7	8	10	1.3	1.3	1.8
32. Swaziland**	54	52	54	52	4	9	42	39	. .	. .	. .
33. Botswana**	51	48	92	83	3	5	5	12	. .	. .	. .
34. Mauritius**	51	61	40	30	26	24	35	46	. .	. .	. .
35. Ivory Coast	54	54	89	79	2	4	9	17	3.6	5.0	2.8
Middle-income oil exporters	**52 *w***	**50 *w***	**71 *w***	**55 *w***	**10 *w***	**18 *w***	**19 *w***	**27 *w***	**1.7 *w***	**1.7 *w***	**3.2 *w***
36. Angola	55	53	69	60	12	16	19	24	1.0	1.9	2.7
37. Congo	56	53	52	35	17	26	31	39	1.5	2.0	2.9
38. Nigeria	52	50	71	55	10	18	19	27	1.8	1.7	3.3
39. Gabon**	62	61	85	79	7	10	8	11	. .	. .	. .
Sub-Saharan Africa	**53 *w***	**52 *w***	**81 *w***	**71 *w***	**7 *w***	**12 *w***	**12 *w***	**17 *w***	**2.0 *w***	**2.1 *w***	**3.0 *w***
All low-income countries	**56 *w***	**58 *w***	**76 *w***	**71 *w***	**10 *w***	**14 *w***	**14 *w***	**15 *w***	**1.6 *w***	**1.9 *w***	**1.6 *w***
All middle-income countries	**55 *w***	**55 *w***	**59 *w***	**43 *w***	**17 *w***	**23 *w***	**25 *w***	**34 *w***	**1.9 *w***	**2.3 *w***	**2.6 *w***
Industrialized countries	**63 *w***	**66 *w***	**16 *w***	**6 *w***	**39 *w***	**38 *w***	**45 *w***	**56 *w***	**1.2 *w***	**1.2 *w***	**0.6 *w***

Table 36. Urbanization

	Urban population				Percentage of urban population				Number of cities of over 500,000 persons[a]	
	As percentage of total population		Average annual growth rate (percent)		In largest city		In cities of over 500,000 persons[a]			
	1960	1980	1960–70	1970–80	1960	1980	1960	1980	1960	1980
Low-income countries	**9 *w***	**18 *w***	**5.8 *w***	**6.5 *w***	**24 *w***	**40 *w***	. .	. .	**1 *t***	**10 *t***
Low-income semiarid	**9 *w***	**17 *w***	**5.9 *w***	**5.8 *w***	**10 *w***	**36 *w***	. .	. .	. .	. .
1. Chad	7	18	6.7	6.5	. .	39				
2. Somalia	17	30	5.3	5.0	. .	34				
3. Mali	11	20	5.4	5.5	32	34				
4. Upper Volta	5	9	5.3	3.8	. .	41				
5. Gambia**	12	. .	5.1	5.0	. .	. .				
6. Niger	6	13	7.0	6.8	. .	31				
7. Mauritania	3	23	15.8	8.6	. .	39				
Low-income other	**9 *w***	**18 *w***	**5.8 *w***	**6.7 *w***	**26 *w***	**41 *w***	. .	**37 *w***	**1 *t***	**10 *t***
8. Ethiopia	6	15	6.1	6.6	30	37		37		1
9. Guinea-Bissau**	14	. .	2.2	4.3	. .	. .				
10. Burundi	2	2	1.6	2.5	. .	. .				
11. Malawi	4	10	6.6	6.8	. .	19				
12. Rwanda	2	4	5.6	5.9	. .	. .				
13. Benin	10	14	5.3	3.9	. .	63		63		1
14. Mozambique	4	9	6.6	6.8	75	83		83		1
15. Sierra Leone	13	25	5.5	5.6	37	47				
16. Tanzania	5	12	6.3	8.7	34	50		50		1
17. Zaïre	16	34	5.2	7.2	14	28	14	38	1	2
18. Guinea	10	18	6.2	5.5	37	80		80		1
19. Central African Republic	23	41	5.3	5.0	40	36				
20. Madagascar	11	18	5.0	5.2	44	36		36		1
21. Uganda	5	12	7.8	7.0	38	52		52		1
22. Lesotho	2	5	7.5	7.7	. .	. .				
23. Togo	10	20	5.6	6.6	. .	60				
24. Sudan	10	25	6.9	6.8	30	31		31		1
Middle-income oil importers	**16 *w***	**28 *w***	**5.3 *w***	**6.2 *w***	**28 *w***	**37 *w***	. .	**40 *w***	. .	**8 *t***
25. Kenya	7	14	6.4	6.8	40	57		57		1
26. Ghana	23	36	4.6	5.1	25	35		48		2
27. Senegal	23	25	2.9	3.3	53	65		65		1
28. Zimbabwe	13	23	6.8	6.4	40	50		50		1
29. Liberia	21	33	5.6	5.6	. .	. .				
30. Zambia	23	38	5.4	5.5	. .	35		35		1
31. Cameroon	14	35	5.6	7.5	26	21		21		1
32. Swaziland**	4	. .	8.8	4.2	. .	. .				
33. Botswana**	2	. .	17.6	15.0	. .	. .				
34. Mauritius**	33	. .	4.6	3.6	. .	. .				
35. Ivory Coast	19	38	7.3	8.5	27	34		34		1
Middle-income oil exporters	**13 *w***	**20 *w***	**4.7 *w***	**4.8 *w***	**18 *w***	**22 *w***	. .	**56 *w***	**2 *t***	**10 *t***
36. Angola	10	21	5.1	5.7	44	64		64		1
37. Congo	30	45	4.7	4.1	77	56				
38. Nigeria	13	20	4.7	4.7	13	17	22	58	2	9
39. Gabon**	17	. .	4.3	4.5	. .	. .				
Sub-Saharan Africa	**11 *w***	**21 *w***	**5.3 *w***	**5.9 *w***	**23 *w***	**34 *w***	**8 *w***	**41 *w***	**3 *t***	**28 *t***
All low-income countries	**15 *w***	**17 *w***	**3.7 *w***	**3.8 *w***	**11 *w***	**13 *w***	**31 *w***	**42 *w***	**58 *t***	**144 *t***
All middle-income countries	**37 *w***	**50 *w***	**4.1 *w***	**3.8 *w***	**28 *w***	**29 *w***	**35 *w***	**48 *w***	**56 *t***	**125 *t***
Industrialized countries	**68 *w***	**77 *w***	**f53 w1.8 *w***	**1.3 *w***	**18 *w***	**18 *w***	**48 *w***	**55 *w***	**99 *t***	**146 *t***

a. Spaces are left blank to indicate an absence of cities of more than 500,000 persons.

Table 37. Health-related Indicators

	Population[a]				Percentage of population with access to safe water	Daily calorie supply per capita	
	Per physician		Per nurse			Total	As percentage of total requirement
	1960	1977	1960	1977	1975	1977	1977
Low-income countries	**50,788 *w***	**32,241 *w***	**7,558 *w***	**3,670 *w***	**24 *w***	**2,072 *w***	**90 *w***
Low-income semiarid	**67,302 *w***	**36,781 *w***	**6,157 *w***	**4,498 *w***	**23 *w***	**1,995 *w***	**85 *w***
1. Chad	72,190	41,940	8,040*	4,810*	26	1,762	74
2. Somalia	36,570	. .	6,220	. .	33	2,033	88
3. Mali	67,050	25,150	4,980*	3,230*	9	2,117	90
4. Upper Volta	81,650	49,810*	4,090	4,510*	25	1,875	79
5. Gambia**	21,800	13,171*	. .	3,930	. .	. .	97
6. Niger	82,170*	42,720	8,450*	6,270*	27	2,139	91
7. Mauritania	40,400	15,160	7,320*	3,430	. .	1,976	86
Low-income other	**47,756 *w***	**31,539 *w***	**7,818 *w***	**3,533 *w***	**24 *w***	**2,085 *w***	**91 *w***
8. Ethiopia	100,470	75,320	14,920*	5,400*	6	1,754	75
9. Guinea-Bissau**	. .	10,094	. .	1,258*	8*	2,009[b]	86[b]
10. Burundi	96,570*	45,020*	6,770*	6,180*	. .	2,254	97
11. Malawi	35,250	40,680*	12,920*	2,790*	33	2,066	90
12. Rwanda	138,100*	38,920	11,200	10,490	35	2,264	98
13. Benin	23,030	26,880	. .	3,040*	21*	2,249	98
14. Mozambique	20,390	33,980	4,720*	. .	. .	1,906	81
15. Sierra Leone	20,420	. .	5,900*	. .	. .	2,150	93
16. Tanzania	18,220	17,550	10,440	3,080	39	2,063	89
17. Zaire	37,620*	15,530*	3,510*	1,940*	16	2,271	104
18. Guinea	48,000*	16,630	3,260*	2,490	10	1,943	84
19. Central African Republic	41,580	17,610	2,760*	1,560	16	2,242	99
20. Madagascar	8,900	10,240	3,110*	3,470*	26	2,486	115
21. Uganda	14,060	27,600	9,420*	4,300	35	2,110	91
22. Lesotho	23,510	18,640	. .	4,340	17	2,245	99
23. Togo	35,760*	17,980	5,340*	2,000	16	2,069	90
24. Sudan	33,500	8,690	3,040*	1,280	46	2,184	93
Middle-income oil importers	**20,971 *w***	**11,877 *w***	**4,321 *w***	**1,551 *w***	**28 *w***	**2,181 *w***	**94 *w***
25. Kenya	10,690	11,630*	2,230*	1,090*	17	2,032	88
26. Ghana	21,600	9,920	5,430*	860*	35	1,983	86
27. Senegal	24,540	15,710	4,110	1,660*	37	2,261	95
28. Zimbabwe	4,790	7,030*	1,010	1,380*	. .	2,576	108
29. Liberia	12,600*	9,260*	5,810	2,900*	20	2,404	104
30. Zambia	9,540	10,190*	9,920*	1,930*	42	2,002	87
31. Cameroon	48,110*	16,500	6,150*	2,230	26	2,069	89
32. Swaziland**	10,134	9,185*	3,684	936	37	. .	99
33. Botswana**	26,200	9,597	2,380	1,270	45	. .	94
34. Mauritius**	4,662	2,410	2,102	641*	60	. .	114
35. Ivory Coast	29,190*	15,220*	2,920	2,370*	19	2,517	105
Middle-income oil exporters	**67,250 *w***	**15,494 *w***	**5,889 *w***	**3,973 *w***		**1,970 *w***	**84 *w***
36. Angola	14,910	. .	. .	. .	. .	2,133	91
37. Congo	16,430	7,290*	1,510*	800*	17*	2,284	103
38. Nigeria	73,710	15,740*	6,020*	4,030*	. .	1,951	83
39. Gabon**	9,772	3,029	1,410	. .	. .	. .	88
Sub-Saharan Africa	**50,096 *w***	**23,904 *w***	**6,533 *w***	**3,315 *w***	**25 *w***	**2,065 *w***	**89 *w***
All low-income countries	**11,680 *w***	**6,150 *w***	**5,700 *w***	**6,200 *w***	**29 *w***	**2,231 *w***	**98 *w***
All middle-income countries	**10,430 *w***	**4,380 *w***	**3,390 *w***	**1,820 *w***	**58 *w***	**2,581 *w***	**109 *w***
Industrialized countries	**830 *w***	**620 *w***	**450 *w***	**220 *w***	. .	**3,377 *w***	**131 *w***

a. Figures marked with an * are for years other than specified.
b. Average 1976–79.

Table 38. Education

	Number enrolled in primary school as percentage of age group						Number enrolled in secondary school as percentage of age group		Number enrolled in higher education as percentage of population aged 20–24		Adult literacy rate (percent)	
	Total		Male		Female							
	1960	1978[a]	1960	1978[a]	1960	1978[a]	1960	1978[a]	1960	1977[a]	1960[a]	1976[a]
Low-income countries	**30 w**	**56 w**	**42 w**	**70 w**	**19 w**	**50 w**	**2 w**	**10 w**	**. . w**	**1 w**	**15 w**	**26 w**
Low-income semiarid	**10 w**	**28 w**	**15 w**	**37 w**	**5 w**	**19 w**	**(.) w**	**5 w**	**. . w**	**(.) w**	**3 w**	**20 w**
1. Chad	17	35*	29	51*	4	19*	(.)	3*	. .	(.)	6	15*
2. Somalia	9	44*	13	57*	5	32*	1	4*	(.)	1*	2*	60
3. Mali	10	28	14	36	6	20	1	9*	. .	1	3*	10
4. Upper Volta	8	17	12	21	5	12	(.)	2	. .	(.)	2*	5*
5. Gambia**	14	37	. .	. .	. .	. .	3	12	. .	. .	6	10
6. Niger	5	23	7	29	3	17	(.)	3*	. .	(.)	1	8
7. Mauritania	8	26*	13	34*	3	17*	(.)	5*	. .	(.)	5	17*
Low-income other	**34 w**	**61 w**	**47 w**	**78 w**	**22 w**	**57 w**	**2 w**	**11 w**	**. . w**	**1 w**	**19 w**	**27 w**
8. Ethiopia	7	38*	11	. .	3	. .	(.)	9*	(.)	(.)	. .	15*
9. Guinea-Bissau**	25	112	. .	. .	. .	. .	3	10	. .	. .	5	7*
10. Burundi	18	21	27	26	9	17	1	3	(.)	(.)*	14*	25
11. Malawi	. .	59*	. .	73*	. .	51*	1	4*	. .	(.)	. .	25*
12. Rwanda	49	64*	68	68*	30	59*	2	2*	. .	(.)*	16*	. .
13. Benin	26	60*	38	78*	15	42*	2	12*	. .	1*	8*	7*
14. Mozambique	48	. .	60	. .	36	. .	2	. .	. .	(.)*	11	. .
15. Sierra Leone	23	37*	30	45*	15	30*	2	12*	(.)	1	7	. .
16. Tanzania	25	70*	33	80*	18	61*	2	4*	. .	(.)	10*	66*
17. Zaïre	60	90*	88	103*	32	77*	3	19*	(.)	. .	31*	15
18. Guinea	30	34*	44	46*	16	22*	2	16*	. .	7*[b]	7	20*
19. Central African Republic	32	78*	53	101*	12	55*	1	9*	. .	1	7*	. .
20. Madagascar	52	94*	58	100*	45	87*	4	12*	(.)	2	. .	50*
21. Uganda	49	50*	65	58*	32	41*	3	5*	(.)	1	35*	. .
22. Lesotho	83	101*	63	82*	102	122*	3	17*	(.)	. .	. .	52*
23. Togo	44	102*	63	129*	24	75*	2	25*	. .	1*	10	18
24. Sudan	25	50	35	58	14	42	3	16	(.)	2	13*	20*
Middle-income oil importers	**51 w**	**85 w**	**66 w**	**84 w**	**35 w**	**75 w**	**4 w**	**19 w**	**0 w**	**1 w**	**20 w**	**34 w**
25. Kenya	47	99	64	105	30	94	2	18	(.)	1*	20*	45*
26. Ghana	38	71*	52	80*	25	61*	5	32*	(.)	1*	27	. .
27. Senegal	27	41*	36	50*	17	32*	3	10*	1	2	6*	10*
28. Zimbabwe	96	97*	107	105*	86	90*	6	9*	(.)	. .	39*	. .
29. Liberia	31	64	45	80	18	48	2	20	(.)	2*	9*	30
30. Zambia	42	98*	51	106*	34	89*	2	16*	. .	2	. .	39*
31. Cameroon	65	101*	87	42*	43	91*	2	16*	. .	1	19*	. .
32. Swaziland**	58	92	. .	. .	. .	. .	5	32	. .	3	. .	65
33. Botswana**	42	89	. .	. .	. .	. .	1	20	. .	. .	. .	35
34. Mauritius**	98	104	. .	. .	. .	. .	24	51	. .	2	. .	80
35. Ivory Coast	46	71*	68	88*	24	69*	2*	14	(.)	2*	5*	20
Middle-income oil exporters	**36 w**	**64 w**	**46 w**	**. . w**	**28 w**	**. . w**	**4 w**	**14 w**	**(.) w**	**1 w**	**14 w**	**. . w**
36. Angola	21	. .	28	. .	13	. .	2	. .	(.)	. .	5*	. .
37. Congo	78	156	103	163	53	148	4	69	1	3*	16*	. .
38. Nigeria	36	62*	46	. .	27	. .	4	13*	(.)	1	15*	. .
39. Gabon**	85	202	. .	. .	. .	. .	5	34	. .	3	12	12*
Sub-Saharan Africa	**36 w**	**63 w**	**47 w**	**75 w**	**24 w**	**58 w**	**3 w**	**13 w**	**. . w**	**1 w**	**16 w**	**28 w**
All low-income countries	**76 w**	**83 w**	**71 w**	**92 w**	**37 w**	**63 w**	**14 w**	**36 w**	**2 w**	**3 w**	**28 w**	**51 w**
All middle-income countries	**79 w**	**95 w**	**85 w**	**103 w**	**72 w**	**94 w**	**16 w**	**41 w**	**4 w**	**11 w**	**53 w**	**72 w**
Industrialized countries	**114 w**	**100 w**	**109 w**	**102 w**	**108 w**	**102 w**	**68 w**	**89 w**	**17 w**	**37 w**	**. . w**	**99 w**

a. Figures marked with an * are for years other than specified.
b. Percentage of population aged 19–22.

Table 39. Central Government Budgetary Operations

	Percentage of GDP 1977								
	Expenditure			Revenues				Financing	
	Capital	Current	Net lending	Tax	Nontax current[a]	Capital	Grants	Foreign	Domestic
Low-income countries	**5.6 *m***	**18.5 *m***	**0.2 *m***	**14.3 *m***	**2.5 *m***	**0.0 *m***	**1.2 *m***	**1.8 *m***	**1.9 *m***
Low-income semiarid	**3.2 *m***	**16.1 *m***	**0.6 *m***	**16.6 *m***	**3.4 *m***	**0.0 *m***	**1.3 *m***	**1.2 *m***	**1.9 *m***
1. Chad[b]	3.5	16.1	0.0	10.9	1.9	0.0	4.4	1.2	1.2
2. Somalia	7.8	28.9	0.0	23.9	6.6	0.3	1.3	. .	. .
3. Mali	1.6	18.4[c]	0.3	16.6	2.1	0.0	1.5	−0.3	0.4
4. Upper Volta	2.8	12.7	1.3	14.6	2.5	0.0	0.5	. .	. .
5. Gambia	12.2	21.1	2.0	20.7	4.3	0.0	0.0	2.3	8.0
6. Niger	2.7	12.0	0.6	13.5	3.4	0.0	0.2	0.0	1.9
7. Mauritania	. .	51.2[c]	3.3	20.9	7.5	−0.4	14.1	4.5	7.9
Low-income other	**6.5 *m***	**18.5 *m***	**0.1 *m***	**13.3 *m***	**2.0 *m***	**0.0 *m***	**0.9 *m***	**2.5 *m***	**3.3 *m***
8. Ethiopia	3.4	16.0	0.1	12.8	2.0	0.0	1.2	1.5	1.9
9. Guinea-Bissau**	11.1	39.2	. .	11.6	6.7	. .	. .	33.1	10.7
10. Burundi	. .	21.1[c]	0.0	13.3	0.8	0.1	5.3	1.8	−0.2
11. Malawi	8.1	12.7	1.5	11.6	2.6	0.0	2.1	5.2	0.7
12. Rwanda	4.6	8.9	0.2	11.6	0.6	0.0	0.0	3.1	−1.7
13. Benin[b]	. .	12.4	0.0	12.2	2.5	0.0	0.0	. .	. .
14. Mozambique	. .	. .	. .	. .	. .	. .	. .	. .	. .
15. Sierra Leone	4.6	18.6	0.0	14.8	1.5	0.0	0.0	. .	. .
16. Tanzania	7.8	18.5	0.2	15.8	2.9	0.0	2.2	. .	. .
17. Zaire	6.5	23.7	0.0	16.1	0.3	0.0	3.3	3.7	6.8
18. Guinea	. .	. .	. .	. .	. .	. .	. .	. .	. .
19. Central African Republic	. .	. .	. .	. .	. .	. .	. .	. .	. .
20. Madagascar	. .	. .	. .	. .	. .	. .	. .	. .	. .
21. Uganda	. .	. .	. .	. .	. .	. .	. .	. .	. .
22. Lesotho	. .	. .	. .	. .	. .	. .	. .	. .	. .
23. Togo	5.6	27.3	0.3	26.3	2.0	0.0	0.0	0.2	4.7
24. Sudan	10.5	15.2	0.1	14.0	2.6	0.0	0.6	0.8	7.8
Middle-income oil importers	**9.3 *m***	**15.8 *m***	**2.2 *m***	**20.0 *m***	**2.1 *m***	**0.0 *m***	**0.5 *m***	**2.7 *m***	**1.0 *m***
25. Kenya	4.5	15.2	1.2	14.4	2.3	0.0	0.7	1.2	2.4
26. Ghana	. .	13.0	0.5	6.3	0.6	0.0	0.2	0.0	6.4
27. Senegal	. .	16.4	0.9	17.6	1.0	0.0	0.0	. .	. .
28. Zimbabwe	. .	. .	. .	. .	. .	. .	. .	. .	. .
29. Liberia	7.3	13.8	2.7	18.4	0.7	0.0	1.8	4.4	−1.6
30. Zambia	6.2	30.5	4.5	23.3	2.6	0.0	1.7	12.7	1.0
31. Cameroon	13.4	6.5	0.3	18.0	1.0	0.0	0.7	2.9	−2.5
32. Swaziland	11.2	20.4	6.1	31.3	2.7	0.0	0.2	2.4	1.2
33. Botswana	13.0	21.1	2.2	20.5	8.8	0.0	5.5	1.9	−0.5
34. Mauritius	6.9	23.1	2.1	21.2	1.8	0.0	0.0	1.4	7.6
35. Ivory Coast**	13.0	15.0	9.0	21.0	16.0	0.0	0.0	10.0	−10.0
Middle-income oil exporters	. .	. .	. .	. .	. .	. .	. .	. .	. .
36. Angola	. .	. .	. .	. .	. .	. .	. .	. .	. .
37. Congo	. .	. .	. .	. .	. .	. .	. .	. .	. .
38. Nigeria	11.6	21.5	6.7	23.9	7.7	0.0	0.0	1.2	7.1
39. Gabon[b]	. .	59.2[c]	1.1	24.6	8.1	0.0	0.0	23.5	4.0
Sub-Saharan Africa	**7.1 *m***	**16.4 *m***	**0.6 *m***	**16.6 *m***	**2.5 *m***	**0.0 *m***	**0.7 *m***	**2.1 *m***	**1.9 *m***

a. Includes unallocated revenues and adjustments to a cash basis.
b. Data for Chad and Gabon refer to 1976 and for Benin to 1975.
c. Includes capital expenditures or unallocated expenditures.

Table 40. Central Government Taxes and Expenditure

	Ratio of taxes to GDP				Ratio of taxes to expenditure		
	(Average) 1966–68	1973[a]	1977[a]	1978	1973[a]	1977[a]	1978
Low-income countries	**13.2 *m***	**12.6 *m***	**14.8 *m***	. .	**72.1 *m***	**63.8 *m***	. .
Low-income semiarid	**13.9 *m***	**14.6 *m***	**16.6 *m***	. .	**81.4 *m***	**82.6 *m***	. .
1. Chad	13.9	12.6	10.9*	. .	60.5	55.3*	. .
2. Somalia	13.6	23.8	23.9	. .	81.0	82.6	. .
3. Mali	15.0	. .	16.6	. .	. .	82.8	. .
4. Upper Volta	12.9	11.2	14.6	. .	92.0	94.6	. .
5. Gambia	. .	16.7	20.7	25.9	81.8	62.3	42.9
6. Niger	. .	. .	13.5	. .	. .	94.9	. .
7. Mauritania	15.2	. .	20.9	. .	. .	40.8	. .
Low-income other	. .	**10.9 *m***	**14.4 *m***	. .	**67.9 *m***	**63.5 *m***	. .
8. Ethiopia	8.6	9.9	12.8	. .	72.8	66.1	. .
9. Guinea-Bissau	. .	. .	. .	. .	. .	. .	. .
10. Burundi	10.1	10.2	13.3	. .	54.2	63.2	. .
11. Malawi	. .	10.8	11.6	14.3	54.4	56.3	56.7
12. Rwanda	8.5	8.4	11.6	10.9	72.1	84.9	80.7
13. Benin	. .	. .	. .	. .	. .	. .	. .
14. Mozambique	. .	. .	. .	. .	. .	. .	. .
15. Sierra Leone	. .	17.1*	14.8	20.0	73.4*	63.8	82.7
16. Tanzania	15.2	14.7	15.8	16.4	65.9	60.4	59.6
17. Zaïre	24.5	25.4	16.1	. .	65.6	53.2	. .
18. Guinea**	. .	10.5	16.9	20.2	51.2	74.0	90.9
19. Central African Rep.	. .	. .	. .	. .	. .	. .	. .
20. Madagascar	. .	14.8	. .	. .	75.8	. .	. .
21. Uganda	. .	. .	. .	. .	. .	. .	. .
22. Lesotho	. .	24.7	. .	. .	98.0	. .	. .
23. Togo	10.3	. .	26.3	. .	. .	79.8	. .
24. Sudan	13.2	10.9	14.0	15.1	67.9	54.5	. .
Middle-income oil importers	. .	**20.2 *m***	**19.5 *m***	**20.8**	**72.1 *m***	**71.7 *m***	**67.0 *m***
25. Kenya	14.9	13.9	14.4	19.4	67.6	73.1	. .
26. Ghana	14.6	10.0	6.3	6.3	63.6	48.7	39.5
27. Senegal	19.6	15.9	17.6	21.8	87.0	86.1	102.1
28. Zimbabwe	. .	. .	. .	. .	. .	. .	. .
29. Liberia	. .	20.2*	18.4	18.2	97.4*	86.9	71.4
30. Zambia	30.0[b]	20.9	23.3	21.4	71.9	63.4	73.2
31. Cameroon	. .	. .	18.0	. .	. .	90.7	96.1
32. Swaziland	. .	22.8	31.3	. .	69.2	99.0	. .
33. Botswana	. .	20.3	20.5	25.9	72.2	60.3	56.5
34. Mauritius	. .	16.9	21.2	20.1	87.9	70.3	62.2
35. Ivory Coast**	21.1	22.1	21.3	21.8	. .	61.8	62.5
Middle-income oil exporters	. .	**18.4 *m***	**23.9 *m***	. .	. .	. .	. .
36. Angola	. .	. .	. .	. .	. .	. .	. .
37. Congo	. .	18.2	22.4*	. .	. .	. .	. .
38. Nigeria	. .	18.4	23.9	. .	139.0	87.6	. .
39. Gabon	. .	19.8	24.6*	. .	58.3	42.1*	. .
Sub-Saharan Africa	. .	**16.7 *m***	**17.1 *m***	. .	**72.1 *m***	**66.1 *m***	. .
All low-income countries	. .	**11.8 *m***	**14.7 *m***	. .	**67.4 *m***	**65.0 *m***	. .
All middle-income countries	. .	**13.1 *m***	**17.8 *m***	. .	**82.2 *m***	**77.0 *m***	**81.3 *m***
Industrialized countries	**32.9 *m***	**33.9 *m***	**37.9 *m***	. .	**97.4 *m***	**85.6 *m***	**84.9 *m***

a. Figures marked with an * are for years other than specified.
b. Excludes social security contributions.

Table 41. Central Government Functional Expenditure

	Percentage shares, 1978										
			Social services					Economic services			
	General public services	Defense	Education	Health	Social security and welfare	Housing	Other community and social services	Agriculture	Roads	Other	Other services
Low-income countries[a]	**22.9 *m***	**11.2 *m***	**15.2 *m***	**5.8 *m***	**2.6 *m***	**0.4 *m***	**1.6 *m***	**10.3 *m***	**5.3 *m***	**12.9 *m***	**5.3 *m***
Low-income semiarid	**24.4 *m***	**19.4 *m***	**14.8 *m***	**6.1 *m***	**2.0 *m***	**0.5 *m***	**0.8 *m***	**13.6 *m***	**3.0 *m***	**10.3 *m***	**3.9 *m***
1. Chad	22.4	25.8	13.5	4.2	1.9	0.4	0.7	20.9	2.6	3.0	0.2
2. Somalia*	26.8	20.1	14.0	6.1	1.9	5.6	0.0	13.6	1.7	10.3	0.0
3. Mali*	23.5	18.6	21.6	6.2	3.5	0.0	1.2	. .	. .	12.7[b]	5.1
4. Upper Volta*	22.3	21.8	15.6	5.5	0.0	0.6	1.9	1.7	3.0	24.7	3.0
5. Gambia	25.3	0.0	6.5	6.3	2.0	2.1	1.0	22.0	5.3	24.7	4.8
6. Niger*	33.1	6.1	23.3	6.0	2.9	0.1	0.8	6.6	5.4	7.5	12.2
7. Mauritania	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Low-income other	**21.8 *m***	**10.8 *m***	**15.2 *m***	**5.7 *m***	**2.6 *m***	**0.4 *m***	**1.9 *m***	**9.7 *m***	**5.5 *m***	**13.2 *m***	**7.6 *m***
8. Ethiopia*	43.7[b]	. .	11.5	5.0	4.4	0.4	1.6	10.4	10.6	4.9	7.6
9. Guinea-Bissau**	23.4	24.0	15.6	13.6	[c] . .	. .	. .	5.1	7.2	7.9	. .
10. Burundi*	16.2	11.2	20.6	4.7	3.4	0.0	2.8	12.0	5.6	13.3	8.3
11. Malawi	21.3	11.3	11.8	5.3	1.5	0.8	2.5	11.5	11.1	15.0	7.6
12. Rwanda	20.4	12.4	18.8	6.3	1.7	0.0	1.2	10.3	5.6	13.8	2.0
13. Benin	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
14. Mozambique	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
15. Sierra Leone	26.3	7.8	16.0	7.6	2.6	0.9	2.9	5.4	6.3	13.1	11.4
16. Tanzania*	18.0	10.5	12.5	5.9	0.9	1.2	1.8	8.9	4.6	32.1	3.6
17. Zaire*	18.4	10.8	15.1	4.0	2.0	0.0	2.9	0.2	1.2	16.5	28.8
18. Guinea	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
19. Central African Rep.	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
20. Madagascar	23.6	4.1	15.3	8.1	10.3	0.3	0.8	14.4	5.3	9.3	11.2
21. Uganda	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
22. Lesotho	34.7	0.0	21.3	5.7	2.6	4.5	0.5	18.5	5.4	4.3	2.5
23. Togo*	22.3	9.6	13.7	5.8	5.4	0.1	5.4	6.4	4.3	5.2	5.3
24. Sudan	7.4	13.6	5.2	1.7	2.6	0.8	1.9	9.0	0.5	29.8	27.6
Middle-income oil importers[a]	**20.5 *m***	**6.5 *m***	**17.8 *m***	**6.9 *m***	**1.0 *m***	**1.9 *m***	**2.0 *m***	**8.5 *m***	**9.2 *m***	**8.4 *m***	**11.2 *m***
25. Kenya	18.4	16.0	18.7	7.5	0.2	0.5	2.0	8.5	6.9	12.6	8.8
26. Ghana	19.9	5.3	15.6	7.3	9.7	0.0	3.8	12.2	5.1	6.9	16.1
27. Senegal	24.1	10.7	19.0	6.0	4.7	1.8	2.8	5.2	0.8	7.8	17.2
28. Zimbabwe	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
29. Liberia*	. .	2.7	11.3	6.1	1.0	2.9	0.8	2.7	13.0	13.9	. .
30. Zambia	32.7	. .	16.8	7.7	0.2	1.9	1.9	. .	3.1	. .	14.4
31. Cameroon*	27.4	8.3	16.8	4.8	6.5	0.0	2.4	7.1	11.3	11.1	11.2
32. Swaziland*	27.0	6.5	21.4	6.5	0.3	4.6	0.0	13.1	11.3	7.9	1.4
33. Botswana	20.5	0.0	20.5	6.0	0.8	6.5	1.5	10.5	11.1	8.4	5.3
34. Mauritius*	20.5	0.6	14.2	8.0	12.5	2.3	1.1	9.7	13.1	1.3	16.8
35. Ivory Coast**	17.8	7.2	35.7	7.8	0.9	1.5	2.3	2.9	7.3	21.5	−4.8[d]
Middle-income oil exporters	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
36. Angola	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
37. Congo	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
38. Nigeria	13.5	17.9	9.6	2.2	1.1	3.2	1.9	2.6	13.9	29.3	4.8
39. Gabon	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Sub-Saharan Africa	**22.4 *m***	**10.5 *m***	**15.6 *m***	**6.0 *m***	**2.0 *m***	**0.8 *m***	**1.9 *m***	**9.0 *m***	**5.5 *m***	**11.9 *m***	**7.6 *m***
All low-income countries	**18.4 *m***	**11.3 *m***	**14.0 *m***	**5.4 *m***	**2.2 *m***	**0.8 *m***	**1.8 *m***	**10.3 *m***	**5.0 *m***	**13.0 *m***	**6.5 *m***
All middle-income countries	**14.2 *m***	**11.5 *m***	**14.1 *m***	**5.6 *m***	**6.6 *m***	**2.0 *m***	**1.8 *m***	**4.0 *m***	**5.6 *m***	**11.6 *m***	**10.2 *m***
Industrialized countries	**8.2 *m***	**6.9 *m***	**10.9 *m***	**10.2 *m***	**40.8 *m***	**2.2 *m***	**0.9 *m***	**2.6 *m***	**2.6 *m***	**7.9 *m***	**8.2 *m***

a. Countries marked with an * show figures for years other than specified. See technical notes.
b. Includes all economic services.
c. Includes social security and welfare.
d. Includes the unallocated residual.

Table 42. Functional Distribution of Increase in Central Government Expenditure, 1972–78

	Percentage share of increase										
			Social services					Economic services			
	General public services	Defense	Education	Health	Social security and welfare	Housing	Other community and social services	Agriculture	Roads	Other	Other services
Low-income countries[a]	**19.1 *m***	**13.5 *m***	**11.3 *m***	**5.1 *m***	**1.9 *m***	**1.0 *m***	**1.7 *m***	**10.6 *m***	**2.7 *m***	**18.3 *m***	**5.6 *m***
Low-income semiarid	**18.6 *m***	**23.1 *m***	**11.0 *m***	**4.6 *m***	**1.4 *m***	**1.8 *m***	**0.5 *m***	**22.9 *m***	**2.1 *m***	**17.0 *m***	**2.8 *m***
1. Chad*	−4.3	28.2	10.7	3.9	3.0	0.6	−0.8	30.4	1.6	4.2	22.3
2. Somalia*	17.8	17.9	19.7	5.3	1.9	9.3	0.0	20.3	1.4	6.5	0.0
3. Mali	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
4. Upper Volta	19.4	30.4	11.3	3.3	−5.4	0.9	2.5	−3.1	2.6	41.5	−3.3
5. Gambia	20.6	0.0	5.2	5.5	0.9	2.6	0.9	25.4	5.9	27.5	5.6
6. Niger	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
7. Mauritania	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Low-income other	**19.5 *m***	**11.1 *m***	**11.5 *m***	**5.1 *m***	**3.2 *m***	**1.0 *m***	**1.8 *m***	**9.8 *m***	**3.8 *m***	**18.3 *m***	**7.1 *m***
8. Ethiopia*	52.8[b]	. .	8.4	4.2	4.2	0.3	1.6	15.3	11.6	1.8	−0.1
9. Guinea-Bissau	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
10. Burundi*	17.1	12.0	18.3	3.6	4.0	0.0	4.6	9.8	8.0	10.5	11.9
11. Malawi	20.1	15.1	9.8	5.1	0.2	1.0	1.7	9.1	12.6	18.3	7.1
12. Rwanda*	21.3	6.9	17.3	6.5	1.3	−0.1	1.7	12.8	2.7	17.5	12.2
13. Benin	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
14. Mozambique	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
15. Sierra Leone	44.4	14.9	17.1	11.4	3.5	1.5	4.0	5.2	0.6	18.6	−21.2
16. Tanzania*	18.8	10.2	11.5	5.7	1.1	1.0	1.8	8.3	3.8	34.8	3.1
17. Zaire	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
18. Guinea	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
19. Central African Republic	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
20. Madagascar	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
21. Uganda	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
22. Lesotho	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
23. Togo	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
24. Sudan	5.3	9.5	3.7	0.2	3.2	1.1	1.9	10.6	0.6	38.4	25.4
Middle-income oil importers[a]	**20.1 *m***	**7.5 *m***	**17.9 *m***	**7.4 *m***	**0.6 *m***	**1.7 *m***	**1.3 *m***	**11.9 *m***	**5.5 *m***	**7.8 *m***	**9.9 *m***
25. Kenya	17.7	20.5	17.3	7.2	−0.9	0.1	1.2	8.0	3.4	15.5	9.9
26. Ghana	20.8	4.7	14.7	7.5	10.8	0.0	4.0	13.4	5.5	7.3	11.4
27. Senegal	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
28. Zimbabwe	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
29. Liberia	. .	1.6	9.7	4.6	0.7	3.4	−0.4	0.3	14.5	16.3	. .
30. Zambia	27.4	. .	12.8	8.3	−1.7	5.3	1.5	27.0	0.4	−7.0	26.1
31. Cameroon	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
32. Swaziland*	20.6	9.3	21.8	5.6	0.5	0.8	0.0	13.9	. .	. .	1.0
33. Botswana	19.1	10.8	23.0	6.0	0.9	1.0	1.4	10.5	12.4	7.8	5.6
34. Mauritius*	19.8	0.4	18.5	7.6	12.3	4.5	0.5	13.2	0.6	7.5	15.1
35. Ivory Coast**	20.1	7.5	37.9	7.7	−1.8	2.3	2.1	2.4	8.3	26.8	−17.3
Middle-income oil exporters[a]	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
36. Angola	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
37. Congo	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
38. Nigeria*	12.7	14.6	10.3	2.0	1.2	3.7	1.8	2.3	14.8	32.6	4.0
39. Gabon	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Sub-Saharan Africa	**19.8 *m***	**10.5 *m***	**13.8 *m***	**5.6 *m***	**1.2 *m***	**1.0 *m***	**1.7 *m***	**10.6 *m***	**3.8 *m***	**16.3 *m***	**5.6 *m***

a. Countries marked with an * show figures for years other than specified. See technical notes.
b. Includes defense.

Table 43. Military Expenditure

	Armed forces per 1,000 population 1978[a]	Military expenditure as a percentage share of GNP	
		1968	1978[a]
Low-income countries	**3.4 *w***	**1.9 *w***	**2.4 *w***
Low-income semiarid	**3.7 *w***	**2.3 *w***	**4.3 *w***
1. Chad	2.1*	4.5	3.4
2. Somalia	15.9	4.9	13.8
3. Mali	1.3	2.0	3.5
4. Upper Volta	0.9	1.2	3.4
5. Gambia	1.3	0.0	0.0
6. Niger	0.8	1.0	0.8
7. Mauritania	8.6	1.4	7.1
Low-income other	**3.3 *w***	**2.1 *w***	**2.7 *w***
8. Ethiopia	7.5	2.6	2.8
9. Guinea-Bissau	10.0	. .	7.1
10. Burundi	2.0	1.7	2.2
11. Malawi	0.9	0.5	2.1
12. Rwanda	0.8	2.2	1.6
13. Benin	1.2	1.6	2.0
14. Mozambique	1.3	. .	2.4
15. Sierra Leone	0.3	0.7	1.0
16. Tanzania	3.8	1.1	4.2
17. Zaïre	1.9	3.2	0.7
18. Guinea	3.5	3.3	. .
19. Central African Rep.	1.8	2.3	2.2
20. Madagascar	2.5	1.6	2.8
21. Uganda	0.5	1.9	3.1
22. Lesotho	0.8	. .	0.0
23. Togo	2.0	1.2	2.8
24. Sudan	4.0	2.3	4.0
Middle-income oil importers	**1.9 *w***	**1.9 *w***	**2.4 *w***
25. Kenya	0.9	1.3	1.6
26. Ghana	1.7	3.0	0.4
27. Senegal	2.4	1.9	2.2
28. Zimbabwe	3.4	1.9	6.8
29. Liberia	4.1	1.3	1.1
30. Zambia	3.6	1.6	3.1
31. Cameroon	1.4	2.2	1.6
32. Swaziland	4.0	. .	1.4
33. Botswana	4.3	. .	3.8*
34. Mauritius	0.4	0.2	0.1
35. Ivory Coast	1.1	1.3	2.2
Middle-income oil exporters	**3.2 *w***	**4.4 *w***	**3.4 *w***
36. Angola	7.2	. .	. .
37. Congo	7.3	2.8	5.2
38. Nigeria	2.8	5.9	4.2
39. Gabon	6.7	1.2	0.5
Sub-Saharan Africa	**3.0 *w***	**2.9 *w***	**2.9 *w***
All low-income countries	**3.5 *w***	**3.5 *w***	**3.2 *w***
All middle-income countries	**7.0 *w***	**2.9 *w***	**2.9 *w***
Industrialized countries	**7.3 *w***	**3.4 *w***	**2.8 *w***

a. Figures marked with an * are for 1977.

Technical Notes

Quality of Data

The data that underlie the national account aggregates, particularly for agricultural production, are very weak in most African countries. This is partly due to the large share of the subsistence sector in most of these economies. The table below, which presents estimates of GDP growth of Sahelian countries for 1960–70 according to seven different sources, provides a good illustration. The smallest range between the highest and the lowest estimate is 23 percent, for Mauritania. For Chad, the highest estimate is eleven times the lowest, for Mali thirteen times, and for Upper Volta six times.

The problem is a continuing one. For example, the following average increases in nominal GDP were estimated for Sudan for the period 1976–78:

—IMF (April 1979)	27 percent
—IBRD (October 1979)	22 percent
—IMF Tax Survey (1980)	15 percent
—Bank of Sudan	13 percent

Sectoral statistics are also inconsistent. For example, the Tanzanian government's official growth rate of agriculture for the 1973–79 period is recorded as 6.1 percent, involving a 2.8 percent growth in monetary agriculture and an 8.6 percent increase in subsistence agriculture. Yet most of the export crops that constitute the bulk of Tanzania's monetary sector (sisal, cashews, cotton, coffee, and cloves) actually experienced steep declines in volume terms over this period, while the Food and Agriculture Organization (FAO) data show a rate of increase for food production of just under 3 percent annually for the aggregate of the 10 most important foodstuffs.

Estimates of food production in African countries also contain many uncertainties. For example, the Niger Republic has consistently shown much higher levels of food production than any of its Sahelian neighbors; in the early 1970s, Niger's estimate of total food production was 395 kilograms per capita while Mali and Upper Volta statistics show food production of 230 kilograms per capita.

Estimates of Real GDP Growth, 1960–70 (Average annual rate of growth)

Country	*SOEC*	*SIEC*	*UN*	*OECD*	*IBRD*	*UNCTAD*	*Country planning ministry*
Chad	2.1	2.2	1.2	1.5	1.4	0.5	5.5
Mali	3.0	2.5	0.5	2.8	6.6	5.2	
Mauritania	7.4	8.0	7.7	7.3	6.5	6.9	
Niger	2.4	2.0	4.7	2.0	0.9	2.4	
Senegal	1.6	1.6	1.3	2.0	2.1	1.0	
Upper Volta	3.9	3.3	3.0	2.0	1.5	0.7	

SOEC: Secteur des Études Socio-Économiques de Synthèse (Bureau des Programmes, Direction de l'Aide au Développement, Ministère de la Coopération, Paris).

SIEC: Secteur d'Information Économique et Conjuncture (Bureau des Programmes, Direction de l'Aide au Développement, Ministère de la Coopération, Paris).

UN: United Nations.

OECD: Organization for Economic Cooperation and Development (Development Assistance Committee).

IBRD: International Bank for Reconstruction and Development (The World Bank).

UNCTAD: United Nations Conference on Trade and Development.

Source: République Française, Ministère de la Coopération, Direction de l'Aide au Développement, Bureau des Programmes—Secteur Synthèse, *Economie, Emploi et Formation: Évolution et Perspectives pour 14 États Africains et Malgache, l'Évolution du P.I.B. 1950–70, Perspectives 1970–90,* Septembre, 1974.

The fact that cereals production figures for Mali and Upper Volta are very similar (206 kilograms per capita in Mali, 182 kilograms per capita in Upper Volta) while Niger's cereals production is estimated at 318 kilograms per capita, suggests that Niger's agricultural production statistics are overstated.

Group Means

Group means in the country tables are based on growth rates for periods such as a decade using appropriate weights. This procedure can lead to very different results, depending on whether weights from the beginning or the end of the period are used. This problem is critical in Africa because the Nigerian economy is so large relative to the rest of the region, and has grown very rapidly (7.5 percent from 1970 to 1979). Thus, the annual growth rate for Sub-Saharan Africa is far lower when weighted by 1970 country GDPs than when weighted by 1979 country GDPs (see table below). The principal reason for this difference is that Nigeria has a weight of 23 percent for 1970, but, because of its fast growth, a weight of 46 percent for 1979. Consequently, Table 2 in the Statistical Annex, which uses 1970 GDP weights in calculating group means, shows Sub-Saharan Africa with and without Nigeria.

A similar problem arises in choosing weights for the calculation of growth rates in agriculture. The production growth rate derived in Table 25 uses domestic prices as weights, in accordance with established FAO methodology. Domestic prices of agricultural exports are lower relative to food crop prices than international prices of agricultural exports. Agricultural exports grew more slowly than food crops in the last decade. Hence, a calculation of the annual growth rate for the 30 main agricultural products results in an annual increase of 0.8 percent in the 1970s if international prices are used as weights, compared with 1.3 percent if domestic price weights are used. In the 1960s, export crops grew slightly faster than food crops, and the annual growth rate of overall production weighted with international prices is 2.6 percent, compared with 2.3 percent with domestic price weights. Thus, the fall in overall agricultural growth between the 1960s and 1970s is about twice as large using international prices.

Average Annual Growth of GDP 1970–79

Item	*Using 1970 GDP weights*	*Using 1979 GDP weights*
Sub-Saharan Africa (SSA)	2.9	4.7
SSA less Nigeria	1.6	2.3
	1970	*1979*
Nigeria weight (percent of GDP accounted for by Nigeria)	23	46

Source: Derived from data of the *World Development Report 1981.*

The tables show weighted means of country groups for the most significant growth rates. In tables using population weights this presents no problem, since population shares change very slowly. Caution should be used in interpreting group means based on GDP components, however, since their weights change rapidly over time. The notes that follow explain the weights used in the various tables of the Statistical Annex.

Notes

TABLE 1. BASIC INDICATORS

Gross national product (GNP) measures the total domestic and foreign output claimed by residents of a country. It comprises gross domestic product (see technical notes for Tables 2 and 3) and factor incomes (such as investment receipts and workers' remittances) accruing to residents from abroad, less the income earned in the domestic economy accruing to persons abroad. It is calculated without making deductions for depreciation.

The *GNP per capita* figures were calculated according to the *World Bank Atlas* method: GNP in national currency units was expressed first in weighted-average prices for the base period 1977–79, converted into dollars at the GNP-weighted average exchange rate for this period, and adjusted for U.S. inflation. The resulting estimate of GNP was then divided

by the population in mid-1979. This method reduces the effect of temporary undervaluations or overvaluations of a particular currency and generally assures greater comparability of the estimates of GNP per capita among countries.

The *average annual rate of inflation* was calculated from the "implicit gross domestic product (GDP) deflator," which is calculated by dividing, for each year of the period, the value of GDP in current market prices by the value of GDP in constant market prices, both in national currency. This measure of inflation has limitations, especially for the oil-producing countries, in light of the sharp increase in oil prices in late 1973.

The *adult literacy rate* is the percentage of persons aged 15 and over who can read and write. For some countries the estimates are for years other than, but generally not more than two years distant from, those specified.

Life expectancy at birth indicates the number of years newborn children would live if subject to the mortality risks prevailing for the cross-section of population at the time of their birth.

The *index of food production per capita* shows the average annual quantity of food produced per capita in 1977–79 in relation to that in 1969–71. The estimates were calculated by dividing indexes of the quantity of food production by indices of total population. Food is considered to comprise cereals, starchy roots, sugar cane, sugar beet, pulses, edible oils, nuts, fruits, vegetables, livestock and livestock products. Quantities of food production are measured net of animal feed, seed for use in agriculture, and food lost in processing and distribution.

The country-group averages in this table are weighted by country population. Data are not more than two years distant from those specified.

Tables 2 and 3. Growth and Structure of Production

Gross domestic product (GDP) measures the total final output of goods and services produced by an economy—that is, within a country's territory by residents and nonresidents, regardless of its allocation to domestic and foreign claims. It is calculated without making deductions for depreciation. For most countries, GDP by industrial origin is measured at factor cost, but for some countries without complete national accounts series at factor cost, market price series were used. GDP at factor cost is equal to GDP at market prices, less indirect taxes net of subsidies.

The *agricultural sector* comprises agriculture, forestry, hunting, and fishing. The *industrial sector* comprises mining, manufacturing, construction, and electricity, water, and gas. All other branches of economic activity are categorized as *services*.

National accounts series in national currency units were used to compute the indicators in these tables. The growth rates in Table 2 were calculated from constant price series, the shares of GDP in Table 3 from current price series.

The average growth rates for the country groups in Table 2 are weighted by 1970 country GDP in dollars. The average sectoral shares in Table 3 are weighted by country GDP in current dollars for the years indicated.

Tables 4 and 5. Growth of Consumption and Investment; Structure of Demand

GDP is defined above in the technical notes for Table 2.

Public consumption (or general government consumption) includes all current expenditure for purchases of goods and services by all levels of government. Capital expenditure on national defense and security is regarded as consumption expenditure.

Private consumption is the market value of all goods and services purchased or received as income in kind by households and nonprofit institutions. It includes imputed rent for owner-occupied dwellings.

Gross domestic investment consists of the outlays for additions to the fixed assets of the economy, plus the net value of inventory changes.

Gross domestic saving shows the amount of gross domestic investment financed from do-

mestic output. Comprising public and private saving, it is the difference between gross domestic investment and the deficit on the current account of goods and nonfactor services, excluding net current transfers.

Exports of goods and nonfactor services represent the value of all goods and nonfactor services sold to the rest of the world; they include merchandise, freight, insurance, travel, and other nonfactor services. The value of factor services, such as investment receipts and workers' remittances from abroad, is excluded.

The *resource balance* is the difference between exports and imports of goods and nonfactor services.

The indicators in these tables are computed using national accounts series in national currency units. The growth rates in Table 4 are calculated from constant price series, the shares of GDP in Table 5 from current price series. The country-group averages in Table 5 are weighted by country GDP in current dollars.

Table 6. Commercial Energy

All data on energy refer to commercial forms of primary energy: coal and lignite, petroleum, natural gas and natural gas liquids, and hydroelectricity and nuclear power—all converted into coal equivalents. The use of firewood and other traditional fuels, though substantial in some developing countries, is not taken into account because reliable and comprehensive data are not available.

The country-group averages of growth rates of *energy production* are weighted by volumes of country production in 1974, those of growth rates of *energy consumption* by volumes of country consumption in 1974, and those of *energy consumption per capita* by country population.

Energy imports refer to the dollar value of energy imports and are expressed as a percentage of earnings from merchandise exports. The country-group averages are weighted by country merchandise exports in current dollars.

Because data on energy imports do not permit a distinction between petroleum imports for fuel and those for use in the petrochemicals industry, these percentages may exaggerate the dependence on imported energy.

Table 7. Growth of Merchandise Trade

Merchandise exports and imports cover, with some exceptions, all recorded international changes in ownership of merchandise passing across the customs borders of the reporting countries. Exports are valued f.o.b. (free on board), and imports, c.i.f. (cost, insurance, and freight). These values are in current dollars.

The *growth rates of merchandise exports and imports* are in real terms and calculated from quantum (volume) indexes of exports and imports.

Tables 8, 9, 10 and 11. Commodity Structure of Merchandise Trade

Merchandise exports and imports are defined in the technical notes to Table 7. *Fuels* are defined by the Standard International Trade Classification (SITC) Revised Section 3. *Minerals and Metals* are the commodities in SITC Divisions 27 and 28, and include the nonferrous metals of Division 68. *Food* commodities comprise SITC Sections 0, 1, 4, and Division 22 (food and live animals, beverages and tobacco, oils and fats, and oilseeds and nuts). *Other primary products* comprise SITC Section 2 (crude materials), less Divisions 22, 27, and 28 (oilseeds and nuts, minerals, crude fertilizers, and metallic ferrous ores). *Manufactures* represent SITC Sections 5 to 9, less Division 68.

Other primary commodities in Table 9 comprise SITC Section 2 (crude materials), less Division 22 (oilseeds and nuts), plus Division 68 (nonferrous metals). *Machinery and transport equipment* are the commodities in SITC Section 1. *Other manufactures*, calculated as the residual from the total value of manufactured imports, represent SITC Sections 5 to 9, less Section 7 and Division 68.

The country-group averages in Table 8 are weighted by country merchandise exports in current dollars, those in Table 9 by country merchandise imports in current dollars. The

beef exports in Table 10 do not include live animals. Data are not more than two years distant from those specified.

Table 12. Destination of Merchandise Exports

Merchandise exports are defined in the technical notes for Table 7. All trade shares in this table are based on statistics that show the value of trade in current dollars. Unallocated exports are distributed among the country groups in proportion to their relative shares of allocable trade. The country-group averages are weighted by country merchandise exports in current dollars.

Table 13. Terms of Trade

The *net barter terms of trade* are calculated as the ratio of a country's index of export unit values to that of import unit values. *Income terms of trade* are an index of the value of commodity exports divided by import unit value. Growth rates are calculated from data on merchandise exports and imports as defined in Table 8.

Table 14. Exports: Commodity Concentration and Fluctuation in Values

Commodity concentration expresses the current value of the three principal commodities in the exports of a country as a percentage of the total current value of merchandise exports. With the exception of data for Niger and Sierra Leone, which include uranium and diamonds (usually classified as manufactures), respectively, all principal export commodities are primary products.

Export fluctuations are defined as the annual percentage deviation from trend, calculated according to the following formula:

$$F = \frac{100}{n} \sum_{i=2}^{n} \frac{|x_i - \hat{x}_i|}{\hat{x}_i},$$

where x_i = value of export earnings at time i;
$\hat{x}_i$ = corresponding trend value (exponential trend); and
n = number of years covered.

Table 15. Commodity Trade: Volume and Price

The *price series* are derived from the ratio of international prices to the index of prices of manufactured exports from industrialized countries. Both series are expressed in dollars; inflationary trends common to both sets of prices are consequently eliminated. The average annual change in the price series ignores negative signs.

Table 16. Developed Country Tariff Rates on Selected Commodities

All tariff rates are most favored nation rates, applicable after the Tokyo Round of tariff negotiations.

Table 17. Balance of Payments, Debt Service, and International Reserves

The *current account balance* is the difference between (i) exports of goods and services plus inflows of unrequited official and private transfers and (ii) imports of goods and services plus unrequited transfers to the rest of the world. Excluded from this figure are all *interest payments* on external public and publicly guaranteed debt, which are shown separately. These interest payments represent those on the disbursed portion of outstanding public and publicly guaranteed debt plus commitment charges on undisbursed debt.

Debt service is the sum of interest payments and repayments of principal on external public and private publicly guaranteed debt. The ratio of debt service to exports of goods and services is one of several rules of thumb commonly used to assess the ability to service debt. The debt-service ratios in the table do not cover nonguaranteed private debt, which for some countries is substantial; the debt contracted for purchases of military equipment is also excluded because it usually is not reported. The average ratios of debt service to exports of goods and services are weighted by country exports of goods and services in current dollars. Debt service averages for the industrialized countries are not computed because the World Bank Debt Reporting System

collects data on external debt solely for developing countries.

Gross international reserves comprise the sum of a country's holdings of gold, special drawing rights (SDRs), the reserve position of IMF members in the Fund, and holdings of foreign exchange under the control of monetary authorities. The gold component of these reserves is valued throughout at year-end London prices: that is, $37.37 an ounce in 1970 and $512 an ounce in 1979. The reserve levels for 1970 and 1979 refer to the end of the year indicated in current dollars. The reserve holdings at the end of 1979 are also expressed in the number of months of imports of goods and services they could pay for, with imports at the average level for 1978 or 1979. Country-group averages are weighted by country imports of goods and services in current dollars.

TABLE 18. DEBT AND DEBT SERVICE

Debt service is defined in the technical notes for Table 17. Note, however, that debt service in this table includes publicly guaranteed private debt. All values are in current dollars.

TABLES 19, 20, AND 21. EXTERNAL DEBT AND LOANS

The loans referred to in all three tables are medium- and long-term loans whose maturities exceed one year. Data for private nonguaranteed loans are subject to greater error than those for public and publicly guaranteed loans.

Concessional terms refer to loans which contain a grant element of at least 25 percent. The grant element is the grant equivalent expressed as a percentage of the face value of the commitment. In turn the grant equivalent is the face value of the commitment minus the discounted present value of the future flow of repayments of principal and interest payments.

TABLES 22 AND 23. FOREIGN ASSISTANCE AND OTHER RESOURCES

Official development assistance (ODA) consists of loans and grants made at concessional financial terms by official agencies of the members of the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD) and members of the Organization of Petroleum Exporting Countries (OPEC) with the objective of promoting economic development and welfare. *Net disbursements* equal gross disbursements less payments to donors for amortization.

Total recorded net flow of resources includes ODA grants from private agencies (private aid) and transactions at commercial terms: export credits, bilateral portfolio investment (including bank lending) by residents or institutions in DAC countries, direct investment (including reinvested earnings), and purchases of securities of international organizations active in development. *Net bilateral flows* exclude unallocated bilateral flows and all disbursements to multilateral institutions.

Grants, including the value of technical cooperation and assistance, are gifts in money or in kind for which no repayment is required. Both bilateral ODA and disbursements from multilateral institutions are included in Table 23.

The country-group averages in Table 22 are weighted by country population for net resource flow and ODA per capita. ODA as a percentage of GNP is weighted by country GNP, and ODA as a percentage of gross domestic investment is weighted by country GDP.

TABLE 24. FOOD AID IMPORTS

Food aid includes cereals only, and is expressed in metric tons grain equivalent. The data are for the fiscal year, extending from July 1st of the preceding calendar year and ending on June 30th of the current calendar year. The country-group averages for per capita food aid are weighted by country population for the appropriate year.

TABLES 25, 26, AND 27. GROWTH OF AGRICULTURE, CROP PRODUCTION, AND YIELDS

Food includes commodities that are consid-

ered edible and contain nutrients. *Nonfood* comprises all inedible and/or nonnutritive agricultural commodities. Accordingly, coffee and tea are classified as nonfood because, although edible, they have virtually no nutritive value. (Note that the definition of food used here is not consistent with that used in Tables 8 and 9, where all beverages, regardless of nutritive value, are considered as food items.)

Yield is defined as the volume of production of an agricultural commodity per unit of land area, here expressed as kilograms per hectare.

The *index of relative yields* compares average annual yields of selected crops in all developing countries and in Sub-Saharan Africa with average annual worldwide yields for the three specified time periods.

Developing countries is an FAO classification which includes all low- and middle-income countries except Albania, Greece, Israel, Portugal, Romania, South Africa, Spain, and Yugoslavia.

The country-group averages for average annual growth rate of volume of agricultural production in Table 25 are weighted by the product of 1975 country GDP in current dollars and each country's average agricultural share of total GDP for the period 1970–77. Country-group averages for the average annual growth rate of total agricultural production per capita are weighted by 1979 country population. All data are for the calendar year.

TABLE 28. FERTILIZER CONSUMPTION

Figures represent nutrient tons of nitrogen, phosphate, and potash. The fertilizer year begins on July 1st of the preceding calendar year and ends on June 30th of the current year. Thus, fertilizer year 1979 extends from July 1978 to June 1979. Country-group averages for average annual growth rate of fertilizer consumption are weighted by each country's average annual fertilizer consumption.

TABLES 29 AND 30. AGRICULTURAL IMPORTS AND EXPORTS

Subcategories of dairy imports are sporadically reported from one time period to the next. Thus, the corresponding rates of growth pertain only to those subcategories of dairy imports for which data are reported, and must be interpreted with caution. All data are for the calendar year.

TABLE 31. DOMESTIC TERMS OF TRADE OF EXPORT CROPS

Barter terms of trade are defined as the ratio between the weighted average official prices paid to producers for export crops and prices paid by them for certain consumer goods. Income terms of trade are defined as the ratio between producers' income derived from export crops and prices paid by them for certain consumer goods.

TABLE 32. PROCUREMENT AND DISTRIBUTION OF AGRICULTURAL INPUTS

Procurement and distribution activity is considered *private* if more than 80 percent of it is carried out by the private sector and *government* if more than 80 percent is carried out by the public sector.

TABLE 33. POPULATION GROWTH, PAST AND PROJECTED

The *growth rates of population* are period averages calculated from mid-year country populations. The country-group averages are weighted by country population in 1970.

The *projections of population* for 1980 and 2000, and for the year in which population is projected to become stationary, were made for each country separately. Starting with information on total population, fertility rates, and mortality rates in base year 1978, parameters were projected to 1980 and thereafter for each subsequent five-year interval on the basis of generalized assumptions until the population became stationary. For all of the projections in this table, it was assumed that international migration would have no effect.

The *net reproduction rate* (NRR) indicates the number of daughters that a newborn girl is projected to bear during her lifetime, assuming fixed age-specific fertility rates and a fixed set of mortality rates. An NRR of 1 indicates

that fertility is at replacement level: that is, child-bearing women, on the average, bear only enough daughters to replace themselves in the population. A population continues to grow after replacement-level fertility has been reached because higher birth rates of the past will have produced a relatively high proportion of women in, or still to enter, the reproductive ages. The time taken for a country's population to become stationary after reaching replacement-level fertility thus depends on its age structure and previous fertility patterns.

A *stationary population* is one in which age- and sex-specific mortality rates have not changed over a long period, while age-specific fertility rates have simultaneously remained at replacement level (NRR = 1). In such a population, the birth rate is constant and equal to the death rate, the age structure is also constant, and the growth rate is zero.

The estimates of the hypothetical size of the stationary population, the assumed year of reaching replacement-level fertility, and the year of reaching a stationary population are speculative. *They should not be regarded as predictions.* They are included to provide a summary indication of the long-run implications of recent trends on the basis of highly stylized assumptions. A fuller description of the methods and assumptions used to calculate these estimates is available from the Population and Human Resources Division of the World Bank.

TABLE 34. DEMOGRAPHIC AND FERTILITY-RELATED INDICATORS

The *crude birth and death rates* indicate the number of live births and deaths per thousand population in a year. The *total fertility rate* represents the number of children that would be born per woman, if she were to live out her child-bearing years and bear children at each age in accordance with prevailing age-specific fertility rates. *Life expectancy at birth* is defined in the technical notes for Table 1.

The *child death rate* is defined as the number of deaths of children aged 1–4 per thousand children in the same age group in a given year. For countries with reliable death registration, these rates refer to a variety of years, generally not more than two years distant from those specified. For other countries, the rates were derived from the appropriate Coale–Demeny Model life tables which correspond to the expectation of life at birth for 1960 and 1978. The country-group averages in this table are weighted by country population.

TABLE 35. LABOR FORCE

The *population of working age* refers to the population between 15 and 64 years of age. The country-group averages are weighted by country population.

The *labor force* comprises economically active persons, including members of the armed forces and the unemployed, but excluding housewives, students, and economically inactive groups. *Agriculture, industry, and services* are defined in the same manner as in Table 2. Most of the 1979 estimates are geometric extrapolations of International Labour Office (ILO) estimates for 1960 and 1970. The country-group averages are weighted by country labor force.

The *labor force growth rates* were derived from the World Bank's population projections and ILO data on activity rates. The country-group averages for 1960–70 and 1970–80 are weighted by country labor force in 1970, and those for 1980–2000, by projections of country labor force in 1980.

The application of ILO activity rates to the Bank's latest population estimates may be inappropriate for some countries in which there have been important changes in levels of unemployment or underemployment, international and internal migration, or both. The labor force projections for 1980–2000 should thus be treated with caution.

TABLE 36. URBANIZATION

Because the estimates in this table are based on the individual national definitions for "urban," cross-country comparisons should be interpreted with caution. The country-

group averages for urban population as a percentage of total population are weighted by country population; the other country-group averages in this table are weighted by country urban population.

TABLE 37. HEALTH-RELATED INDICATORS

Nurses include graduate, practical, and assistant nurses. Country definitions of medical personnel vary and the data, while generally not more than two years distant from those specified, are for a variety of years. Consequently the data for population per physician and nurse are not strictly comparable between countries.

The *percentage of total population with access to safe water* is the proportion of persons with reasonable access to safe water, which is defined as including treated surface water and such untreated but uncontaminated water as that from boreholes, springs, and sanitary wells.

The *daily calorie supply per capita* was calculated by dividing the calorie equivalent of the food supplies in a country by its population. Food supplies comprise domestic production, imports less exports, and changes in stocks; they exclude animal feed, seeds for use in agriculture, and food lost in processing and distribution. The *daily calorie requirement per capita* refers to the calories needed to sustain a person at normal levels of activity and health, taking into account age and sex distributions, average body weights, and environmental temperatures.

The country-group averages in this table are weighted by country population.

TABLE 38. EDUCATION

The data on *number enrolled in primary school* refer to estimates of total, male, and female enrollment of students of all ages in primary school; they are expressed as percentages of the total, male, or female populations of primary-school age to give "gross primary enrollment ratios." Although primary-school age is generally considered to be 6–11 years, the differences in country practices in the ages and duration of schooling are reflected in the ratios given. For countries with universal primary education, the gross enrollment ratios may exceed 100 percent because some pupils may be below or above the official primary-school age.

The data on *number enrolled in secondary school* were calculated in the same manner, with secondary-school age generally considered to be 12–17 years. The *adult literacy rate* is defined in the technical notes for Table 1. The data in this table refer to a variety of years, generally not more than two years distant from those specified. Country-group averages are weighted by country population.

TABLES 39 AND 40. CENTRAL GOVERNMENT BUDGETARY OPERATIONS, TAXES, AND EXPENDITURE

Fiscal data for state, provincial, and local governments are unavailable. Consequently, only *central government* data are presented. This may seriously understate or distort the statistical portrayal of the allocation of resources for various purposes, especially in large countries where lower levels of government have considerable autonomy and are responsible for a large number of social functions. *Central government expenditure and revenue* covers that by all government departments, offices, establishments, and other bodies that are agencies or instruments of the central authority of a country. The operation of public enterprises (public entities which sell their output) appears only to the extent that their net profits are transferred to the treasury. Consequently, expenditure excludes the transactions of government marketing organizations. Certain foreign aid flows, such as parastatal borrowing, are omitted, while technical assistance is also likely to be excluded. Expenditure includes subsidies and transfers.

Net lending (disbursements of loans and purchase of equities less amortization) includes only government transactions undertaken for public policy rather than for management of government liquidity or for earning a return. Most government transactions involving changes in government debt are, therefore, included in financing.

Data for Table 40 are not more than two years distant from those specified.

TABLE 41. CENTRAL GOVERNMENT FUNCTIONAL EXPENDITURE

Central government expenditure is explained in the technical notes for Tables 39 and 40. The various functional classifications of central government expenditure are defined in the IMF *Government Finance Statistics Yearbook.*

It must be emphasized that the data presented, especially those for education and health, are not comparable across countries for a number of reasons. In many countries, private health and education services are substantial; in others, public services represent the major component of total expenditure. Considerable caution should therefore be exercised in using the data for cross-country comparisons.

Data for Burundi, Cameroon, Ethiopia, Mali, Mauritius, Niger, Somalia, Swaziland, Togo, Upper Volta, and Zaïre refer to 1977. Data for Liberia and Tanzania are for 1979. Owing to adjustment items and unallocated transactions, the sum of components in Botswana, Cameroon, Chad, Liberia, Mali, Niger, Rwanda, Togo and Zambia falls short of, or exceeds, 100 percent.

TABLE 42. FUNCTIONAL DISTRIBUTION OF INCREASE IN GOVERNMENT EXPENDITURE, 1972–78

The *functional distribution of increase in central government expenditure* is calculated by expressing the difference between the amounts spent in the final and base years under each functional category as a percentage of the change in total expenditure between the two years. The time span covered is 1972–77 for Ethiopia, Nigeria, Somalia, and Swaziland. Other deviations from the standard time period are for Burundi (1973–77), Chad (1972–76), Ivory Coast (1975–78), Mauritius and Rwanda (1973–78), and Tanzania (1972–79). The various functional classifications of central government expenditure and problems with intercountry comparability are discussed in the technical notes for Table 41.

TABLE 43. MILITARY EXPENDITURE

Armed forces refer to active-duty military personnel including paramilitary forces if those forces resemble regular units in their organization, equipment, training, or mission. Reserve forces are not included. *Military expenditure* data in this table differ from central government defense expenditure in Table 41. The primary source for military expenditure data here is the Agency for International Development, and it is their definitions that are used.

Country-group averages are weighted by country population for the armed forces per thousand population and by 1970 country GDP for the percentage share of military expenditure in GDP.

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TELCOS LOOK SKYWARD FOR RURAL SOLUTIONS

by Sheila Marcelo

Developing countries are beginning to look seriously at VSAT systems as an alternative to terrestrial telecom networks in rural areas. In addition to providing high-quality digital links across difficult terrain, satellites offer advantages – distance-insensitivity, flexibility, and ease of deployment – over fiber optic and traditional metallic wire solutions. Still, few VSAT telephony networks currently exist in developing countries, largely due to their traditionally high price tag – the VSAT networks that have been installed mainly serve data communication needs. But, several developments are improving the outlook for rural VSATs.

In addition to costly ground station equipment, high satellite construction and launching costs, as well as great demand for geosynchronous orbital slots, have put transponder space at a premium. Leasing a full transponder can range in cost from $2 million annually in the competitive U.S. environment to $10 million in Brazil's recently liberalized market. But, new digital compression techniques and advances in access technologies, in concert with falling prices for ground station equipment, have improved the efficiency of satellite systems, making them more affordable for developing countries. Satellite operators are relying on frequency reuse techniques – spatial reuse and polarization – to double the number of transponders aboard each spacecraft. Whereas earlier satellites typically carried 12 transponders, most present-day satellites carry between 24 and 48 transponders.

Mexico: Early Advocate of VSAT for PSTN

The government of Sonora, Mexico, in conjunction with Mexico's Secretaria de Comunicaciones y Transportes (SCT), was an early rural VSAT advocate, turning to a VSAT network to provide telephony services in remote areas. Cut over in March 1991, the Frequency Division Multiple Access (FDMA)/single-channel-per-carrier (SCPC)

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PRIVATIZATION TAKES BACK SEAT TO "LIBERALIZATION" IN LATIN AMERICA

by Stephen Dalla Betta

For nearly a decade, Latin America has led the developing world with its frequent privatizations through strategic foreign investment. Today, privatized telcos provide basic services in Argentina, Chile, Mexico, Peru, Puerto Rico, and Venezuela, while carriers are currently on the block in other countries, such as Nicaragua and Bolivia.

However, despite the overwhelming successes of these privatizations, Latin American countries are now pursuing other initiatives in their telecom sectors, such as deregulation of basic services without privatization and build-operate-transfer (BOT) financing schemes. These initiatives are creating opportunities for private services operators and equipment vendors alike.

Why Liberalization, Not Privatization?

The privatizations that have already taken place in Latin America's telecom sector have, with few exceptions, proven successful. In fact, the results of these privatization efforts have been touted in nearly every Latin American country and throughout the world. Concrete indicators – main-line growth, network investment, the introduction of new technologies, and increased coverage at sharply reduced prices – demonstrate a marked difference in the pre- and post-privatization periods (see "Latin America Privatization: The Results Are In," ***TDR***, July 1993).

However, despite the acknowledged successes, privatization is not considered a panacea for telecom development in all Latin American countries. Even now, privatization often faces stiff opposition from unions and their supporters in government. And, privatization remains anathema to many governments that consider telecom a national strategic asset that should not be sold to the highest foreign bidder.

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European Commission Proposes To Ease CATV/Telecom Limits

The European Commission adopted a draft directive Dec. 21 proposing to lift restrictions on the use of cable TV networks and permit them to carry all telecommunications services that have been liberalized in the European Union. The commission said the directive, whose chief proponents were Competition Policy Commissioner Karel van Miert and Telecommunications Commissioner Martin Bangemann, aims to open up low-cost capacity for carriage of new multimedia services.

The commission intends to present its proposals next year to EU member states and the European Parliament and consult with other interested parties before formally adopting it. Legally, the proposal is framed as an amendment to the 1990 services directive that has led to liberalization of telecom services not reserved to national monopoly providers — i.e., public switched telephony. Under this regulatory policy initiative, the major EU countries have committed to open their public switched service markets to competition by 1998.

The 1990 services directive was issued under article 90 of the EU Treaty, which permits the commission to adopt measures without gaining the approvals of member states. Such procedures are available only when member states fail to fulfill an undertaking, and they apply only to public bodies that have "special or exclusive rights."

The commission stressed that the new directive "does not affect the member states' rights to maintain monopolies in provision [of] voice telephony until 1998, as the directive concerns only the provision of 'non-reserved' services." It also underlined its "intention to present its proposals. . .to both the Council [of EU ministers] and the Parliament, and to proceed in close cooperation with them, with utmost respect for transparency."

Furthermore, the commission noted that "the revenues of the [telecom operators] are not threatened by a transfer of customers [to cable TV operators], since they are, for the most part, not even providing these new services yet."

In a statement on the draft directive, the commission said that "liberalizing access to cable infrastructure should permit a lowering of costs and a significant increase in the amount of capacity available for new services. Alongside this, it

(continued on next page)

have distinct comparative advantage in export crop production. An export-sacrificing policy of self-reliance would therefore have costs in terms of income (see Box G). And a policy aiming at food security at the price of lessened emphasis on exports has a further pitfall: most methods of intensification imply increased use of inputs such as fertilizers, insecticides, and fuel for pumping (in irrigation schemes), i.e., they rely heavily on imported inputs. Thus, agricultural production under these known methods of intensified cultivation becomes more vulnerable to external disequilibria. If the pursuit of food self-sufficiency diverts resources from export crops to food crops, declining export earnings may lead to balance-of-payments problems jeopardizing the self-sufficiency objective itself. Sudan and Tanzania are countries that have, in recent years, deliberately sacrificed export expansion for the sake of increasing food production (see box on Tanzanian exports in Chapter 4). Their present balance-of-payments crises, as severe as those of some mineral exporters, are partly related to that policy.

Food Crops and Input Supply

While many details regarding food price policies can only be assessed in the context of individual country situations, two principles are central. First, food imports should be subject to duties, so that the import price reflects at least the true cost of foreign exchange. Otherwise, low-price imports will continue to replace domestic production, with negative effects on rural income and growth. Second, there should be a gradual freeing of domestic food markets, to encourage greater competition. This would in most cases merely recognize the existing reality, which is that, whatever the legal or formal situation regarding public monopoly, the main part of the cereals trade goes through private channels and, consequently, the great majority of consumers already pay "free market" prices.

With regard to food marketing and input supply, the proposal to allow a fuller degree of competition means encouraging cooperative actions by farmers and allowing private traders an increased role in these markets. Some observers object to proposals for more competitive marketing arrangements on the grounds that rural African markets function imperfectly, that traders would therefore exploit farmers, and that indigenous traders are still few in number in parts of the continent, so that trade in foodstuffs might once again come to be dominated by nonnationals. But many recent studies suggest that African food markets are reasonably competitive, that trader profits are rarely "excessive" and that farmers are usually well protected against "exploitation" by market information and the availability of alternative points of sale.[25] But even if this were not so, governments can more efficiently protect farmers by making markets more competitive through better information, roads, and marketing facilities than by acting as substitutes for traders.

In any case, it is important to recall that in a large number of African countries, food markets continue to operate, as they have in the past, without much public control. Performance is generally impressive; in Nigeria, private trade suppliers two very large cities (Lagos and Ibadan) and many more towns of 100,000–500,000 people. In Mali, despite the uncertainties of public policy, private trade in the mid-1970s supplied two thirds of the cereals consumed in the Sixth Region, the most remote part of the country.

Indeed, even the most casual visitor to a market town in Africa has to come away impressed by the range of goods and services available for sale, their variety and quality

25. See Henry Hayes, *Marketing and Storage of Food Grains in Nigeria*, Samaru Miscellaneous Paper no. 50 (Samaru, Nigeria: Institute for Agricultural Research, Ahmodu Bello University, 1979) and IDET-CEGOS, *Pre-étude de la commercialisation des produits vivriers au Cameroun* (République Unie du Cameroun: Ministére de l'Agriculture, avril 1980). See also Van Roy Southworth, William O. Jones, and Scott R. Pearson, "Food Crop Marketing in Atebubu District, Ghana" in *Food Research Institute Studies*, vol. 17, no. 2 (Palo Alto, California: Stanford University Press, 1979), J.T. Mukui (ed.), "Price and Marketing Controls in Kenya," Institute of Development Studies Occasional Paper no. 32 (Nairobi, Kenya: University of Nairobi, 1979); and Guy Nicolas, "Processus d'approvisionnement vivrier d'une ville de savane: Maradi (Niger)," *Travaux et documents de géographie tropicale*, no. 7, decembre 1972.

group averages for urban population as a percentage of total population are weighted by country population; the other country-group averages in this table are weighted by country urban population.

Table 37. Health-related Indicators

Nurses include graduate, practical, and assistant nurses. Country definitions of medical personnel vary and the data, while generally not more than two years distant from those specified, are for a variety of years. Consequently the data for population per physician and nurse are not strictly comparable between countries.

The *percentage of total population with access to safe water* is the proportion of persons with reasonable access to safe water, which is defined as including treated surface water and such untreated but uncontaminated water as that from boreholes, springs, and sanitary wells.

The *daily calorie supply per capita* was calculated by dividing the calorie equivalent of the food supplies in a country by its population. Food supplies comprise domestic production, imports less exports, and changes in stocks; they exclude animal feed, seeds for use in agriculture, and food lost in processing and distribution. The *daily calorie requirement per capita* refers to the calories needed to sustain a person at normal levels of activity and health, taking into account age and sex distributions, average body weights, and environmental temperatures.

The country-group averages in this table are weighted by country population.

Table 38. Education

The data on *number enrolled in primary school* refer to estimates of total, male, and female enrollment of students of all ages in primary school; they are expressed as percentages of the total, male, or female populations of primary-school age to give "gross primary enrollment ratios." Although primary-school age is generally considered to be 6–11 years, the differences in country practices in the ages and duration of schooling are reflected in the ratios given. For countries with universal primary education, the gross enrollment ratios may exceed 100 percent because some pupils may be below or above the official primary-school age.

The data on *number enrolled in secondary school* were calculated in the same manner, with secondary-school age generally considered to be 12–17 years. The *adult literacy rate* is defined in the technical notes for Table 1. The data in this table refer to a variety of years, generally not more than two years distant from those specified. Country-group averages are weighted by country population.

Tables 39 and 40. Central Government Budgetary Operations, Taxes, and Expenditure

Fiscal data for state, provincial, and local governments are unavailable. Consequently, only *central government* data are presented. This may seriously understate or distort the statistical portrayal of the allocation of resources for various purposes, especially in large countries where lower levels of government have considerable autonomy and are responsible for a large number of social functions. *Central government expenditure and revenue* covers that by all government departments, offices, establishments, and other bodies that are agencies or instruments of the central authority of a country. The operation of public enterprises (public entities which sell their output) appears only to the extent that their net profits are transferred to the treasury. Consequently, expenditure excludes the transactions of government marketing organizations. Certain foreign aid flows, such as parastatal borrowing, are omitted, while technical assistance is also likely to be excluded. Expenditure includes subsidies and transfers.

Net lending (disbursements of loans and purchase of equities less amortization) includes only government transactions undertaken for public policy rather than for management of government liquidity or for earning a return. Most government transactions involving changes in government debt are, therefore, included in financing.

ered edible and contain nutrients. *Nonfood* comprises all inedible and/or nonnutritive agricultural commodities. Accordingly, coffee and tea are classified as nonfood because, although edible, they have virtually no nutritive value. (Note that the definition of food used here is not consistent with that used in Tables 8 and 9, where all beverages, regardless of nutritive value, are considered as food items.)

Yield is defined as the volume of production of an agricultural commodity per unit of land area, here expressed as kilograms per hectare.

The *index of relative yields* compares average annual yields of selected crops in all developing countries and in Sub-Saharan Africa with average annual worldwide yields for the three specified time periods.

Developing countries is an FAO classification which includes all low- and middle-income countries except Albania, Greece, Israel, Portugal, Romania, South Africa, Spain, and Yugoslavia.

The country-group averages for average annual growth rate of volume of agricultural production in Table 25 are weighted by the product of 1975 country GDP in current dollars and each country's average agricultural share of total GDP for the period 1970–77. Country-group averages for the average annual growth rate of total agricultural production per capita are weighted by 1979 country population. All data are for the calendar year.

TABLE 28. FERTILIZER CONSUMPTION

Figures represent nutrient tons of nitrogen, phosphate, and potash. The fertilizer year begins on July 1st of the preceding calendar year and ends on June 30th of the current year. Thus, fertilizer year 1979 extends from July 1978 to June 1979. Country-group averages for average annual growth rate of fertilizer consumption are weighted by each country's average annual fertilizer consumption.

TABLES 29 AND 30. AGRICULTURAL IMPORTS AND EXPORTS

Subcategories of dairy imports are sporadically reported from one time period to the next. Thus, the corresponding rates of growth pertain only to those subcategories of dairy imports for which data are reported, and must be interpreted with caution. All data are for the calendar year.

TABLE 31. DOMESTIC TERMS OF TRADE OF EXPORT CROPS

Barter terms of trade are defined as the ratio between the weighted average official prices paid to producers for export crops and prices paid by them for certain consumer goods. Income terms of trade are defined as the ratio between producers' income derived from export crops and prices paid by them for certain consumer goods.

TABLE 32. PROCUREMENT AND DISTRIBUTION OF AGRICULTURAL INPUTS

Procurement and distribution activity is considered *private* if more than 80 percent of it is carried out by the private sector and *government* if more than 80 percent is carried out by the public sector.

TABLE 33. POPULATION GROWTH, PAST AND PROJECTED

The *growth rates of population* are period averages calculated from mid-year country populations. The country-group averages are weighted by country population in 1970.

The *projections of population* for 1980 and 2000, and for the year in which population is projected to become stationary, were made for each country separately. Starting with information on total population, fertility rates, and mortality rates in base year 1978, parameters were projected to 1980 and thereafter for each subsequent five-year interval on the basis of generalized assumptions until the population became stationary. For all of the projections in this table, it was assumed that international migration would have no effect.

The *net reproduction rate* (NRR) indicates the number of daughters that a newborn girl is projected to bear during her lifetime, assuming fixed age-specific fertility rates and a fixed set of mortality rates. An NRR of 1 indicates

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Table 5. Structure of Demand

	Distribution of gross domestic product (percent)											
	Public consumption		Private consumption		Gross domestic investment		Gross domestic saving		Exports of goods and nonfactor services		Resource balance	
	1960	1979[a]	1960	1979[a]	1960	1979[a]	1960	1979[a]	1960	1979[a]	1960	1979[a]
Low-income countries	**10 w**	**15 w**	**81 w**	**80 w**	**11 w**	**15 w**	**9 w**	**6 w**	**16 w**	**16 w**	**−2 w**	**−9 w**
Low-income semiarid	**11 w**	**18 w**	**84 w**	**78 w**	**12 w**	**23 w**	**7 w**	**4 w**	**13 w**	**22 w**	**−6 w**	**−19 w**
1. Chad	13	18	82	96	11	13	5	−14	23	33	−6	−27
2. Somalia	8	19*	89	79*	10	16*	3	2*	11	12*	−7	−14*
3. Mali	12	23	79	82	14	15	9	−5	12	16	−5	−20
4. Upper Volta	10	14	94	89	10	24	−4	−3	9	15	−14	−27
5. Gambia**	20	26	72	83	13	22	8	−9	59	65	−5	−31
6. Niger	9	9	79	72	13	28	12	19	9	25	−1	−9
7. Mauritania	. .	39	. .	47	. .	51	. .	14	. .	38	. .	−37
Low-income other	**10 w**	**15 w**	**80 w**	**80 w**	**11 w**	**13 w**	**10 w**	**6 w**	**17 w**	**15 w**	**−1 w**	**−8 w**
8. Ethiopia	8	17	81	87	12	10	11	−4	9	10	−1	−14
9. Guinea-Bissau**	. .	[b]	. .	102	. .	32	. .	−2	. .	10	. .	−34
10. Burundi	3	16	92	80	6	12	5	4	13	13	−1	−8
11. Malawi	16	17	88	70	10	29	−4	13	21	21	−14	−16
12. Rwanda	10	16	82	72	6	19	8	12	12	25	2	−7
13. Benin	16	12	75	87	15	21	9	1	12	27	−6	−20
14. Mozambique	11	15	81	85	10	10	8	(.)	14	13	−2	−10
15. Sierra Leone	. .	18	. .	78	. .	15	. .	4	. .	24	. .	−11
16. Tanzania	9	16	72	76	14	21	19	8	31	14	5	−13
17. Zaire	18	[b]	61	88	12	9	21	12	55	30	9	3
18. Guinea	. .	16	. .	70	. .	15	. .	14	. .	24	. .	−1
19. Central African Republic	19	20	72	72	20	20	9	8	23	18	−11	−12
20. Madagascar	20	17	75	73	11	22	5	10	12	17	−6	−12
21. Uganda	9	[b]	75	96	11	4	16	4	26	4	5	(.)
22. Lesotho	17	16	108	143	2	29	−25	−59	12	21	−27	−88
23. Togo	8	15	88	74	11	39	4	11	19	32	−7	−28
24. Sudan	6	11	85	84	9	14	9	5	12	9	(.)	−9
Middle-income oil importers	**11 w**	**15 w**	**67 w**	**68 w**	**22 w**	**19 w**	**21 w**	**16 w**	**37 w**	**27 w**	**0 w**	**−4 w**
25. Kenya	11	20	72	65	20	22	17	15	31	26	−3	−7
26. Ghana	10	9	73	86	24	5	17	5	28	12	−7	(.)
27. Senegal	17	[b]	68	98	16	21	15	2	40	34	−1	−19
28. Zimbabwe	11	13*	67	63*	23	15*	22	24*	. .	. .	−1	5*
29. Liberia	7	15	58	62	28	27	35	23	39	53	7	−4
30. Zambia	11	27	48	45	25	21	41	28	56	45	16	7
31. Cameroon	. .	10	. .	80	. .	25	. .	10	. .	25	. .	−15
32. Swaziland**	18	22	54	64	13	28	29	14	47	77	16	−13
33. Botswana**	15	25	88	63	8	43	−3	12	23	47	−12	−31
34. Mauritius**	15	14	79	61	30	38	6	25	32	50	−24	−13
35. Ivory Coast	10	17	73	56	15	31	17	27	37	35	2	−4
Middle-income oil exporters	**7 w**	**11 w**	**84 w**	**57 w**	**15 w**	**30 w**	**10 w**	**31 w**	**17 w**	**26 w**	**−6 w**	**1 w**
36. Angola	9	26	77	56	12	9	14	18	20	43	2	9
37. Congo	23	30	98	58	45	22	−21	12	21	. .	−66	−10
38. Nigeria	6	10	87	58	13	31	7	32	15	25	−6	1
39. Gabon**	10	12	40	36	50	30	50	53	32	. .	1	. .
Sub-Saharan Africa	**10 w**	**13 w**	**77 w**	**65 w**	**15 w**	**23 w**	**13 w**	**20 w**	**22 w**	**23 w**	**−3 w**	**−3 w**
All low-income countries	**9 w**	**11 w**	**78 w**	**66 w**	**18 w**	**26 w**	**16 w**	**23 w**	**7 w**	**11 w**	**−2 w**	**−3 w**
All middle-income countries	**11 w**	**13 w**	**70 w**	**62 w**	**21 w**	**26 w**	**19 w**	**25 w**	**16 w**	**20 w**	**−2 w**	**−1 w**
Industrialized countries	**15 w**	**17 w**	**63 w**	**61 w**	**21 w**	**23 w**	**22 w**	**22 w**	**12 w**	**19 w**	**1 w**	**−1 w**

a. Figures marked with an * are for 1978.
b. Public consumption is included in private consumption.

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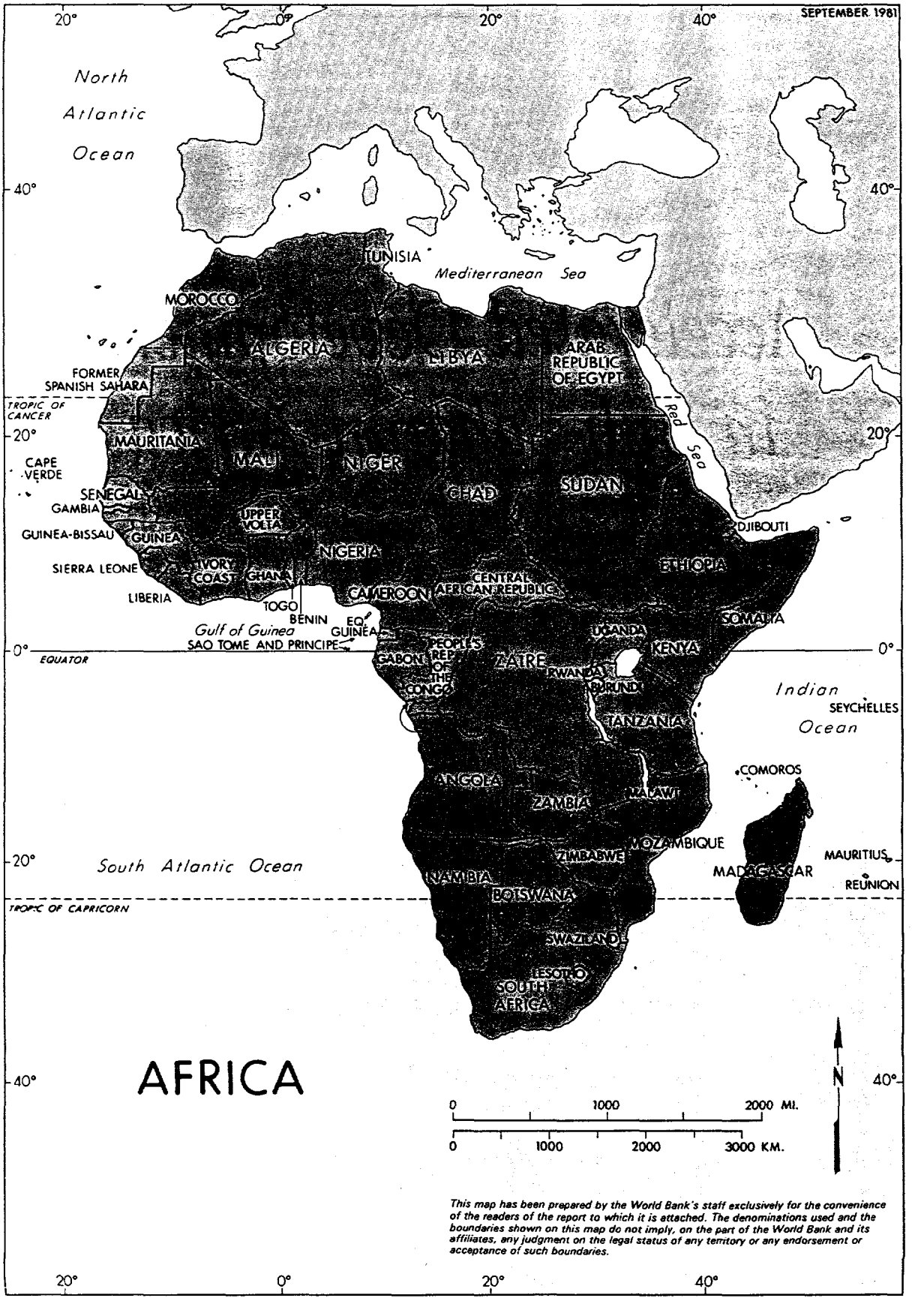

This map has been prepared by the World Bank's staff exclusively for the convenience of the readers of the report to which it is attached. The denominations used and the boundaries shown on this map do not imply, on the part of the World Bank and its affiliates, any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries.

Table 28. Fertilizer Consumption

	Average annual consumption (thousands of metric tons) 1977–78[b]	Average annual growth rate[a] 1962–66[b] to 1969–71	1969–71[b] to 1977–78
Low-income countries	**219.42 *t***	**12.0 *w***	**6.8 *w***
Low-income semiarid	**31.18 *t***	**31.0 *w***	**22.7 *w***
1. Chad	6.57	42.7	20.0
2. Somalia	. .	22.7	. .
3. Mali	13.00	47.6	19.7
4. Upper Volta	6.65	31.3	45.3
5. Gambia	2.95	22.5	37.8
6. Niger	0.81	18.4	30.7
7. Mauritania	1.20	. .	24.8
Low-income other	**188.24 *t***	**11.4 *w***	**5.9 *w***
8. Ethiopia	27.99	23.6	26.0
9. Guinea-Bissau	. .	. .	. .
10. Burundi	0.65	. .	10.9
11. Malawi	22.42	11.0	14.1
12. Rwanda	0.31	. .	8.4
13. Benin	1.50	40.6	−13.5
14. Mozambique	12.85	4.8	9.3
15. Sierra Leone	2.04	42.0	0.5
16. Tanzania	34.59	20.5	15.7
17. Zaïre	10.74	25.5	14.0
18. Guinea	1.45	0.5	−6.2
19. Central African Republic	2.20	27.8	1.9
20. Madagascar	9.60	22.5	−2.2
21. Uganda	2.13	8.7	−11.8
22. Lesotho	1.40	−0.8	19.1
23. Togo	2.37	. .	31.9
24. Sudan	56.00	8.8	5.3
Middle-income oil importers	**403.25 *t***	**27.0 *w***	**10.7 *w***
25. Kenya	52.71	16.6	3.3
26. Ghana	25.05	5.2	40.7
27. Senegal	45.05	−0.8	23.7
28. Zimbabwe	113.50	9.4	2.5
29. Liberia	4.69	52.5	14.0
30. Zambia	67.20	15.9	14.9
31. Cameroon	22.22	21.2	3.5
32. Swaziland	5.20	4.3	−0.5
33. Botswana	2.05	1.9	3.7
34. Mauritius	23.03	−1.1	0.7
35. Ivory Coast	42.55	9.5	14.4
Middle-income oil exporters	**95.80 *t***	**29.9 *w***	**12.3 *w***
36. Angola	16.05	34.8	7.0
37. Congo	2.38	30.1	−11.3
38. Nigeria	76.50	26.2	33.0
39. Gabon	0.87	. .	. .
Sub-Saharan Africa	**718.47 *t***	**23.1 *w***	**9.7 *w***
Developing countries	**16,381.45 *t***	**14.6 *w*[c]**	**10.2 *w*[c]**
World	**97,469.10 *t***	**9.0 *w*[c]**	**5.7 *w*[c]**

a. Growth rates for groups of countries were calculated on the basis of those countries for which data on all three sub-periods were available.
b. See technical notes.
c. Nonweighted mean.

Table 12. Destination of Merchandise Exports

	Percentage share of merchandise exports									
	Industralized market economies		Sub-Saharan African countries		Other developing countries		Centrally planned economies		Capital-surplus oil exporters	
	1960	1979	1960	1979	1960	1979	1960	1979	1960	1979
Low-income countries	**76 *w***	**64 *w***	**6 *w***	**8 *w***	**16 *w***	**22 *w***	**1 *w***	**3 *w***	**1 *w***	**4 *w***
Low-income semiarid	**76 *w***	**71 *w***	**18 *w***	**6 *w***	**6 *w***	**11 *w***	**0 *w***	**0 *w***	**0 *w***	**13 *w***
1. Chad	73	30	27	13	0	52	0	. .	0	5
2. Somalia	85	18	0	1	15	2	0	(.)	(.)	80
3. Mali	93	68	7	15	0	17	0	(.)	(.)	(.)
4. Upper Volta	4	75	96	9	0	16	0	. .	0	0
5. Gambia	97	93	3	1	0	6	0	(.)	0	0
6. Niger	74	97	26	1	0	0	0	. .	0	2
7. Mauritania	89	88	11	2	0	9	0	. .	0	1
Low-income other	**76 *w***	**63 *w***	**5 *w***	**8 *w***	**17 *w***	**23 *w***	**0 *w***	**3 *w***	**1 *w***	**3 *w***
8. Ethiopia	69	72	4	(.)	20	11	1	7	6	10
9. Guinea-Bissau**	. .	29	32	22	. .	38	. .	1	. .	0
10. Burundi	. .	89	. .	1	. .	9	. .	1	. .	0
11. Malawi	. .	84	. .	12	. .	4	. .	1	. .	. .
12. Rwanda	. .	80	. .	4	. .	16	. .	1	. .	. .
13. Benin	90	89	8	2	0	8	2	1	0	(.)
14. Mozambique	29	43	5	4	66	45	(.)	1	(.)	7
15. Sierra Leone	99	98	1	1	0	1	0	. .	0	(.)
16. Tanzania	74	57	4	4	21	36	1	2	0	1
17. Zaire	89	64	5	26	6	10	(.)	(.)	(.)	(.)
18. Guinea	63	69	10	3	9	26	18	. .	(.)	2
19. Central African Rep.	83	78	9	2	8	20	0	(.)	0	(.)
20. Madagascar	79	67	18	4	2	29	1	(.)	(.)	(.)
21. Uganda	62	67	7	3	31	27	0	1	0	2
22. Lesotho	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
23. Togo	74	67	26	8	0	17	0	8	0	. .
24. Sudan	59	36	2	(.)	27	45	8	9	4	10
Middle-income oil importers	**88 *w***	**75 *w***	**3 *w***	**9 *w***	**7 *w***	**13 *w***	**3 *w***	**3 *w***	**0 *w***	**0 *w***
25. Kenya	77	63	7	21	15	15	0	(.)	(.)	1
26. Ghana	88	70	2	2	3	15	7	13	(.)	(.)
27. Senegal	89	59	4	27	7	14	0	(.)	0	(.)
28. Zimbabwe	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
29. Liberia	100	86	0	(.)	(.)	14	0	(.)	0	(.)
30. Zambia	. .	82	. .	2	. .	16	. .	(.)	. .	(.)
31. Cameroon	93	84	3	6	3	8	1	2	(.)	(.)
32. Swaziland	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
33. Botswana	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
34. Mauritius**	97	95	2	4	1	1	0	0	0	0
35. Ivory Coast	84	78	3	6	13	11	0	5	0	(.)
Middle-income oil exporters	**89 *w***	**84 *w***	**2 *w***	**3 *w***	**8 *w***	**13 *w***	**1 *w***	**0 *w***	**0 *w***	**(.) *w***
36. Angola	64	33	7	(.)	27	66	2	0	0	1
37. Congo	93	72	(.)	1	7	27	0	(.)	0	(.)
38. Nigeria	95	87	1	2	3	11	1	(.)	0	(.)
39. Gabon**	87	60	6	8	7	32	0	0	0	(.)
Sub-Saharan Africa	**82 *w***	**78 *w***	**4 *w***	**5 *w***	**12 *w***	**15 *w***	**2 *w***	**2 *w***	**(.) *w***	**1 *w***
All low-income countries	**51 *w***	**61 *w***			**29 *w*[a]**	**29 *w*[a]**	**19 *w***	**5 *w***	**1 *w***	**5 *w***
All middle-income countries	**68 *w***	**67 *w***			**24 *w*[a]**	**26 *w*[a]**	**8 *w***	**4 *w***	**(.) *w***	**3 *w***
Industrialized countries	**67 *w***	**69 *w***			**30 *w*[a]**	**24 *w*[a]**	**3 *w***	**3 *w***	**(.) *w***	**4 *w***

a. Includes exports destined for Sub-Saharan Africa.