

Structural transformation to break away from rural poverty

With 70 per cent of poor Africans living in rural areas, poverty in Africa is largely a rural phenomenon. Increasing rural employment and income is therefore crucial to reducing poverty. An increase in rural incomes will likely improve the living standards of the rural poor, but it could also drive a structural transformation of the whole economy.

Structural transformation is a process by which the relative contribution of nonagricultural sectors to the overall economy rises as agriculture's share declines in relative terms. In absolute terms, however, agriculture continues to grow and contribute to overall economic growth. Agricultural productivity growth and increased farm incomes are prerequisites for structural transformation. Increased farm incomes lead to derived demand for nonfarm products, which in turn leads to the growth of small and medium-size enterprises in rural villages, small towns and larger urban areas. To increase the productivity of the agricultural and other sectors of the economy, improved financial and human capital development is crucial in order to ensure overall factor productivity, including labour productivity. Human capital development in turn depends on Africa's capacity to achieve a much needed demographic transition, characterized by low mortality and fertility rates.

“Africa has yet to complete a demographic transition”

With the highest population growth rates in the world, Africa is the only continent that has yet to complete a demographic transition, mostly due to persistently high fertility rates despite earlier gains in reducing mortality rates. HIV/AIDS and the resurgence of malaria and tuberculosis are eroding increases in life expectancy and affecting the demographic structure of African households as well as the quantity and quality of the labour force. Low levels of human capital make it difficult for Africa to increase labour productivity—a much needed input for structural transformation.

Agriculture is the main source of income for 90 per cent of the rural population in Africa. It is also vital to ensuring food security for the urban population. Yet, in Africa agriculture has failed to feed the growing population. Some 200 million Africans are undernourished despite commercial food imports of \$15–\$20 billion a year and about \$2 billion in food aid per year (UNECA 2005). Many Africans in the agricultural sector who are either self-employed or wage earners are the poorest people in the world, due mainly to the low performance of African agriculture. African agriculture is also severely undercapitalized, resulting in low total and factor productivity compared with Asia and Latin America. Growth and increased competitiveness are needed in agriculture, particularly in the domestic food and agricultural chains (production, storage, processing, marketing), which have the most potential to enhance links between agriculture and the rest of the economy.



Sectoral linkages is key to structural transformation



A strategy to transform the agricultural and rural sectors would require agroindustrial and agribusiness and service sector development to accompany an agricultural productivity-increasing green revolution. Transforming the rural nonfarm sector should therefore complement agricultural transformation to complete the rural strategy for increasing labour productivity, wages, income and rural employment. The rural nonfarm sector not only has the potential to increase agricultural wages by adding value to agricultural products, but it also has the capacity to increase rural wages through direct employment, due to high labour productivity relative to the farm sector. Indeed, rural Africans derive about 42 per cent of their income from rural nonfarm activities—a high share considering that only about 10 per cent of the rural labour force are employed in the rural nonfarm sector (Haggblade, Hazell and Reardon 2002).

For Africa to achieve a structural transformation that stimulates growth, creates employment and reduces poverty, it must:

- Complete its demographic transition by influencing attitudes and providing funds for programmes to meet the unmet demand for contraceptives, reduce the age at which women have their first child, increase education opportunities for girls and employment opportunities for women and, scale up prevention, treatment and care of infectious diseases, particularly HIV/AIDS.
- Increase agricultural productivity and enhance agricultural links to the industrial and service sectors by expanding appropriate research, knowledge and technology, addressing market development and access issues, improving the management of production assets (water, land) and mitigating the adverse impacts of HIV/AIDS on agriculture.
- Facilitate the growth of job-creating small and medium-size enterprises through rigorous private-public partnerships to improve the provision of infrastructure, credit, inputs, markets, training and other services.

This chapter explores the potential for Africa to achieve a demographic transition, realize an agricultural transformation and develop a vibrant rural nonfarm economy. It discusses the sectoral links that are vital for a structural transformation of Africa's economies. It highlights the relationship of Africa's demographic transition to structural transformation. It then discusses agriculture's role in an overall structural transformation, noting the challenges and opportunities for achieving an agricultural transformation in Africa. The role of the rural nonfarm economy in a structural transformation of Africa is then presented, followed by recommendations for catalyzing a structural transformation in Africa.

Structural transformation through sectoral links

Structural transformation is a process by which sectors other than agriculture account for increasing shares of employment and output of the economy. Though the economy becomes less agriculturally oriented in a relative sense, it continues to grow in absolute terms and generate important growth links to the rest of the economy. Structural transformation thus

involves a net resource transfer from agriculture to other sectors of the economy over the long term (Staatz 1998).

Structural and demographic factors have a significant effect on the structural transformation of an economy, particularly on reaching the turning point where the size of the agricultural labour force begins to decline (Gabre-Madhin and Johnston 1999). The time required to reach this point depends on the initial share of agriculture within the total labour force, the rate of growth of the total labour force and the rate of growth of nonfarm employment. If the growth rate of nonfarm employment exceeds that of total labour, the share and growth of the agricultural labour force begin to decline over time. When the growth rate of agricultural labour becomes negative, a structural transformation turning point is reached, implying that countries with a large initial share of total labour force in agriculture and countries with high growth rates of total labour will take a long time to reach the turning point, while countries whose rate of nonfarm employment growth is much higher than that of the total labour force will reach the turning point faster than countries with low growth in nonfarm employment relative to the growth rate of the total labour force.

Table 4.1 illustrates the relative stages of 20 African countries, based on selected indicators of structural transformation. The countries are grouped by their ability to achieve a demographic change conducive to an economic structural transformation. Compared with other groups in Table 4.1, countries in group A are at the declining fertility stage of their demographic transition. For these countries, the total fertility rate has been reduced from an average of 5.1 births per woman in 1990–95 to 4.5 in 1995–2000 and 4.0 in 2000–05. African countries in group B have average fertility rates of 5.3 births per woman, down from 6.3 in 1990–95. And countries in Group C have fertility rates of 6.9 births per woman, down from 7.2 in 1990–95. Countries that are more advanced in their demographic transition (with low fertility rates) are excelling in transforming their economies. For instance, these countries have lower shares of total labour in agriculture, higher agricultural labour productivity and higher infrastructure development. Countries in group A had an average of 56 per cent of their labour force in agriculture in 2000, compared with 66 per cent for group B and 86 per cent for group C. Similarly, agricultural labour productivity for group A was \$662 per worker in 1994–96—higher than group B’s \$523 and group C’s \$206. On average, nonfarm employment growth (at 1.6 per cent in 1990–97), measured using industrial growth as a proxy, has not been able to keep up with the total labour force growth in Africa (2.6 per cent).

Like other developing regions where most people are initially employed in agriculture, Africa is likely to achieve growth and reduce poverty by emphasizing agricultural productivity growth and industrialization led by agriculture. There is a strong link between African agriculture and the rest of the economy, with growth multipliers of 1.5–2.7 per cent in Africa, compared with 1.5–2.4 per cent for Asian countries (Spencer 1995). This means that a \$1 increase in rural income would translate to \$1.50–\$1.70 increase in income for other sectors, mainly through expenditure and consumption links among agriculture and other sectors, leading to growth and job creation in the nonfarm sectors. For every job created through increased agricultural production, two to three jobs are created in the nonfarm sector.

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Increased agricultural
productivity can
mean growth and
reduced poverty
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Table 4.1
Structural transformation indicators for selected African countries, various years

	Total fertility rate (births per woman)			Share of labour force in agriculture (%)			Labour force growth (%)		Agricultural value added per worker (1987 PPP US\$)		Industrial growth (%)	
	1990-95	1995-2000	2000-05	1990	2000	2010 ^a	1980-90	1990-97	1979-81	1994-96	1980-90	1990-97
All countries	6.3	5.8	5.5	74	69	64	2.8	2.6	468	463	2.9	1.6
Group A	5.1	4.5	4.0	61	56	51	3.2	2.5	667	662	2.9	2.1
Botswana	4.1	3.6	3.2	46	45	42	—	—	—	—	—	—
Ghana	5.5	4.8	4.4	59	57	54	3.1	2.7	813	684	3.3	4.3
Kenya	5.4	5.0	5.0	80	75	71	3.6	2.7	268	240	3.9	2.0
Namibia	5.8	4.8	4.0	49	41	34	2.4	2.5	1,295	1,458	1.1	2.9
Zimbabwe	4.8	4.1	3.6	68	63	56	3.6	2.3	294	266	3.2	-0.8
Group B	6.3	5.8	5.3	71	66	59	2.9	2.7	526	523	2.3	1.0
Cameroon	5.7	5.1	4.7	70	59	47	2.4	3	861	827	5.9	-3.8
Côte d'Ivoire	6.3	5.6	5.1	60	49	38	3.1	2.3	1,527	1,354	4.4	4.2
Madagascar	6.1	5.9	5.4	78	74	70	2.5	2.8	190	178	0.9	1.1
Nigeria	6.6	6.3	5.9	43	33	25	2.6	2.8	479	684	-1.1	0.5
Rwanda	6.9	6.2	5.7	92	91	89	3.2	2.3	306	206	2.5	—
Senegal	5.9	5.5	5.0	77	74	70	2.5	2.6	328	375	4.1	3.7
Tanzania	6.2	5.6	5.1	84	80	76	3.2	2.8	—	—	—	—
Togo	6.2	5.8	5.4	66	60	54	2.6	2.7	404	461	1.1	2.0
Zambia	6.4	6.0	5.7	74	69	63	3.1	2.8	116	100	1.0	-2.6
Group C	7.2	7.1	6.9	88	86	82	2.5	2.5	216	206	3.6	2.3
Burkina Faso	7.2	6.9	6.7	92	92	92	2	2.1	155	182	3.7	1.9
Burundi	6.8	6.8	6.8	92	90	89	2.6	2.6	218	177	4.5	-8.0
Malawi	6.8	6.4	6.1	87	83	79	3	2.4	162	156	1.9	3.5
Mali	7.4	7.2	6.9	86	81	75	2.3	2.6	251	259	7.0	2.1
Niger	8.2	8.2	7.9	90	88	85	3	2.9	292	256	-1.7	1.3
Uganda	7.1	7.1	7.1	85	80	75	2.2	2.7	—	—	6.0	1.3

— not available

Note: See text for explanation of groupings.

a. Projected.

Source: World Bank 1997, 1998; UNDESA 2004, 2005; FAO 2005; Kirk and Pillet 1998.

Agriculture provides the surest foundation for sustainable growth, through links with the industrial and service sectors. Feedback from productivity gains in agriculture has spurred growth in Asia's manufacturing sector. The so-called "growth tragedy" in Africa has been attributed largely to the failure to establish a productive domestic agricultural supply base as a counterpart to programmes for rapid industrialization and strengthening agriculture as part of the development chain. But focusing on the agricultural sector alone will not

produce the required productivity gains to stimulate rural employment. Lessons from the early stages of structural transformation in Taiwan Province of China and other parts of Asia show that the rural nonfarm sector is a catalyst to agricultural productivity growth and job creation in addition to being a key source of nonfarm employment (Gabre-Madhin and Johnston 1999).

The majority of rural nonfarm activities are related to agriculture, forming part of the off-farm activities of the household. Many are located within the household, but also in rural village centres and small urban towns. A vibrant rural nonfarm sector could absorb surplus rural labour, reducing underemployment in agriculture and slowing out-migration. The rural nonfarm sector is crucial for providing off-farm employment and income, adding value to agricultural products for local and external markets and hence increasing agricultural productivity and providing goods and services to meet increasing demand for farm equipment and nonfarm products for local consumption as rural incomes increase (Majid 2004). The sector is thus a source of multipliers for rural employment and welfare improvement. The rural nonfarm and agricultural sectors have to be viewed as complements with respect to facilitating overall economic growth and employment creation—that is, a productive and diversified agricultural sector will support rural industrial and service sectoral growth and vice versa.

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A vibrant
nonfarm sector
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Many researchers (Hayami and Ruttan 1985; Ndulu and van de Walle 1996; Platteau and Hayami 1998) point to the failure of Africa and its development partners to recognize and adopt strategies that take note of the complementarity between agricultural and industrial development. While economic theory and experience from other parts of the world point to the importance of an agriculture-led industrialization and structural transformation of the overall economy (Johnston and Mellor 1961), many strategies have emphasized industrialization and neglected agriculture. Other strategies have advocated sectoral approaches to development, with conflicting policies and outcomes. And many of Africa’s development strategies have failed to integrate methods to curb the impact of Africa’s rapid and prolonged growth in its labour force and the impact of HIV/AIDS on the structural transformation process.

The impact of HIV/AIDS on sectoral links

As evidence mounts on the adverse impact of HIV/AIDS on African households, communities and economies, it is becoming apparent that some of the underlying assumptions of structural transformation models may not apply in the face of HIV/AIDS. For instance, structural transformation assumes that over time, abundant agricultural labour will migrate from the agricultural sector as growth in the rural nonfarm sector is fuelled by rising demand for nonagricultural goods and services induced by rising farm incomes. The expected decline in the growth of labour as a result of HIV/AIDS will, however, affect the size of the labour force, migration patterns, the cost of labour and the competitiveness of labour-intensive sectors such as agriculture. In addition to its effect on the quantity of labour, HIV/AIDS affects the human capital stock, the availability of financial and social capital, as well as the ability to use land and other natural resources efficiently for a structural transformation of African economies.

The high prevalence of HIV/AIDS in rural Africa shocks the rural economy by rendering a large share of the labour force unable to work due to illness, death and the need to care for others. The sectoral response to labour shortages in the agricultural sector, for example, depends on the number of people who are underemployed in the informal sector in both rural and urban areas. If enough people are underemployed in the informal sector, a decline in the agricultural labour force will result in reverse migration of nonagricultural labour from the informal sector to the agricultural sector as agricultural wages increase due to labour shortages in the agricultural sector (Bryceson and Potts 2005). Evidence from Zambia supports the view that shortages in agricultural labour would induce labour migration from the urban informal sector into agriculture. But it is difficult to generalize this result to other parts of Africa. In addition, it is unclear whether as the disease progresses the demand for agricultural labour will exceed the supply of underemployed labour in the informal sector. To the extent that more educated people were the hardest hit in the early years of HIV/AIDS, several researchers (Ainsworth and Semali 1998; Kirunga and Ntozi 1997) suggests that the loss of labour may be acute in the formal sector and in the more skilled jobs within agriculture and the rural nonfarm sector. This is because replacing skilled workers lost to AIDS with workers from the informal sector or agriculture is not always possible.

These lessons on the significance of strengthening intersectoral links for a structural transformation that creates employment and reduces poverty suggests that Africa must put in place strategies to complete a demographic transition, transform agriculture by increasing agricultural productivity and expanding agricultural markets and increase growth and employment in nonfarm sectors. Furthermore, Africa must seriously address the HIV/AIDS pandemic because it has a bearing on whether Africa can achieve a demographic transition, transform its agriculture and achieve an overall structural transformation.

Demographic transition: a prerequisite to Africa's structural transformation

Demographic transition is the shift towards low mortality and fertility rates thanks to overall modernization of the economy from industrialization, urbanization, education and empowerment of women (UNECA 2001). These developments in turn lead to progress in hygiene, medicine and overall healthcare, resulting in lower mortality rates, particularly infant mortality rates. As infant mortality rates decline, parents reduce their fertility, leading to an overall decline in fertility rates. Many researchers have defined the various stages in the demographic transition (Blacker 1947; Thompson 1948; Zamoun and Tabutin 1994). According to Zamoun and Tabutin (1994), these stages include:

- A pretransition stage with fluctuating birth and death rates and slight population growth.
- The beginning of steady decline in mortality while birth rates remain high, resulting in high natural population growth.
- A period of rapid reduction in birth rates, but still lagging behind mortality decline with the population growth beginning to decline.

- The post-transitional stage with death and birth rates stabilized at levels as low as 10 per 1,000, with birth rates staying higher than death rates, leading to a slow population growth.

Despite some criticism of the demographic transition theory there is a consensus that mortality decline is a prerequisite for fertility decline. Africa is the only continent that has yet to complete a demographic transition. It has failed to reduce mortality and fertility rates to levels conducive to a structural transformation of the economy—that is, similar to levels in Europe and North America before they achieved their structural transformation or, more recently, in Asia and Latin America and the Caribbean (Birdsall and Londono 1998; Gabre-Madhin and Johnston 1999). In Latin America and the Caribbean and Asia total fertility rates have declined about 25 per cent, from 3.4 births per woman during 1985–90 to 2.5–2.6 in 2000–05 (table 4.2). During the same period Africa’s total fertility declined at a slower rate of 19 per cent, from 6.1 births per woman to 4.9. The total fertility rate in Africa is projected to remain relatively high, with repercussions for total population and labour force growth rates. Subregional differences in fertility rates point to persistently high rates in East, Central and West Africa, with rates closer to those in Latin America and Asia for North and Southern Africa.

High fertility rates have translated to high levels of labour supply in Africa. Indeed, the working age population in Africa increased from about 281 million in 1985 to 375 million in 1995, reflecting a growth rate of 3 per cent, higher than the annual population growth rate for the same period. In 2005 the working age population in Africa doubled in size from levels in 1985 to 489 million people. By 2015 the working age population is projected to reach 616 million people (UN 2004), a sharp increase in the supply of labour, which will need to be met by an equivalent increase in job opportunities.

In addition to affecting the quantity of labour supplied, demographic transitions influence the quality of the labour force as well as its age distribution and dependency burden. Combined impacts of a high share of young people and low quality of healthcare in Africa

“Mortality decline leads to fertility decline”

Table 4.2
Total fertility rate, 1985–2015 (births per woman)

Region	1985–90	1990–95	1995–2000	2000–05	2005–10 ^a	2010–15 ^a
Latin America and the Caribbean	3.39	3.01	2.72	2.53	2.36	2.23
Asia	3.40	2.98	2.72	2.55	2.42	2.30
Africa	6.08	5.63	5.22	4.91	4.57	4.19
East Africa	6.69	6.32	5.98	5.61	5.20	4.76
Central Africa	6.58	6.51	6.38	6.28	5.98	5.55
North Africa	4.95	4.12	3.52	3.21	2.95	2.67
Southern Africa	4.05	3.59	3.10	2.79	2.54	2.35
West Africa	6.75	6.38	5.97	5.56	5.09	4.58

a. Projected.

Source: UN 2004.

affect the workforce and human capital on the continent. The dependency ratio, which measures the ratio of young and old dependants to the working age population, is very high in Africa, which limits employment opportunities.

Characterized by high fertility rates, high population growth rates and low levels of human capital, these demographic trends make it difficult for Africa to attain a much needed structural transformation. Several socioeconomic and cultural factors have contributed to persistently high fertility rates in Africa, including low levels of education for girls and lack of job opportunities for women, inadequate access to contraceptives, poor access to healthcare and education (which hampers human capital and skills development), and, the adverse impacts of HIV/AIDS and the resurgence of malaria and tuberculosis, which have an adverse impact on life expectancy and the quantity and quality of the labour force.

“Demographic trends hamper Africa's structural transformation”

Impact of HIV/AIDS on demographic transition

The depressing impact of HIV/AIDS on the quantity and quality of the labour force must be clearly understood and incorporated in the structural transformation process in Africa. This is particularly important for most countries in Southern Africa, which have the highest HIV prevalence rates on the continent and in the world (table 4.3).

Table 4.3
HIV/AIDS prevalence for adults ages 15–49, 2003 (%)

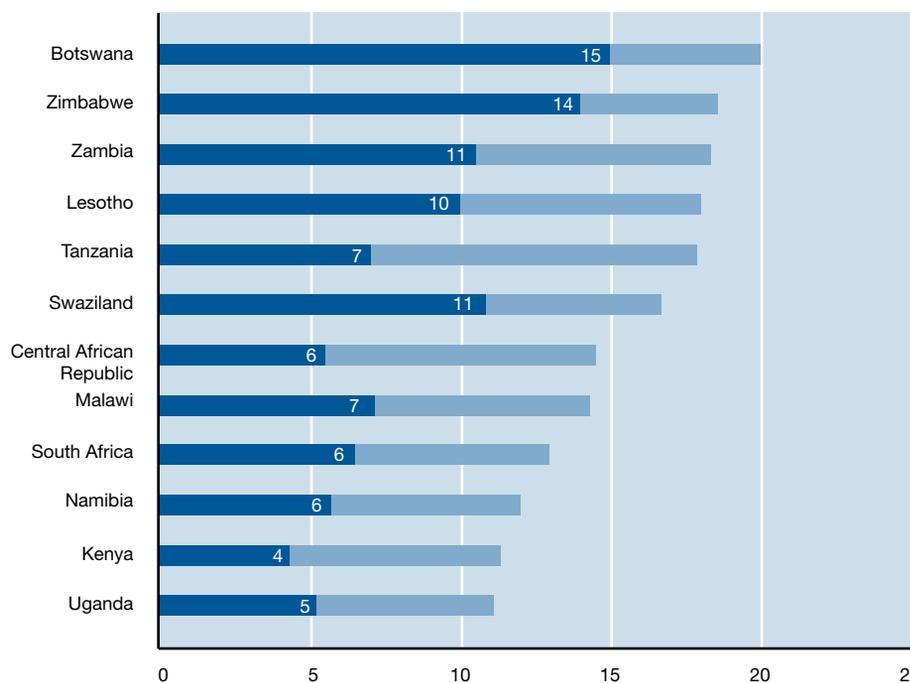
Rank	Country	Prevalence rate
1	Swaziland	38.8
2	Botswana	37.3
3	Lesotho	28.9
4	Zimbabwe	24.6
5	South Africa	21.5
6	Namibia	21.3
7	Zambia	16.5
8	Malawi	14.2
9	Central African Republic	13.5
10	Mozambique	12.2
11	Tanzania	8.8
12	Gabon	8.1
	Sub-Saharan Africa	7.5
	World total	1.1

Source: UNAIDS 2004.

Recent estimates by the Joint United Nations Programme on HIV/AIDS (UNAIDS 2004) show that all the countries with an adult (ages 15–49) prevalence rate of 20 per cent or higher are in Southern Africa. These high prevalence rates are affecting the quantity and quality of the labour force. The United Nations (UN 2004) found that the working age

population in Southern Africa increased from about 21 million people in 1985 to 28 million in 1995 and 33 million in 2005, a relatively slow increase due mainly to AIDS deaths. Indeed, for five countries in Southern Africa (Botswana, Lesotho, Mozambique, South Africa and Swaziland) population growth rates are expected to be negative. And for six countries with HIV prevalence rates above 20 per cent the projected age structure as a result of HIV/AIDS will have serious implications for many aspects of development in the region. Adult deaths due to AIDS are also increasing the number of orphans in Africa (figure 4.1). Southern Africa has the highest share of orphaned children, led by Botswana (20 per cent), Zimbabwe (19 per cent), Zambia (18 per cent) and Lesotho (18 per cent). AIDS orphans make up as high as 75 per cent of the total number of orphans in the subregion. The additional financial burden of taking care of orphans and the loss of intergenerational transfer of skills and knowledge due to adult deaths have a detrimental effect on the ability of households, communities and governments to engage in productive employment in order to increase incomes, achieve structural transformation and reduce poverty.

Figure 4.1
Effect of HIV/AIDS on the number of orphans in Africa, 2003
 (% of orphaned children)



Source: UNAIDS 2004.

Agricultural transformation, rural employment and poverty reduction

Despite decreasing trends in the share of people living in rural Africa, most Africans continue to reside in rural areas where the agricultural sector is the main employer. Indeed, in 2005 some 270 million Africans were employed in the agricultural sector, but they remained some of the poorest working people in the world, due mainly to Africa's failure to transform from a low productivity agrarian system to a modern production system with strong links to other sectors of the economy capable of providing meaningful employment opportunities.

Challenges in African agriculture

Africa's agriculture is characterized by weak knowledge-based subsistence agricultural production systems, incomplete input and product markets that are poorly integrated at the national, subregional and regional levels and low private investment in farming systems and marketing chains. The combined effects of these features include stagnating or declining agricultural productivity, weak backward and forward links between agriculture and other sectors, loss of competitiveness in world markets, increased food insecurity and natural resource and environmental degradation. Revitalizing and transforming Africa's agriculture in order to provide decent employment and reduce rural poverty will require Africa to reverse several unfavourable trends and challenges:

- Low agricultural productivity and poor support for agricultural research and extension.
- Poor water resources management and low irrigation infrastructure.
- Land degradation.
- Poor market infrastructure.

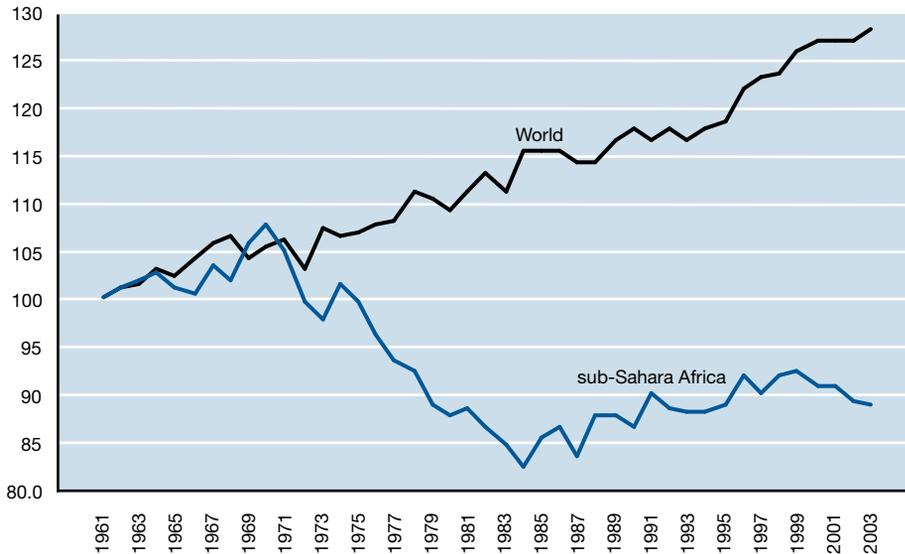
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In 2005,
270 million
Africans worked in
agriculture
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Low agricultural productivity and poor support for research and extension. Agricultural productivity in Africa is only 42 per cent of that in Asia and 50 per cent of that in Latin America (Wolgin 2001). Similarly, factor productivity in agriculture is lowest in Africa, compared with other regions, with labour productivity at only about 57 per cent that of Asia and Latin America. Real agricultural output per worker has stagnated at \$375 over the past 10 years, a 12 per cent decline from the 1980 level of \$424. Furthermore, the share of arable land under cultivation and the share of arable land under irrigation are lowest in Africa. While other parts of the world have increasing agricultural production per capita, Sub-Saharan Africa's is declining (figure 4.2).

Africa's low productivity indicates the magnitude of the potential loss arising from inefficient use of agricultural resources. It also indicates the agricultural sector's potential to exploit productivity-enhancing technological innovations that can boost national output and purchasing power to reverse the current low productivity in agriculture and lead to substantial growth of overall GDP and employment.

Figure 4.2

Agricultural production per capita, 1961–2003 (Index, 1961 =100)



Source: FAO 2005.

But unlike other parts of the world, African agriculture has yet to embark on a sustainable path to a green revolution. One of the most important requirements for increasing the productivity and competitiveness of African agriculture is to significantly reduce the unit costs of production and distribution by increasing agricultural productivity. The problem, however, is that there is only a limited cumulative stock of useable improved technology in African countries. Many African farmers are still using low yielding agricultural technology, which contributes not only to low production but also to reduced labour productivity and often to environmental degradation.

Public investment in research and technology generation and diffusion is needed to encourage broad-based adoption of available technology. In addition, there is a need to strengthen indigenous capacities to develop, adapt and diffuse the kinds of technology needed by low-income producers to effectively compete in domestic, regional and global markets. Unfortunately, government and donor funding for agricultural research has dwindled in recent years, diminishing the capacity of public research institutions. Gaps left by reduced funding have not attracted private sector involvement due to the long lead times for technology development. Experience indicates that 8–10 years are needed to develop and improve a crop variety for release and 15–20 years for technology to move from first inception to widespread impact on farmers' fields. Since the private sector is unlikely to play a significant role in this area, African governments must continue to provide financial support and maintain human capital in national research systems.

“An African Green Revolution would improve yields and agricultural practices”

Poor water resources management and low irrigation infrastructure. One major lesson from Asia's successful green revolution is that irrigation infrastructure was a key complemen-

tary input to hybrid seed varieties and fertilizer in achieving sustainable improvements in agricultural productivity. Similar successes in Africa, therefore, depend on Africa's capacity to harness its water resources for agricultural production in a sustainable manner.

Africa's reliance on rain-fed agriculture makes farmers vulnerable to poverty and food insecurity because the availability of water for food and agricultural production varies. Recurrent droughts frequently wipe out food harvests, livestock and cash crops. Hence, not much progress towards sustainable development can be achieved until Africa reaches a minimum level of developing and managing water resources for secure food and agricultural production. Although abundant on a regional scale, only about 3.8 per cent of surface and ground water resources available in Africa are harnessed or withdrawn to meet the main uses of water: agriculture, community water supply and industry (FAO 1995). Agriculture uses 88 per cent of the total water withdrawn, but barely 6 per cent of total cultivated land is under irrigation in Africa, compared with 33 per cent in Asia. Challenges that hamper irrigation development include financial constraints and inadequate institutional arrangements at the national and regional level, which are critical to improving performance in the water sector. There is therefore an urgent need for reforms underpinned by cooperation and partnership among countries and subregions in the continent, with the water basin serving as the basic unit for resource management.

Poor land management and land degradation. Improving land management for agricultural production and overall rural development requires improved security of tenure and better land distribution in Africa. The United Nations Economic Commission for Africa (UNECA 2004) found that the contribution of land to economic growth depends on the security of property rights, which provides incentives for investment in agriculture and natural resources, thereby contributing to increased and sustained agricultural productivity and natural resource stewardship. In many parts of Africa forms of tenure do not provide enough security to promote and support private investment and to facilitate resource mobility for efficient agricultural production. In addition to issues of tenure security, acute unequal distribution of land must be addressed, along with the increasing social conflicts associated with such entitlement failures. Access to land and security of land rights are therefore central to policy efforts and strategies aimed at agricultural transformation.

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Food insecure,
most of SSA relies
on rain-fed
agriculture
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Land degradation, one of the most serious threats to the sustainability of farming systems in Africa, is a result of both fragile physical conditions and poor land management. Africa accounts for an estimated 27.4 per cent of the world's land degradation, and some 500 million hectares of land in Africa have moderate to severe degradation (UNEP 2000; WRI, IUCN and UNEP 1992). Indeed, about 65 per cent of total cropland and 30 per cent of the continent's pastureland are affected by degradation, with consequent declining agricultural yields.

Poor market infrastructure and low market access. Access to markets complements technological innovation in catalyzing agricultural and rural growth. Unfortunately, the African food and agricultural market is characterized by extreme fragmentation along subregional, national and even subnational borders, resulting in segmented markets of suboptimal size. African markets are also unable to ensure optimal profitability for private investment in the different stages of modern commodity chains. Paradoxically, while these fragmented

national and subregional markets are close to each other, they have become increasingly open to trade with the world outside of the region (see chapter 6). As a result, the gap between national and subregional domestic production and increasing regional demand tends to be filled by non-African imports. Conversely, the fragmented national food and agricultural systems of African countries strive to produce for exports aimed primarily at international markets outside the region. To make things worse, agricultural subsidies and support measures of key trading partners of Africa typically encourage the continent's imports and hinder its exports. Thus, with an annual agricultural import bill of \$15–\$20 billion, one of the biggest challenges that Africa faces in market access is granting full access for the domestic food and agricultural systems to the regional (intra-African) market.

Adverse effects of HIV/AIDS on capital, land and agricultural production. HIV/AIDS exacerbates cash constraints due to expenses on illness and funerals and reductions in wage income by family members who take up care-giving roles. Evidence suggests that affected families sell productive assets (small animals, farm equipment, cattle, land) to meet these expenses (Yamano and Jayne 2004). This reduction in capital for agricultural production may limit the capacity of small-scale farmers to produce marketable surplus from farming activities. In addition, the sale of assets by poor households to wealthier ones may concentrate wealth and increase inequalities in rural areas over time. Women are particularly disadvantaged as a result of HIV/AIDS because they are the primary caregivers whose time is drawn away from income-earning activities as family members fall sick (Opiyo 2001).

As afflicted households lose family members who possess the rights to own and use land, disputes relating to use and inheritance may increase over time (Barnett and Blaikie 1992). Poor households and those headed by women may be especially disadvantaged by the loss of land rights. Although households that are no longer able to use their land would often prefer to rent it out, many, especially widows, are reluctant to do so for fear of eventually losing it. Current agricultural land policies do not provide adequate security of tenure for vulnerable households, particularly those headed by women—nor do they protect landowners who wish to rent land. Cumulative loss of land rights may lead to land concentration among the wealthy and hence increase income inequality in many countries (Lehutso-Phooko and Naidoo 2002). The loss of households' capacity to maintain productive assets may decrease agricultural productivity and production, hampering Africa's efforts to achieve a structural transformation.

The impact of HIV/AIDS deaths on agricultural production depends on the age, sex and position of the victim. The death of the head of the household in a poor household has detrimental impacts on production due to loss of off-farm income, reduced area cultivated, reduced labour for weeding and reduced use of other inputs due to lack of finance. Evidence from Kenya shows losses of up to 68 per cent of production when the male head of the household dies (Yamano and Jayne 2004). Other studies find negative impacts on the commercial sector due to rising costs and falling profits as a result of HIV/AIDS (Rugalema 1999; Fox and others 2003). To the extent that, as some evidence suggests, HIV/AIDS might induce farmers to move away from the production of high input crops (such as maize) to low input crops (such as cassava or sweet potato), the pandemic can have a profound impact on agricultural transformation, which requires a move to more high value marketable agricultural output.

“HIV/AIDS deepens cash constraints for afflicted households”

Opportunities to modernize African agriculture

Africa must harness existing and emerging opportunities to foster agricultural development for a successful structural transformation of the continent. Positive trends towards democratization, decentralization and improved governance in Africa bring hope for greater participation of formerly excluded stakeholders in policy and public sector programme decisionmaking and implementation. Macroeconomic and sector policies in Africa are on a path of positive evolution as well, creating better incentives for the development of private sector initiatives (see chapter 7).

Recent land reforms in Africa demonstrate that many African governments realize the importance of providing access to land and security of tenure. The general consensus surrounding these initiatives is that both individual and collective land rights can foster sustainable land management practices and higher agricultural productivity. Therefore, the newer regimes of land reforms in Africa recognize land ownership both under customary and statutory tenure systems. To accompany land policy changes, some African countries are engaged in land regulation and administration reforms, mainly in the context of broader reforms emanating from recent democratization and decentralization (table 4.4).

At the regional level, the New Partnership for African Development (NEPAD) has provided several opportunities for African economies, including in the agricultural sector. NEPAD's Comprehensive African Agricultural Development Program highlights the importance of the agricultural sector to the continent's development by outlining areas in agriculture that should receive immediate attention, both in terms of international funding and local funding efforts through government budgets and private sector financing (box 4.1).

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Individual and
collective rights
foster sustainable
land management
practices
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Box 4.1 *The Comprehensive African Agricultural Development Program*

The Comprehensive African Agricultural Development Program (CAADP) is a NEPAD initiative that provides a framework to revitalize agriculture and rural development and achieve food security in Africa. The targets for the programme are that by the year 2015 Africa should have attained an average annual growth rate of 6 per cent in agriculture, developed dynamic domestic and regional agricultural markets, become a net exporter of agricultural products by improving market access and integrating farmers in the market economy, achieved a more equitable distribution of income, become more involved in agricultural science and technology development and used better natural resource management techniques.

The programme's initiatives address NEPAD's four thrusts in the area of agriculture and food security, mainly to extend the area under sustainable land management and reliable water control systems; improve rural infrastructure and trade-related capacities for market access; increase food supply, reduce hunger and improve responses to food emergency crises; and improve agriculture research, technology dissemination and adoption.

The four Comprehensive African Agricultural Development Program pillars and their corresponding programmes and initiatives include:

Box 4.1 (continued)

- Extending the area under sustainable land management and reliable water control systems (the land management programme and the water management and irrigation initiative).
- Improving rural infrastructure and trade-related capacities for market access (agribusiness, supply chain and quality control initiative and the regional trade facilitation initiative).
- Increasing food supply and reducing hunger (the regional strategic food reserves and risk management systems, homegrown school-feeding programme African nutrition initiative).
- Disseminating and adopting agricultural research technology (the multicountry agricultural productivity programme, the Pan-Africa cassava initiative, the Pan African NERICA [New Rice for Africa] initiative and the fish sector development programme).

In addition, the Comprehensive African Agricultural Development Program also includes two cross-cutting parts:

- Academic and professional training to strengthen capacity for agriculture and agribusiness.
- Information and knowledge systems to support strategy formulation, governance and implementation support for the Poverty Reduction Strategy Paper.

Source: NEPAD 2004.

“
Nepad aims
to revitalize
agriculture too
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At the international level globalization offers hope for African agriculture through new market opportunities for new high value products, as well as foreign direct investment: access to biotechnology and improved information and communication technology. The biotechnological revolution holds great promise for increasing the productivity of food and agriculture systems, even more dramatically than the green revolution (Juma 1999). And revolutionary developments in information and communication technology have drastically reduced the cost of processing and transmitting information and, therefore facilitated access to information about agricultural technology, improved early warning systems, market opportunities, price and demand. If necessary capacities are built, increased access to information technology will offer new opportunities for agricultural education, agricultural research and agricultural extension, in addition to conveying information on markets, transport options, road conditions, weather and employment opportunities.

The rural nonfarm sector for employment and poverty reduction

The share of nonfarm income in rural households is 20–50 per cent in developing countries (Islam 1997). Reardon (1997) found that the main source of income for at least one member of every rural African household is a nonfarm enterprise. And, although only 10 per cent of

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*Everywhere
 Africa is addressing
 land-related
 challenges*
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Table 4.4
Addressing land-related challenges through policy and institutional reforms

Land-related challenge	Example of policy response
Security of tenure	<ul style="list-style-type: none"> • Côte d'Ivoire's rural land plan seeks to identify and map all existing rights in order to give them legal status (Delville 1999). • Cameroon's 1974 land ordinance rescinded legal recognition of customary and communal tenure rights and imposed land titling as the only means of acquiring private ownership (Hobbs 1996). • Uganda's 1995 constitution transfers title from the state straight to landholders.
Conflict management	<ul style="list-style-type: none"> • Niger's 1986 rural code seeks to resolve land tenure conflicts (Lund 1993).
Decentralization of land administration	<ul style="list-style-type: none"> • Land boards were established in Botswana (now also in Namibia and Uganda), rural councils in Senegal, land commissions in Niger, community trusts and communal property associations in South Africa and land committees in rural Lesotho. • Public participation in decisionmaking through local institutions was improved. • Lesotho's 1998 land regulations require land committees to revoke an allocation in the event that the recipient refuses to adopt soil conservation measures.
Sustainable management of natural resources	<ul style="list-style-type: none"> • Mozambique's National Policy on Land of 1995 seeks to enforce ecologically sustainable use of natural resources. • The White Paper on Land Reform in South Africa shows that sustainability of production and the environment are key elements of the land reform process. • Land consolidation in Kenya helps in curbing land fragmentation and restoring production efficiency. • Maximum farm size regulations were introduced in Zimbabwe.
Land use development and agricultural productivity	<ul style="list-style-type: none"> • There are proposals for land taxation in Namibia's land policy • The Swynnerton Plan of Kenya supported African agriculture through agricultural research programmes, credit schemes, transfer of new technology and introduction of high value crops and a new set of institutions. • Ethiopia's agricultural development-led industrialization seeks to increase the productivity of smallholder farmers by dispersing fertilizers and improved seeds, establishing credit schemes and providing support services.
Equitable redistribution to reduce landlessness	<ul style="list-style-type: none"> • Redistributive land reform policies seek to give more land to landless blacks in Malawi, Namibia, South Africa and Zimbabwe. • Mozambique's 1998 land law recognizes the right to land through occupation on the part of rural families, based on oral testimony.
Development of land information system	<ul style="list-style-type: none"> • Kenya's tenure reforms sought to establish a well maintained registry that could be used to monitor land transfers and distribution and provide the basis for introducing property taxes.

Source: UNECA 2004.

rural people are employed in the rural nonfarm sector in Africa, a disproportionately high percentage (42 per cent) of rural incomes is derived from rural nonfarm activities—more than in Asia (32 per cent) and Latin America (40 per cent) (table 4.5).

The rural nonfarm sector's role in rural development and poverty alleviation

The rural nonfarm sector integrates farming into the national and international value chains helping to transfer value addition to rural areas in the early stages of economic development (Start and others 2001; Davis and Bezemer 2003). At this stage activities of the rural nonfarm sector are closely linked to agriculture, the main employer of the rural labour force. Rural nonfarm enterprises are located mainly in the countryside and are related to the provision of agricultural inputs and services, crop processing and distribution. A dynamic agricultural sector is therefore associated with more rural nonfarm activity. In the second stage of rural nonfarm sector development rural-urban links become stronger, with workers commuting from rural areas to small towns for employment, and agroindustries grow rapidly, although farming is still important. The third stage sees greater emphasis on rural-urban links, more employment in nonagricultural activities and a move towards commercial agriculture. Sub-Saharan Africa is early in the first stages of rural nonfarm sector growth, while Latin America is in the second stage and East Asia is in the third (Gordon and Craig 2001).

To the extent that rural nonfarm incomes help smooth out fluctuations or offset shortfalls in farm incomes, rural nonfarm activities contribute to poverty reduction. Rural nonfarm incomes allow households to overcome credit and risk constraints on agricultural innovation, permitting crucial farm investments to raise productivity and increase farm incomes (Tiffen and Mortimore 1992; Ellis 1998; Reardon and others 1998). In addition, the rural nonfarm sector provides employment for the landless poor. Indeed, about 60 per cent of the landless poor in Asia and 30–50 per cent in Sub-Saharan Africa depend on rural nonfarm employment for their livelihoods (Ellis 1998).

Table 4.5
Involvement in rural nonfarm employment (%)

Region	Share of income from rural nonfarm activity	Share of rural workers in rural nonfarm activity	Share of women in total rural nonfarm workforce	Share of rural nonfarm workers in manufacturing	Share of rural nonfarm workers in trade and transport	Share of rural nonfarm workers in other activities	Share of rural nonfarm workers in other services
Africa	42	10	26	24	22	24	30
Asia	32	24	20	28	26	32	14
Latin America	40	35	27	20	20	27	33
Eastern Europe	44	47	37	38	20	27	15

Source: Haggblade, Hazell and Reardon 2002.



*Nonwage
employment helps
close the gap
between the poor
and the wealthy*



Demeke, Guta and Ferede (2003) explored the links among growth, employment and poverty reduction and found that although the rural nonfarm sector alleviates destitution because it is a refuge for poor people, it cannot eradicate poverty on its own. While households with resources can have access to rural nonfarm activities that yield high returns, for the majority of rural workers the rural nonfarm sector provides only a low-level livelihood and a safety net. Some (Reardon and others 1998) have even argued that the rural nonfarm sector actually works best for those with resources and education: the ones who need it least.

The failure of most rural nonfarm sector interventions to adequately address poverty lies in the fact that they have focused on self-employment as an entry to the sector. However, self-employment in the rural nonfarm sector can reinforce unequal income distribution because self-employment is most accessible to wealthier, more educated people, especially men, who also control most of the household resources. If poverty reduction and equity are intended outcomes of interventions in the rural nonfarm sector, it is also important to focus on increasing opportunities for wage employment by encouraging the development of small and medium-size enterprises. Unlike self-employment, wage employment helps to close the gap between poor and wealthier households. Therefore, integrating poor people into the labour market can be a viable strategy for both income generation and equity.

Lessons from Park and Johnston's (1995) study of Taiwan Province on China's early stages of development suggest that small and medium-size enterprise growth responds to rural demand, especially if they are related to rural consumption (for example, food and beverages, tobacco manufacturing, textiles, wood, nonmetal furniture, transportation equipment), or if they trigger technological links (for example, metal workshops and enterprises for simple agricultural tools and spare parts). At later rural nonfarm sector development stages enterprises and industries that produce more complicated equipment for other markets may be viable. But in the initial stages labour-using, land-saving productivity-led growth enables broad-based farm and nonfarm cash income growth, which fosters rural demand links and poverty reduction.

Factors influencing growth of and participation in rural nonfarm sector employment

For rural nonfarm activities to increase employment and income creation and reduce poverty, they must be accessible to the poor. Understanding the factors that increase accessibility is therefore crucial. Gordon and Craig (2001) show that possessing capital enhances the capacity to access opportunities offered by the rural nonfarm sector. Their analysis cites five types of capital as crucial to participation: human, social, physical, financial and natural capital. As discussed earlier, growth in the agricultural sector is also key to developing a vibrant rural nonfarm sector.

Human and social capital. Skills, knowledge and health are the key elements of human capital needed to pursue different types of livelihood strategies, while social capital includes networks, relationships and trust, which people draw on in search of livelihood

opportunities. Personal factors such as level of education and vocational training, gender, health status and networks determine the level of human and social capital.

There is a positive correlation between education and rural nonfarm employment. Islam (1997) and Reardon (1997) argue that primary education enhances productivity, while secondary school education stimulates entrepreneurial spirit. Education increases one's ability to interact with key people important to rural nonfarm business opportunities. In addition to formal education, vocational training is important in providing specialized skills for business development (Reardon and others 1998; Lanjouw 1999; Bryceson 1999).

Despite the fact that the majority of women live in rural areas, they are clearly disadvantaged in their access to rural nonfarm employment. This implies that gender is an important factor in determining rural employment in Africa (see chapter 2). Only 26 per cent of African women are engaged in rural nonfarm activities (see table 4.5). The lack of women's access to rural nonfarm employment can be explained by the fact that women are disadvantaged with regard to most factors key to job entry (education, financial capital, time and so on). Female heads of households are pushed towards rural nonfarm employment by the need to sustain their families. Because most of these women are in control of their income and other resources, they have an incentive to engage in rural nonfarm activities.

The health status of members of the household significantly affects their ability to engage in income-generating activities. HIV/AIDS, in particular, mainly affects people at the peak of their productivity, significantly hindering their participation in rural nonfarm employment. By constraining household time and resources, the pandemic also affects the participation of other household members, particularly women. Some of the coping strategies adopted as a result of HIV/AIDS, for example withdrawing children from school, can also have long-term impact on participation (White and Robinson 2000). The presence of sound healthcare systems improves participation in employment by reducing morbidity, improving nutrition and increasing labour productivity and rural incomes (Islam 1997).

Social bonds formed at school and elsewhere have often proved crucial to success in rural nonfarm activities. Fafchamps and Minten (1998) show that social capital in the form of social networks can reduce transaction costs and increase access to economic activities through better access to key information on markets, jobs, loans and other resources. One can deduce that social capital can increase employment and access to rural nonfarm activities. Unequal distribution of social capital can also lead to unequal access to rural nonfarm employment. Results from Africa show that group strategies have the potential to increase or concentrate social capital and help address credit and market access constraints, access to services and overcome barriers to entry. These strategies include producer groups and women's self-help groups with common income-generating activities.

Financial capital. Financial resources such as savings, credit, remittances and pensions constitute financial capital, which is important to engaging in activities, whether in farm or nonfarm sectors (Gordon and Craig 2001). Without adequate financial capital, households remain in those activities which have fewer barriers to entry and, unfortunately, low remuneration. Access to credit, especially reasonable size loans with a realistic maturity, is vital.

“ Nonfarm employment is inaccessible to many women ”

Without it, ownership of assets (such as cattle) is important to investing in rural nonfarm activities. Microfinance schemes with assistance from nongovernmental organizations and donors has proven useful in increasing access to credit. In a study of four African countries Bagachwa and Stewart (1992) found that in 30–84 per cent of rural industries poor access to credit was a limiting factor to business development. Market failure in credit provision relates to inadequate and expensive information on borrowers, inadequate mechanisms for enforcing payments, high costs related to remoteness of rural areas and small sizes of loans, among other items.

Physical capital. Basic infrastructure (including transport, communication, energy and water) complement individually owned production equipment and buildings in the development of rural nonfarm activities. High transaction costs, incurred due to poor infrastructure, deter rural nonfarm sector development. Availability of rural nonfarm jobs is associated with good infrastructure, high market density and high population density, particularly in the form of rural towns (Reardon and others 1998).

Box 4.2

CAMPFIRE, Zimbabwe: community-based natural resource wildlife management

Zimbabwe's Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) began in the mid-1980s and provides a legal and managerial framework to assist local communities in sustainably managing their entire ecosystem (plants, animals and people). By 1993 the programme covered 26 six districts, and each village had a wildlife committee responsible for counting animals, conducting antipoaching activities and resolving conflicts. Community game scouts are trained to assist as game rangers. Hunting quotas help monitor and maintain wildlife populations with the help of the Department of National Parks. The World Wildlife Fund assists with aerial surveys, while villagers carry out surveys and mapping on the ground. Regular workshops are held to collate and reconcile information from the various sources.

Benefit to the communities

The activities that provide employment and income from CAMPFIRE include trophy hunting concessions to hunters and safari operators (90 per cent of income), selling wild animals with populations beyond their carrying capacity, harvesting and selling natural resources such as crocodile eggs, caterpillars and river sand, as well as skins and ivory from “problem animals”, tourism and selling wild meat.

The programme has created jobs for local people and provided training for local communities as environmental educators, guides and game scouts, among others. In addition, about 80% of the income from the programme goes to the local communities, which collectively decide how to spend it, and 20 per cent is used for administering and managing the projects. Incomes from the programme have contributed to local service provision and infrastructure development—for example, building clinics and schools, drilling wells and erecting fences and roads. During famines the funds contribute to food purchases for the local communities. CAMPFIRE is estimated to have increased rural incomes by 25 per cent.

Source: http://www.globaleye.org.uk/archive/summer2k/focuson/mars_pt1.html.

In addition to facilitating rural nonfarm sector growth by reducing transaction costs, roads, electricity and telecommunications infrastructure enhance rural town development (Ellis 1998). These towns in turn facilitate local intersectoral links and serve as market outlets for local manufactured goods and services. They are also employment centres for commuters from rural farms, and they provide services for farm workers, such as retail shops, restaurants, petrol stations and the like. Rural towns are where agroprocessing usually takes place, due to the support services, access to transport and other infrastructure available. Rural towns are also important as intermediate marketing centres, linking rural remote areas to more developed markets elsewhere.

Natural capital. Natural resource endowments, including land, water, wildlife and minerals, help to determine the nature of rural nonfarm activities. Activities such as timber processing, fishing, mining, construction and tourism depend on the resource endowments of a certain area. Natural resource endowments need other factors if they are to facilitate rural nonfarm activities. Box 4.2 provides an example of how the presence of wildlife can help stimulate rural employment and growth through community-based management in Zimbabwe.

“Mechanization, in later stages, leads to surplus labour”

Agricultural development

Experience based on Asia’s green revolution and partial success in Africa shows that agricultural development is crucial to the development of rural nonfarm activities and employment (box 4.3). Indeed, agriculture is the single most important factor to growth in the rural nonfarm sector. Agricultural surpluses enable growth of upstream and downstream activities, providing inputs to the rural nonfarm sector. As intensification occurs during the early stages of agricultural transformation, rural labour shortages may be absorbed in agriculture. However, mechanization in later stages leads to surplus labour, which can be absorbed through rural nonfarm activities. While agriculture is important to rural nonfarm sector growth the inverse is also true: growth in the rural nonfarm sector fuels and facilitates agricultural growth.

Box 4.3

Using a green revolution for rural transformation, employment and poverty reduction: lessons from Uganda

The Luwero Triangle is an area in central Uganda that was devastated by war in the 1980s. When the rural population returned after the war, the people faced problems relating to the low productivity of bananas and other crops, limited infrastructure (including roads, markets and electricity), poor market integration and the devastating impact of the HIV/AIDS pandemic. In 1998 researchers at the Uganda National Banana Research Program at the Kawanda Agricultural Research Institute started to work with farmers and other sectors (including health and education) to design an integrated rural development strategy that focuses on banana production.

Using participatory techniques for scientific, technological and communication development, researchers, extension workers, farmers and participants from other sectors set out to introduce

Box 4.3 (continued)

modern and improved varieties of high yielding banana seedlings, increase the use of manure, introduce modern scientific management of water, soils, pests and diseases and encourage market-oriented production.

So far, rural nonfarm activities, ranging from processing, marketing, infrastructure development and even public administration, are being stimulated with concomitant employment creation in the Luwero Triangle. For example, groups of young men have gained employment by providing motorcycle transport services (“bodaboda”) to move the increased yields in bananas, coffee and passion fruit to markets. Village processors are producing banana chips, banana flour, banana juice and Uganda Waragi (a potent distilled gin popular across the Great Lakes Region). These village processors are connected to Kampala-based transporters with lorries, who convey the produce to national, regional and even overseas markets. This is the beginning of small and medium-size enterprises joining the value chain.

Source: UNECA 2003.

“ Small and medium enterprises begin to join the value chain in Uganda ”

Recommendations for achieving structural transformation in Africa

To improve the lives of millions of poor people, Africa’s economies must provide jobs that facilitate decent standards of living by addressing the challenges related to achieving a demographic transition, slowing the spread of HIV/AIDS and mitigating its impacts on the economy, transforming agriculture and developing a rural nonfarm sector.

Achieving a demographic transition

Lessons from Botswana, Mauritius and Tunisia, which have made significant gains in achieving a demographic transition, point to the importance of strong economic performance accompanied by better education and access to health as crucial factors to achieving a demographic transition (UNECA 2001). The experience in these countries also shows that socio-cultural changes are crucial to achieving a demographic transition. Efforts to reduce fertility rates should aim to:

- Increase the age at which women have their first child by, for instance, enacting and enforcing marriage laws.
- Increase education and employment opportunities for women and girls to empower them to be more involved in decisions relating to marriage and child bearing. Education and participation in the labour force also increase the opportunity cost of rearing children, thus reducing fertility rates.

- Reduce unintended births by meeting the unmet need for contraceptives. This would not only reduce fertility, but also reduce maternal mortality by reducing the number of abortions and deaths among high-risk mothers.

Controlling the spread of HIV/AIDS is necessary to facilitate a demographic transition, while human capital development is necessary for a structural transformation of Africa's economies. It is thus recommended that African governments, their development partners, civil society and other stakeholders scale up their support to HIV/AIDS programmes for prevention, treatment and care by:

- Harnessing lessons on how governments, communities and households are coping with the effects of HIV/AIDS to provide useful insights into how Africa can mitigate the impact on structural transformation.
- Working through existing indigenous community mechanisms with a view to strengthening indigenous responses to the AIDS pandemic.
- Mobilizing financial resources to strengthen the campaign on HIV/AIDS awareness and prevention using all available media.
- Strengthening Africa's participation in processes aimed at scaling up treatment, including the procurement of affordable drugs.
- Strengthening human and financial capacity to respond to needs related to prevention, treatment and care.

Transforming African agriculture

Addressing challenges related to agriculture in a comprehensive and integrated manner is crucial to triggering a structural transformation for job creation and poverty reduction. This can be achieved through decisive efforts to expand appropriate research, knowledge and technology for increased productivity at all stages of the agricultural commodity chains; improve the management of water resources; catalyze land policy and associated institutional reforms; address crucial market development and market access issues; and mitigate the impacts of HIV/AIDS on agriculture.

Harnessing technology for agricultural transformation.

It is recommended that Africa:

- Harness both conventional green revolution as well as emerging gene revolution technology to make significant headway towards sustainable agricultural development and food security. In so doing, Africa must harness both the public and private sectors in research as well as in technology development and dissemination to seek out and use these opportunities.

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Strengthening
indigenous responses
to HIV/AIDS help
communities tackle
the pandemic
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- Increase public funding to research but also foster partnerships with the private sector, specifically in areas that are attractive to the private sector (such as crop and livestock breeding), and assimilate and adapt new technological advances in molecular biology, especially for cash crops. By contrast, the public sector should continue to focus on improving farming systems, farming practices and environmental sustainability.
- Diffuse technology by providing innovative extension services through partnerships with farmers and the private sector and by using information and communication technology.

Developing and managing water resources. To face the challenge of managing water resources to transform agriculture and the rest of the economy, African countries and their development partners should seek to:

- Significantly increase the total agricultural area under irrigation over the next decade by providing loans, grants and technical assistance to small-scale systems managed by local associations and by facilitating large-scale irrigation projects where appropriate.
- Develop the irrigation potential of the major river basins by creating an enabling legal and institutional environment and public-private partnerships.

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Improving
water resource
management can
transform agricultural
practice
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Box 4.4
Progress on implementing the African Water Vision 2025

The African Water Vision 2025 was launched at the Second World Water Forum held at The Hague, Netherlands, in March 2000. There the chief executives of the Organization of African Unity (now the African Union), the United Nations Economic Commission for Africa and the African Development Bank requested real and concerted follow-up actions. A technical meeting in Addis Ababa divided tasks among the three regional organizations as follows:

- The African Union would mobilize political support and enhance political will for the implementation of the vision.
- The United Nations Economic Commission for Africa would mobilize UN systemwide capabilities for technical analysis for implementation.
- The African Development Bank would mobilize financial resources for the implementation of the vision.

To date a fruitful process of raising awareness on the critical role of water for African development has been successful. Achievements include:

- The formation of the African Minister’s Council on Water and its engagement in partnerships with the European Union, the Group of Eight and many other development partners.

Box 4.4 (continued)

- Technical analysis led by the UN system organized as UN-Water/Africa has resulted in projects, programmes and initiatives such as Water for African Cities led by the United Nations Human Settlements Programme, the African Water Development Report and Information Clearing House led by the United Nations Economic Commission for Africa and numerous other smaller initiatives, including Water as an Instrument of Regional Integration and Gender and Water Resources Management in Africa.
- Financial resource mobilization led by the African Development Bank has resulted in initiatives such as the African Water Facility and the Rural Water Supply and Sanitation Initiative. Operational since May 2005, the African Water Facility has raised \$80 million towards its goal of \$600 million.

Source: UNECA, OAU and AfDB 2000; UN-Water 2004; AU 2004.

- Harness and build partnerships at the subregional and continental level to mobilize finances and political will, as happened with implementation of the African Water Vision 2025 (box 4.4).

Enhancing land policy formulation and implementation. It is recommended that Africa:

- Continue to undertake land tenure reforms that legally recognize the different types of socially legitimate types of land ownership (both communal and private), drawing on current land policies and reforms in Africa.
- Promote female ownership of land in rural communities and devolve formal power to local communities and individuals in managing natural resources.
- Build capacity in institutions of land administration, including traditional organizations where appropriate, to speed the implementation of land reform.
- Examine complementary laws, such inheritance laws, with a view to making them consistent with the land reform agenda.

Market development and access. Addressing the problem of market development and access calls for major efforts at the national, regional and international levels.

At the national level there is a need to:

- Deepen and complete agricultural policy reforms and market restructuring processes under way by adopting institutional, legal and financial frameworks that promote private investment in agribusiness and agroindustrial enterprises. Emphasis should be placed on small-scale industries capable of diversifying food and agricultural products, supplying agricultural inputs in a timely manner and providing basic transport and marketing services.

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The African
Water Vision 2025
means political
support for water
management
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- Significantly increase the density of rural and feeder road networks, with greater involvement of decentralized rural communities in direct investment and maintenance to create rural employment.
- Enact appropriate regulations on product standards to improve the quality and increase the competitiveness of food and agricultural products.
- Promote the development of strong and effective market information systems by devising ways to mobilize private participation for building and strengthening national systems of market information collection and analysis and dissemination. The Kenya Agricultural Commodity Exchange provides an example of how harnessing information and communication technology to provide marketing information can help integrate agricultural markets and increase returns to farming for actors along the agricultural commodity chain (box 4.5).

At the regional level efforts to improve regional economic integration and cooperation should be guided primarily by efficiency and comparative advantage rules. Some initiatives are already under way to enhance regional integration by harnessing private-public partnerships to improve market access (box 4.6).

At the international level Africa must continue the dialogue with its development partners, encouraging them to enhance coherence in their support policies and interventions. The promotion of regional integration should be included in their efforts to assist African countries in agricultural sector reforms.

Mitigating the impact of the HIV/AIDS pandemic on agriculture. Mitigating the effects of HIV/AIDS on rural households and communities will go a long way in facilitating a transformation of agriculture and growth in other sectors of the economy. In this regard, it is recommended that African governments, development partners and other stakeholders:

- Develop functioning land rental markets and help afflicted households earn revenue from renting unused land.
- Mainstream gender equality and minimize other forms of discrimination in development policies and strategies, including policies related to land tenure security, access to water and fuel.
- Intensify technology transfer for animal health to increase the stock of healthy livestock and develop draft rental markets.

“Private-public partnerships enhance regional integration”

Box 4.5

Harnessing information and communication technology for market access in Kenya

The Kenya Agricultural Commodity Exchange (KACE) was launched in 1997 to harness information and communication technology in order to link sellers and buyers of agricultural commodities and provide timely marketing information. KACE's market information services use several types of information and communication technology-based media: market information points, market information centres, short messaging services, interactive voice response service, regional commodity trading and information systems and a website. Through these avenues, KACE collects, processes and disseminates information to clients—including farmers, including smallholder farmers in remote rural areas, commodity dealers, exporters and importers—at different stages in the agricultural commodity value chain.

At the 11 market information points located in rural market centres across the country, marketing information on prices is collected and disseminated to buyers and sellers using bulletin and writing boards. The market information points also serve as a trading floor to link buyers and sellers of commodities in a transparent and competitive manner. Market centres have electricity and telephone access, and market information points are linked by Internet, email and telephone to the KACE headquarters in order to facilitate the flow of marketing information among points and hence link buyers and sellers across the country.

Market information centres are located at district headquarters and are equipped with telephones (landline and mobile), fax and computer (with email and Internet) access. They manage and service the market information points in remote market centres without electrical power supply or fixed-line telephone services by linking market information points and KACE headquarters.

The KACE headquarters processes information received from market information points and centres and sends it directly back to the points or through the centres. This information is downloaded and displayed at the market information points, where users access the information free of charge. Costs are recovered as part of the fees and commissions for trade transactions. Information provided includes prices of various commodities in different markets in Kenya, Tanzania and Uganda. Depending on demand, this information is also available at the international level. KACE hopes to expand the scope of information provided to include input supply and access, storage, credit, transport and agricultural extension.

Through an short messaging service marketing information service called SMS Sokoni, KACE also provides information to mobile telephone users in partnership with one of the mobile service providers in Kenya. Callers can also call a landline to get information using the interactive voice response system. The regional commodity trading and information systems database of buyers, sellers, importers and exporters—as well as the KACE website—are also viable sources of KACE information.

Source: *www.kacekenya.com.*

Intervention in rural nonfarm economy

To increase jobs and income, particularly for poor people in Africa, African governments, the private sector and other actors need to facilitate growth in the rural nonfarm economy and ensure poor people's access to these activities by:

- Adopting a market-oriented approach by focusing on producing goods and services that have high marketing prospects and that can meet marketing requirements.
- Identifying markets that are low-risk, expanding and within the reach of producers. Involvement in regional markets is useful because they allow for learning before engaging in international markets.
- Promoting market links by facilitating information flows and communication between producers and input suppliers and buyers. Links can be fostered by organized visits to markets, participation in trade fairs, organized contacts between producer and other subsector players, providing information to producers and consumers.
- Stimulating demand by providing information to consumers in order to encourage their loyalty. Labelling products can provide information on standards and product characteristics. Information can also be provided in trade fairs and through the media. Providing free samples and discounts have also proved viable ways of stimulating and maintaining demand. Strategies to stimulate demand require training and linking producers to relevant private and public institutions in order to benefit from group advertising and promotion, as happens in national advertising for tourism.
- Increasing human capital through training.
- Increasing access to credit by providing support to credit cooperatives and micro-credit organizations and group savings initiatives. It may also be useful to provide subsidies to facilitate access to loans.
- Improving access to infrastructure such as roads, power, water supply and telecommunications.
- Supporting research and development in improved inputs to ensure the availability and use of the cost-reducing and quality-enhancing technology, inputs and equipment in rural nonfarm activities. Private investment in manufacturing equipment, marketing and repairs is crucial. Box 4.7 shows how providing infrastructure (for example, energy) to poor rural women in Mali has created employment opportunities and empowered women to lift themselves out of poverty.
- Promoting producers organizations to overcome the constraints emanating from the small size of enterprises by benefiting from economies of scale in production, marketing and service provision. Successful producer associations require a participatory method to group development with a genuine grassroots approach.

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*Industrial cassava
substituted imports
in 15 industries in
four countries*
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- Forging institutional coalitions by identifying and appropriately defining the roles of various actors.

Box 4.6

Private-public partnerships to expand markets for strategic crops in the South African Development Corporation

As part of a joint partnership between the United States Agency for International Development and the South African Development Corporation, countries in Southern Africa are increasing rural incomes and food security using a market-based strategy to commercialize dry land agriculture and increase the adoption of improved crop varieties and animal health products. The initiative, which started in 2000, seeks to address market constraints relating to nontariff barriers such as grades and standards, sanitary and phytosanitary regulations, transfer of germplasm and intellectual property rights of selected countries—each with a comparative advantage in certain commodities. The initiative looks to expand markets for technology and outputs for commodities, including sorghum, millet, cassava, sweet potato and heartwater (used to control tick-borne diseases).

So far the programme has supported the adoption of 21 new technologies, including a mechanical grain cleaner for removing stones from sorghum before milling. Similarly, the introduction of a chipping and flour-making machine to farmers in Malawi has resulted in the production of better quality cassava chips, flour and starch. Farmers sell these high value products directly to private industry, thereby increasing their incomes.

The South African Root Crops Research Network has been key in establishing multiplication sites of new varieties, which are then sold to farmers by the private sector. The participation of the private sector in commercializing technology, particularly nurseries established by nongovernmental organizations and farmer organizations, has resulted in the planting of 229,000 hectares of new varieties of cassava and 13,000 hectares of new varieties of sweet potato. The sorghum sector has also benefited, with approximately 296,000 farmers, 15 per cent of total sorghum farmers in the region, now using improved seed. The initiative has also facilitated the sharing of millet and sorghum germplasm, generated genotypes for commercialization and promoted alternative seed delivery systems.

Education and advocacy in market expansion have increased the use of industrial cassava as a substitute for imported products by 15 industries in four countries. Four industrial consumers in Malawi have increased use to 1,160 tons, with the potential to increase it to over 7,000 tons. Many industries report lower input costs as a result of substituting imported inputs with local inputs. For instance, one textile manufacturer in Malawi reported saving \$108,000 a year by using local cassava starch. In addition to industrial growth, introducing technology for these drought-resistant strategic commodities has increased food security.

Source: USAID 2004.

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African
governments need
to become more
market-oriented
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Box 4.7

Empowering women by improving provision of modern energy services: the multifunctional platform in Mali

Beginning in 1993 the United Nations Industrial Development Organization and the International Fund for Agricultural Development initiated a programme to supply labour-saving energy services and promote the empowerment of women by providing a multifunctional platform to rural villages in the Sikasso region. A typical multifunctional platform consists of a small diesel engine mounted on a chassis to which up to a dozen pieces of end-use equipment can be attached in order to provide a variety of energy services, including motive power for agricultural processing (grinding and husking mills, vegetable and nut oil presses) and electricity for lighting, welding, battery charging or pumping water.

In most of the villages where platforms were installed, the programme has primarily benefited women by providing them with energy services that replace traditionally time-consuming and labour-intensive activities. It has also helped alleviate the drudgery of survival activities and increased income-generating opportunities for women. In addition, the programme has helped develop the skilled workforce necessary to operate and maintain the platforms and provide new business opportunities and a source of income for the women who own, operate and manage the platforms.

The multifunctional platform programme in Mali has proved a cost-effective approach to reducing energy poverty in rural areas and empowering women by creating income-generating opportunities through affordable modern energy services. Experiences and lessons learned have been so encouraging that the United Nations Development Programme has decided to expand the initiative to other West African countries and to launch a regional multifunctional platform programme covering Burkina Faso, Guinea, Côte d'Ivoire and Senegal.

Source: www.ptfm.net

Conclusions

This chapter reiterates the call to Africans, African governments and their development partners to increase efforts towards achieving a structural transformation of the continent. Such a transformation would offer millions of unemployed and underemployed Africans the chance to attain meaningful employment and achieve a decent standard of living.

A structural transformation in Africa will need concerted efforts towards completing Africa's demographic transition. This requires that Africa catalyze its efforts to reduce fertility and improve social development by adopting programmes and policies to increase employment opportunities and access to education for women and meeting the need for contraceptives. Achieving a demographic transition and structural transformation also requires that Africa address the HIV/AIDS pandemic by scaling up prevention, treatment and care programmes.

Structural transformation of African economics calls for broadening the analytical and programmatic perspective beyond the narrow confines of sectoral development. With respect to the agricultural sector, it requires taking a broader view of the food and agricultural system, which encompasses an integrated approach to investing in improving productivity and efficiency at all the stages of the commodity chains, from research and development to input markets, farm-level production, processing, storage, handling, transport and distribution (marketing and trade) to the final consumer. The links among these stages are key to achieving optimal contribution of the food and agricultural system to broad-based economic growth and transformation through more value-added and income-generating employment. The food and agricultural system, therefore, should be conceived of as encompassing the farming sector and the agribusiness industrial and services sectors. Consequently, agroindustrial and agribusiness development and a green revolution must go hand in hand.

Facing challenges in African agriculture is necessary to ensure that agriculture indeed serves as an engine of growth in a structural transformation of African economies. To achieve significant improvements in agriculture, Africa should harnesses technology by strengthening agricultural research and extension; developing and managing water resources at both the national and regional levels, with a view to increasing the amount of land under irrigation; catalyzing land reform to provide access and security of land rights and hence facilitate private investment in land; and developing and facilitating access to markets, particularly by completing marketing reforms, increasing infrastructure and information systems, facilitating regional integration and pushing for increased access to international markets. In addition, Africa must mitigate the impacts of HIV/AIDS on agriculture by developing and disseminating labour-saving technology; improving healthcare, water provision and sanitation; and addressing gender disparities that make women and children especially vulnerable to poverty.

Enhancing the links between agriculture and other sectors requires a vibrant rural nonfarm sector—crucial to sustaining growth in the agricultural sector and key for amplifying growth effects in agriculture to other parts of the economy. The rural nonfarm sector is therefore needed to achieve broad-based economic growth that is capable of providing employment and reducing poverty. To facilitate the growth of the rural nonfarm sector, efforts to transform agriculture must be accompanied by incentives for market-oriented production of goods and services as well as growth of rural towns. These incentives include facilitating the growth of rural financial institutions to provide credit, providing education and vocational training, promoting market links, building infrastructure (for example, feeder roads, electricity, water), encouraging participatory management of natural resources and providing a conducive business environment through supportive macroeconomic and fiscal policies.

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*Agribusiness
must be part of
an African Green
Revolution*
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