

**ASSURING FOOD AND NUTRITION SECURITY IN AFRICA BY 2020:
Prioritizing Action, Strengthening Actors, and Facilitating Partnerships**
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SUMMARY NOTE

**Achieving Sustainable Agricultural Growth in Africa:
Lessons from Experience**

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Many useful productivity-enhancing agricultural technologies have been generated by national and international agricultural research institutes over the past two decades. However, efforts to introduce and diffuse new technology, by and large, have been woefully inadequate. African governments, on average, only allocate 5 percent of public expenditure to ministries of agriculture, despite having 60–70 percent of their population in rural areas. This lack of political will, national and international, to develop African agriculture is a major difference distinguishing Africa from the Green Revolution period in Asia a generation earlier.

Need to Restore the Natural Resource Base

Environmental degradation has greatly affected African agriculture over the past three decades. Increasing population pressure and long-term nutrient depletion have overwhelmed traditional systems of shifting cultivation to restore or recycle plant nutrients. Today, continuous cropping is increasingly the norm, without viable systems to restore soil fertility. This has resulted in a progressive—and now often dramatic—degradation of the soil resource base.

Biologically, it makes no difference to the plant whether the plant nutrient it consumes comes from a bag of fertilizer or from decomposing organic matter. Erroneous views about what constitutes sustainable agriculture have polarized discussions about the need for organic and chemical fertilizers. This has hindered African governments in setting the right priorities for agricultural development. The soil fertility debate should be centered on economic issues, such as cost and risk, and less on biological arguments—where either inorganic or organic nutrients can safely supply needed plant nutrients.

Under reliable moisture conditions in environments with high production potential, chemical fertilizers are the best option for increasing yields. In low-moisture, marginal rainfall conditions, chemical fertilizers are still needed (particularly phosphorus and sometimes potassium) but at reduced levels. Rotations of grain crops with nitrogen-fixing leguminous plant and tree species may be the best bet technologies.

Agricultural and Food Systems

A broader and more-integrated development perspective is needed for African agriculture. Focus on the entire farming enterprise—food and cash crops, livestock, and value-added processing—is

needed. Livestock often is the most important income generator for the farm family. Greater attention must also be given to post-production market linkages—especially to grain markets and agro-industrial food processing, which also offer off-farm employment opportunities.

Substantially greater investments in infrastructure—roads, electrical power, water—underlie all other efforts in rural and agricultural development. Such investments will help ensure national food security. Over time, greater prosperity in favorable environments will also help generate the resources needed to pay for the development of marginal environments. Unless Africa’s infrastructure is improved, there is little hope for real progress in making agriculture the engine of economic growth it can and must become, or in meeting the Millennium Development Goals.

To serve both lower- and higher-risk production environments and different wealth categories of smallholder farmers, researchers must generate a range of technologies that farmers can understand and afford, and where farmer-to-farmer diffusion is possible. For the high-potential areas, government investments should promote intensive production systems. In low-yielding marginal environments, technologies attention should focus on protecting and enhancing the natural resource base. Soil conservation, water harvesting and drip irrigation, rotations with legume crops and nitrogen-fixing tree species, and mixed crop-livestock systems are particularly useful.

There is nothing “magic” in an improved variety alone. Without adequate plant nutrition, timely planting and correct plant densities, sufficient moisture and sunlight, and protection against diseases, insects and pests, yield impact will not be great. Multiple cropping systems integrating cereals and root and tuber crops with grain legumes (groundnuts, cowpeas, pigeon peas, soybeans, dry beans, and chickpeas) are very important, both for soil fertility and pest management. Increased crop production also provides the feed and forage needed for expanded livestock operations for milk, egg, and meat—enterprises that can substantially increase smallholder incomes.

Good opportunities exist to increase the nutritional qualities of basic foods in Africa. The International Wheat and Maize Improvement Center developed quality protein maize (QPM) through conventional breeding. This new type of maize looks and performs the same as normal maize, but possesses double the levels of lysine and tryptophan, two of the essential amino acids needed for healthy growth which are deficient in normal maize. QPM can contribute significantly to improving nutrition among poor people, especially those who consume maize as a staple food. It has been shown to markedly improve the nutrition of infants, when used instead of normal maize in weaning foods, as well as of pregnant or lactating females. QPM is also a superior livestock feed, especially for monogastric animals such as poultry and pigs. Around 350,000 ha are planted to QPM varieties in a half dozen countries. SG 2000 has been actively involved in the promotion of these varieties.

Conservation tillage holds considerable promise for African farmers. This technology involves a number of actions all directed toward minimizing disturbance of the soil and judiciously managing crop residues that are left on the surface to decompose. Moisture and soil conservation are substantially improved with conservation tillage. Generally, one or more herbicides are used to suppress weeds, although other methods (cover crops and mulch) are also possible to control weeds. Conservation tillage significantly reduces labor because conventional tillage and weed control practices are eliminated or substantially reduced. The labor freed from traditional hand-hoe operations provides rural households with new opportunities. Children can attend schools, women can diversify their moneymaking activities and engage in other enterprises, and the family can opt for cultivating more land. Conservation tillage is also particularly welcome in households managed by women or elderly people that have been affected by the HIV/AIDS pandemic.

African governments have yet to fully embrace biotechnology and all the benefits that it can bring their farmers. Africa has already missed the industrial revolution, the tractor and fertilizer revolution, and as things stand today, there is a risk it will miss the biotechnology revolution as well. This would be tragic, since Africa, with the largest proportion of its population engaged in agriculture, has the most to gain from biotechnologies that protect crops from disease and insects, increase yield dependability, enhance nutritional quality, and lower production costs. Dramatic cost and yield benefits

are being obtained with GM Bt-cotton, which resists several insects and allows for substantial reductions in pesticide use. In the future through biotechnology, food crop varieties can be fortified with various micronutrients, (e.g. white-grain QPM could be bio-fortified with vitamin A).

Making Smallholder Markets Work

Raising agricultural production is a hollow achievement if farmers do not have reliable markets that can absorb surplus production at fair prices. Production and markets must go hand in hand. Indeed, increased and more stable agricultural production systems are prerequisites for development of agroprocessing industries, which are crucial for adding value in agriculture and feeding growing urban populations. Also, with increased agricultural production, African governments must opt for import-substitution schemes and—with donor support— progressively use domestically or regionally produced foods to provide food-based safety nets. Last, rural markets need to be made functional and more competitive. At present, heavily on market forces in an environment that lacks infrastructure and has limited human resource capacities to maneuver. It also denies the capacity and the role of the state and political institutions to plan for the transformation individual grain traders often can exert monopolistic control over grain purchasing in small farming communities.

The effects of industrial nations' trade barriers and agricultural subsidies on Africa also need to be addressed. The barriers OECD countries have erected to importation of crops such as cotton, sugarcane, and tropical fruits and vegetables, in which African nations have a comparative agroecological advantage, are especially pernicious. In addition, developing nations have a right to seek redress from OECD countries for their subsidies on cereal grains, which promote overproduction, depress world prices, distort local markets and discriminate against African farmers.

Finally, farmers in Africa must have secure access to the land resources if agriculture intensification is to be accelerated. This is especially true for women who in most countries are primarily responsible for food production yet are often denied secure access to land under customary laws as well as in the formal legal system. Access to land and security of tenure are two necessary conditions to encourage farmers to invest in improving the soil resource base for sustainable agricultural intensification. Farmers also require access to appropriate production inputs and support services such as good quality seed, fertilizers, credit and other inputs as well as provision of information by the research and extension systems and training.

Helping the Food Insecure

Of the roughly 800 million hungry people, one fourth lives in Sub-Saharan Africa. Of these 200 million hungry Africans, three fourths live in rural areas, and one half in lands that are marginal for agriculture, either because of agroclimatic factors or extreme remoteness, or both.

FAO has argued convincingly for a “twin-track” anti-hunger strategy to achieve food security for these poor people. One track calls for accelerated development of commercial agriculture and rural economies. The other track calls for safety nets programs to feed those who are too weak or too poor to feed themselves. There are important synergies to exploit between the two tracks of this anti-hunger strategy.

Food-based safety-net programs can enhance food security and simultaneously expand domestic markets, provided that greater priority is given to purchasing domestically produced grain. Totally free aid should be avoided except in extreme situations to save lives. Programs such as primary school lunch programs and food-for-work rural development programs (infrastructure, watershed reclamation, reforestation, etc.) should be promoted, both to cater for chronically food-insecure segments of the population (e.g., AIDS widows and orphans, the aged, and malnourished children) and to help stimulate markets for domestic agricultural production.

African governments should also develop mechanisms (largely managed by private sector) for purchasing more of surplus production to create buffer stocks, which can serve as strategic reserves for feeding victims of extreme events, help temper the large seasonal grain price swings that occur in

unmanaged grain markets, and support expanded social safety net programs. Careful and transparent management of buffer stocks is a challenge that will require the effective collective action of private traders and local and national government, as well as inter-regional cooperation.

New Partnership for Africa's Development (NEPAD)

African Heads of State have repeatedly said that they want to see more vibrant forms of agriculture, one that drive the overall economy and build more prosperous rural sectors. Most Africa governments want to give first priority to development of their higher-potential areas. On the other hand, donors want to see much greater attention to poverty and hunger reduction, especially among the poorest farmers in the most degraded African landscapes. In the end, accelerating progress in meeting both objectives is important for Africa's future.

Agriculture is a top NEPAD priority. A Comprehensive Africa Agriculture Development Plan (CAADP) has been formulated, with more than 30 programs and projects built around four pillars:

- Land and water reclamation and management,
- Infrastructure and markets,
- Food production and hunger reduction, and
- Institutional capacity building, especially in research and extension.

The CAADP calls for upwards of US\$300 billion in agricultural and rural development investments over a 15-year period, with African governments increasing national contributions to the overall development budgets by 50 percent.

NEPAD expects the international community to support Africa's plan for self-development and not to prescribe a plan for Africa. The donor community expects African governments to be much more mindful of the governance process, meeting a higher standard of performance than in the past.

Note: This note has not been edited. The views expressed in this summary note are those of the author and are not necessarily endorsed by or representative of IFPRI or of the cosponsoring or supporting organizations.