Africa: Addressing Growing Threats to Food Security

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ABSTRACT Africa remains the only region in the world where the number of hungry people will still be on the increase in 2020, and the number of malnourished children will have increased correspondingly. In this report I have acknowledged the general public policy trends across Africa in terms of macroeconomic policy reforms and political transitions. These welcome trends have to still produce stable nations and economies. Although economic development is the long-term solution to Africa’s challenge on hunger and poverty, this will take time. And it follows therefore that African nations have to pursue policies and strategies that promote long-term growth while at the same time offering short-term safety nets for the poorest of the poor. The growth and development strategy will have at its core the need to increase significantly the levels of public-sector investment in agriculture and rural development and to give top priority to the commercialization of smallholder agriculture so as to increase productivity and competitiveness. But food security at the household level is ultimately a balance between availability and access, and in this regard governments need complementary food security policies that increase the probability of food access by the vulnerable groups. J. Nutr. 132: 3443S–3448S, 2002.

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When in 1985 the international mass media shocked the unsuspecting world by unveiling the Great African Famine, some commentators were not as surprised because the chronic decline of agriculture in Africa had been building up for at least two decades. The dramatic irony in that year was that India crowned its transition from being an international food beggar to being a food donor by granting 100,000 tons of wheat to Ethiopia. For Africans and African scholars, the question is not how to replicate the Green Revolution in Africa but rather how to understand the preconditions for an African green revolution (1).

One of the most serious postindependence errors of judgment by African nations is the lack of political wisdom to give priority to agriculture and rural development. The needed long-term public sector investments into this key sector are still lacking. As a result Africa today is the only remaining region in the world where the number of the undernourished will still be on the increase. Today, 200,000 Africans are hungry and malnourished, and this includes 31 million under the age of 5 (2). The number of hungry and malnourished Africans is expected to increase to 300 million by 2020. The characteristics of hunger in Africa can be summarized as follows:

- Poverty is the main cause of hunger, and income poverty is at the core.
- Lack of political voice on the part of the poor and the farmers.
- Few options for coping strategies and social security.
- Most hunger is chronic, but civil war and natural disasters escalate acute or transitory food insecurity.
- Women and youth (<5 years old) are most vulnerable.

The chronic inability of smallholder farmers and rural entrepreneurs to have their economic interests articulated in the political process is cause for serious concern for Africa’s future. This report is therefore premised on a perceived need to deal with issues of agricultural development and food security in a broad context. Moreover, issues of food security smallholder agricultural development can no longer be divorced from issues of democracy, politics and governance. In addition, a central premise to this paper is the need to intensify the search for workable solutions to increasing the productivity and competitiveness of African agriculture.

Major problems facing the food and agriculture sector in Africa

Food production-population imbalance. Rapid population growth is increasing the pressure on food supplies and the natural resources base, including fisheries, fuel wood and grazing land for wildlife and livestock. In many African states, growth in population and incomes will demand that food supplies grow at 4–5%/y, an awesome task in the light of historical evidence. For example, the few countries achieving these rates of growth of food production have brought large
areas of idle and undercultivation and/or intensified irrigated production. Moreover, few countries have achieved, and sustained, 4–5% annual growth rates for the agricultural sector as a whole for a decade or longer. For example, from 1880 to 1960, the annual compound rate of growth of agricultural output was 1.5% in the United States and 1.6% in Japan. In short, rapid population growth necessitates that expansion of efficient food production be one of the cornerstones of food security strategies in Africa. Food aid can help to fill the food gap as it did in India for 15 y, from 1956 through 1971. In the final analysis, however, each African state must develop a cost-effective strategy to ensure food availability through local production, storage and trade.

**Lack of employment in rural areas.** On average, 7 of 10 people are living in rural areas in the region. The majority of the people will still be living in the rural areas by 2020, because of the inability of the industrial and service sectors to generate adequate jobs. In most low-income countries in Africa, the labor force in agriculture has fallen only by a single digit in percentage over periods of up to two decades, with the percentage still remaining above 60%. Rural employment generation will be as important a challenge in the twenty-first century as expanding food production had been during the twentieth century. Governments have to devise rural development programs that can fulfill the triple objectives of providing jobs, increasing the purchasing power to acquire food and developing rural infrastructure. Close cooperation between industrial and agricultural planners is required to develop policies and programs that concentrate on increasing the rate of agricultural growth and spreading employment opportunities throughout the rural economy.

**Household food insecurity.** Given that 200 million Africans are hungry, it is clear that a food security strategy has to address household-level food production and investment in food production and storage. These, however, are essential but not sufficient vehicles for solving household-level malnutrition and household food insecurity problems. Most hungry Africans produce, acquire and consume food within a rural family/household context. The reduction in poverty is a central part of a strategy to resolve food insecurity and malnutrition. Rural income and employment generation, food aid and public feeding and public works programs are important components of strategy to tackle malnutrition and food insecurity among the poor, the underemployed and the sick.

**National and regional food insecurity.** Changes in the world food economy and international capital markets dramatically modified the need for Africa’s agricultural strategy to be ultimately modified in the context of changing international realities. National and regional food insecurity can originate from drought and national, regional and international economic forces, including the following:

- Natural disasters such as drought, floods and disease and pests
- Blockages and disruption in transport routes and shifts in international prices of food imports and export crops
- Civil war and unrest

Because African economies are open and heavily dependent on international trade for food imports, such as wheat, and for exports, such as beef, cotton, coffee and tea, it follows that national and regional food insecurity can originate in sudden and unpredictable shifts in commodity prices and concurrent increases in foreign exchange requirements for food imports. Research on international commodity markets is a crucial input into national and regional food policy analysis. The challenge is to design cost-effective national and regional food security policies to combat a given level of risk associated with drought, pests, such as locusts, transport disruption and international price movements. To anticipate rather than respond to changes in the world food economy, Africa will require assistance from its cooperating partners to help increase its policy analysis capability as part of the strategy to develop local capacity in economic management.

**Environmental degradation.** Evidence from a wide range of scientific studies indicates that sustained overuse of biological systems can lead to a cascading effect that is difficult to reverse. The loss of topsoil and tree and grass cover from increasing human and livestock pressure is now a fact of life in the region and in other parts of Africa. For example, livestock numbers in Africa have increased 75% from 1950 to 1983. In a number of African countries, fuel wood consumption is now running far ahead of tree growth. There is, therefore, a need to address the problems of environmental degradation in the region. There is a need to implement measures to preserve natural resources and a healthy environment. But these measures require sound economic analysis and close cooperation between specialists in ministries of natural resources and ministries of agriculture. Conservation within the region is faced with the following priority problems: reduction in quality and quantity of agricultural lands and grasslands, accelerated soil erosion and land degradation, overgrazing and desertification, extinction of species, subspecies and varieties, loss of support systems of fisheries and wildlife and inadequate institutional and operational mechanisms essential for land use planning.

**Recent trends in the performance in African agriculture**

Because the performance of agriculture is key to (Sub-Saharan) Africa’s economic future, scholars and observers are keen to detect any positive upward trends. In general, however, agriculture is still in the doldrums, with prospects for greater growth in the future. Before examining the regional trends, a number of Sub-Saharan trends will be noted. Africa is still struggling with its agricultural performance in terms of production, food security and export performance. Production still suffers from a lack of new sources of growth as most growth is still from opening up new land. Yields have hardly improved. Africa continues to be food insecure, and Africa will continue to rely on handouts and commercial food imports. Food prices in Africa continue to rise at fairly high rates in some of the countries. The food price index has soared almost fourfold from 100 in 1987 to 289 in 1996. The variation is considerable, with the more desperate cases being Zambia (40,200), Malawi (1,226), Ghana (980) and Zimbabwe (800). During this same period, the value of food imports into Africa has increased from U.S. $4.2 billion to U.S. $7 billion. Total cereal production increased from 62.7 thousands of metric tons to 78.8 in 1996; this represents ~2.6% growth per annum. Meanwhile the total area under major crops has increased from 139 million hectares in 1987 to 160 million hectares in 1995, or 1.7% per annum. Production increases are therefore largely from increases in area under cultivation rather than yield increases. Farm yields are still low as compared to Asia and Latin America. For instance, maize yields between 1993 and 1995 averaged 1.2 tons per hectare in all of Africa (3). Between 1985 and 1995 growth in area under maize averaged 1.3%/y, production increased by 0.7%/y and yields declined at a rate of 0.6%/y. As Africa continues to struggle with food production, there has emerged an upward trend, although small, in cash and export crop production. In general, Africa has had a poor export performance and is unable to regain lost markets or penetrate new ones. Examining recent performance of agriculture in the three major regions will show these trends
and also indications of future prospects. In general, smallholder farmers are efficient producers in terms of costs of production as well as savings on exchange. This potential is, however, not being put to better use as other major constraints hinder the participation of smallholders in lucrative markets.

Factors affecting performance in terms of productivity and competitiveness

The major factors affecting the performance of African agriculture can be grouped into four categories: policy environment, institutions, technology and infrastructure. Africans have generally not invested adequately in all four areas, although the last couple of decades have seen a major emphasis on policy reforms. In this section, each of these areas is discussed to establish status and future implications.

The policy environment. Policy environment refers to a number of aspects of which the following are a priority:

- Good governance and social/political stability
- Macroeconomic stability, pricing, and marketing policies
- Land tenure and property rights
- Regulatory and legal requirements, and their implications on efficiency and cost, and other “transaction costs”

This includes quality standards, quarantine and sanitary issues and ability to meet international requirements.

Africa has seen considerable progress in the areas of macro and sectoral reforms. There has been substantial market liberalization in Africa since 1985, particularly at the macro level. The aggregate result of most of these reforms is still in question. In general, reforms have had a supply response for export commodities with insignificant response for food crops. Political reforms have taken root, with a first generation of democratic states experimenting well with this multiparty model. Political reforms have included both decentralization and an increased role for civil society, including nongovernment organizations (NGOs) and independent farmer organizations. It can still be argued that Africa benefits least from the fruits of globalization, but Africans are increasingly pragmatic about the benefits and challenges of globalization, and the new New Partnership for Africa’s Development experiment is testimony to the desire for a place on the global stage. Because of the early stages of market development, Africans are less prepared to meet the critical opportunities and pitfalls that globalization offers; increasingly tight product specification for agricultural and nonagricultural products has been brought about by the greater role of niche markets and desire to build brand loyalty. This means that is international companies that buy and market products are getting increasingly involved in tightly coordinating production and marketing chains—rise of both private and International Organization for Standardization standards, and so on. If Africa is to participate in this global market for higher-valued specific products (as opposed to generic commodities), Africans need more sophisticated management and greater human capital.

Africa is facing up to the major challenge of hunger with a backdrop of mounting challenges. For a start, Africans face a decline of domestic and foreign resources for the agriculture and food sectors. Human immunodeficiency virus/acquired immunodeficiency syndrome is reducing population growth, increasing dependency, reducing the stock of high-powered manpower and reducing the capacity of families to work farms and produce food. Africa is also still behind with investments in information technology. The debt burden is also another major problem within the sphere of broad macroeconomic challenges. Last but not least is the growing threat of global climate change. Even though little is known and solutions still require considerable amounts of research, African countries already have an unprecedented level of natural disasters, in particular floods and droughts, that worsen the levels of hunger and human suffering.

Institutions serving farmers and agriculture. Africa’s farmer support systems that include extension/training, research, credit and private-sector supply of inputs for smallholders are in serious disarray. During the past decade, donor-initiated economic policy reforms have failed to achieve the desired increase in aggregate agricultural output in many countries in Africa. There is now ample evidence that these reforms must be complemented by indigenous efforts to revitalize farmer support institutions. There is also a growing awareness that an array of public and private institutional models is needed in a continent embodying 47 countries, seven colonial histories and diverse political ideologies, ecologies and resource bases. Since independence in most African countries, agricultural institutions have been in transition (4). Since independence, African managers have been forced to grapple simultaneously with five complex transitions that ultimately will influence the productivity and competitiveness of African agriculture:

- Managerial transition from colonial to local administrators
- Scientific transition from expatriate to indigenous scientists
- Financial transition from dependence on financial support from colonial governments and large-scale farms to mobilizing support from governments and donors
- Political transition from commercial farms to smallholders in dual agrarian societies
- Transition from public to private institutional forms, and new forms of public/private/nongovernmental organization partnerships

The development economics literature provides little guidance on institutions in transition and how to develop effective smallholder-driven farmer support services. From industrialized countries, North (3) stresses the importance of “time” in institution building. Bonnen (6) underlines the time dimension by chronicling the U.S. experience in pragmatically piecing together a system of interactive development institutions over a period of 60 years, 1860–1920. The induced innovation literature of technology development uses a comparative statistics framework in which farmers “press the public research systems to develop the new technology and also demand that agricultural firms supply modern technical inputs, and perceive scientists and science administrators respond” (7, p. 57).

However, smallholders in most African countries have historically been politically marginalized; today they are so widely dispersed and unorganized that they are simply not in a position to “press the public research systems to develop new technology.”

Security of land tenure and property rights. Land tenure rights of people is an issue that is assuming greater and greater significance in every African country, and this issue will almost certainly be a most burning one in the twenty-first century. African governments have to appreciate that transforming agrarian systems into urban-industrial economies invariably requires fundamental changes in many institutions, including those of land tenure. The distribution of landownership is a major factor that influences this transition from one form of social and political order to another. Moore (8) quoted in Dorner (9) sums up the experience of all industrializing countries in this separation of a substantial segment of the ruling classes from direct ties to the land. There is growing evidence that agricultural growth and efficient management of
Natural resources are dependent on the political, legal and administrative capabilities of rural communities to determine their own future and to protect their land and land-based natural resources and other economic interests. The lack of this power (or lack of democracy) is translated into insecure tenure rights; abuse of common property and resources; disenfranchisement of rural people, particularly women; and the breakdown or weakening of rural economic institutions. The management of the environment and the effectiveness of community-based natural resources management are all dependent on clearly defined land rights and support systems for rural communities.

**Social capital and physical infrastructure.** Compared with other regions of the developing world, much of rural Africa is characterized by dispersed rural population and low population densities (10). The center-periphery model described by Friedman (11) is characterized as a colonial relationship in which the principal factors of production, including raw materials and agricultural goods, are drawn from the periphery "rural" to the center "urban," where they are used to produce higher valued manufactured goods. Over time, infrastructure is concentrated in urban areas and availability declines in rural areas. Rural roads in Africa today are less developed than they were in India at the beginning of the green revolution (12). A puzzling question is, for instance, why Africa, despite recurring droughts, has not developed an innovative and locally appropriate means of small-scale irrigation that supports rain-fed agriculture. The irrigation infrastructure in Africa is thin and its role in a future agricultural revolution, albeit being small in area, can be significant in terms of productivity increases, diversifying crops into higher value ones and supplying lucrative markets at their time of shortage.

**Technology to transform traditional agriculture.** Research and development and industrial capacity are needed for the manufacture of "embodied" technology such as machinery, seeds, fertilizers, chemicals and materials. Disembodied technology, on the other hand, refers to knowledge, techniques and management practices that increase productivity and largely transmitted through extension and advisory services.

Energy and power for smallholder farmers represent a major drawback to productivity. The continued decline in draft animals, coupled with a lack of appropriate small machinery, means that farmers yields are held back.

Because most of the increase in production is from new areas opened up, as opposed to technologic breakthroughs, this means greater pressure on the environment.

**Financial intermediation through bridging savings and credit.** Public-sector credit programs have collapsed in Africa, and the commercial banks have not really moved into rural areas to service that market. The debate regarding farm credit in Africa therefore joins the traditional debate regarding microfinance for rural small and medium-scale enterprises. Too little capital is flowing into the rural areas and microenterprises, and microfinance initiatives cannot fill the gap. Microfinance also is largely subsidized by other institutions and unsustainable. Microfinance efforts are disconnected from the mainstream money markets. Mainstream money markets are conservative, and there is reluctance to learn new rules and values in working with poor people and communities. The global paradigm shift taking place is well described by Marguerite Robinson of the Harvard Institute for International Development. Although she focused on the Asian experience, we can apply the concepts to our understanding of what is happening in Africa. The shift is basically from the preoccupation with "credit delivery" during the 1960s, 1970s and 1980s to the current focus toward holistic "financial intermediation." This implies a shift from subsidized programs to self-financing programs.

**Opportunities for African agriculture**

In terms of physical expanse, Sub-Sahara Africa covers a geographic area that encompasses diverse climatic characteristics and harbors nine major agroecologic zones. This diverse environment lends itself to diverse sources of growth and development. African countries will have to rebuild their agricultural economies in a comprehensive fashion that leads to greater and broader economic development. To achieve this noble goal, nations have to identify opportunities for growth in three areas: food crops, domestic industrial crops and export high-value crops.

Trends and possibilities include:
- The emerging maize and cassava green revolution
- Promoting commodities with strong vertical integration prospects for the domestic industrial market
- Targeting niche markets for smallholder high-value, export-oriented production, processing and marketing

**Measures to be taken to improve productivity and competitiveness of African agriculture.** Why have the food and agriculture sectors of Africa done badly during the past three decades? There is now sufficient evidence to suggest that Africa, compared with, for example, Asia or Latin America, is at the early stages of human, scientific and institutional development. Looking back to the beginning of Africa's independence in the late 1950s and early 1960s, African nations, with the assistance of Western donors and the counsel of Western economists, gave priority to promoting basic industries and taxing agricultural exports to finance industrialization and urbanization (13). This was basically an attempt to skip stages of development and "catch up" with industrial nations. Africa is today paying a price for not investing in the prime movers of agricultural development. Despite the urgency of Africa's agricultural crisis, there appears to be no shortcuts to intensifying, on a long-term basis, investment in the prime movers of agricultural development. Five basic prime movers have to work in tandem to achieve sustainable agricultural development:
- New technology produced by public and private investments in agricultural research
- Human capital in the form of professional managerial and technical skills produced by investments in schools, agricultural colleges, faculties of agriculture and on-the-job training and experience
- Sustained growth of biological capital (genetic and husbandry improvement of livestock herds, crops, forests, plantations and so on) and physical capital investments (large and small dams, irrigation, grain stores and roads)
- Improvements in the performance of institutions such as marketing, credit, research, extension and land reform
- Favorable economic policy environment (14)

Worldwide experience has shown that no single prime mover, such as new technology or higher prices, can increase agricultural production and sustain it for any period of time. Another significant characteristic of prime movers is their long gestation period (10–25 y). Hindsight tells us that during the past three decades, African nations and donors should have pursued development rather than growth strategies. The more current experience with structural adjustment programs in Africa also suggests that attempts to stabilize economies without a deliberate policy to bolster long-term investments into prime movers will not "get agriculture moving." The initiative
to strengthen Africa’s human capital and institutional base for smallholder agriculture must emerge from Africa. The routine tailoring of African strategies to changing fashions of donors over the past 30 y must be put to rest.

The discussion on Africa’s recent agricultural performance has shown a most disturbing trend that has to be addressed. Africa’s ability to produce food efficiently and cheaply is not improving and at worst deteriorating. There is a stronger hint of responsiveness to cash and export crops. Africa needs a plan to take advantage of this trend so that trade is not simply as extractive as it was during colonialism, but that, indeed, value is added in incremental steps that nourish the village economy and domestic industry. Such planning includes the need for an infrastructure, input delivery and marketing system built for competitiveness domestically as well as internationally. Africa’s future strategy should be three-pronged as follows:

- First, accelerate technical change for smallholders in food staples, in particular, maize, cassava sorghum and millet.
- Second, commercialize smallholder agriculture. There is the need to develop and invest in vertical integration of crops and livestock products with processors and market- ers as a source of growth and diversification into indus- trial crops such as oilseed crops, green vegetables, sugar- cane, cotton, poultry, pigs and so on.
- Third, expand on key export Arabica coffee, cocoa, tea, dairy and cut flowers. This requires accessing assets, information, services and markets through more effective local government, private sector, farmer interest groups and a more vibrant rural financial market.

The food security equation and a need for progressive food policies

African nations need to put in place food policies that are complementary to the overall economic policy as well as the agricultural policies. This is important because most agricul- tural policies in Africa are focused on food production and not consumption. In addition, food policies have to be anchored in economic development policy and strategy because this has to be part of an overall strategy for fighting poverty. In summary, food policies have to balance the food security equation at household and national levels. Food security has two essential elements: food availability and food access (15). Food avail- ability can be achieved through domestic productivity, storage, trade, food aid and so on. Access to food is achieved through home production, purchasing on the market and food transfer programs. In Africa, it also helps to define food security at three levels: household, national and regional. Research on food security in Africa has led to some general observations (16):

- Poverty is the major cause of hunger, malnutrition and environmental damage.
- The relationship between hunger and economic growth is important in developing food security policy. This is because although economic growth is the ultimate cure for poverty and hunger, it will take a long time to achieve such levels of economic growth. African governments in the short run have the duty to ensure that nationals are not starving needlessly. In this regard, the problem of hunger is not confined to the agricultural sector alone. Rural nonfarm employment is a vital source of the ability to acquire food. There also is increasing evidence that as rural infrastructure and markets develop, cash crops in- crease household incomes and their ability to acquire food.
- Rural households are not homogeneous entities. Even in high potential areas and in good agricultural seasons, hunger and malnutrition may persist—chronic food insecurity.
- Although food crops are a major source of income in most areas studied, remittances, livestock sales and wages from nonfarm labor are important income sources. The level and composition of these sources vary greatly be- tween households and regions.
- Marketed surplus varies considerably between years, re- gions and households. In favorable rainfall years, mar- keted surpluses stretch the capacity of government and private trades to store and dispose of these surpluses.
- In drought-prone regions, government food for work and other food transfer programs are an important source of food security for the most at risk.
- Unreliable rainfall is a major source of risk. Interyear yield variability is extremely large, even though farmers have adopted coping strategies such as staggered planting and intercropping to reduce risk.
- Household labor is a major production input. Labor is (paradoxically) in limited supply, given the demands of improved farming methods. Compared with urban wages, returns to labor in agriculture are low.
- Market controls and restrictions more often than not depress producer prices, hinder the movement of grain and discourage rural traders.
- Parastatal marketing is geared to purchasing and storing food centrally, but it is ineffective in distributing food to deficit regions and households.
- At the regional level, intraregional trade is negligible, mainly because of nontariff barriers. This means that even if the region is self-sufficient in aggregate terms, some nations still face severe food insecurity problems.

CONCLUSIONS

Africa remains the only region in the world where the numbers of hungry people will still be on the increase in 2020, and the number of malnourished children will have increased correspondingly. In this report, I acknowledged the general public policy trends across Africa in terms of macroeconomic policy reforms and political transitions. These welcome trends have to still produce stable nations and economies however. Although economic development is the long-term solution to Africa’s challenge on hunger and poverty, this will take time. And it follows therefore that African nations have to pursue policies and strategies that promote long-term growth while at the same time offering short-term safety nets for the poorest of the poor. The growth and development strategy will have at its core the need to increase significantly the levels of public-sector investment in agriculture and rural development and to give top priority to the commercialization of smallholder agriculture so as to increase productivity and competitiveness. However, food security at the household level is ultimately a balance between availability and access, and in this regard governments need complementary food security policies that increase the probability of food access by the vulnerable groups.

LITERATURE CITED