

Africa's special needs

Why has progress toward the Millennium Development Goals proved so difficult in much of Sub-Saharan Africa? The standard diagnosis of Africa is that the continent is suffering from a governance crisis.¹ With highly visible examples of profoundly poor governance, as in Zimbabwe, and widespread war and violence, as in Angola, Democratic Republic of the Congo, Liberia, Sierra Leone, and Sudan, the impression of a continentwide governance crisis is understandable. But it is wrong. Many parts of Africa are well governed, especially considering the extremely low incomes of these countries, and yet even the relatively well governed countries remain mired in poverty and poverty traps. Governance is an issue, but Africa's development challenges are much deeper.

Indeed, using World Bank indicators, there is no evidence that Africa's governance, on average, is worse than elsewhere once we control for Africa's very low income (table 10.1, column 1).² Controlling for income is necessary in evaluating governance since good governance requires resources for wages, training, information systems, and so forth, and thus improves systematically with income levels (chapter 7).

The same findings—that Africa's governance is on par with other regions at comparable income levels—hold when we examine other measures of governance, such as the Corruption Perception Index of Transparency International (2004). Most African countries score as "good" (low corruption) or "average" after controlling for income (table 10.1, column 2). Also, many African countries have become democracies in recent years, and thus are scored as "free" or "partly free" by the well known Freedom House ranking (table 10.1, column 3).

The striking fact is that many of the better governed African countries have been unable to increase the material well-being of their populations (table 10.1, column 4). Cross-country regression results also show that, after accounting

Table 10.1
Governance in tropical
Sub-Saharan Africa
is no worse than
elsewhere, after
controlling for income

— Not available.

Note: The table reports some common governance indicators for a 33-country sample of tropical Sub-Saharan African countries with populations of 2 million or more. Column 1 presents a ranking of African governance from Radelet (2004), who regresses a set of widely used World Bank governance indicators on GNP per capita (Kaufmann, Kraay, and Mastruzzi 2003), and ranks all countries according to the residual from the regression line, thereby standardizing the measurement of governance by the level of income. This procedure recognizes that poorer countries systematically have poorer governance measures than richer countries, since good governance itself requires resources for wages, training, information systems, and so forth.

a. Determined from the residuals of a regression of countries' governance indicators or scores on income per capita (at purchasing power parity); countries with residuals more than 1 standard deviation above or 1 standard deviation below the predicted value are categorized as "good" or "poor," respectively, and those with residuals within 1 standard deviation as "average."

Source: Reproduced from Sachs and others 2004; Kaufmann, Kraay, and Mastruzzi 2003; Radelet 2004; authors' calculations using data in Transparency International 2004; Freedom House 2003; World Bank 2004c.

Country	Rating Based on World Bank governance indicators 2002 ^a	Rating based in Transparency International index 2003 ^a	Freedom House rating 2003	Household final consumption expenditure per capita 2000 (1980 = 100)
Benin	Good	—	Free	99
Burkina Faso	Good	—	Partly free	111
Ghana	Good	Average	Free	93
Madagascar	Good	Good	Partly free	64
Malawi	Good	Good	Partly free	111
Mali	Good	Good	Free	95
Mauritania	Good	Good	Partly free	105
Senegal	Good	Good	Free	100
Cameroon	Average	Average	Not free	103
Central African Republic	Average	—	Partly free	—
Chad	Average	—	Not free	—
Congo, Rep.	Average	Average	—	81
Côte d'Ivoire	Average	Average	Not free	78
Eritrea	Average	—	Not free	—
Ethiopia	Average	Good	Partly free	—
Guinea	Average	—	Not free	—
Kenya	Average	Average	Partly free	101
Mozambique	Average	Good	Partly free	79
Niger	Average	—	Partly free	—
Nigeria	Average	Average	Partly free	—
Rwanda	Average	—	Not free	84
Sierra Leone	Average	Good	Partly free	44
Tanzania	Average	Good	Partly free	—
Togo	Average	—	Not free	112
Uganda	Average	Average	Partly free	—
Zambia	Average	Good	Partly free	47
Angola	Poor	Poor	Not free	—
Burundi	Poor	—	Not free	65
Congo, Dem. Rep.	Poor	—	Not free	45
Sudan	Poor	Average	Not free	—
Zimbabwe	Poor	Average	Not free	88
Liberia	—	—	Not free	—
Somalia	—	—	Not free	—

for initial income in 1980 and the quality of governance, Sub-Saharan African countries grew more slowly than other developing countries, by around three percentage points a year. Africa's crisis thus requires a deeper explanation than governance alone.

Our explanation is that tropical Africa, even in well governed parts, is stuck in a poverty trap—too poor to achieve robust and high levels of economic growth, and in many places simply too poor to grow at all (chapter 3). More policy or governance reform, by itself, is not sufficient to break out of this trap. Africa's extreme poverty leads to low national saving rates, which in turn lead to low or negative economic growth rates. Low domestic saving is not offset by high inflows of private foreign capital, such as foreign direct investment, since Africa's poor infrastructure and weak human capital discourage private capital inflows. With very low domestic saving and low rates of market-based foreign capital inflows, there is little in Africa's current dynamics that promotes an escape from poverty.

The combination of Africa's low domestic saving rate and high population growth rate has led to stagnation in Africa's patterns of capital accumulation. The national income accounts indicate that tropical Sub-Saharan Africa has an average saving rate of about 11 percent, compared with 20 percent in Latin America, 18 percent in South Asia, 19 percent in the Middle East and North Africa, and 34 percent in East Asia and the Pacific (see table 3.1). The situation is even worse than it looks, however, because the national income accounts data almost surely (and substantially) overestimate Africa's true saving rate (chapter 3, figure 3.3). To a significant extent, Africa is living off of its natural capital but counting the resource depletion as income, a point stressed by Sachs and others (2004).

Africa's unique circumstances

To understand why Sub-Saharan Africa is the region with the greatest MDG investment needs, we stress five structural reasons that have made it the most vulnerable region in the world to a persistent poverty trap:

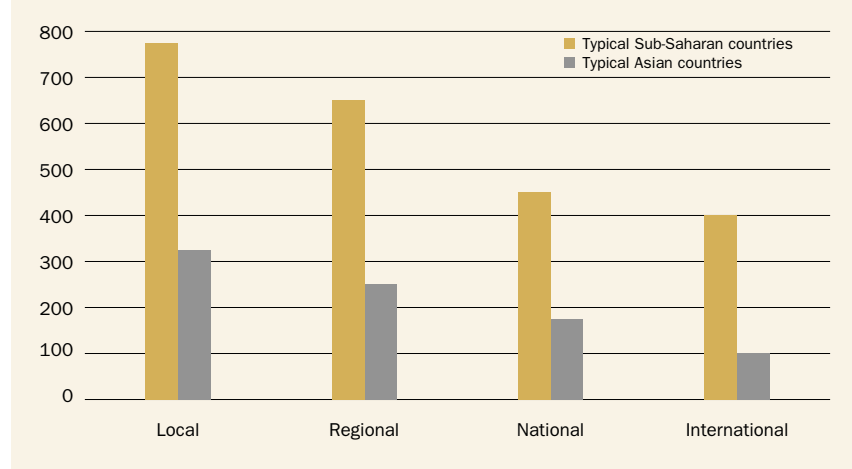
- Very high transport costs and small markets.
- Low-productivity agriculture.
- Very high disease burden.
- A history of adverse geopolitics.
- Very slow diffusion of technology from abroad.

High transport costs and small markets

To a remarkable extent, Africans live in the interior of the continent and face enormous transport costs in shipping goods from coastal ports to where they live and work. These costs are much higher than comparable costs in Asia (figure 10.1). Moreover, Sub-Saharan Africa is effectively cut off by the Sahara from high-volume overland trade with its major high-income trading partner,

Figure 10.1
Relative transport costs in a typical Sub-Saharan country are much higher than in Asia
Transport costs per ton per kilometer

Source: Reproduced from Starkey and others 2002.



Europe, adding to the high costs of transport. Problems of isolation are compounded by small market size. Developing countries with small populations and little access to global trade tend to grow more slowly than countries with large populations or countries with small populations that have easy access to trade, such as Singapore (Sachs forthcoming).

Africans live away from the coast for several reasons. The soils are often better and rainfall more plentiful in the interior highland regions. The burden of malaria is intrinsically lower. And centuries of slave trade made it dangerous for Africans to live near the coast. This problem would not be so severe if the rivers from the interior to the coast of Africa were ocean-navigable—but they are not.

Recent evidence confirms the extremely high transport costs in Sub-Saharan Africa and their severe impact on trade. One study estimates that halving transport costs could increase the volume of transport by a factor of five (Limão and Venables 1999).³ Before high-intensity modern trade can get started, Africa needs an extensive road system from the coast to the interior—and within the interior, where the highest population concentrations are found. These roads, however, are very expensive to build and maintain, particularly on a per capita basis in areas of low population density.

Low productivity agriculture

Africa gets no break on food productivity. Most Africans live in the subhumid or arid tropics, with few rivers to provide irrigation and a lack of the large alluvial plains, typical in much of South and East Asia, that permit cheap irrigation. As a result, Africa has the lowest share of food crops produced on irrigated land of any major region of the developing world. African agriculture also suffers from erratic rainfall, is vulnerable to high seasonal and interannual fluctuations, and is subject to high rates of evapotranspiration due to high temperatures. Indeed, of all major regions, Africa loses the highest share of its precipitation through evapotranspiration (GEMS 1995). In addition, there has

been a secular decline in rainfall across the continent during the past 30 years, perhaps linked to long-term climate change and to rising sea-surface temperatures in the Indian Ocean (Mitchell, Hulme, and New 2002).

High transport costs also mean that African farmers can afford little fertilizer, since by the time they cover the transport costs of bringing fertilizer to the farms—and farm output to the market—fertilizers are no longer cost-effective. Consequently, farmers are farming on soils increasingly depleted of nutrients—and in communities too impoverished to finance roads and water infrastructure that could dramatically raise farm yields. And, as discussed below, the new seed varieties that sparked the Green Revolution in Asia and Latin America are poorly suited to African farming conditions.

Very high disease burden

Africa carries a disease burden unique in the world. In recent years the most prominent disease has been HIV/AIDS, wreaking economic and social catastrophe throughout the region. Approximately 25 million Africans were estimated to be living with HIV/AIDS in 2003, and 2.2 million died from it in the same year (UNAIDS 2004). Today roughly three-quarters of the world's annual AIDS deaths occur in Africa, with women now disproportionately affected. Sub-Saharan Africa's adult HIV prevalence in 2003 was 7.5 percent, while every other region save the Caribbean was below 1 percent (UNAIDS 2004). The spread of HIV is fueling an epidemic of TB, which takes its heaviest toll among young productive adults. In some high HIV prevalence African countries, TB infection rates have quadrupled since the mid-1980s, placing overwhelming burdens on existing TB control programs.

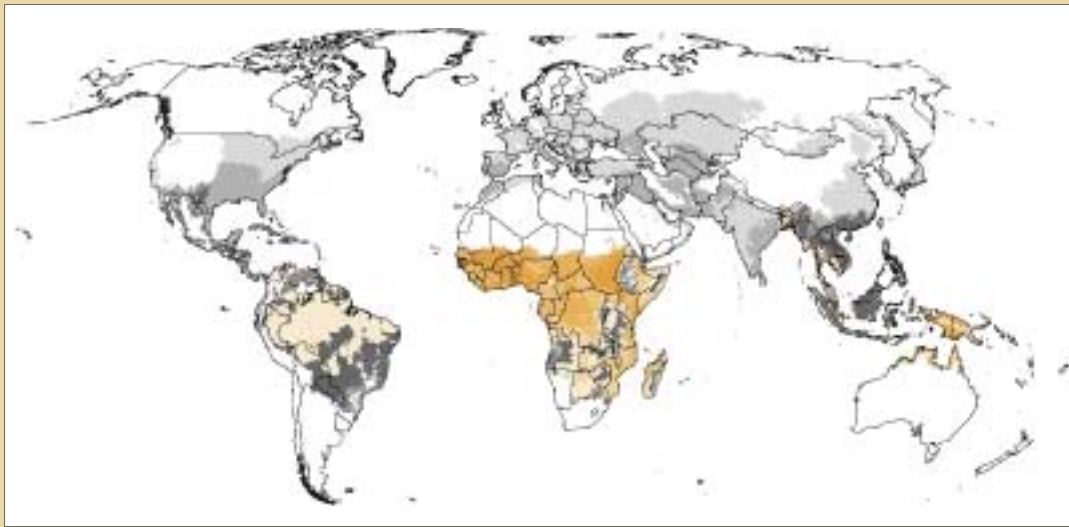
Africa is also home to numerous endemic tropical diseases, especially vector-borne diseases. Among these, malaria is by far the most consequential. Of the more than 1 million malaria-related deaths every year it is estimated that 90 percent occur in Sub-Saharan Africa, the great majority of them among young children (WHO and UNICEF 2003). Many casual observers make the mistake of assuming that since the United States and Europe once had malaria and got rid of it, Africa's ongoing malaria crisis is a symptom of poverty and weak institutions rather than a deep cause. In other words, many ask why should malaria have played any more of a causal (and intractable) role in Africa's development than it did in the southern United States, southern Europe, and other regions that have since eliminated the disease? The answer: disease ecology.

Africa's malaria is much less tractable than in other regions for a combination of climatic and biological reasons. The continent's temperatures, mosquito species, and humidity give Africa the highest malaria burden, as captured in a malaria stability index, a measure of the strength of transmission based solely on ecological factors (map 10.1). Unlike other parts of the world, Africa's malaria mosquitoes are almost exclusively human-biters, which

Map 10.1**Global map of malaria stability index**

Note: Distribution of the actual and potential stability of malaria transmission based on regionally dominant vector mosquitoes and a 0.5° gridded temperature and precipitation data set.

Source: Kiszewski and others 2004.



□ 0 □ 0–0.05 □ 0.05–1.00 □ 1–2 □ 2–5 □ 5–8 □ 8–12 □ 12–18 □ 18–26 □ Higher than 26

enhances the chain of human-to-human transmission. The combination of high year-round temperatures, adequate precipitation for mosquito breeding, and human-biting anopheles mosquitoes has made Africa the global epicenter of malaria from time immemorial.

Malaria contributes to a classic poverty trap. With enough investments, even Africa's malaria morbidity and mortality could be controlled, though not eliminated, with current technologies. But control would require substantially more money than Africa can afford. Thus, Africa is too poor to control malaria, while the disease reduces productivity, frustrates foreign investment, and delays or stops the demographic transition (by contributing to very high child mortality rates), helping to keep Africa poor.

A history of adverse geopolitics

On top of the structural challenges, Africa has suffered brutally at the hands of European powers for almost five centuries, and the record with Arab powers

has been little better. A massive slave trade helped undermine state formation and may have depopulated Africa's coastal regions. In the nineteenth century, the slave trade was replaced by direct colonial rule and a century of exploitation by European imperial powers, who left very little behind in education, health-care, and physical infrastructure.

The starting conditions in Africa in the 1960s were far behind those of other parts of the developing world (table 10.2). Contrary to casual discourse (the common comparison of Ghana and Korea in the 1960s, for example), African countries at the time of independence had very few individuals with higher education, very few paved roads, almost no electrification of rural areas where the bulk of the population lived, and food yields far below those of other parts of the developing world. Africa had a much harder path to follow, and was much more vulnerable to getting stuck in a poverty trap. Adding to the burden, during the Cold War politics of the late twentieth century, many African countries found themselves to be battlegrounds in a global ideological struggle.

Very slow diffusion of technology from abroad

Africa has been the great laggard in technological advance, notably in agriculture and health. The uptake of technologies to prevent and treat major diseases, such as malaria, has been extremely slow. In agriculture, most of the developing world had a Green Revolution surge in crop yields in the 1970s–90s as a result of scientific breeding that produced “high-yielding varieties” combined with increased use of fertilizers and irrigation. Africa's uptake of high-yielding varieties was the lowest in the developing world for very clear reasons.

The Green Revolution high yielding varieties, designed for conditions in Latin America and Asia, did not easily transfer to the agronomic and economic

Table 10.2
Comparative indicators across developing regions around 1965

Note: Data are averages weighted by population.

Source: World Bank 2004c; average schooling data from Barro and Lee 2000.

	Life expectancy at birth (years) 1965	Under-five mortality rate (per 1,000 live births) 1970	Literacy rate (percent of adults) 1970	Cereal yield (kg per hectare) 1965	Average schooling (years in total population) 1965
East Asia and the Pacific	53	124	54	1,764	4.0
Latin America	58	123	73	1,250	3.0
Middle East and North Africa	50	201	25	881	0.8
South Asia	47	205	33	1,268	1.4
Sub-Saharan Africa	42	239	24	801	0.9

conditions of Africa's rainfed, fertilizer-scarce, subhumid, and arid tropics. The absence of a Green Revolution had a clear impact. Sub-Saharan Africa has the lowest cereal yield per hectare of any major region and the slowest gain in yields in the last two decades (table 10.3). Indeed, it is the only major region with a (slight) decline in food production per capita during 1980–2000.

MDG-focused investments for Africa

The structural impediments outlined above are real. But in countries where governments are committed, they can be overcome if addressed through an intensive investment program that directly confronts high transport costs, low agricultural productivity, high disease burden, the colonial legacy of weak infrastructure and poor educational attainment, and the like. Ending the poverty trap in Africa and meeting the Millennium Development Goals will require a comprehensive strategy for public investment in conjunction with improved governance. This section lays out priorities for such an investment strategy, drawing on many of the key interventions in chapters 5, 6, and 7.

Before outlining some specific investments, we begin with an overarching point. When African countries design their own packages, they need to give careful consideration to gender equality—specifically, to improving the social and economic status of Africa's women. To a great extent, women are the farmers, caregivers, and child-raisers of Africa. They carry a triple burden. They care for children, the elderly, and the sick. They spend long hours gathering water and fuelwood and processing and producing food. And they work on farms and family enterprises for little or no income. Many of the UN Millennium Project's recommended investments—such as improved access to

Table 10.3
Agricultural technology and productivity, by developing region

	Share of area planted to modern varieties (percent) ^a				Contribution of crop genetic improvement to yield growth ^{a, b}	Cereal yield (kg per hectare) ^c	Average annual growth in cereal yield (percent) ^c	Average annual growth in food production per capita (percent) ^d
	1970	1980	1990	1998				
Asia	13	43	63	82	0.88	3,662	2.3	2.30
Latin America	8	23	39	52	0.66	2,809	1.9	0.90
Middle East and North Africa	4	13	29	58	0.69	2,660	1.2	1.00
Sub-Saharan Africa ^e	1	4	13	27	0.28	1,112	0.7	-0.01

a. From Evenson and Gollin 2003.

b. Measured as a share of increase in productivity.

c. From World Bank 2003a.

d. From FAO 2003b.

e. "Sub-Saharan Africa" refers to all countries in columns 1–5 and in columns 6–8 refers to 33 countries in "Tropical Sub-Saharan Africa" as defined in Sachs and others 2004.

Source: Adapted from Sachs and others 2004.

water supply, modern cooking fuels, enhanced transport services, and better soil nutrients—will have a special benefit for women.

Rural development

The first investment area focuses on raising rural productivity, since three-quarters of Africa's poor live in rural areas (chapter 2). In particular, the investments in farm productivity will increase rural incomes and reduce chronic hunger, predominantly caused by insufficient agricultural productivity. A Twenty-first Century African Green Revolution is needed to help launch an environmentally sound doubling or more of agricultural productivity. Additional interventions in roads, transport services, electricity, cooking fuels, water supply, and sanitation all provide a basis for higher productive efficiency.

Urban development

Throughout Sub-Saharan Africa the large cities have not yet generated internationally competitive manufacturing or service-based industries. In conjunction with abject rural poverty, which fuels rural-urban migration, the lack of urban jobs has led to extremely high levels of urban poverty that are rising across much of the continent. An MDG-based urban strategy needs to focus on urban infrastructure and services (electricity, transport, water, sanitation, waste disposal, and so forth) and slum upgrading. Successful urban development and viable export industries across Africa are contingent on improving access to rich countries' markets, particularly for apparel and light manufacturing, and the flexibility to use targeted industrial policies as needed. Since urban populations are growing very rapidly across the continent, countries must develop investment strategies to provide alternatives to slum formation.

Health

Investments are needed to address Africa's extraordinary disease burden, widespread micronutrient deficiencies, and extremely high fertility rates by focusing on health, nutrition, and family planning. This package includes health system-based interventions to improve child health and maternal health; prevent the transmission of and provide treatment for HIV/AIDS, TB, and malaria; improve nutrition; and provide reproductive health services. Halting the AIDS and TB epidemics is of enormous importance.

For HIV/AIDS, scaling up prevention initiatives, improving testing and counseling services, and increasing public awareness are important first steps to containing the disease. Treating people already infected with the disease is equally important. These measures will require concerted financial and technical support from developed countries. The World Health Organization's 3 by 5 initiative is a promising start, aiming to get 3 million of the world's AIDS patients on antiretroviral treatment by 2005. But such interventions will

need to be scaled up much more in the next decade to reach the 25 million Africans currently infected with HIV (UNAIDS 2004).

As another important element of a health system, we recommend an entire package of sexual and reproductive health services, including family planning to enable a significant voluntary reduction in Africa's very high total fertility rates and population growth rates. Access to reproductive health services and contraception, girls' education, women's empowerment, and off-farm employment opportunities for young women can lead to a dramatic reduction in the total fertility rate in just a few years.

Education

Today, only 57 percent of children in Sub-Saharan Africa have access to primary education (UNDP 2003d). Secondary education enrollment is much more variable, ranging from 6 percent in Niger to 43 percent in Zimbabwe (World Bank 2004c). MDG-based strategies in Africa should aim for universal completion of primary education and increased access to secondary and tertiary education. In designing this package of interventions, particular attention needs to be paid to increasing girls' completion rates through additional demand-side interventions, such as incentive payments to poor households to encourage them to keep their daughters in school.

We also argue that secondary school enrollments need to be increased, since the returns to education now and especially in the future will depend on secondary education. Large numbers of secondary school graduates will be required to deliver the other MDG intervention packages (secondary school graduates will become community health workers and agricultural extension workers). Targeted adult literacy programs designed to raise educational attainments among the adult population will complete the investments in human capital.

Human resources

To achieve the Goals in Africa, significant investments in human resource development are needed urgently, since health, education, agricultural extension, and other critical social services cannot function without cadres of properly trained staff. HIV/AIDS, years of public sector wage ceilings and hiring freezes, outward migration, and poor working conditions have stripped Africa of the human resources needed to deliver needed interventions. The Joint Learning Initiative (2004) estimates that Africa now faces a shortage of a million health workers. Qualified teachers and other service providers are also in short supply. To build Africa's capacity to deliver the services and interventions to achieve the Goals, major coordinated investments in preservice training (such as degree and certification programs) will be needed to build a qualified work force of service delivery staff. These will need to be complemented by in-service training for existing staff, adequate salaries, and human resource management systems.

Given the need to reach rural and often remote areas, we put great stress on scaling up the training of vast numbers of community workers in health, agriculture, and infrastructure, with programs of one-year training. These community workers will play a vital role in enabling villages to make the basic MDG investments in health, education, water and sanitation, electricity, irrigation, soil nutrient replenishment, and other areas of vital need. This process of scaled-up community-based training should start right away in 2005.

Gender equality

As indicated above, any MDG-based investment program for Africa should pay particular attention to promoting gender equality, both as a goal in itself and as a crucial input to achieving all the other Goals. This includes ensuring full access to reproductive health rights and services, as well as guaranteeing equal property rights and access to work, backed by affirmative action to increase political representation. Of particular concern in many parts of Sub-Saharan Africa are persistently high levels of violence against women and girls, which need to be confronted with public awareness, legislative and administrative changes, and strong enforcement.

Science, technology, and innovation

An essential priority for African economic development is to mobilize science and technology. Tropical Sub-Saharan Africa produces roughly a twentieth of the average patents per capita in the rest of the developing world (U.S. PTO 2001). And it has only 18 scientists and engineers per million population compared with 69 in South Asia, 76 in the Middle East, 273 in Latin America, and 903 in East Asia (World Bank 2004c). We stress the need for increased investments in science, higher education, and research and development targeted at Africa's specific ecological challenges (food, disease, nutrition, construction, energy).

Regional integration priorities

Regional integration is essential for African economic growth. With much of Africa landlocked (15 Sub-Saharan countries), the interior countries have little chance to develop unless they have ready access to the coast with efficient low-cost infrastructure. And from a global perspective, individual African countries are very small markets.

Regional integration will raise the interest of potential foreign investors by increasing the scope of the market that accompanies an operating presence in Africa. It is also important in achieving scale economies in infrastructure networks, such as electricity grids, large-scale electricity generation, road transport, railroads, and telecommunications—and in eliciting increased R&D on problems specific to Africa's ecology but extending beyond any single country (public health, energy systems, agriculture). Regional programs, such as those

advanced by the New Partnership for Africa's Development, thus require greatly increased support (chapter 15).

Public sector management priorities

Although governance in Africa is not systematically worse than that in other countries after controlling for income, many of the government systems are still weak on an absolute scale and require significant investments in public administration (chapter 17). Information management systems and investments in the training of public sector managers will undoubtedly be crucial. Addressing this issue should be closely linked to reversing and treating the AIDS pandemic, which is taking the lives of hundreds of thousands of civil servants throughout the continent.