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Famine Prevention in Africa: The Long View

by

Carl K. Eicher

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FAMINE PREVENTION IN AFRICA: THE LONG VIEW

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FAMINE PREVENTION IN AFRICA: THE LONG VIEW*

Carl K. Eicher**

The current tragedy in Africa has created a climate of concern for the long-term solutions beyond emergency relief.

N. C. Brady, 1985

HISTORICAL PERSPECTIVE

A decade ago, a World Food Conference was convened in Rome because of the immediate threat of famine in the Indian sub-continent and the Sahelian region in West Africa, the drawdown of world food reserves to their lowest levels in 25 years and a dramatic increase in food prices over the 1972-74 period. The overriding assumption in the minds of many conference delegates was that real food prices would continue to rise in the 1970s and that mass starvation was a distinct possibility because of rapid population growth and the lack of a cushion of global reserves. But today the world is "awash with grain." India supplied 100,000 tons of grain (4 shiploads) to Ethiopia in 1985, and the EEC, Japan, and North America are competing for third world grain markets.

Although the world food crisis vanished a few years after the 1974 Rome conference, food production in Sub-Saharan Africa grew at half the population growth rate since 1970. Moreover, famine in Africa in 1985 captured world attention and resulted in 7 million tons of grain imports, triple the 1983 level. But the Sahelian famine of the early seventies and the Ethiopian famine of 1985 are dramatic manifestations of longer-term problems that have been building up for two decades--increasing rate of population growth, lagging food production, malnutrition and pervasive poverty (6).

This paper takes the long view of famine prevention and examines two interrelated problems: (a) the food production--population race and (b) the hunger-population battle in Sub-Saharan Africa, a vast sub-continent of 45 states, 1,000 ethnic groups and complex farming systems (17, 18, 22, 26).

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THE FOOD PRODUCTION-POPULATION RACE

The starting point for understanding the production-population race is the rate of population growth--not the population density or the total size of a nation's population. The current population growth rates in African countries--2.5 to 4.4 percent--are extremely high by historical standards and imply a population doubling time of 15 to 25 years. For example, Africa's population is currently growing at roughly triple the rate of Japanese population growth of one percent over the 1878-1912 period. Kenya's population growth rate of 4.4 percent will require food production to be doubled in 16 years--a rate unprecedented in the early history of modern economic growth in Japan and in other industrial countries.

One of the simplest measures of what is happening to fertility in a country is the total fertility rate--a rough proxy for the average number of lifetime births per women. Currently the total fertility rate in Africa is roughly 7.0 compared with 1.8 in the United States. But unlike China where there is a concerted campaign to implement the "one family--one child policy," there is little debate in Africa today--even among academics--on population and family planning, let alone on generating political support for measures to reduce the average number of children from seven to five per family. Demographers agree that family planning programs have been ineffective in Africa in the 25 years of independence, and that "no nation displays any significant sign of fertility decline" (5).

In summary, in many African states population growth has slowly outstripped the rate of growth of food production--especially since 1970. Research and policy attention should increasingly focus on both dimensions of the food production-population race.

THE HUNGER AND POVERTY BATTLE

Hunger basically describes the lack of a calorie-adequate diet on a temporary or chronic basis. About 100 million or roughly one-fourth of the African people are hungry and malnourished in 1985. Until the past decade, it was commonly assumed that the lack of protein was the dominant cause of malnutrition. But research has shown that the key to good nutrition is getting enough calories because the protein needs of most people will be met if they consume enough calories from several sources. Pregnant and nursing women, however, usually need additional protein (19).

A great deal has been learned over the past decade about the complex linkages between hunger and poverty or what I shall describe as the hunger-poverty battle.

Research has shown that hunger and malnutrition are primarily caused by one or more of the following: (a) a lack of access to land for families to produce adequate food, (b) low productivity of family labor on subsistence farms, (c) drought-induced instability of food production, and/or (d) a lack of income to purchase adequate food on a timely basis (9). But expanded food production by itself will neither eliminate hunger nor malnutrition. For example, the United States and India are both self-sufficient in staple food production but neither has solved its hunger and malnutrition problems.

Poverty is a major cause of hunger because it prevents people from producing or purchasing a calorie-adequate diet. The majority of the poor in Africa are subsistence farmers who are producing food for their families at low levels of labor productivity. One of the most effective ways of raising the real incomes of subsistence farmers in the short run is to increase the productivity of their main enterprise, staple food production. In summary, there is increasing recognition that hunger is a function of multiple causes and that the hunger-poverty battle is a complex political struggle over how a society deals with poverty--the root cause of hunger in industrial and Third World countries (23).

A few African states and donors are wisely discarding the emotionally appealing, but potentially misleading concept of food self-sufficiency and replacing it with the concept of food security as a strategic goal of national development. Food security is defined as the ability of a country to ensure that its total population has access to a timely, reliable, and nutritionally adequate supply of food from domestic production, food reserves and food imports (9). Food security is becoming an important policy goal in the Third World, as well as in industrial countries. We shall examine several complex food security dilemmas below.

PRIME MOVERS OF AGRICULTURAL DEVELOPMENT

The current rate of growth of agricultural production in many African states must be doubled in order to catch up with the population growth rate (10). No amount of political will, policy reform, or change in relative prices of single commodities can double the rate of growth of agricultural output and sustain it over a period of several decades unless attention is given to what I describe as the prime movers of agricultural development. African policymakers and donors should concentrate on five prime movers of agricultural change over the medium to long term:

1. New technology that is produced by public and private investments in agricultural research.

2. Human capital and managerial skills that are produced by investments in schools, training centers, and on-the-job experience.
3. Accretionary growth of biological capital investments (e.g., improving livestock herds) and physical capital investment in infrastructure such as dams, irrigation, and roads.
4. Improvement in the performance of institutions such as marketing, credit and national agricultural research and extension services.
5. Favorable economic policy environment.

A significant characteristic of the first four prime movers is their long gestation period (10 to 25 years). For example, experience has shown that it takes ten years of research, on the average, to produce a new plant variety, and another five to eight years to gain widespread farmer adoption. It takes ten to fifteen years of graduate study and on-the-job training for an agricultural research scientist to be productive. However, most donors are avoiding long gestation investments to develop indigenous scientific, managerial and technical capacity. For example, the World Bank has a tendency to finance "showcase" components of human capital and agricultural research projects. The Bank is currently allocating roughly two-thirds of its $19 million loan to Senegal's agricultural research service over the 1982-88 period to

(a) develop and rehabilitate six research stations, including laboratories and office space, and 106 houses on the stations, and

(b) purchase 11 trucks, 20 tractors, 27 tillers, and 205 vehicles.

But delivering vehicles and constructing buildings can be completed in two to three years. Who will train the research staff after the present project in Senegal is completed in 1988?

The second characteristic of the prime movers is their complementary nature. The payoff to investment in applied research will be low unless there is an effective extension service to diffuse the new technology. Likewise, the payoff to investing in agricultural extension services in Africa has generally been low because many research services have had little to offer to extension agents. Let us turn to the first prime mover--agricultural research to generate new technology.

Technology Generation

The shelf of improved, farmer-tested food crop technology is almost bare today in Africa with a few notable exceptions such as maize in eastern and southern Africa, and cassava in West Africa (8, 25). There is a growing realization that the national agricultural research services in Africa are generally extremely weak, that the direct

international transfer of plant varieties is proving to be more difficult than earlier imagined, and that the International Agricultural Research Centers have not been performing well in Africa (7). Presently, many of the national research services do not have the scientific capacity to screen and borrow technology from neighboring countries, regional institutes, the International Agricultural Research Centers (IARCs) and the global research system.

There is growing support for the proposition that expanded rural income from multiple sources is a strategic variable in addressing the hunger-poverty battle. Agricultural research that generates new production technology for food crops, export crops and livestock can be important sources of income generation for farmers and a means for families to purchase an improved diet (20). In short, combating hunger is a more complex process than merely increasing food production. Hunger can be combated by expanding the production and sale of food crops, export crops, livestock, food and income earned from rural off farm employment.

Human Capital and Managerial Skills

Kenneth Shapiro (24) recently reported that the stock of human capital in scientific fields per million people in Africa in 1980 was about one-fourth the relative scientific strength of Asia in 1970. Because the enrollment ratios (percent of population in secondary schools and universities) were lower in Africa in 1980 than in Asia and Latin America in 1960, it will be difficult for Africa to catch up with Asia and Latin America.

A major challenge facing educators and professional agriculturalists in African states and donor agencies is figuring out how foreign assistance can most effectively assist in strengthening Africa's indigenous scientific, technical and managerial capacity in food and agriculture. Starting with great confidence in the 1960s, the major donors and the U. S. foundations have retreated from investment in human capital in the 1970s and 1980s. For example, The World Bank allocated 10.6 percent of its Africa budget to education in the 1960s and 4.1 percent in 1980-84 (12).

Nobel Laureate T. W. Schultz (21) recently reflected on the leadership role that the United States played in financing human capital in India in the 1960s and 1970s and its record in Africa to date:

> The role that U. S. foreign aid and that of American leadership...played in assisting the Indian political and academic leaders in establishing the agricultural universities in India, stands as a major achievement of permanent value. It was not a short-term undertaking. It entailed building a new institution (the state agricultural university) for the long-term. But regretably, U. S. aid has failed to undertake any corresponding enterprises since then; to wit our dismal record throughout most of tropical Africa.

The U. S. recently announced an innovative, long-term plan to strengthen national agricultural research services and Faculties of Agriculture in Africa (2). Hopefully, The World Bank and other donors will cooperate with AID and African states in developing a coordinated approach to strengthening national research services, regional research networks and Faculties of Agriculture. As a first step, donors should design national agricultural research and Faculty of Agriculture projects with a ten-year life of project. Moreover many of the existing farming systems projects should be incorporated into ten-year projects to strengthen national research services.

Rural Capital Formation

The history of agricultural development in industrial countries has been fueled by the mobilization of family labor for clearing land, picking stones and building fences, an accretionary type of capital formation whereby family labor improves land productivity and the productivity of livestock herds over generations. Security of tenure plays a strategic role in converting family labor into capital formation because, with security, farm improvements can be passed on to the next generation. In Africa, there is a tendency for donors to concentrate on financing new agricultural projects while overlooking how to help African farmers and rural communities mobilize family labor to finance their own farm improvements.

Rural Institutions

The fourth prime mover is strenghtening the performance of rural institutions ranging from farmer irrigation associations to fertilizer, credit and seed companies. But there is a paucity of proven strategies on how to strengthen rural institutions such as national agricultural research, credit, and extension services. Research, pilot projects, seminars, and workshops are urgently needed on how to strengthen basic agricultural institutions over the next 10 to 15 years.

Economic Policy Environment

The fifth prime mover--favorable economic policy environment--is crucially important in facilitating the implementation of the first four prime movers. Foreign aid administrators have recently focused on the need for policy reform as the overarching issue in restarting African economies. For example, several donors have reported that pricing policy reform has boosted the production of a single commodity such as maize by 30 to 50 percent in Zambia, sorghum in Somalia and cocoa production in Ghana.

Unfortunately, newspaper reports of single commodity responses to higher prices oversimplify the complex parallel actions that have to be taken to boost the production of a broad range of commodities. It is time to shift the debate from pricing policy to the difficult art of gaining national political commitment and consistent donor support for the five prime movers as a policy package.

This analysis has highlighted the strategic importance of public and private investment in the prime movers of agricultural development to strengthen the productive capacity of African agriculture in the medium- to long-term. Food aid can be used to buy time until investment in these prime movers pays off (17). But donors need to come to grips with long gestation investments by making an explicit, up-front commitment to financing human capital and institution building projects for 10 to 15 years in Africa, just as they did in Asia in the 1960s and 1970s. These institutional investments should be designed as a "core policy package" under the aegis of a Consultative Group of donors. But many donors will probably swing their weight behind the prime movers before the African states. Since the ruling elite in most African countries generally do not view agriculture as a motor of change, most will be reluctant to shift gears from short-term projects (with immediate political benefits) to the prime movers of agricultural development (8, 10). The difficult art of gaining African and donor support for the five prime movers is especially difficult in an era of abundant food aid from industrial countries. As one minister of Agriculture remarked informally at a Lusaka conference during the height of the drought in 1984: "now that food aid is arriving, the pressure is off my government to reorder our national priorities in favor of agriculture."

FOOD SECURITY POLICY DILEMMAS: SENEGAL AND ZIMBABWE

Many African nations have adopted explicit food security strategies and have prepared food security plans. In this section, we briefly examine the strategies of two countries: Senegal, a food-deficit state, and Zimbabwe, a food exporter, in order to illustrate some of the complex dilemmas in food policy reform (9).

Senegal

Senegal, a West African country with some 8 million people, is currently importing about 1,000 tons of rice a day, mostly broken rice from Asia. The Senegalese government is faced with some tough questions: Should food production be increased on rainfed or irrigated land? What is the appropriate role of the state in helping assure food security?

Since the 19th century, Senegal has followed a policy of agricultural specialization, exporting groundnuts and importing broken rice, not only to supply urban areas but also for large towns in rural areas. The state has historically played an important direct role in agricultural trade, holding the legal monopoly on the groundnut trade, rice imports, and until 1980, coarse grain (e.g., millet, sorghum) marketing. Hence, price and marketing policies have had a major influence on the government budget as well as on food security.

Over the past 15 years drought has reduced domestic foodgrain, and groundnut production. As a result Senegal has imported roughly half of its annual cereal consumption in recent years. If present production and population trends continue, the country will produce only a third of its food grain needs by the year 2000 (1).

In order to deal with the deteriorating food production-population race, the government announced a "New Agricultural Policy," in 1984. The policy called for increased food grain self-sufficiency, primarily through irrigated rice production in the Senegal River Valley and millet and sorghum production in the Groundnut (Peanut) Basin; a greatly expanded role for private traders and farmers' cooperatives in input and output marketing; and a reduction in the activities of regional development organizations and parastatals (state agencies). The goal of the "New Agricultural Policy" is to produce 75 percent of the nation's food grain consumption by the year 2000 and to reach self-sufficiency as soon thereafter as possible.

In implementing the new policy the government has had to face competing objectives (e.g., its desire to stimulate long-run agricultural growth through higher prices to farmers and cushioning higher short-run increases in food prices for the poor) and the difficulty of developing an institutional environment favorable to private traders after years of heavy state involvement in the cereals market. For example, in early 1985 the government raised the price of imported rice by over 20 percent in order to reduce the budget deficit and to stimulate production of millet, sorghum and locally produced rice. Yet, when the retail price of millet and sorghum rose in response to this change, there were calls by some government officials for strict price controls on these cereals to help protect consumers. Furthermore, the policy of promoting self-sufficiency primarily through price policy has had a mixed effect on the poor. The cost of rice production in the large irrigated perimeters (fields of 200 to 2000 hectares) in the Senegal River Valley is extremely high by world standards.

Senegal's stock of improved food grain technology--rice, millet, wheat, and sorghum--is almost bare because its agricultural research service is weak. Senegal's high cost of food production calls into question the strategy of trying to assure food security

through food grain self-sufficiency. Dakar is a major seaport and broken rice, the preferred staple food of many Senegalese, is usually available on the world market from Thailand at a relatively low price. Perhaps Dakar's food security can be secured through imports of broken rice while rural food security can be achieved through the increased production of local food grains (millet and sorghum) and the sale of export crops. Alternatives to rice production in the irrigated perimeters of the north (e.g., vegetables and tomatoes for canning factories) need to be considered as Senegal seeks more cost-effective ways of assuring the food security of its people. The bottom line is that Senegalese farmers cannot compete with Thai rice farmers given present agricultural technology and the overstaffed and inefficient agricultural institutions in the country. Senegal has discovered that the mere announcement of a "New Agricultural Policy" is no substitute for the lack of food crop technology and ineffective rural institutions.

Zimbabwe

When Zimbabwe became independent in 1980, it inherited a dual agrarian structure of about 5,000 large commercial farms and 700,000 smallholders. At independence, the fundamental problems in agriculture were the low productivity of smallholders, widespread poverty among rural workers on large commercial farms, a large landless population and a rural infrastructure that had been battered during the war in the 1970s (3). In 1981, the government identified the achievement and maintenance of food self-sufficiency and regional food security in Southern Africa as an important national objective (29). In attempting to improve the food security of its population, the Mugabe government has tried to balance the redistribution of income to the urban and rural poor, who are at the most risk nutritionally, with the need to maintain the productive capacity of the agriculturally based economy.

Despite the substantial incidence of poverty and malnutrition among families of rural smallholders and workers on commercial farms, Zimbabwe has decided to maintain its dual production structure in the short run because its 4,200 commercial farms (in 1985) are producing about 50 percent of the marketed surplus of maize and cotton and 99 percent of the tobacco crop, a major earner of foreign exchange. The government has, however, tried to improve the food security of the rural poor by raising the minimum wage of farm workers to Z$600 per year (about $375 U. S.) and by purchasing commercial farms on a "willing buyer-willing seller" basis and transferring the land to the landless. At the same time, aggressive steps are being taken to help smallholders expand their rainfed production, especially of cotton and maize, and to promote smallholder irrigation.

The government has generally followed a price policy favorable to agriculture, even when this may have increased the food insecurity of the urban poor in the short run. In 1983/84, the government eliminated Z$100 million of consumer subsidies on wheat bread, meat, dairy products, and refined maize flour. In an attempt to lessen the impact of these changes on the urban poor, subsidies were retained on coarsely milled maize meal (consumed mainly by the urban and rural poor) and the minimum wage was increased. Following a three-year drought, the government raised maize producer prices 28.5 percent in June, 1984, four months before planting time for the 1984/85 crop. With favorable weather, farmers responded with a large maize crop in 1985. Zimbabwe is now developing trade agreements to sell 500,000 to 750,000 tons of maize in international markets.

Although the experience of Zimbabwe is frequently cited as an example of the successful use of price policy to stimulate agricultural production, the favorable production response is more complex than higher prices and good weather. Zimbabwe raised the producer price of maize from Z$85 at independence in 1980 to Z$180 in 1985, an increase of 112 percent. Farmers were able to respond to higher prices because they had access to well-functioning input and output markets, an extension system that has given increasing attention to smallholders in recent years, and one of the strongest agricultural research services in Africa. For example, Zimbabwe became the first country after the U. S. to develop hybrid maize (corn) varieties in 1949, after 17 years of research (7). Although short-season hybrid maize varieties were available to smallholders 10 years ago, it was only with improvements in the marketing, credit and extension systems, an end to the disruption caused by war, and favorable prices that smallholders widely adopted the new varieties. For example, smallholders increased their share of the marketed surplus of maize and cotton production from 10 percent at independence in 1980 to roughly 50 percent in 1985. The experience of Zimbabwe underlines the important interactions among technology, institutions, and agricultural policies in increasing food production and food security.

In spite of its success in increasing total food production and becoming a maize exporter, the long-term food security of Zimbabwe also depends on its ability to deal with its rapid rate of population growth because a population which doubles in size in 15 to 20 years can undermine the per capita availability of food. As the experience of India demonstrates, achieving food self-sufficiency (in the sense of becoming a food exporter) is not necessarily synonymous with achieving food security for all of its people.

ATTACKING THE TWO CORE PROBLEMS

Bumper harvests in many countries in 1985 have dramatically changed the food outlook for Africa in 1986. Instead of 24 countries requiring food aid as in 1985, the Food and Agriculture Organization (FAO) recently reported that only five countries will likely require food aid in 1986. But beneath this welcome forecast for 1986 are two core problems: the food production-population race and the hunger and poverty battle. Much of the advice that Africa is receiving on attacking these two problems is based on a shallow understanding of the nature of the agrarian crisis, a tendency to oversell one or two of the five prime movers of agricultural change (e.g., policy reform or new technology), and a tendency to underestimate the gestation period required to develop human capital, managerial and financial skills and productive national agricultural research and extension systems. Moreover, there is a tendency for most donors and PVO's to make the case to increase aid flows to Africa at a time when many African countries are having great difficulty in absorbing much of the piecemeal aid that is metered out to livestock, irrigation and rainfed farming projects. In this paper I have taken the long view of laying the foundation to combat famine because it will take time to gain and develop support for family planners, time to develop new food crop technology, and time to gain African political support to increase public investment in agriculture over the coming decades.

Turning to the first core problem (the food production-population race), it will take several decades before there is a broad base of political support for family planning in Africa. Hence, over the next 10 to 15 years expanded staple food production is the first line of attack in the food production-population race because the majority of the poor are engaged in subsistence food production. In the short run, one of the most direct ways of increasing the real incomes of subsistence farmers is to increase the productivity of their main enterprise, staple food production. Expanded staple food may increase the per capita availability of home-produced foods, the cash income of farm families by generating a marketable surplus of grain and tuber crops, or allow subsistence food needs to be produced with fewer resources, thus freeing resources for other income-earning activities. But improving the productivity of the food system involves not only generating improved technology but also investing in marketing, processing and transport of staple crops. Farmers are usually reluctant to try to increase their income through crop specialization if there is not a reliable market for food. In the long run, efficient input and output markets are a key in developing the intersectoral linkages that characterize economic development, which by generating increased incomes, reduces food insecurity.

It is time to stop thinking of African countries as if they were all the same. Because of differences in initial population densities, natural resource endowments, rainfall, and the availability of technology, there are vastly different prospects for agricultural development among individual countries in Africa. For example, Uganda, Ivory Coast and Guinea are blessed with fertile land, high rainfall, and have enormous reserve production capacity. Moreover, some countries, such as Sudan and Zaire, have large areas of idle land and can rely on area expansion, like the U. S. in the frontier era in the last century and Thailand over the past two decades, in expanding production. Other countries such as Rwanda, with a population density approaching that of India, will have to rely on increasing yields with the aid of science-based technologies. In summary, there are vastly uneven prospects for increasing food production by country and by sub-region in Africa.

It is also time to shelve the misleading cliche that Africa is a land abundant continent. Because of vastly different patterns and levels of rainfall and availability of locally tested technology, there are significantly better prospects for food production in southern Africa than in the semi-arid zone of Sahelian West Africa. There are generally three broad groups of countries according to land/population ratios. About one-third of the continent can be classified as land abundant (Sudan, Zaire, Cameroon, Guinea, Sierra Leone, Zambia, Mozambique, and Angola). In the foreseeable future, seasonal labor shortages, not land, will be the major constraint on expanding production in these countries. About one-third of the countries are in semi-arid areas where the land frontier is rapidly being exhausted (e.g., Senegal, Niger, etc.). About one-third of the countries are in a land scarce environment where the frontier is already exhausted and yield-increasing innovations and intensification of production are already in progress (e.g., Rwanda, Malawi, Burundi, and parts of Nigeria). The implication of this analysis is that technology has to be carefully developed and targeted to different country specific situations instead of assuming that the sole aim of research in Africa is to produce yield-increasing innovations.

Africa's food surpluses of 1985 are a reminder of the vast physical production potential of African agriculture, the dependency of food production on rainfall and the need to take the long view when discussing the rationale for expanded research investments in Africa. While Sudan's transport system is struggling to move food aid from the seaport to feeding centers in late 1985, a team of experts was helping the Sudan develop a buffer stock scheme to store Sudan's bumper sorghum harvest. Malawi has 300,000 tons of maize for export in 1985/86 and it has been a maize exporter for eight of

the last ten years. Zimbabwe will have at least 500,000 tons of maize for export in 1985/86 after rebuilding its stock pile following three years of drought.

In dealing with the second core problem (hunger and poverty) it is important to recognize that many of the hungry, particularly the chronically hungry, are malnourished not because the aggregate supply of food (domestic production plus potential imports) is inadequate, but because the poor lack the purchasing power to buy a calorie-adequate diet. Improving the food security of the poor requires measures to help the poor increase their purchasing power or what others call their effective demand (18) or food entitlement (22, 23).

Food security should replace food self-sufficiency as a policy goal for African states and become the focal point of donor assistance to food and agriculture in Africa. Food security is defined as the ability of individuals and households to gain access to land, jobs, income, or food aid to secure enough food to meet their food requirements throughout the year. Since poverty is a major cause of food insecurity, it follows that increased food production by itself, and the achievement of food self-sufficiency, will not achieve the goal of food security. The implication for African states and donors is to reduce the food self-sufficiency rhetoric in policy pronouncements and projects and concentrate on the two core problems to step up food production and reduce poverty.

FOREIGN AID AND FAMINE PREVENTION

Famine in Ethiopia, the Sudan, Mozambique, and Mali in 1985 brought forth a flood of compassion from the world community, and generous supplies of food, medicine, blankets, and other assistance. The United States supplied about 3 of the 7 million tons of food aid to Africa over the 12-month period October 1984 to September 1985. But amid this vast outpouring of international support for Africa's famine of 1985, it is important to keep in mind that Africa is flooded with project aid that is difficult to absorb because of the critical lack of managerial, financial, and technical capacity. For example, in late 1985 Kenya has around 1,000 development projects, including 139 in agriculture. Forty of the 139 are agricultural research projects or research components in agricultural and rural development projects. Imagine the frustration of the Director of Kenya's Agricultural Research Service as he tries to cope with the revolving door of expatriate researchers and the financial reporting requirements of 40 foreign aid-financed research projects. For more details on the shortcomings of piecemeal aid see Morss (15) and Eicher (10). It is also important for PVO's to keep in mind that annual per capita aid levels of $40 to $60 in some of the Sahelian states in West Africa are extremely high relative to aid levels in other continents. By comparison, India received

annual per capita aid of only $1.50 from 1951 to 1970. Although India's aid was large in absolute terms ($14 billion) over the 1951-70 period, per capita aid was small relative to current aid flows to Africa (13). Malaysia allocated around 25 percent of its public investment to the agricultural sector from 1971-1981 (11). Currently most African states are investing 7 to 12 percent of their public expenditure in the agricultural sector. There is no specific level of public investment in the agricultural sector that is optimal. But most knowledgeable experts agree that African states should increase the share of public investment from the present 7 to 12 percent to 12 to 20 percent over the next few years.

The role of foreign assistance in famine prevention in Africa is complex, highly political; it requires debate and some important changes. In my opinion, donors, large and small, bilateral and multilateral, do not have a credible plan to assist Africa in combating hunger and poverty in the 1980s and 1990s. Moreover, the U. S. Congress is not getting good advice on Africa. For example, the Office of Technology Assessment (OTA), the advisory office to the Congress, recently completed a shallow report (16) that counted all the trees in the forest but did not come up with a credible plan to address hunger and poverty in Africa. In many sectors--rainfed farming, irrigation and livestock--more aid cannot be absorbed with integrity given Africa's limited absorptive capacity, lack of profitable technical packages, project mode of delivering aid, and ineffective donor coordination. Donor attention should shift from short-term pricing policy to focusing on the prime movers of agricultural development as a policy package on a country-by-country basis. Each of these prime movers must be examined as part of a core investment package covering a period of 10 to 20 years.

It's time to jettison the donors' fixation on increasing the quantity of aid to Africa and refocus public aid and PVO assistance on increasing the efficiency of foreign assistance. As part of this process, the following problems should be addressed by PVOs and public aid agencies: absorptive capacity, indigenous scientific and managerial capacity, recurrent costs, standards of performance, donor coordination, and marshalling African support for the prime movers--the investments with 10 to 20 years gestation periods--of agricultural development.

SUMMARY

Africa's agragrian crisis is complex and it has been building up for several decades. Neither simplistic statements about external forces nor calls for open market, export-led growth, and increased foreign aid are the answers. The crisis is rooted in the neglect of agriculture during the colonial period and further neglect in the 25 years of

independence largely because of the dominance of imported models of development that gave priority to cement, shoe and beer factories, and hotels, and to the political realities of expanding highly visible social services: health, education and rural water supplies. Stop-gap measures have been tried--crash production campaigns and mass infusion of foreign aid--but these have not been effective. To address Africa's two core problems, one must turn to agricultural-led growth. But, based on historical experience in developing improved crop and livestock technology, a famine prevention strategy for Africa should be considered in no less than a 15- to 20-year horizon and should focus on the five prime movers of agricultural development as a policy package because each by itself is limited.

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