

Chapter 2

Evaluation Highlights

- Because of Africa's agro-ecological diversity, climate variability, poor soils, and limited irrigation, development of African agriculture is a complex challenge.
- The strategy for agricultural development in Africa will need to be based on a recognition of the Region's particular characteristics.
- If improved seeds, water, infrastructure, and credit extension, among other measures, are made available at the same time or in optimal sequence, rapid growth in agricultural incomes is achievable in Africa.



Minibus piled high with goods and animals, Burkina Faso. Photo by Curt Carnemark, courtesy of World Bank Photo Library.

African Agriculture and the Bank

This section provides a brief background to the agriculture sector in Sub-Saharan Africa, followed by an examination of the Bank's strategic approach for development of the sector. It also identifies the main constraints to agricultural development in the Region.

The Agriculture Sector in Africa

Agriculture in Africa is primarily a private family activity, carried out largely by smallholders. Women provide about half of the labor force and produce most of the food crops consumed by the family. In some countries women's share in agricultural labor is even larger. In the Republic of Congo, for example, 70 percent of those involved in food crop production are women. While agricultural output is growing in Africa, labor productivity in the sector has been low and stagnant over most of the past two decades (World Bank 2002a).

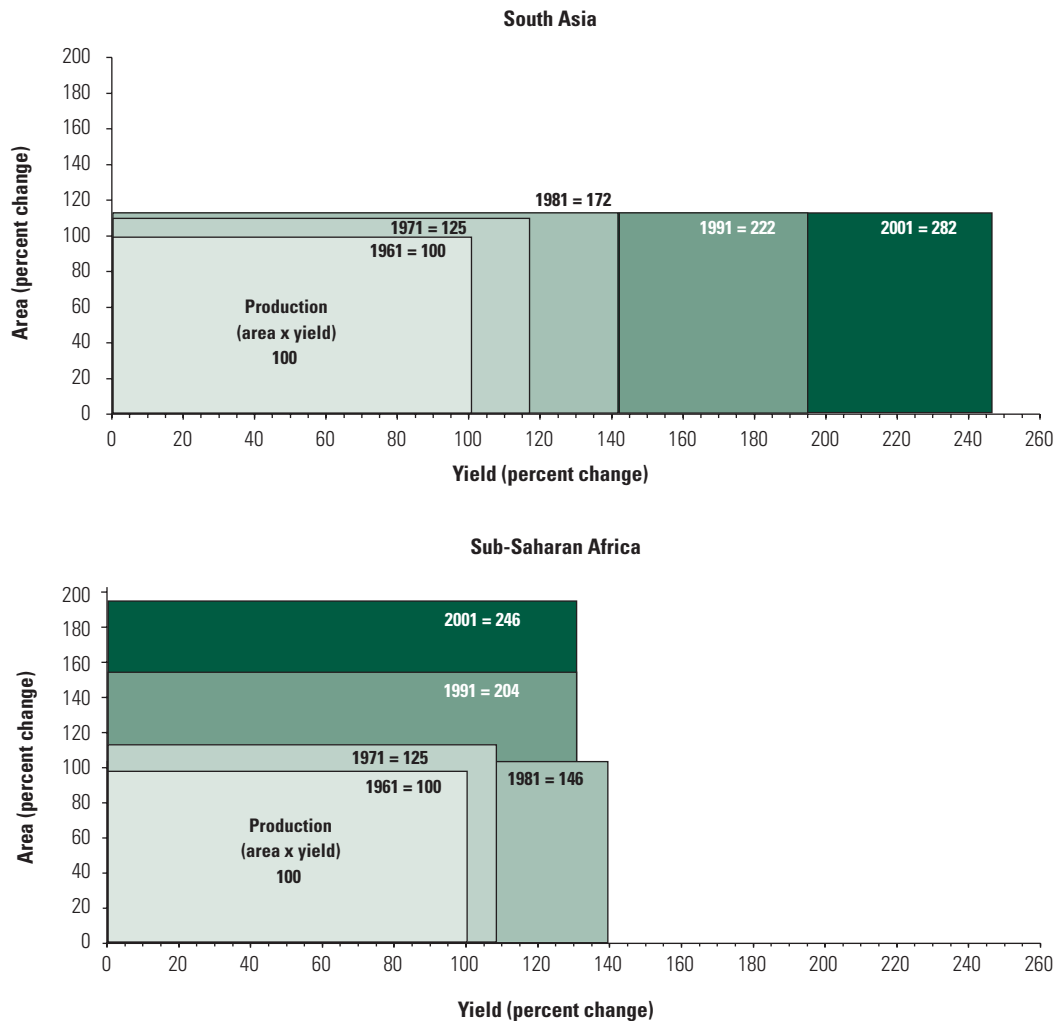
Calculating a reliable growth rate for African agriculture over the study period is difficult because of the wide variation among countries and over time. The 47 countries in the Region can be divided into three categories: the comparatively better performers, with agricultural growth above 5 percent per year during 2000–04; the medium performers, with agriculture growth between 2 and 5 percent; and the poor performers, with negative or very low agricultural growth (see table B.2, appendix B).

The better performers did not consistently do

well over the past decade, however. *Agricultural sector growth has been highly erratic across the Region and over time.* Some countries moved from being poor performers in 1990–2000 to being better performers in 2000–04, and some moved in the opposite direction. The change has often been dramatic, which makes aggregate growth rates misleading. For example, agriculture in Angola grew at 13.7 percent a year during 2000–04, but had retreated by 1.4 percent during 1990–2000. The high growth in the later period was because the country was starting from a very low base after a period of conflict.¹ Only about a dozen countries, among them Benin, Burkina Faso, Ghana, Nigeria, and Tanzania, show consistent growth in agriculture of over 3 percent over the period 1990–2004 (table B.3, appendix B).²

Agricultural production in Africa has grown since the 1960s, but that growth is distinctly different from that in other Regions. Great strides in cereal production in South Asia over the 40-year period from 1961 to 2001, for example, were mainly the result of increased yields (figure 2.1 and table B.4, appendix B). African production of both cereals and root crops in the *Increased agricultural production over 1961–2001 was mainly the result of more land under cultivation.*

Figure 2.1: Changes in Cereal Production Produced by Changes in Area and Yield, 1961–2001 (1961 = 100)



Source: Henao and Baanante 2006.

same period rose mainly because more land was brought under cultivation, while crop yields were largely stagnant (Eilitta 2006). In recent years, however, expansion too has stagnated, indicating that land frontiers may have been reached, at least in some countries.

The rapidly increasing population has also further reduced the arable land per capita. Paradoxically, even with rising population numbers, the high incidence of HIV and AIDS and diseases such as malaria have created

shortages of labor for cultivation in several countries (World Bank 2000; Shapouri and Rosen 2001). However, the implications of this capacity issue need to be examined much more systematically (IFPRI 2004b).

Food imports have grown rapidly over the period of fiscal 1991–2006. Food production in the Region as a whole has not kept pace with population growth, and food imports have filled the gap. Meanwhile, Africa’s exports, which are primarily agriculture-based, have declined, and

in several commodities, including coffee, the Region has lost its share of the world market to competitors. Beginning in 1973, Africa became a net food importer, and this represented the beginning of a chronic food gap for the Region (Eicher 1999).

The Aid Architecture for Agriculture in Africa

Both multilateral (World Bank, IFAD, FAO, AfDB) and bilateral (such as Development Cooperation Directorate–Development Assistance Committee, or DCD-DAC, member countries) donors have provided support for agriculture development in Africa. However, aid to African agriculture from both sources declined between 1981 and 2001 (appendix E). With the increasing focus on the development of Africa, both bilateral and multilateral aid to African agriculture has picked up since 2000. More recently, China has become an important bilateral donor to African agriculture. Average annual aid flows to Africa as a whole were 13 percent higher in 2000–05 than in 1995–2000 (UNCTAD data).

Both bilateral and multilateral donors have been equally important players in terms of aid amounts provided. Organisation for Economic Co-operation and Development (OECD) data show that though bilateral donors as a group have played a comparatively larger role, the Bank (IDA [International Development Association]) was the single largest donor to African agriculture over the period 1990–2005. The largest bilateral donors were the United States and Japan (table E.2, appendix E). Twenty-five percent of Bank-supported projects in the agriculture sector have been cofinanced by other bilateral and multilateral donors.

Foreign private sector flows into Africa are modest in comparison with bilateral and multilateral aid (Hazell and von Braun 2006). Of foreign direct investment (FDI) in the developing world as a whole, less than 1 percent went to Africa in the early 2000s (IFPRI 2002a). Africa's connections with the modern global economy are weak, and private commercial investment in agriculture has been largely limited to export crops and higher-

potential zones. Even here, while international commodity markets have continued to expand, Africa's exports have shrunk over time, and today Africa's total volume of exported farm commodities (groundnuts, palm oil, and sugar, among others) is actually smaller than it was 30 years ago (IFPRI 2002a).

Some nontraditional exports—such as Kenyan flowers, Nigerian shrimp, Malian mangoes, and pineapples and beans in several countries—have fared well. Private investment in agricultural research and development (R&D) has been small; it was only about 2.3 percent of the total spent on R&D in 2000, and much of that was spent in South Africa. A number of international seed companies have invested in maize seed multiplication, and in September 2006 the Rockefeller and Bill and Melinda Gates Foundations together launched a new partnership to help Africa develop its agriculture.

Nongovernmental organizations (NGOs) have also been increasingly involved in African agricultural development, particularly in activities that involve community mobilization and extension support services. Some NGOs have also been participating in research and the development of marketing chains and input supply. However, the effectiveness of NGOs in contributing efficiently to development in these areas has still to be assessed.

Donor coordination

A major challenge has been the varied strategies and priorities of the bilateral and multilateral donors that provide support for agricultural development in Africa. The literature suggests that over the years, there has been some improvement in coordination among donors, but more so on procedures than on policies and strategies.³

The country is expected to be in the driver's seat on the strategy for development of a sector. Though progress has varied across countries,

As productivity stagnated, food imports increased.

The Bank has been an important player in the overall aid environment for agriculture, although both bilateral and multilateral donors have been important.

Donor coordination of strategies still has a long way to go.

there is little systematic evidence to suggest that Bank support for agricultural development is part of a coordinated approach among donors to support country strategies for development of their agriculture sectors. A review of the Bank's Country Assistance Strategies (CASs) carried out for this study found that two-thirds of the documents do not discuss coordination of agriculture interventions by donors. Of those that do, there is little detail on specifics. In other words, while commitment to donor coordination is signaled, the form of the relationship between Bank and other donor interventions is not.

A review of the sample of project appraisal and completion reports also found that while there is some discussion of intent to coordinate particular donor activities at the appraisal stage, there is little follow-through. At the completion stage, the reports provide little or no information on other donor support in the area, or how the Bank effort fits in with the activities of other donors in agriculture. Completion reports for Bank projects rarely, if ever, report on the activities supported in the same project by other co-financiers.

The World Bank's Strategic Approach

The Bank has no separate agriculture strategy for Africa—its approach has been embedded in the Bank's broader rural development strategy.

The Bank has no separate strategy for the *agriculture* sector, but rather has usually articulated its agriculture goals in the context of broader rural development strategies. There also have been several subsector strategy papers and operational directives, such as those for forestry and water resource management.

In the Rural Development Strategy Papers, the importance given to agriculture has varied over time. A review of the three rural strategy documents (*Rural Development Sector Strategy Paper*, 1975; *Vision to Action*, 1997; and *Reaching the Rural Poor*, 2003) revealed that agriculture had greater prominence as part of rural development in the 1970s than in later years, mainly because in the initial years, the Bank's activities in rural areas were primarily related to agriculture.

The Bank's 1975 Rural Development Policy Paper (World Bank 1975, p. 18) noted:

The central concept of rural development presented here is of a process through which rural poverty is alleviated by sustained increases in the productivity and incomes of low-income rural workers and households. . . . Most of the low-income groups in the rural areas depend heavily on agriculture for their livelihood. It follows that many of the programs intended to raise rural incomes must center on agricultural development.

In the mid-1980s, the Bank began to expand its role in human development, and environment and sustainable development became important concepts in the mid-1990s. The next rural strategy, *Vision to Action* (1997), took on a broader rural focus,⁴ which persisted in *Reaching the Rural Poor* (2003). This led to increases in Bank rural lending over time, and agriculture became a smaller percentage of the total rural portfolio. The timing of this shift had important implications for donor support for agricultural development in Africa, as discussed in chapter 1.

The Bank has not had a formal agriculture strategy document for the Africa Region, though some technical and discussion papers were produced and were influential in shaping strategic thinking on agriculture in the Region. The 1993 paper *A Strategy to Develop Agriculture in Sub-Saharan Africa and a Focus for the World Bank* (World Bank 1993c) emphasized reform of the enabling environment to enhance private sector interest and restructuring of parastatals and other services where private operation is likely to be more efficient. It also encouraged more regional integration of agricultural markets and put more emphasis on land tenure. Both *Vision to Action* and *Reaching the Rural Poor* included specific development strategies for Africa, and both recognized the importance of increasing agricultural productivity for agricultural development.

More recently, the World Bank's 2005 *Africa Action Plan* (World Bank 2005e) recognized the

agriculture sector as a potential driver of growth. The Comprehensive Africa Agriculture Development Programme (CAADP) is at the heart of the New Partnership for Africa's Development (NEPAD) initiative to accelerate growth and eliminate poverty and hunger. The Africa Action Plan, in line with the CAADP, gives priority to making agriculture more productive and sustainable. Among other things, the Action Plan emphasizes increasing public and private investments to expand irrigation by 50 percent over the fiscal 2005 base by the end of fiscal 2008, with the Bank as lead financial partner. NEPAD also advocates Regional integration to overcome the fragmentation of the continent and to reduce Africa's economic marginalization. The Bank's Action Plan recognizes the importance of supporting these initiatives.

From the various rural strategy documents, this review extracted the broader strategic goals the Bank has pursued in African agriculture during fiscal 1991–2006. A wide range of issues is covered, as reflected in table A.1, appendix A. The treatment of issues differs across documents. Moreover, there are inconsistencies among priorities in the different documents. For example, it is not clear why the Africa Action Plan makes irrigation a priority, when two years earlier the Regional strategy in *Reaching the Rural Poor* emphasized that rain-fed agriculture should take priority since “over 95 percent of cultivated land is rain-fed . . . increasing yields on rain-fed lands by just 10 percent would have far greater impact on total agricultural output than doubling area under irrigation” (World Bank 2003d, pp. 101–02).

The recent “Progress in Implementation” report on the Africa Action Plan (DAC 2007) rightly emphasizes the importance of increasing agriculture productivity in Africa, though it is not clear how much importance it is accorded relative to other priorities identified in the Action Plan, given that progress is lagging. The progress report clearly notes that “the AAP [Africa Action Plan] is on track to meet the expected outcomes in all but two (agricultural productivity and gender) of the [shared growth] pillar's nine

thematic areas” (DAC 2007, p. 6). The report also implies that it will support both irrigation and rain-fed agriculture, but it is not clear how limited resources will be distributed between the two and how adequate resources will be mobilized to meet the anticipated outcome of an “increase in irrigated land by 2011,” and which has replaced the 50 percent target noted above. It is not clear how progress toward the “increase in irrigated land” is to be assessed without a target.

From the comparative analysis of the strategy documents, IEG identified a set of critical constraints to agricultural development in Africa that were defining the Bank's strategic approach. A review of the literature provided further support that these constraints were key to the development of agriculture in Africa. The constraints are as follows:

- Agro-ecological diversity
- Rainfall and droughts
- Soil fertility
- Water
- Seeds
- Credit and rural finance
- Transport infrastructure
- Extension
- Land reform
- Price and marketing reform.

The constraints are detailed below and used in the evaluative review of the Bank's performance in chapter 5. In addition to the above constraints, the study covers Bank and borrower capacity issues, including building research capacity, in chapter 4.

Some issues that appear as a priority in the strategy documents are not covered as stand-alone issues in the thematic assessment in chapter 5. These include issues related to agro-forestry, agro-business, livestock, and natural resource management. Gender, the importance of which is acknowledged in the strategy documents, is not covered separately but is treated where appropriate. Finally, decentralization and

With the broader rural focus from the 1980s onward, agriculture received an increasingly small share of lending.

Strategic documents include a number of broad goals for agriculture. From these, it is possible to identify the set of constraints to agriculture in Africa that have defined the Bank's lending and nonlending program in the Region.

empowerment of producer organizations are not addressed because they are part of other IEG studies.

Main Constraints to Africa's Agricultural Development

Agro-ecological diversity

Sub-Saharan Africa has a total land area of 2,455 million hectares, 41 percent of which is classified as agricultural land. The Region is characterized by a diverse range of agro-ecological zones spread across countries. A country can include land area that falls under several agro-ecological zones, as in Ethiopia, for example. The arid and semi-arid ecological zone in Africa accounts for 43 percent of

The Region has a diversity of agro-ecological zones and differentiated production and farming systems.

the land area; the dry subhumid zone, 13 percent; and the moist subhumid and humid zones, 38 percent (FAO 2001).⁵ Based on the natural resource base, dominant livelihood, and the degree of integration between crops and livestock, several production/farming systems with variable potential for agricultural production have been defined for the Region (see table C.2, appendix C).

Rainfall and droughts

One of the biggest challenges faced by the average smallholder in Africa is food insecurity arising from risk of crop loss from variations in rainfall and droughts. Climatic variability is a particular problem in the arid and semi-arid ecological zones. Even in years when precipitation is adequate overall, rain can start late or finish early, with disastrous consequences for agriculture. Rainfall variability in Africa is roughly twice that of temperate regions (World Bank 2004a). Droughts in the Region are also much more frequent than anywhere else in the world.⁶ Pests and diseases add to the vulnerability faced by farmers. For example, invasions of desert

Africa has a high degree of climatic variability, and droughts are more frequent than in other

Regions. To survive in such a harsh

environment, farmers must rely on diversified coping strategies, which influence decisions about the choice of crops planted, inputs used, and non-farm activities taken up.⁷ Unlike farmers in South Asia, where irrigation is widespread, most African farmers do not produce a single crop such as rice or wheat in one season. Instead, to ensure at least some produce from their land, farmers normally plant several varieties of crops (typically 10 or more) with different maturity periods, together with trees. Millet, sorghum, maize, cassava, and other root crops are among the most important food crops in the Region.⁸ Cereals such as rice and wheat, the mainstay of Asia's Green Revolution, are grown, but are less important. Livestock rearing is also a critical part of this diversified system and is a source of wealth to be drawn on for survival when all else fails.

Soil fertility

Low soil fertility is a major contributor to the low productivity of African production systems (Sanchez and others 1997; Donovan and Casey 1998; Scoones 2001; Mekuria and Waddington 2002; and Sasakawa Africa Association 2004a). Only 6 percent of the land in the Region has high agricultural potential (Tegene and Wiebe 2003 quoted in Ehui and Pender 2005).

Soil fertility is affected by a number of factors. Compared with soils in parts of North America, Europe, and Asia, most African soils are naturally low in nitrogen and deficient in phosphorous, sulfur, magnesium, and zinc (Grant 1981 quoted in Donovan and Casey 1998). In addition, most parts of Africa have shallow topsoil that provides little root room for crop anchorage and extraction of nutrients and water (ECA 2003). Soils are also heavily leached and have high acidity and low organic content (Donovan and Casey 1998). Poor soil fertility was less critical for agricultural development when it was possible to freely extend the land frontier and allow some agricultural land to lie fallow. However, rapidly growing populations and land shortages have reduced the amount of potential fallow land, as well as the length of fallow periods, further reducing soil fertility.

Of course, soil fertility can be improved by the application of organic and inorganic fertilizers and better land management practices, including application of indigenous techniques to increase soil fertility and water retention, such as tie ridges. But that has not happened in Africa. Unlike other continents where soil fertility depletion has been tackled by applying fertilizers, Africa has had tremendous quantities of nitrogen and phosphorus taken out of the soil that have not been returned (IFPRI 2004b). Labor shortages also often deter farmers from investing in indigenous low-input intensification methods, and organic fertilizers are not available in large enough quantities to provide the necessary basic nutrients (Sanders and others 1996). Cattle diseases and shrinking farm size have limited access to organic fertilizers for many farmers, which increases the need for inorganic fertilizers (SIDA 2006).

Most of Africa relies on imported fertilizers purchased at highly variable international prices, and poor infrastructure adds to fertilizer, distribution, and marketing costs, putting it out of reach of most farmers. Fertilizer costs per ton average out to a farmer price of \$336 in Nigeria, \$321 in Malawi, \$333 in Zambia, and \$828 in Angola, compared with \$227 in the United States (Eilitta 2006). In the era before adjustment lending, many African countries relied on subsidies to get fertilizers to farmers at a reasonable price. With the removal of subsidies, fertilizer prices have soared.

Lack of access to water also makes farmers reluctant to use fertilizers, since their application without water increases the risk of crop failure (Camara and Heinemann 2006).⁹ Consequently, the average intensity of fertilizer use throughout Africa remains much lower than in other Regions—roughly 9 kilograms per hectare versus 86 kilograms in Latin America, 104 kilograms in South Asia, and 142 kilograms in Southeast Asia and has been virtually stagnant during the past decade.¹⁰

Water

The majority of the soils in the continent have

poor capacity to hold and release moisture. As a consequence of the variable rainfall and poor soil quality, it has been estimated that about 86 percent of Africa's land area is under moisture stress. Moreover, water conservation and management in rain-fed areas is not practiced adequately.

Fewer than 5 million hectares of the land in Africa are irrigated—about 4.9 percent of total cultivated area compared with 40 percent in South Asia. More than 3 million hectares of that irrigated land are in just two countries—Madagascar and the Sudan (Wiggins 2000). Agricultural production in most parts of Africa is carried out without irrigation.

The area under irrigation is a very small part of the potentially irrigable area in most countries (table K.1, appendix K), which also have limited water storage infrastructure.

A major constraint on expanding irrigation infrastructure is the high investment costs, ranging by one estimate between US\$5,000 and US\$25,000 per hectare, much higher than in Asia (quoted in IFPRI 2005a), though a recent study by the International Water Management Institute argues that it is possible to design and implement projects in Africa with unit costs comparable to those in Asia.

Further, a large part of the area currently under irrigation is low-performing because of poor maintenance of irrigation schemes, inadequate attention to improving water reliability and control, low use of inputs, and lack of access to market, among other things (Peacock, Ward, and Gambarelli 2007).

Seeds

Sustained use of high-yielding seed varieties was the driving force of the Green Revolution in Asia. In Africa, research has also contributed to development of improved varieties for most of the important food and cash crops over the past 20 years. High-yielding varieties of maize

A major constraint on productivity is low soil fertility—only 6 percent of the land in Africa has high agricultural potential.

Only about 5 percent of the cultivated area is irrigated and 86 percent of the land area is under moisture stress.

Organic fertilizers are in short supply and inorganic fertilizers are very costly.

Improved seed varieties have been developed but are not widely used for a variety of reasons.

and new rice varieties (New Rice for Africa, or NERICA) that are also early maturing, pest and disease resistant, and drought tolerant have been heralded as important successes in several areas. However, widespread and sustained use of improved varieties has been constrained by limited availability of inputs and credit, inadequate extension, and the wide variation in required characteristics across multiple agro-ecological zones.

Credit and rural finance

Almost all countries in Africa have a large unmet demand for agricultural credit and rural finance. With inadequate financing in the short term, farmers find it difficult to buy inputs and seeds. In the long term, they are unable to invest in

Most countries in the Region have high unmet demand for credit and rural finance, so farmers find it difficult to buy inputs and seeds or to invest in longer-term improvements.

land improvement, better technology,¹¹ or irrigation development. Improving the provision of and access to financing for agriculture can meet a range of needs and can be critical to the success of agricultural development programs (World Bank 2005c).

Before the era of adjustment lending, governments in several countries ran a variety of input credit programs, which led to huge government deficits because of poor repayment rates (Kelly, Adesina, and Gordon 2003). During the adjustment phase, many of these programs were abandoned. In addition, one result of the adjustment reform agenda was the privatization of parastatals responsible for marketing of crops such as cotton. These parastatals used to meet the credit needs of the farmers for inputs, and their privatization also left a gap that has not been filled. In contrast to conditions in Asia, there are few specialized moneylenders in most of Africa (Collier and Gunning 1997). Moreover, because of the existence of several constraints (box 2.1), new sources of credit for smallholders have been slow to develop.

However, the difficulty of providing farmers with access to credit does not mean that there can be no viable and sustainable institutional modalities to provide credit to smallholders in Africa's difficult environment. Recent research from the Consultative Group to Assist the Poorest (CGAP 2005) demonstrated that there may be successful microfinance providers for agriculture, though this issue needs further analysis. The

Box 2.1: Constraints to Development of Access to Credit and Rural Finance in Africa

Supply Side:

1. High, interrelated covariant risks created by variable rainfall and lack of irrigation, pests and diseases, price fluctuations, and constrained smallholder access to inputs, advice, and markets
2. Small size of farms and of individual transactions
3. Dispersed demand for financial services because of low population densities
4. High transaction cost for service providers because of remoteness of clients and heterogeneity among communities and farms
5. Seasonality of agricultural production leading to lag between investment needs and expected revenues

6. Lack of usable collateral because of ill-defined property and land-use rights, high cost or lengthy registration procedures, and social constraints to foreclosure
7. Underdeveloped communication and transportation infrastructure
8. Weather and price risk (both a supply- and demand-side constraint).

Demand Side:

9. Low affordability of market interest rates for farmers
10. Insufficient cash-flow planning
11. Repayment schedules are often difficult because they are not adapted to seasonality of the crop cycle
12. Weather and price risk.

Sources: World Bank 2005a, 2005c, 2005d; study research.

CGAP research notes some of the special features of these providers that can help overcome the challenges noted in box 2.1: de-linking repayments to loan use, character-based lending techniques combined with technical criteria in selecting borrowers, providing saving mechanisms, diversifying portfolio risk, adjusting loan terms, and conditions to accommodate cyclical cash flows, among others.

Transport infrastructure

Perhaps the most critical of the remaining barriers to market access in Africa is inadequate transport infrastructure. Unlike Asia and Latin America, Africa inherited a highly dispersed and unevenly distributed infrastructure from its colonial past (IFPRI 2005a). In most African countries, less than one-third of domestically produced food enters commercial marketing channels beyond the local area (Sasakawa Africa Association 2004a). In one indication of the severity of rural farmer isolation, Hine and Rutter (2000) estimate that for 51 percent of villages in Ghana and 60 percent of those in Malawi, the walking distance to the nearest pickup point for motorized transport services was more than 2 kilometers; it was over 10 kilometers for 10 percent of Ghanaian villages and 19 percent of Malawian villages.

IEG's recent Transport Sector review (IEG 2007o) found that transport costs account for 11.5 percent of the total value of imports in Africa, compared with 7.2 percent in Asia and 6.7 percent in North America. On the export side, for many countries in Africa, at least 20 percent of the export costs are directly attributable to transport. For landlocked countries such as Malawi, the figure can be as high as 55 percent. This very seriously weakens the terms of trade for such countries. On the basis of their work on growth, distribution, and poverty in Africa, Christiaensen and others (2002) found that whether a household has access to infrastructure and urban markets was immensely important in governing the growth in household income.

Extension

Inadequate farmer access to improved technolo-

gies and land management practices has proved to be a major constraint in Africa, and the literature has identified a number of cases, including cassava, sweet potato, millet, and rice, for which high-yielding varieties are underutilized or farmers are operating within the production frontier (Evenson and Gollin 2003; Christiaensen and Demery 2007). Despite the tremendous need, most of the extension approaches that have been tried have met with limited success. Moreover, a major part of food production is undertaken by women farmers, and in the past most extension systems have not tailored their extension approaches to women's specific needs.

Price and marketing reform

One of the main reasons that price and market reforms are needed is that the incentives for agricultural production are weak. Both price (output and input prices) and nonprice factors (access to markets, credit, among others) determine farmers' incentives to produce. Primarily because of limited access to markets, because of the transport constraint, the majority of smallholders produce largely for self-consumption. In areas with reasonable market access, cash crops also become attractive, though the possible returns on both food and cash crops determine the extent to which a farmer produces one over the other. However, several domestic market distortions and subsidies in OECD countries have prevented farmers from getting good returns on crops they market. Marketing and other reforms were meant to improve the incentives for farmers by reducing domestic market distortions and by encouraging private traders to substitute for inefficient state trading companies (as discussed further in chapter 5).

Land

Formally codified property rights regimes are still quite rare in Africa, and most land falls under customary law (van den Brink and others 2005), although the situation varies considerably by

There may be viable and sustainable institutional modalities for providing credit under the difficult environment in Africa.

Most extension approaches that have been tried in Africa have had only limited success.

Transport constraints limit market access, and market distortions reduce returns on cash crops.

Formal property rights are rare in the Region, and women typically have to negotiate through male relatives. country. Much of the land under customary law is considered state-owned, and as land becomes a scarce resource with increasing population, outsiders may be able to appropriate the land through misuse of land titling laws. Land is also a key patronage resource to reward political favors, and security of land tenure can be affected by political decisions (IFPRI 2004b). This can make agricultural development a very sensitive political issue.

Several governments, including those of Ghana and Uganda, have sought to address this constraint through broad recognition of customary rights, but progress has been slow. Although women typically conduct the majority of the farm work in Africa, they rarely have full rights to land, but must negotiate as secondary claimants through a male relative (Toulmin 2006).

Nature of agricultural development in Sub-Saharan Africa

Agricultural development is multifaceted. It requires coordinated interventions across a range of activities, both within the sector and in other supportive sectors, to deal with the constraints noted above. More than any other sector, the development of agriculture requires the activities of various subsectors or other relevant sectors to contribute effectively *at the same time, or at least in some optimal sequence*. For example, it is difficult for farmers to buy inputs unless there are functioning credit institutions to meet their credit needs. Markets cannot be accessed if the roads are poor, and farmers cannot know about improved technologies or participate in adaptation if good extension is not in place. Soil fertility improvement requires not only access

With the right inputs, infrastructure, incentives, and technologies, rapid growth in agriculture incomes is possible in Africa. to improved technology, but also improved inputs, including water. Several of the challenges in Africa today were not major

factors in Asia when that Region was developing its agriculture, because countries such as India already had a critical minimum of infrastructure, irrigation, and industrial capacity to produce fertilizers, among other things, and, with the improved seeds that came with the Green Revolution and extension, agriculture took off.

Hence, support for agricultural development in Africa needs to appreciate the challenges that are specific to Africa. While the broader rural focus of the Bank from the mid-1980s onward was justified, an unintended result was that it led to less focused attention on the need for various activities that are critical to agricultural development in rural space to come together at the same time, or at least appear in some optimal sequence.

Development of agriculture in Africa is complicated even further by the risk factor in agriculture. For example, increasing the availability of hybrid seeds will not ensure that the seeds are actually used unless farmers are convinced that the increased output would not come at a higher risk. Exposure to droughts and weather-related uncertainties affect a farmer's incentives to adopt high-risk technologies, and they may often forgo technologies that would require them to use fertilizers that would yield higher outputs, but present higher risk (Dercon and Christiaensen 2005). While this would be an important consideration in a farmer's decision-making process in other Regions as well, the frequent droughts and low irrigation in Africa make the environment in most areas in the Region riskier.

The Millennium Development Project's Hunger Task Force (UNDP 2005) concluded in 2005 that the world could meet the MDG of halving hunger by 2015. Development of smallholder agriculture in Africa is critical to that goal. The literature shows that with the adoption of improved technologies and modern techniques, access to agricultural inputs, and investment in infrastructure, rapid growth in agricultural incomes is achievable in Africa (Howard and others 1999; Palmer 2004). Smallholder agriculture, which is the predominant source of livelihoods in Africa,

has proven to be at least as efficient as larger farms when farmers have received similar support services and inputs (seed, fertilizer, and credit) (IFPRI 2002b). Sustaining success, however, has often been problematic (Wiggins 2005). The diverse African situation also implies

that no single solution will radically improve African agriculture and a comprehensive set of strategies will be needed (InterAcademy Council 2004). Most success stories involve measures that address the vulnerability, volatility, and risk in the sector (Commission for Africa 2005).