

Chapter 2
Prologue

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In view of two decades of acute and chronic food scarcities in much of Africa, and projections of a doubling of population in 25 years, the question arises whether Africa will ever be able to provide enough food for its people. The magnitude of the challenge ahead is reflected by one alarming trend: overall food production in Sub-Saharan Africa in the last decade has increased only about half as fast as population growth although the record is uneven, with food

surpluses existing in some areas. Food self-sufficiency has deteriorated in virtually every country (13). Twenty years ago Sub-Saharan Africa was a net exporter of basic food staples, exporting an average of 1.3 million tons a year between 1966 and 1970. By the mid-1980s the region was importing some 10 million tons per year (9). Cereal self-sufficiency alone has dropped from 94 to 82 percent in the past 15 years (14).

THE CRITICAL NEED FOR FOOD SECURITY

Lack of food self-sufficiency need not be a serious problem per se, so long as production of other goods and services provides adequate income to acquire food from elsewhere. Food security, not food self-sufficiency, becomes the key goal. Food security can be defined as access by all people at all times to enough food for an active, healthy life and it depends on both the availability of food and the ability to acquire it (16). Improving food security involves increasing food supplies in addition to increasing poor people's real income, thus giving them access to food in national markets or through imports. Simply ensuring adequate national production contributes little to food security if people lack the ability to purchase what they cannot produce themselves.

African economies are heavily dependent on agriculture. In most countries in Sub-Saharan

Africa, 70 percent or more of the labor force is in agriculture. Under these circumstances declining food self-sufficiency, as a function of declining per capita food production, is reason for concern. Most disturbing is the prospect that Africa's most vulnerable populations will become even more vulnerable and more Africans will be in this precarious position,

This report focuses on promising technologies to enhance low-resource agriculture in Africa and how U.S. assistance, with the support and direction of the U.S. Congress, can support African initiatives to meet food security needs. However, several issues that are not covered by this assessment directly and indirectly affect the African governments' ability to deal successfully with low-resource agriculture and other food security needs.

ISSUES BEYOND THE SCOPE OF THIS ASSESSMENT

Achieving food security requires solving a two-part equation, one of food production (the supply side) and one of the ability to buy food (the demand side). OTA's charge was to look at technology in support of food production in Sub-Saharan Africa, and thus this report focuses on the production side of the food security equation, Notwithstanding this emphasis,

OTA finds strong agreement with the suggestion that:

More research is needed on the demand (food access) side of the equation in light of the co-existence of malnutrition and food surpluses in the region. High priority food security research priorities are: marketing, trade, exchange rate policies, household food security

in low rainfall areas, the effects of market liberalization on the food security of various groups in society and research on institutional innovations that increase access to food (12).

Further, this report does not address many of the difficult challenges faced by African governments in balancing the needs of promoting food production with other development needs. Many governments face serious difficulties of providing basic city services under the pressure of the most rapidly growing urban populations of any region in the world (1). Many governments also will need to deal with concerns over an "urban bias" whereby food prices are kept artificially low in order to appease more politically vocal urban constituents, at the expense of rural food producers. Population and refugee problems are also serious in many areas. Degradation of the natural resource base as increasing numbers of Africans overwork the land or are forced to move onto increasingly marginal land is just one manifestation of these problems. Recent concerns of the potentially devastating impact of an AIDS epidemic in Africa (box 2-1) will also demand immediate attention and compete for scarce government resources.

Progress in developing Africa's low-resource agricultural sector will also be affected by international factors which African governments alone can do little to control. Countries in Sub-Saharan Africa suffered perhaps more than any other region as a result of global recession in the early 1980s. Beyond the obvious stress placed on funds for development assistance, was the serious impact of decreased international demand for Africa's exports.

Terms of trade have generally been declining for most African countries. Prices have fallen for most of Sub-Saharan Africa's major export products while, on balance, prices have risen for imports. Countries in the region are particularly vulnerable because export earnings depend on one or two commodities (e.g., coffee, cocoa, or cotton). The high level of diversity manifest in traditional African agricultural systems has never translated into the export arena. In fact, over the last several decades Afri-

can countries have become increasingly dependent on fewer commodities for export earnings (13). As with farming systems, one consequence of little diversity is increased vulnerability. Further, most of Sub-Saharan Africa's agricultural export earnings are derived from commodities with low price elasticity of demand. For a number of the most important export commodities, including coffee and cocoa that together comprise nearly half of the region's agricultural export earnings, increased export volume may actually reduce earnings. Thus emphasis on expansion of African agricultural exports without diversification is unlikely to greatly improve African export earnings (5).

Also troubling is that new biotechnological advances in industrialized countries could result in synthetically produced replacements for some of Africa's most important export commodities (e.g., cocoa). This could have devastating consequences for some African economies. Synthetic substitutes for cotton and rubber, and especially jute and sisal, already have taken a heavy toll. These scenarios present issues that developed and developing countries alike need to address.

Finally, serious concerns exist regarding Africa's external debt problems. The combined debt of Sub-Saharan African countries pales in comparison to that of other developing regions, especially when compared to those of countries such as Brazil or Mexico. However, viewed as a percentage of gross domestic product or when considering what proportion debt servicing represents relative to total export earnings, the figures assume much greater dimensions. For example, Sub-Saharan Africa's ratio of debt to total exports is significantly higher than that of developing countries as a whole (10). Particularly alarming are figures that show precipitous declines in the financial flows to the region and a net outflow of income (10). It is hard to envision how African economies can maintain the status quo, let alone progress, under such conditions. Considerable attention is now being directed to the situation but many proposals have yet to be acted upon (17).

Box 2-1.—AIDS in Africa: Will It Affect Agricultural Development?

“Imagine the AIDS epidemic if the disease were well entrenched in the heterosexual population, if the Red Cross didn’t screen the blood supply. If condoms weren’t available. And if most hospitals couldn’t test patients for the virus. Tragically, that’s exactly the picture [some experts] paint of Africa today” (2).

World Health Organization (WHO) statistics as of June 1987 show that in Africa 27 countries have reported 4,570 cases of AIDS. But this figure is the tip of an iceberg, reflecting the continent’s limited health infrastructure. WHO estimates that 20-35 percent of all patients in some hospitals have AIDS or AIDS-related diseases (7). Central Africa is the most severely affected, although adjacent countries in east and southern Africa are also caught in the epidemic. In an 11 nation strip from the Congo to Tanzania, an estimated 50,000 people have died from AIDS since the first confirmed appearance of the virus in the late 1970s. Up to 5 million people may be infected. Although estimates are somewhat uncertain, up to 99 percent of the people exposed to the virus can be expected to develop AIDS (15). This translates into several million deaths from existing infections alone (6,8).

Clinically, AIDS in Africa is no different than AIDS in developed countries: it is an invariably fatal disease, often characterized by a diarrhea-wasting syndrome, infections with organisms that normally do not cause disease, and cancer, such as Kaposi’s sarcoma. In Africa, one local name for the disease is “slim disease,” to describe the gaunt look of its victims. However, in Africa the male to female ratio of cases is 1:1. In developed countries, it is 13:1. In Africa the disease is transmitted predominantly by heterosexual activities, exposure to blood transfusions and unsterilized needles, and from mothers to newborns. Because sexual transmission is the dominant route of infection, the brunt of the illness is currently borne by people aged 20 to 49 (11).

It is impossible to predict the long-term economic and political impacts of the AIDS epidemic, or the impacts on agricultural development, but the selective involvement of so many young and middle-aged adults certainly opens the possibility for serious problems. One possibility in rural areas is that agricultural labor will shrink, and food production could suffer. As more of the economically productive members of society die, fewer resources will be provided for dependents such as young or very old people. This could create added burdens for governments and development assistance. In addition, Africa already lacks trained personnel in many fields, and AIDS could reduce the continent’s capabilities even further as it strikes the blue- and white-collar work force (4). At a different level of impact, the disease could make personnel from development assistance organizations reluctant to work in Africa, harm tourism, and restrict training opportunities for Africans (3).

Impacts may also be felt on public policy both in Africa and in the nations providing development assistance. AIDS is an expensive disease: the costs of caring for 10 AIDS patients in the United States (approximately \$450,000) is greater than the entire budget of a large hospital in Zaire, where up to 25 percent of the pediatric and adult hospital admissions are infected. The approximately \$60 million spent in the United States on blood bank screening in 1985 is many times greater than the entire health budgets of many African countries (11). As the costs mount, African governments may focus their limited resources on fighting the disease, and less may be available to fund other priorities such as agricultural development. Similarly, donor assistance may increasingly be focused on AIDS, leaving less for other work.

The impacts of AIDS will reach into all aspects of African society and for now the prospects for controlling the disease are limited. However, 45 African countries have developed plans to fight the disease. These include establishing a national AIDS committee, conducting an epidemiologic assessment, and instituting a surveillance system for AIDS and AIDS-related infections. Education is given a critical role. But many countries lack the resources needed to build and sustain these activities on a long-term basis, so assistance is likely to be required,

TOWARD ENHANCING AFRICAN AGRICULTURE

The general nature of the above discussion masks considerable variation in severity of these problems among African countries, as well as their potential for dealing with them. It does, however, provide a backdrop against which the challenge of promoting agricultural development in the region should be viewed. The intent is not to create an impression of hopelessness but rather to provide a broad perspective to the challenges ahead for Africa and stress the need to address many fronts when pursuing African food security needs. African farming systems need to be a focal point of progress, but factors operating at the national and international levels also have strong influence.

The path toward improving food security will vary by country, by region, and even by household. Establishing blue-prints for how to meet food security needs is not realistic—diversity in Africa is too great, resources too variable, and objectives too personal. Africa will need assistance and support in meeting the challenges ahead. But solutions must come from within Africa because it is ultimately the onus of African governments, and more importantly the African people, to support the improvements in agricultural systems.

OTA's analysis indicates that success is more likely if development assistance builds off existing agricultural systems instead of replacing them. The track record of development agencies in assisting rural communities in Africa is poor. This suggests a need for greater caution when suggesting what development assistance can offer. Perhaps even more important is the need for a greater appreciation for existing practices. These practices are an important source of information and material for future improvements, not simply obstacles to "modern" agriculture. Further, a careful understanding of the precarious livelihood of low-resource agriculturalists is needed. This suggests an ap-

proach to development assistance that does not expose them to even greater risk, given the tenuous base for survival on which many function. Their practices and institutions are a direct response to reducing their vulnerability—and understanding these responses should be a prerequisite to interfering with them.

To help resource-poor farmers and herders thus requires an improved understanding of the environment in which these systems operate. To date, development assistance has overemphasized solutions from the outside—failing to account for local conditions, perceptions, and resources. Increased attention will have to be paid to soliciting input and support from the people that development assistance is supposed to help. In a sense, the development process in support of low-resource agriculture will need to shift from a monolog, in which communication is one-way from development agent to farmer, to more of a dialog, where communication and exchange of ideas operate in both directions. Enlisting these resource-poor farmers and herders as full partners in the development process enhances the chances that development efforts are directed to the right set of problems and that they will be adopted and sustained. Further, low-resource agriculturalists have an intimate understanding of such basic, but poorly documented, factors as local soil types, indigenous plants and animals, pest control, and climatic patterns. For development assistance groups to ignore this important local information is at best wasteful and at worst a recipe for failure.

In this assessment, OTA outlines approaches and technologies that show promise to help the African farmers and herders involved in low-resource agriculture. The goal is to provide options for Congress which, if pursued, can help African farmers, herders, and fishers enhance low-resource agriculture, increase their food security, and improve their lives.

CHAPTER 2 REFERENCES

1. Adepoju, A. and J.I. Clarke, "The Demographic Background to Development in Africa," J.I. Clarke, M. Khogali, and L.A. Kosinski (eds.) *Population and Development Projects in Africa* (New York: Cambridge University Press, 1985), pp. 1-19.
2. Anonymous, *Johns Hopkins Magazine*, vol. 39, No. 4, pp. 15-16, August 1987.
3. Copson, Raymond W., "AIDS in Africa: Background Issues for U.S. Policy," Congressional Research Service Report for Congress, Library of Congress, Washington, DC, Sept. 15, 1987.
4. Dickson, David, "Africa Begins to Face Up to AIDS," *Science*, vol. 238, pp. 605-607, Oct. 30, 1987.
5. Godfrey, Martin, "Trade and Exchange Rate Policy: A Further Contribution to the Debate," Tore Rose (cd.), *Crisis and Recovery in Sub-Saharan Africa*, Development Centre of the Organization for Economic Cooperation and Development (OECD) (Paris: OECD, 1985), pp. 168-179.
6. Kingman, Sharon, "How Africa Must Live With AIDS," *New Scientist*, No. 1595, pp. 34-35, Jan. 14, 1988.
7. Mann, Jonathan, "AIDS Epidemiology, Impact, Prevention and Control: The World Health Organization Perspective," undated manuscript.
8. Nordland, R., R. Wilkinson, and R. Marshall, "Africa in the Plague Years," *Newsweek*, pp. 44-47, Nov. 24, 1986.
9. Pauline, Leonardo A., "The Evolving Food Situation," J.W. Mellor, C.L. Delgado, and M.J. Blackie (eds.), *Accelerating Food Production in Sub-Saharan Africa* (Baltimore, MD: The Johns Hopkins University Press, 1987), pp. 23-38.
10. Perez de Cuellar, Javier, *Africa: One Year Later*, Report of the Secretary-General on the economic crisis in Africa a year after the U.N. Special Session, October 1987.
11. Quinn, Thomas C., Jonathan M. Mann, James W. Curran, and Peter Piot, "AIDS in Africa: An Epidemiologic Paradigm," *Science*, vol. 234, pp. 955-963, Nov. 21, 1986.
12. Rukuni, M. and Eicher, C. K., "The Food Security Equation in Southern Africa," M. Rukini, and C.K. Eicher (eds.), *Food Security for Southern Africa*, Harare, UZ/MSU Food Security Project, Department of Agricultural Economics and Extension, University of Zimbabwe, 1987.
13. Singh, Shamsher, *Sub-Saharan Africa: Synthesis and Trade Prospects*, World Bank Staff Working Paper No. 608 1983 (Washington, DC: The World Bank, July 1983).
14. U.N. Food and Agriculture Organization U.N.(FAO), *Atlas of African Agriculture* (Rome: FAO, 1986).
15. Specter, Michael, "AIDS Virus Likely Fatal to All Infected," *Washington Post*, June 3, 1988, pp. A1, A14.
16. World Bank, *Poverty and Hunger: Issues and Options for Food Security in Developing Countries*, A World Bank Policy Study (Washington, DC: The World Bank, February 1986).
17. World Bank, *World Dept Tables*, vol. I. Analysis and Summary Tables, 1987-1988 Edition (Washington, DC: The World Bank, 1988).