CHAPTER 4

Investing in People

AFRICA'S FUTURE LIES IN ITS PEOPLE. INDEED, AFRICA must solve its current human development crisis if it is to claim the 21st century. It can solve the crisis by replicating the decentralized service delivery mechanisms already in place in some African countries, by increasing international cooperation, by sustaining political commitment to the poor, and by using the extra financial resources that will come from the enhanced Heavily Indebted Poor Countries initiative (chapter 8). The crisis can be solved in one generation if countries focus on the basics: basic nutrition, education, health, and protection against increased vulnerability.

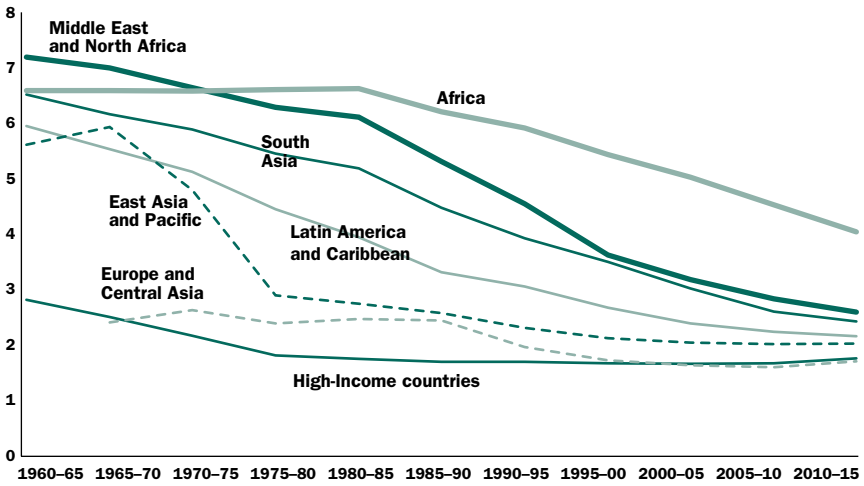
Africa must solve its human development crisis if it is to claim the 21st century

Investment in people is becoming more important for two reasons. First, Africa's future economic growth will depend less on its natural resources, which are being depleted and are subject to long-run price declines (chapter 1), and more on its labor skills and its ability to accelerate a demographic transition. Growth in today's information-based world economy depends on a flexible, educated, and healthy workforce to take advantage of economic openness. Accelerating the demographic transition to reduce population growth will require education, especially of women, and widely available contraceptive and reproductive health services.

Second, investing in people promotes their individual development and gives them the ability to escape poverty. This again requires education and health care as well as some measure of income security.

Africa's households and governments have invested heavily in human development since independence. By the 1980s this investment had started to pay off in much improved human development indicators. But in the last 10–15 years of the 20th century these indicators, still lagging

Figure 4.1 Fertility Rates by Region, 1960–2015



Source: World Bank 1999d.

Africa's demographic transition remains slow—and well behind other poor areas of the world

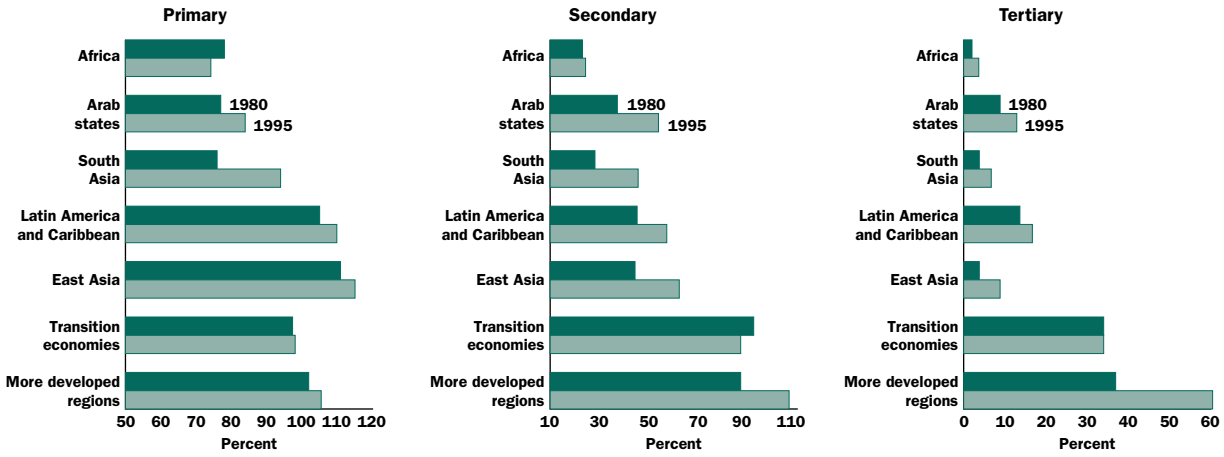
behind those of other regions, started to stagnate or even decline. Not only is Africa still well behind the rest of the world, there is also a major danger the gap will widen unless major changes are introduced.

This chapter makes no claim to be comprehensive. Instead it focuses on some critical factors that account for this slowdown in progress and on the major actions needed if progress is to be resumed and, indeed, accelerated so that Africa's people can claim the 21st century.

Africa's Human Development Crisis

In only a few African countries has fertility started to decline, marking the last stage in the demographic transition, and they are the ones with higher per capita incomes and, especially, high health spending and fairly good access to contraception. Overall, however, Africa's demographic transition remains slow—and well behind other poor areas of the world, notably South Asia (figure 4.1). Africa's continued high fertility rates result not only in rapidly growing populations but also in populations with large portions of young people. The momentum generated by past population growth means that Africa, including both Sub-Saharan and North Africa, is now the only region

Figure 4.2 Gross Enrollment Rates by Education Level and Region, 1980 and 1995



Source: UNESCO 1998.

where the absolute number of 6–11 year olds is growing (World Bank 1995). Coupled with the impact of HIV/AIDS on adult mortality, Africa's high fertility is resulting in 1.1 workers per dependent, compared with 1.4 in South Asia and 2.0 in East Asia (see table 1.1), with deleterious consequences for savings and investment.

So high has been the growth of the school-age population that African countries have had trouble keeping enrollment rates constant. Africa is the only region where primary enrollment rates were lower in 1995 than in 1980 (figure 4.2). Though there were improvements in the late 1990s, the primary enrollment rates of 1980 have not been reattained for boys or girls (table 4.1). Enrollment rates at all levels are far behind those in other regions (see figure 4.2).

Low primary enrollments seriously undermine economic growth and poverty reduction. Worldwide, no country has enjoyed sustained economic progress without literacy rates well over 50 percent. The consequences of low secondary and tertiary enrollments are harder to analyze but may be particularly critical in Africa. There is increasing evidence of positive backward links between secondary and higher education and other parts of the system, especially teacher education. Only in Africa, for example, does the correlation between female education and fertility reduction not kick in until the secondary level (UN 1987; Ainsworth 1996; NRC 1993). Tertiary education levels are so low that they limit the

development of society's leaders. Moreover, universities have a potentially greater role to play in Africa than in many other regions—they are often the only national institutions with the skills, equipment, and mandate to generate new knowledge through research or to adapt global knowledge to help solve local problems.

Rapid enrollment growth in higher education, coupled with declining resources, has significantly lowered quality

The content and quality of African education are also in crisis. At the primary level the regular assessment of student achievement remains rare. The assessments that exist are not encouraging, however (figure 4.3). Poor quality not only produces poorly educated students, it also results in excessive repetition and low completion rates—at enormous cost. In 14 of 32 African countries for which data are available, more than one-third of school entrants do not complete the primary cycle. In 11 of 33 countries the input-output ratio is more than 1.5—that is, these countries use 50 percent or more resources than is necessary in an ideal system. At the university level religious studies and civil service needs have resulted in the development of the humanities and the social sciences and the neglect of natural sciences, applied technology, business-related skills, and research capabilities. Rapid enrollment growth in higher education, coupled with declining resources, has significantly lowered quality (World Bank 1999c).

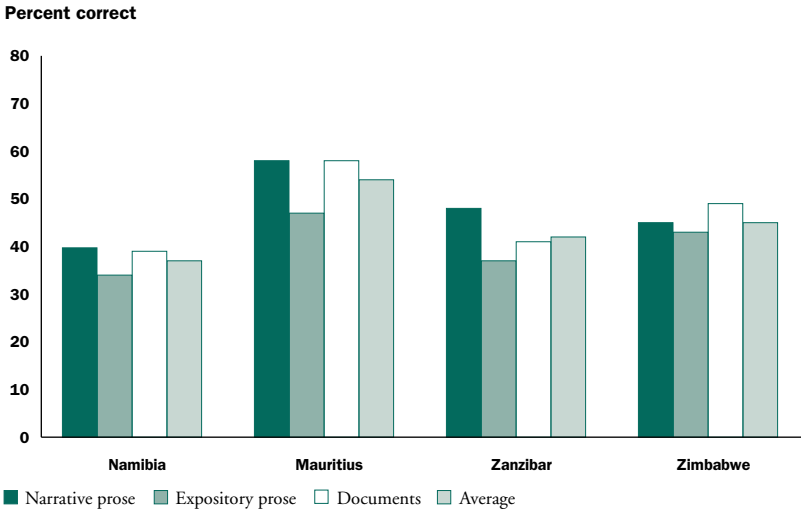
Another major factor affecting school performance is the health and nutrition of students. Their health and nutrition also affect their future productivity in the workforce. Nutrition trends have yet to return to the levels of 1975 despite recent improvements in some countries. Population growth is causing a rapid increase in the

Table 4.1 Gross Enrollment Rates in Africa, 1960–97 (percent)

Level	*1960*	*1970*	*1980*	*1990*	*1997*
Primary total	43.2	52.5	79.5	74.8	76.8
Primary female	32.0	42.8	70.2	67.6	69.4
Primary male	54.4	62.3	88.7	81.9	84.1
Primary female as share of total	37	41	44	45	45
Secondary total	3.1	7.1	17.5	22.4	26.2
Secondary female	2.0	4.6	12.8	19.2	23.3
Secondary male	4.2	9.6	22.2	25.5	29.1
Secondary female as share of total	32	33	36	43	44
Tertiary total	0.2	0.8	1.7	3.0	3.9
Tertiary female	0.1	0.3	0.7	1.9	2.8
Tertiary male	0.4	1.3	2.7	4.1	5.1
Tertiary female as share of total	20	20	22	32	35

Source: UNESCO, *Statistical Yearbook*, 1978–79 and 1998.

Figure 4.3 Mean Scores of Primary Students on Three Dimensions of Reading Comprehension in Four African Countries, 1998



Source: SACMEQ 1998.

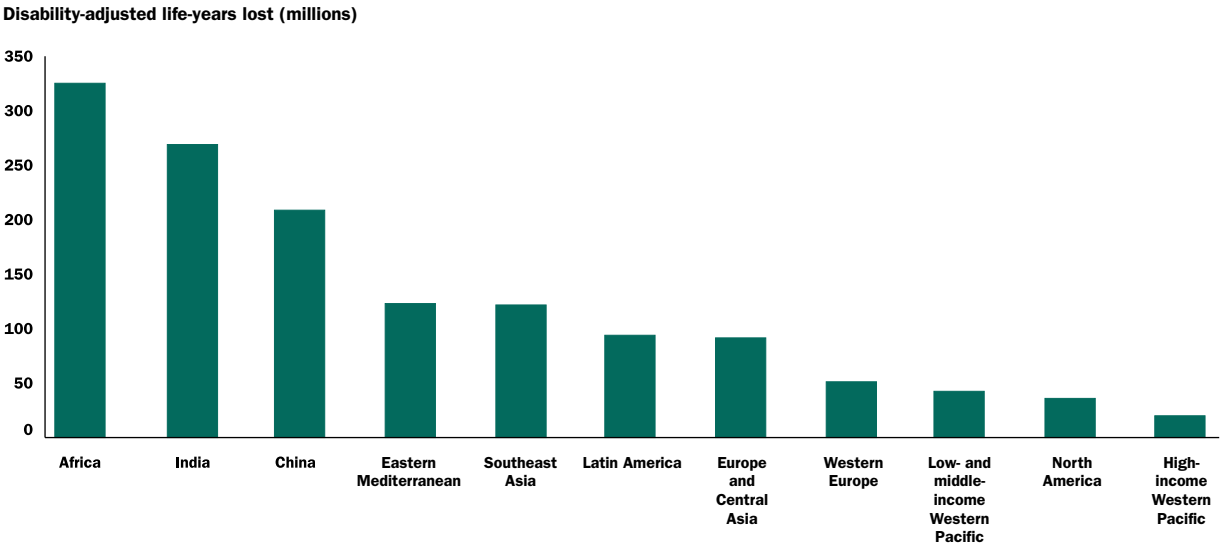
Ill health in Africa results much more from infectious diseases and nutrition deficiencies than it does elsewhere

absolute number of underweight children, from 23 million in 1975 to 35 million in 1995.

Ill health in Africa results much more from infectious diseases and nutrition deficiencies than it does elsewhere (Feacham and Jamison 1991). This pattern affects Africans in their youth, when they may be too weak to attend school or to learn when they do attend, and remains with them as they grow up. The potential income loss from adult illness in Africa is about 6.5 percent, two to three times that in other regions, confirming cross-country evidence that poor health is associated with slow growth (chapter 1).[1]

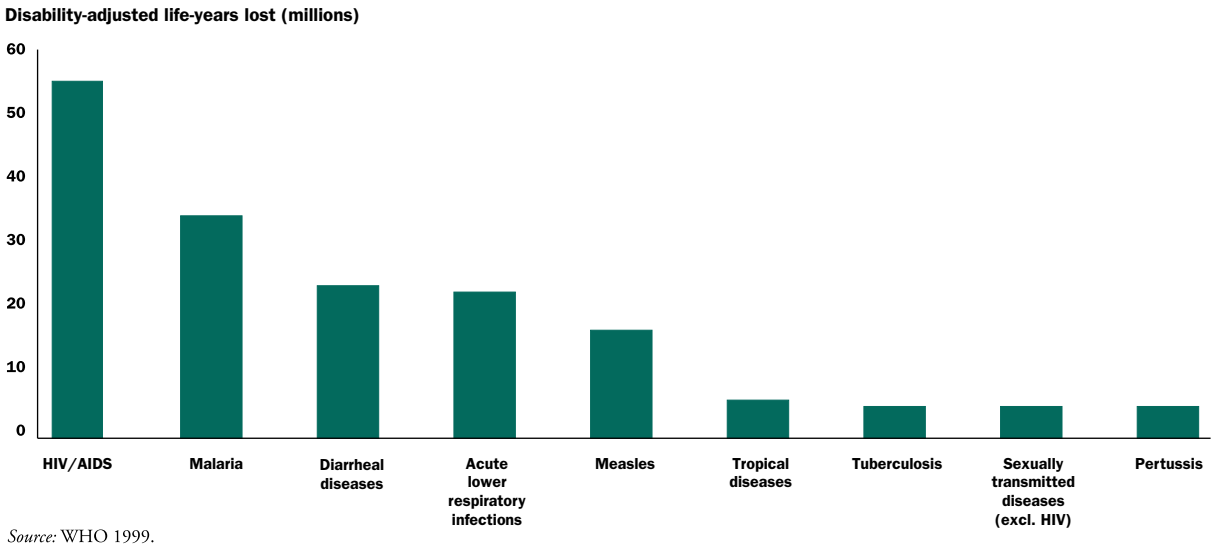
Indeed, the burden of disease is dramatically higher in Africa than elsewhere (figure 4.4). And the disease pattern is different (figure 4.5). Malaria, onchocerciasis (river blindness), trypanosomiasis (sleeping sickness), and HIV/AIDS occur elsewhere in the world but are concentrated in Africa. Malaria, for which 80 percent of the world's cases occur in Africa, accounts for 11 percent of the disease burden in Africa and is estimated to cost many African countries more than 1 percent of their GDP (Leighton and Foster 1993; Gallup and Sachs 1998; Shepard and others 1991). (One estimate for Kenya puts it at 2–6 percent.). Onchocerciasis affects 18 million people, 99 percent of them in Africa. Trypanosomiasis

Figure 4.4 Variations in the Burden of Disease by Region, 1998



Source: WHO 1999.

Figure 4.5 Burden of Infectious Diseases in Africa, 1998



Source: WHO 1999.

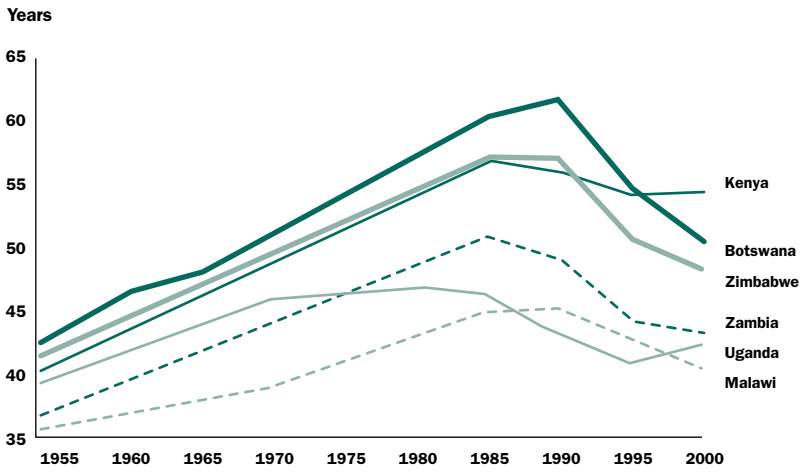
occurs in 36 African countries and has recently surged. Two-thirds of the world's HIV/AIDS cases are in Africa.

Every three seconds an African child dies—in most cases from an infectious disease. In some countries one in five children die before their fifth birthday. Almost 90 percent of deaths from infectious disease are caused by a handful of diseases: acute respiratory infections, diarrheal diseases, HIV/AIDS, malaria, measles, tuberculosis, and sexually transmitted infections (see figure 4.5). These diseases account for half of all premature deaths, killing mostly children and young adults. Every day 3,000 people die from malaria—three out of four of them children. Every year 1.5 million people die from tuberculosis and another 8 million are newly infected. AIDS alone has orphaned more than 8 million children.

Since 1990 life expectancy has stagnated in the region—and has dropped sharply in countries with a high adult prevalence of HIV/AIDS

Life expectancy in Africa increased between 1950 and 1990, though at a lower rate than elsewhere. Since 1990, however, life expectancy has stagnated in the region, largely because of HIV/AIDS—and has dropped sharply in countries with a high adult prevalence of HIV/AIDS (figure 4.6). In 1982 only one African country, Uganda, had an adult HIV prevalence rate above 2 percent. Today there are 21 countries where more than 7 percent of adults live with HIV/AIDS. It is estimated that only 10 percent of the illness and death that HIV/AIDS will bring have been seen—despite more than 11 million deaths and 23 million cases

Figure 4.6 Estimated Life Expectancy at Birth in Selected African Countries, 1955–2000



Source: UN 1999.

Family structures and income security are severely threatened by the increased vulnerability brought by HIV/AIDS, conflict, drought, and urbanization

among Africa's 600 million people. HIV is increasing child mortality (more than 1 million children are infected) and affects adolescents and women disproportionately, with half of new infections occurring among those 15–24 and six women infected for every five men in a number of the hardest-hit countries. HIV thus hits people in their prime productive years, profoundly disrupting the economic and social bases of families and dramatically reducing national income.

As noted, there are more than 8 million orphans in Africa as a result of HIV/AIDS, 1 million in Uganda alone. Dependency ratios are shooting up and economic insecurity is increasing. At the national and even the continental level, the illness and impending death of up to one in four adults in some countries will have an enormous impact on national productivity, earnings, and savings (World Bank 1999b). This impact will be strongest in Southern Africa, where HIV is most widespread and where much of Africa's GDP is located. The combination of HIV infection and malaria infection is especially insidious, weakening in a mutually destructive action the immune systems of both the pregnant mother and the fetus.

Though perhaps the most dramatic element undermining family structures and threatening income security, HIV/AIDS is not the only one. War and civil conflict became more common in the 1990s, and 28 percent of the world's 12 million refugees are now in Africa (UNHCR 1998). Increasing numbers of refugees and migrants, coupled with high urbanization, will exacerbate the spread of HIV/AIDS. As the new century opens, there is hope that the main recent conflicts are being resolved. But much peace is fragile, and the consequences for Africa's families are profound. Furthermore, many conflicts remain.

War and conflict come on top of other external shocks for many people, such as more than 30 years of drought in the Sahel. Indeed, 60 percent of Africa is vulnerable to drought, and 30 percent is extremely vulnerable. In addition, much of the poor's consumption is seasonal (chapter 3), and macroeconomic shocks have a greater impact on the poor than on others. Moreover, in Africa as elsewhere, urbanization, while generally promoting development through the concentration of populations, weakens traditional family structures. And in Africa particularly, employment growth appears to have stagnated along with economies more generally. Coupled with massive poverty, family structures and income security are severely threatened by the increased vulnerability brought by HIV/AIDS, conflict, drought, and urbanization (World Bank 1999a).

Why the Human Development Crisis?

If Africa is to claim the 21st century, it must reverse this late 20th century pattern of rapid population growth, stagnating primary enrollments, declining health, poor nutrition, and growing income insecurity, all affecting children and women disproportionately as a result of poverty and deteriorating family structures. Reversing the pattern means understanding its causes. This section explores some possible explanations.

Households and communities are willing to invest in the future of their children

Do Africans Value Investments in Human Development?

It is sometimes suggested that African households do not invest in human development, especially education, because the private returns to that investment are not high enough to justify it. The evidence on private returns to education in Africa is mixed and somewhat dated. But it appears that market wage returns are usually high, as elsewhere in the world, especially for postprimary education.

There is considerable controversy about the absolute size of the returns to education in Africa. Psacharopoulos (1994), for instance, aggregates the private returns to primary education at 41 percent, to secondary education at 27 percent, and to higher education at 28 percent. Mingat and Suchaut (forthcoming) put them at 30, 21, and 28 percent. Others think that these estimates overestimate the returns to schooling. And indeed, issues of omitted variable bias and selection complicate the interpretation of wage-education gradients in Africa (as elsewhere).

Even studies that control for bias, however, find substantial private returns to education in Africa, on the order of an 8–10 percent increase in wages per year of schooling (van der Gaag and Vijverberg 1987). These data are largely static. Unresearched in modern Africa is the key question of whether returns to skills are rising because of increasing demand or declining because of increasing supply (Knight and Sabot 1990). Whatever the precise numbers, the private returns to schooling are significant in Africa—suggesting that households should want to invest.

This quantitative evidence is strongly supported by anecdotal evidence. In many countries the buildings erected through voluntary effort for primary and secondary education, for local training centers, and for health clinics attest to the willingness of households and communities to invest in the future of their children. Outlays on school fees, uni-

forms, and the like account for a substantial claim on households' cash income (Fine and others 1999). Given the poor and declining quality of education offered to many poor households, their continued willingness to forgo a considerable share of current consumption provides unambiguous evidence of a strong desire to invest in their children's future. In Mauritania and other countries, parents fund private tutoring (often by the same teachers) to supplement low-quality public schooling. Offered timely, comprehensible, and appropriate advice, African mothers will take appropriate measures to provide for their children's nutrition and development. Entire communities have often banded together to support a gifted child's secondary and university education.

Extremely poor households have fewer mechanisms for coping with increased vulnerability

Strauss (2000) has summarized the evidence on household and community factors affecting investment in human development in Africa. Household investment is largely determined by the education of the parents, by household income, and by income responses (at least for health care). There is almost no evidence on the response of households to school choice in Africa, but evidence from elsewhere indicates that there will likely be an income response. The implication of all this is that public, rather than private, health and education services are becoming more targeted at low-income populations.

At the community level there is considerable evidence that health and school facilities are more likely to be used when they are close to the community. The impact of distance on use seems to be greater than that of user fees, though there is not as much evidence on user fees in Africa (Strauss and Thomas 1988).

While households demand investments in education and health, and invest their own funds in these areas, a disturbing recent development is the inability of the poorest of the poor to cope with increased vulnerability. Traditionally, the poor have had diverse mechanisms for protecting themselves against vulnerability—joining labor-sharing clubs in Togo, taking children out of school to work in the household in Swaziland, selling cattle in Zimbabwe. But these traditional mechanisms have become less effective at managing household risks as the risks, and household vulnerability, have increased. In Burkina Faso, for example, cattle sales by households during the most extreme drought period finance only 20–30 percent of the village-level income shortfall.

In addition, Africa's traditional system of social protection—the extended family—is under extreme stress because of conflict, HIV/AIDS,

drought, and migration, and can no longer provide the economic and social protection to households that it once did. This, in turn, is beginning to affect households' abilities to enroll their children in school, as in Côte d'Ivoire, Kenya, and Zambia. This increased vulnerability is not just a rural phenomenon: the primary enrollment rate in Nairobi (Kenya), for instance, has dropped to 61 percent from 103 percent in 1980. The increased attraction of education programs that include meals attests to this increased vulnerability.

Relative to GDP, Africa spends as much—or more—on education and health as other regions

Are Resources Used Efficiently?

Because of its young population, Africa's human development investment needs are great. Yet its resources are limited, even with external aid. Thus it might seem that Africa simply does not have enough resources to invest in its people.

But the reality is more complicated. In 1993 public investment in education averaged 3.8 percent of GDP in Africa compared with 2.7 percent in Asia and 2.8 percent in Latin America (table 4.2). In general, private spending adds another 50 percent to public spending. Health spending in Africa averages 5.6 percent of GDP, the same as the global average for low- and middle-income countries and significantly more than the 3.5–4.1 percent for Asia (table 4.3). Public spending accounts for about half of Africa's health spending.

Of course, these spending data refer to the continent as a whole. One of the most remarkable features of human development investments in Africa is their differentiation across countries. Public spending on education in francophone West African countries amounts to 5.5 percent of GDP; that in anglophone East African countries is 2.3 percent of GDP. Median per capita public spending on health is about $6 a year in

Table 4.2 Public Spending on Education in Africa, Asia, and Latin America, 1975 and 1993 (percentage of GDP)

Region	*1975*	*1993*
Africa	4.0	3.8
Asia	2.6	2.7
Latin America	2.9	2.8
Memorandum item		
All countries with GDP below $2,000	3.6	3.6

Source: Mingat and Suchaut forthcoming.

Table 4.3 Spending on Health in Africa, Asia, and Latin America and Caribbean, 1990s (percentage of GDP)

Region	*Total spending*	*Public spending*
Africa	5.6	2.8
East Asia and Pacific	3.5	1.5
South Asia	4.1	0.8
Latin America and Caribbean	7.2	3.0
All low- and middle-income countries	5.6	2.8

Source: World Bank 1997.

Investments in human development differ considerably across Africa

Africa—but averages $3 in the lowest-income countries and $72 in middle-income countries (Peters 1999).

The completely different patterns for education and health spending require caution in generalizing about human development. In education the main issue is the efficiency of resource use, as spending tends to account for a larger share of GDP in the poorest countries than in the richer ones. In health the issue is resource availability in the poorest countries and efficiency in all countries. In Burundi, for instance, annual public spending on health is only $1.5 per capita—a level that is simply insufficient for progress.

Moreover, especially in health, expressing available resources as shares of GDP obscures the need for significant spending in foreign exchange for drugs and other supplies. And, more generally, the youth of most African populations means that spending on education should probably account for a larger portion of GDP than in many higher-income countries. Yet African countries' high dependency ratios are just one reason it is hard to increase tax efforts.

There is enormous potential for more efficient human development spending in Africa:

- *Internal efficiency.* Relative to GDP per capita, Africa's unit costs in education are twice as high at the primary level as in Asia and Latin America (table 4.4). This reflects not only high repetitions and dropouts but also high teacher salaries relative to GDP per capita, especially in the Sahel countries of West Africa (Mingat and Suchaut forthcoming). In health, patients at public health facilities may receive benefits worth just $12 for each $100 of public spending on drugs (box 4.1). The range of outcomes achieved with the same public spending (relative to GNP) is very wide for both health and education—higher spending is not necessarily reflected in better outcomes.

Table 4.4 Education Unit Costs in Africa, Asia, and Latin America, 1975–93 (percentage of GDP per capita)

	Primary			*Secondary*			*Tertiary*		
Region	*1975*	*1985*	*1993*	*1975*	*1985*	*1993*	*1975*	*1985*	*1993*
Africa	20	16	15	117	117	56	1,293	691	656
Asia	12	10	8	32	22	19	192	226	86
Latin America	8	8	7	12	12	11	149	82	66
All countries with GNP < $12,000	16	13	12	72	42	37	758	400	373

Source: Mingat and Suchaut forthcoming.

- *Allocative efficiency.* Despite low secondary and tertiary enrollment rates, education spending is biased toward these levels of education, which mainly benefit the better-off. The primary level offers higher returns, especially for the poor. Similarly, public health spending is not focused on the essential components of basic health care. Rather, it is significantly biased toward expensive secondary and tertiary care. The poorest 20 percent of the population receives only about 12 percent of public health subsidies (chapter 3). Combined with the inefficiency in the drug supply system, that means that this group may receive less than $2 in benefits for every $100 spent on drugs.

Are African Governments Committed to Human Development?

The persistence of such inefficiencies, coupled with the low volume and poor quality of many human development services, often leads to the charge that African governments are not committed to their people's development. This may be true in some cases, especially among countries in conflict. Generally, however, it is far off the mark. More than 40

Box 4.1 Waste in the Drug Supply System

AFRICA'S HEALTH DELIVERY SYSTEMS COULD BE MADE a lot more efficient through improved maintenance of equipment and facilities, better-informed investment in high-level training, and redeployment of redundant staff. Symptomatic of such inefficiencies is the waste in supplying drugs, a significant component of private and public health spending. Patients at public facilities may be receiving benefits worth only $12 for every $100 of tax revenue spent on drugs. The main sources of waste are noncompetitive procurement ($27), poor storage and management ($19), inappropriate prescriptions ($15), poor projections of requirements ($13), inadequate buying practices ($10), and incorrect use by patients ($3).

Source: World Bank 1994.

African countries have developed national "education for all" programs. And most have subscribed to the International Development Goals for 2015, which include targets for education and health along with those for poverty reduction, gender equality, and environmental sustainability (chapter 1; OECD 1996).

It is difficult—but not impossible—for governments to move forward on the many fronts needed to create effective service delivery systems

The problem is not necessarily a lack of political commitment but rather the wide range of actions needed and the intensely political nature of the reforms required to create effective service delivery systems. In recent years most governments have been preoccupied with improving macroeconomic policy (chapter 1). Political commitment is now needed not just to boosting human development in general but to improving nutrition, to implementing major health and education reforms, to confronting HIV/AIDS, to protecting the vulnerable, and so on. It is difficult for governments, however committed, to move simultaneously on many fronts, each of which is vastly more complicated than macroeconomic reform.

This difficulty is compounded by the political nature of the reforms. They involve overcoming massive vested interests, which requires steadfast political will and is not always feasible—especially given the new democratic climate and frequent elections in many countries and the political weakness of rural populations. Teachers tend to be heavily unionized, university students often represent a powerful political force though a tiny numerical minority, hospitals have more influence than clinics, and so on. Taken together, public education and health labor forces usually represent the bulk of the nonmilitary public service in African countries.

Despite these complex issues of political economy, many countries have made a major start. Burkina Faso, Guinea, and Senegal, for example, are making teacher salaries more flexible, partly by permitting the recruitment of community-based teachers who are off the civil service pay scales. More progress can be expected, linked to the growth of civil society throughout Africa and to the power of information. As Africans better understand what is at stake, they will increasingly demand better services through standard political channels and through civil society organizations.

At the same time, reform is always a lot easier when economies are growing and transition costs can be more easily absorbed through increased resources. Not only must vested interests be overcome, but human development programs must simultaneously focus on the needs of the poorest, through basic health and education, and on the need to

build societies more generally, which involves an important role for other parts of the education system, including higher education. Balancing these priorities would not be easy even in the absence of problems of political economy.

In two areas, however, political commitment remains severely lacking: fighting HIV/AIDS and reducing fertility. Not all African leaders are convinced of the seriousness of the HIV/AIDS epidemic, nor do they realize the potential impact it will have on their countries. Because of this, not all have made HIV/AIDS a high priority. Strong political commitment to fighting AIDS is crucial to provide the resources, leadership, and enabling environment needed to control the epidemic's spread and care for the nation. Accurate and relevant data are a powerful tool for convincing leaders to increase their commitment to confronting HIV/AIDS (World Bank 1999b). Where there is political commitment, AIDS can be met head on—as in Uganda, where high infection rates have been brought down, and in Senegal (box 4.2).

Political commitment remains severely lacking in two areas: fighting HIV/AIDS and reducing fertility

Are Service Delivery Mechanisms Appropriate?

If Africa's households and communities want to invest in human development and if there is political will, why has the human development record been so poor in recent years? Mention has already been made of the difficulty of moving simultaneously on many fronts. But this is mainly true at the national rather than the local level. Africa's public institutions are relatively weak at the national level. Yet its communities, except in areas torn by war and conflict, are among the strongest in the world—especially in West Africa, as evidenced by their response to the availability of social funds and other community-based investment funds. Almost all human development programs, however, have been national

Box 4.2 Senegal Confronts AIDS

UNLIKE THOSE IN MANY AFRICAN COUNTRIES, Senegal's leaders chose not to deny the existence of the HIV/AIDS epidemic, but to face the challenge from the start. Enlisting all key actors as allies in a timely and aggressive prevention campaign has helped the country maintain one of the lowest HIV infection rates in Africa (1.8 percent). The small number of HIV positive individuals allows the government to consider using treatment schedules that otherwise would not have been affordable.

Source: World Bank 1999b.

programs, implemented by weak institutions and ignoring strong communities. External donors have exacerbated this pattern of excessively top-down delivery. A recent review of completed World Bank education projects in Africa, for instance, found that only 8 percent had resulted in institutional strengthening.

Centralized control often results in a focus on the wrong issues, on inputs rather than on results

Centralized control often results in a focus on the wrong issues, on inputs to programs rather than on results. Centralized recruitment and deployment of teachers, for example, leads ministries of education and health to focus on teacher and health worker interests and diverts them from education and health results in individual schools and clinics. It also diverts attention from delivering services to dealing with central public employees—who, as noted, tend to be predominantly education and health workers. It leads teachers to spend days away from their schools attempting to receive their pay, which is still rarely handled at the school level. Centralized procurement of drugs, contraceptives, and textbooks can lead to the all-too-common phenomenon of supplies stored in central warehouses long after clinics and schools needed them and to extensive inefficiency in the use of funds (see box 4.1). In social protection, centralized programs focus on coping with shocks, not mitigating or averting them.

Overly centralized management has resulted in human development programs that are perceived as distant by their beneficiaries, with low transparency and limited accountability (chapter 1). Around the world, there is a trend toward decentralized delivery of human development services, partly in response to the global growth of democracy and civil society. The jury is still out on whether decentralized programs are more effective and efficient in societies where institutions are relatively strong. But in Africa, where institutions tend to be weak, service delivery is superior when it is controlled by beneficiaries and implemented by them or by autonomous agencies (Frigenti, Hasth, and Haque 1998). This finding is increasingly confirmed by the World Bank's assessments of its projects: those based on community-driven delivery mechanisms have fewer problems than others.

Until recently autonomous local control of service delivery represented a political threat to central governments and elites in Africa. That is changing rapidly as civil society and democratic political institutions grow. Indeed, Africa is poised to adopt service delivery mechanisms more attuned to its political development, as has already happened in some countries (chapter 2).

Is There Enough International Cooperation?

International cooperation takes many forms. This section concentrates on partnerships among African countries and between them and their development partners. International cooperation is particularly important in human development—and above all in health, because disease knows no boundaries.

Africa is poised to adopt service delivery mechanisms more attuned to its political development

In education there is a vibrant partnership among African countries and external aid agencies through the Association for the Development of African Education. There are also other important forums, such as the United Nations Educational, Scientific, and Cultural Organization and the Organization of African Unity, in which African governments meet and share experiences. Yet something is lacking. Francophone education systems have been little influenced by anglophone ones, and vice versa. Similarly, in health there are various organizational forums, notably AFRO (the World Health Organization regional office for Africa) and the Organization of African Unity again. Particularly noteworthy has been the shared experience of implementing the Bamako Initiative, with its emphasis on community involvement in basic health delivery. But in health, as in education, something is lacking in the sharing of ideas and experience, probably because of the lack of forums for such exchanges to occur. Maternal mortality halved in three years in Inganga, Uganda, when traditional birth attendants were partnered with public health centers using modern communications. How can such innovations be replicated?

External partners can supply knowledge, finance, and research. Much aid to Africa is focused on human development. For example, the International Development Association, the World Bank's soft-loan window, targets 50 percent of its funding to Africa and 40 percent of that to the social sectors. Many bilateral donors have similar priorities. The multilateral Heavily Indebted Poor Countries initiative (chapter 8) will free resources for education and health programs in countries now saddled with high debt service obligations. External finance is available. Indeed, institutions such as the International Development Association have found it hard to use all their funding because of limited absorptive capacities resulting from weak institutions and inappropriate delivery mechanisms.

In knowledge and research, however, much remains to be done. The onus lies on African countries in terms of knowledge and on them and their OECD partners in terms of research. There is resistance in Africa, perhaps understandably derived from the struggle against colonialism, to

learning about human development from other parts of the world. Yet the experiences, especially of East Asia and Latin America, are profoundly important for Africa. More openness is needed to these experiences.

In research, Africa suffers from its uniqueness. Because the predominant diseases in Africa tend to be mainly African, there has been little international effort to develop appropriate vaccines and other medical interventions. But that is changing. Indeed, now that some of these diseases—like malaria and HIV—are spreading around the world, attention is finally focusing on them. Today there is a concerted international effort to develop vaccines against HIV, malaria, trypanosomiasis, and the like. Still, the African nature of these diseases has made it difficult to mobilize relative to, say, the successful global effort to eliminate smallpox 20 years ago.

When international partnerships are mobilized against African diseases, the results can be tremendous and highly cost-effective

Yet when international partnerships are mobilized against African diseases, the results can be tremendous and highly cost-effective. River blindness is on the retreat as a result of two successful programs: the Onchocerciasis Control Program in West Africa and the African Program for Onchocerciasis Control in East and Central Africa. Together these programs comprise the largest human disease control program in operation today, with 93 partners and an economic return on investment of 17–25 percent (box 4.3).

Tools for Investing in Africa's People

REVERSING RECENT TRENDS AND INVESTING IN AFRICA'S PEOPLE SO that they can claim the 21st century will not be easy. The social development targets of the International Development Goals for 2015 offer a benchmark:

- Achieving universal primary education.
- Eliminating gender disparities in education (by 2005).
- Reducing infant and child mortality by two-thirds.
- Reducing maternal mortality by three-quarters.
- Achieving universal access to reproductive health services.[2]

These goals appear reasonable but are not going to be easy to reach. In some areas, such as primary education, it is only in the past few years that the declines of the 1980s and early 1990s have started to be reversed.

In others, such as child mortality, trends are worsening—largely because of HIV/AIDS. Achieving these goals will require resources, political commitment, appropriate service delivery, and increased international cooperation. Elements of all four are already partly in place throughout Africa, and they are yielding results. What is urgently needed now is to replicate them throughout the continent, adapting them to national and local circumstances.

Box 4.3 The Successful International Partnership against Onchocerciasis

ONCHOCERCIASIS IS A PARASITIC DISEASE, ENDEMIC IN West Africa, that causes debilitation, eye damage, and (eventually) "river blindness." The disease is caused by a parasitic worm and transmitted by the bite of the female blackfly, which breeds in rapidly flowing rivers. Two onchocerciasis programs are the essence of effective development partnerships: results-oriented, comprehensive, widely representative, international, instilling ownership, capitalizing on a diverse range of comparative advantages, and focusing on poverty reduction. These successful programs have seen nearly 100 partners come together with the sole purpose of providing a global public good: eliminating a disease that devastates the poorest in Africa.

The Onchocerciasis Control Program, begun in 1974, has halted transmission of the disease in 95 percent of the 11-country, 34-million-people program area by destroying the blackfly larvae in its river breeding sites using insecticides sprayed from the air. To complement vector control, the program also collaborated with a pharmaceutical company, Merck and Co., to develop a drug called ivermectin. Ivermectin has revolutionized the treatment and prevention of onchocerciasis by providing a safe and effective drug that, when dosed once a year, prevents the blinding and itching caused by the parasite. Merck announced in 1987 that it would donate as much ivermectin as needed for as long as necessary to eliminate onchocerciasis in Africa.

The Onchocerciasis Control Program has been sustained by a unique partnership involving 11 West African governments, sponsoring agencies (United Nations Development Programme, Food and Agriculture Organization, World Bank), bilateral donors, the private sector, and an international technical staff headed by the implementing agency, the World Health Organization. The parasite is dying out in the human population. People previously infected are recovering. More than 12 million children born in the program area since the program began are growing up without risk of contracting the disease. An estimated 25 million hectares of arable land have been freed from onchocerciasis and are being resettled. New villages are being established, and agricultural production is increasing. The cost: just $0.57 a person per year in 1987 constant dollars.

A second program, the African Program for Onchocerciasis Control, has extended the benefits of onchocerciasis control to all affected African countries. It further recognized that the efficacy of ivermectin in preventing onchocerciasis allowed for a control program based entirely on its mass distribution. At the launch of the program in 1995, the river blindness partnership was widened to include two important partners: nongovernmental organizations (now numbering more than 40), who help acquire and distribute the donated ivermectin, and local communities, whose ownership of the program is essential for the program's long-term sustainability. There are currently 57 projects under way in 12 countries, with 32 million people under annual ivermectin treatment. The program already reaches nearly 70 percent of the population targeted for treatment by 2007.

Resources

More resources are needed to achieve goals for health and education

We have seen that there are serious inefficiencies in the allocation of resources for human development in Africa. Nevertheless, extra resources are needed now, for four reasons. First, some countries are so poor that they simply do not have sufficient domestic resources, regardless of efficiency considerations. These are generally the lowest-income countries, like Burundi and Guinea-Bissau.

Second, many countries have embarked on structural reforms designed to reduce inefficiencies and reallocate resources, but the reforms will take time and often will be slow to yield savings. The adoption of *volontaire* primary school teachers, paid less than public service teachers, in many Sahel countries is a good example. Over time this reform will lower unit and total costs. But in the short term, by reducing the student-teacher ratio while not displacing existing teachers, it increases the teacher salary bill.

Third, new programs and service delivery mechanisms are needed to combat HIV/AIDS and malaria. Effective programs against HIV/AIDS may cost 1.5–2.0 percent of GDP a year in a typical African country, and more in those with high HIV infection rates. Malaria program costs may run 0.3–0.5 percent of GDP a year.

Finally, as service coverage increases, the unit costs of delivering services to the previously unserved are higher than those to the previously served. These beneficiaries tend to be the rural poor, the poorest of the poor, living in dispersed areas without good transport and other infrastructure. So, proportionately more resources are needed to achieve goals for health and universal primary education.

Moreover, an important barrier to serving such beneficiaries has been the need for them to pay for services. Though the poor are willing to pay for human development investments, their resources are limited. User fees have deterred primary school enrollment and health center use. Fees have been advocated because they generate revenue and increase allocative efficiency—and there is merit to both arguments. Anecdotally, modest user fees seem to improve the quality of health services. In Madagascar, for instance, the ability of health facilities to charge fees—and to retain them—has kept drugs in stock and increased patient demand because quality is perceived as having improved. But the effect of such fees on service use has likely been severely underestimated, especially in education, and most especially for the poor. In Uganda, for example, primary enroll-

ments doubled in one year, from 2.6 million to 5.2 million, when parent-teacher association dues were eliminated (box 4.4).

Revenue generation can be effective when the revenues are held and used at the community level. The impact of fees on resource allocation has not been sufficiently studied for there to be clear results in Africa; we simply do not know if higher charges at hospitals than at health centers,

Box 4.4 Uganda's Commitment to Basic Education

DURING THE 1990S UGANDA EMBARKED ON A SWEEPing national program to achieve universal primary education. This program, probably the most ambitious in Africa, has the following elements:

Massive political commitment. Education was the principal electoral platform of President Yoweri Museveni in his successful 1996 campaign and is the most talked-about topic in Uganda today. Basic education is Uganda's top priority.

Elimination of barriers to access. Until 1996 education was not free. Fees were minor, but parent-teacher association dues amounted to $6–8 a child—a major burden for most Ugandan families. In 1997 free schooling was introduced for up to four children a household. Primary enrollments immediately doubled from 2.6 million to 5.2 million, and in 1999 reached 6.5 million.

Sustained budget commitment. The government has dramatically increased the share of the national budget going to education, from 22 percent in 1995 to 31 percent in 1999. Two-thirds of this goes to primary education, allocated to districts on a capitation basis. Waste has been eliminated with the elimination of ghost teachers, cutting payroll numbers by a third. Moreover, the government is committed to concentrating future increases in spending—including from the Heavily Indebted Poor Countries initiative—on education.

Decentralization with central support. All primary education is now run by Uganda's 45 districts. Each district deploys and pays teachers, though they remain centrally financed. Classroom construction is also managed at the district level using a community demand approach, which has resulted in faster and better construction. Multigrade teaching is being piloted in sparsely populated areas. Support to schools and teachers is provided by a cascading system linking teacher training colleges to district coordinating centers and then to schools. Nationally, 560 tutors are in place, each responsible for supporting 20 schools, a large but manageable responsibility. Schools select textbooks from a nationally approved list.

Accountability. Districts and schools are held accountable for results and funds are used transparently.

Curriculum reform. The curriculum has been modernized for the core subjects of mathematics, English, social science, and natural science. Books and materials have been developed and are being deployed. An assessment system is being put in place to measure student achievement.

Teacher support. Teacher pay has been increased to provide a living wage. Competency tests have been administered to all uncertified teachers, and an in-service training program introduced for those deemed trainable. There are still not enough teachers, given the massive increase in enrollments, but the government is committed to reducing student-teacher ratios from about 60:1 (and as high as 100:1 in the first two years of primary school) to 40:1 as soon as is financially feasible. Budget increases to fund more teachers and build classrooms are the government's spending priority for the next decade, and resources released through the Heavily Indebted Poor Countries initiative will be used for these purposes.

for instance, increase the portion of people initially seeking care at the centers. We do know that modest fees for drugs at health centers seem to improve both quality and use.

The extra resources that are needed should be made available. Africa remains a principal beneficiary of much multilateral and bilateral aid and of the Heavily Indebted Poor Countries initiative (chapter 8). It will be necessary to finance fiscal deficits that may seem large in conventional GDP terms, but this will be justified so long as the macroeconomic consequences are funded by grants or highly concessional loans and so long as the programs the deficits finance expand access to and improve human development services. This may entail large deficits, with continued aid dependence over an extended period (chapter 8). But these funds need to enhance programs, not simply finance them. Special programs may be needed for countries not eligible for the Heavily Indebted Poor Countries initiative or for which the terms of the expanded initiative do not free significant resources.

Sustained and specific political commitment is needed for effective investment in human development

Political Commitment

General political commitment to human development is already in place in most African countries. What is needed for effective investment in human development is sustained and specific political commitment. This involves focus, sustained resources, and active involvement.

Focus can come from a commitment to the poor, especially poor children. Poor children require political commitment because they are voiceless in society, even though those under 15 typically account for 45 percent of African populations—a portion unlike that anywhere else in the world. Children represent these societies' futures as well as half their present. A commitment to poor children is also a commitment to equity. Closing urban-rural and male-female gaps is a central challenge for human development, above all in education. Primary enrollment rates in Niamey (90 percent), Addis Ababa (85), and Bamako (80) are more than four times those in the rural areas of Niger, Ethiopia, and Mali (World Bank 1999c). Girls' enrollment rates lag boys' in most countries but can be increased rapidly with sustained political commitment, as happened in Guinea, Mauritania, and Uganda in the 1990s.

Resources for human development must be sustained over time, as with education in Uganda (see box 4.4) and nutrition in Madagascar (box 4.5). Commitment also involves continued involvement in human devel-

opment by the political elite, as happened in both of these countries in a direct way, with education being a key topic of discussion throughout Uganda and child nutrition throughout poor areas of Madagascar.

A particular type of commitment is needed to combat HIV/AIDS, commitment of the sort seen in Senegal (see box 4.2). This commitment requires a readiness to openly discuss topics—including sex and sex workers—that are normally below the surface in Africa. Discussing such topics is not easy for political leaders anywhere. Many African countries have begun open discussions of these topics, but more must do so to reverse the epidemic.

Special commitment is needed to combat HIV/AIDS

A commitment to the poor requires a commitment above all to basics: basic nutrition, basic education, basic health, and basic protection against vulnerability. These basics have long been emphasized but have yet to be achieved. Moreover, a commitment to basics does not mean ignoring

Box 4.5 Improving Nutrition in Madagascar

The Madagascar Food Security and Nutrition Project, recently completed and now being extended, reduced malnutrition among target populations by about 50 percent over four years. In Antananarivo malnutrition dropped from 43 to 18 percent, and in Toliary, from 26 to 13 percent.

The project had several key elements:

- Strong political support, as evidenced in the provision of new funding in a tight fiscal situation and in public support by the political elite.
- A social fund that financed income-generating activities.
- A food for work program.
- A nutrition program that worked through mothers groups, each organized by a community nutrition agent and supported by nongovernmental organizations.
- The universal iodization of salt.

The lessons from the project and other success stories—such as the Senegal Community Nutrition Project, the Benin Community-based Food Security Project, and the Mali Grassroots Initiatives to Fight Hunger and Poverty—are simple but important:

- Programs must be truly community-based—planned, managed, and implemented by local beneficiaries.
- Programs must be flexible and provide training to increase the capacity of communities to address challenges.
- Strong national political leadership is essential, so communication efforts are needed to keep government and people aware of the programs and to ensure that they support them.
- Collaboration and partnerships are also essential, especially with nongovernmental organizations that know how to work with community groups, donors, and United Nations agencies.
- Technological innovations must be applied, such as the use of micronutrients, as well as simple policies like salt iodization.
- Programs must be multisectoral. Targeting must focus on the malnourished, but interventions must be varied to meet the needs of the community (such as literacy classes, food for work programs, and microcredit for agriculture).

Source: World Bank; UN ACC/SCN 1997; UNICEF 1996.

other parts of the social system. Basic education, for example, can only be achieved through a direct commitment both to the basic level and to the balanced development of the education system as a whole.

Appropriate Service Delivery

Appropriate interventions vary according to the problem to be addressed

Human development service delivery in Africa should be based on two simple premises:

- Most problems have well-known, cost-effective interventions.
- Weak public institutions at the national level mean that effective delivery must be based on stronger community and private institutions.

Appropriate interventions vary according to the problem to be addressed. In education, for example, they involve removing barriers to access and providing books, materials, and trained and motivated teachers to children healthy and well-nourished enough to learn in schools close enough to their homes for them to attend (World Bank 1999c). In nutrition they include salt iodization, which reduced the African population at risk of iodine deficiency from 33 percent in 1994 to 23 percent in 1997, including in such countries as Kenya (100 percent iodization), Madagascar (100 percent; see box 4.5), and Nigeria (97 percent; UN ACC/SN 1997). In preventing HIV infection appropriate interventions involve public information and condoms, the use of which has resulted in a sharp decline in new HIV and sexually transmitted infections among sex workers in countries as diverse as the Democratic Republic of Congo and Thailand (World Bank 1999b). Indeed, the elements of a complete national program against HIV/AIDS are well-known, if not yet fully in place in any one African country (box 4.6). Implementing such programs could cost $15 billion a year for the continent as a whole.

Decentralized delivery focused on the community and the local school or health facility is the second key to effective service delivery. It characterizes successful programs for onchocerciasis in West Africa (see box 4.3), education in Uganda (see box 4.4), nutrition in Madagascar (see box 4.5), and safe motherhood in Chad (box 4.7)—all very different societies and economies, but all with weak national institutions.

Decentralized delivery can involve a range of mechanisms but is based on the simple concept of getting resources to where they are needed, and putting them more under the control of the immediate beneficiaries. This

can include decentralization to the district level, decentralization to autonomous schools and health centers, and much greater reliance on nongovernmental organizations and other private organizations, including public funding of private service delivery. What is common to these approaches is their proximity to the beneficiaries, involving them in governance structures so that there is increased accountability and better service availability and quality.

Examples abound. Zimbabwe's Social Fund has enabled communities to mitigate the consequences of drought and economic stagnation, and even helped empower communities further. Community schools are growing rapidly in Chad and Mali, partly in response to the slow expansion of the formal system. Nutrition programs in Senegal rely on implementation through a contracted private agency, with payments directly related to actual results in terms of nutrition outcomes among the target population. Centers run by nongovernmental organizations are an important aspect of Zambia's health program. Public funds are being used to fund private schools in Cameroon.

Decentralized delivery is based on the simple concept of getting resources to where they are needed

Box 4.6 Elements of Successful HIV/AIDS Programs

SUCCESSFUL NATIONAL HIV/AIDS PROGRAMS SHARE a number of features:

- Government commitment at the highest level and multiple partnerships at all levels with civil society and the private sector.
- Early investment in prevention efforts.
- Cooperation and collaboration among many groups and sectors: those most affected by the epidemic, religious and community leaders, nongovernmental organizations, researchers and health professionals, and the private sector.
- Decentralized participatory approaches that bring prevention and care programs to a national scale.
- A response that is forward-looking, comprehensive, and multisectoral, addressing the socioeconomic determinants that make people vulnerable to infection and targeting prevention interventions, care, and treatment to support them.
- Community participation in government policymaking as well as in the design and implementation of programs, many implemented by nongovernmental organizations, civil society, the private sector, and people living with HIV/AIDS.
- Core interventions that include developing communication programs to reduce risky behavior, especially among youth; making the diagnosis and treatment of sexually transmitted infections readily available and affordable; treating opportunistic infections, including tuberculosis; making condoms affordable and widely accessible; ensuring a safe blood supply; making voluntary counseling and testing available and affordable; and preventing transmission from mother to child.

Few countries have all these elements in place. They may cost 1.5–2.0 percent of GDP.

Source: World Bank 1999b.

Decentralization is not a panacea, however—nor can it be universal

Decentralization is not a panacea, however. Nor can it be universal. Inappropriate or overly rapid decentralization can have negative effects, as has often been the case with that to district governments. With some notable exceptions, local government has had a checkered past in Africa. Newly independent governments, keen on strengthening a fragile sense of nationhood, were reluctant to devolve powers that might aggravate ethnic and tribal divisions. This anxiety was especially apparent in Nigeria and Uganda, where colonial rule was largely exercised through traditional authorities that retained considerable autonomy.

More generally, colonial rule, though often limited, was tightly retained at the center. Indeed, in francophone countries the metropolitan model was highly centralized. Few countries entering independence

Box 4.7 Chad's Health and Safe Motherhood Project

CHAD IS ONE OF THE WORLD'S POOREST COUNTRIES, and its demographic and health indicators lag behind those of most low-income countries. In 1998 life expectancy at birth was 50 years, one of the lowest in the region. Maternal mortality is estimated at 827 deaths per 100,000 live births, a staggering eight times the African average.

Despite difficult political and economic conditions, Chad's government increasingly committed itself to addressing these problems in the 1990s. It adopted a national health plan (1993–2000) whose central objective is to increase access to quality basic health care, focusing on the most vulnerable groups—children and women of childbearing age. The key instrument for this is decentralized service delivery at the district level, crucial given Chad's dispersed population.

Within this framework, the Health and Safe Motherhood Project supports the development and implementation of policies and investments designed to:

- Strengthen capacity to support regional health services.
- Provide assistance for health, nutrition, and family planning services by establishing a network of district health facilities.
- Support the development and implementation of a national drug policy.

Progress is already apparent. In 1994, 310 of the 656 responsibility zones and 24 of the 50 health districts were operational, covering 33 percent of the population. By 1998, 453 zones were operational, covering 71 percent of the population. By the end of the project 80 percent of the population is expected to be covered. And use is up: in Guera and Tandjile districts the rate of prenatal visits doubled from less than 15 to almost 30 percent in four years.

Government commitment is strong, to health in general and the project in particular. Ministry of Health outlays increased from 3.3 percent of government spending in 1994 to 7.1 percent in 1998. The government has also allocated funds to the project beyond those required in the project agreements—funds that were used to drill boreholes to provide water to health centers. Chad has passed a law allocating increased revenues to health (along with education, rural development, and transport), expected as the country develops its oil reserves. This should assure sustained continued increases in health coverage rates, lowering maternal mortality and increasing life expectancy in the near future.

had developed a tradition of local government. And central governments rarely had the personnel and machinery needed to monitor local governments' activities.

As a result governments in many districts, towns, and cities proved corrupt, inefficient, and unresponsive to local needs. In country after country in the 1970s and 1980s, locally elected councils were replaced by centrally appointed commissions that exercised limited independent authority over service delivery and the raising of revenues to finance it. More recently, there have been commendable attempts to revive local government, but the process will take considerable time as capacity is built. Thus decentralization is most likely to be effective when it is to communities and autonomous institutions, not just to lower levels of government, whose institutions may be just as weak as those of central government.

Decentralization is most likely to be effective when it is to communities and autonomous institutions, not just to lower levels of government

Some functions are not appropriate for decentralization. The most important is public budgeting, for two reasons. First, coherent public budgeting is essential for macroeconomic management. The variability of government revenues in Africa from year to year—reflecting the unpredictability of trade- and transaction-based tax revenues in small, open economies—leads sector ministries (of which education and health are usually among the largest) to engage in opportunistic behavior, especially with external aid. This tendency can be compounded if local governments are allowed to enter into relationships with external sources of funds. Second, even where some revenues are raised locally, national systems are needed to compensate for the different resources available throughout a country. This is usually carried out through transfers from the central government.

Certain nonbudget functions are also most appropriate for central government. In education, assessment systems must be national to permit comparisons of schools. And, as Uganda shows, support to teachers in decentralized schools can be provided most effectively through a centralized system linked to teacher training. Drug procurement can be inefficient if it is carried out entirely by local institutions; national procurement implies some national pharmaceutical storage capacity. Public information campaigns for HIV/AIDS should be delivered locally but require development at the national level.

The key to making decentralized delivery effective is the governance of the local systems. Such governance is most effective when communities are directly involved, formally through school and clinic boards, for

example, or less formally, as is much more common. Governance structures that support autonomy, transparency in the sources and uses of funds, and accountability are essential (chapter 2).

Increased International Cooperation

Some key aspects of human development in Africa must be tackled internationally

Some key aspects of human development in Africa must be tackled internationally. These fall into four categories:

- Providing resources—the international community must provide more resources, including those freed by debt relief (chapter 8).
- Reaping the benefits of economies of scale, given the small size of many African economies and populations. Many areas are ripe for regional and subregional cooperation, including higher education, social science research, distance education, and drought and disease early warning systems. Little has been done in these areas, but recently there has been a welcome resurgence of interest.
- Tackling diseases that recognize no borders. The successful approach followed with onchocerciasis provides an example for the international community as it marshals human and financial resources (see box 4.3). The same approach is needed for malaria, trypanosomiasis, and other endemic diseases, where concerted actions across countries are essential for sustained success. International cooperation is beginning in malaria, most notably with the World Health Organization's Roll Back Malaria program. But cooperation is still needed for other diseases.
- Funding research to develop vaccines and drugs to deal with diseases that are essentially African. Vaccines, for instance, are one of the most cost-effective interventions in health, and many African diseases are in principle preventable through vaccines. New genetically based vaccines hold great promise, though many potentially effective vaccines (such as for malaria) are still in the research and development phase and not yet operational. Past successes with vaccines and their use, notably against smallpox and polio, have been driven by the diseases' global nature. Major efforts are under way to develop vaccines against African diseases.[3] But much more is needed to encourage research, including commitments to purchase new vaccines for poor countries.

Notes

1. Surveys in Côte d'Ivoire Ghana, and Mauritania show potential losses of almost 6.4 percent of normal earnings from illness. Losses were 2.5 percent in Indonesia and the Philippines and averaged 3.2 percent in Bolivia, Jamaica, and Peru. Losses in the United States were 1.5 percent (Strauss 2000).

2. The other goals are to reduce extreme poverty by half, to implement a national strategy for sustainable development in every country by 2005, and to reverse trends in the loss of environmental resources by 2015 (OECD 1996).

3. These initiatives include various partnerships among the World Health Organization, United Nations Children's Fund, World Bank, pharmaceutical companies engaged in research and development, foundations, and nongovernmental organizations such as the Children's Vaccines Initiative, the International AIDS Vaccine Initiative, the International Vaccine Institute, and the Global Alliance for Vaccines and Immunisation.