

## Public investments to empower poor people

A central finding of the UN Millennium Project is that the world has the practical knowledge, tools, and means to reach the Millennium Development Goals. Development can be achieved through specific actions on the ground. We know how to prevent mothers from dying in labor. We know how to encourage girls to complete sixth grade so that they have more choices than their mothers. We know how to vastly increase maize yields to feed villages. We know how to make sure that hospitals have uninterrupted electricity. We know how to plan cities to avoid the misery of slums and how to connect remote villages to markets and schools. We know how to combat violence against women and girls. We know what it takes to make sure all citizens have the equal right and opportunity to make choices. Even if we don't know everything about such challenges, we know enough to achieve the Goals. Moreover, the necessary interventions are utterly affordable (chapter 17).

To achieve the Millennium Development Goals, huge new investments and, in many cases, better policies and institutions are needed to implement the practical measures that we know to work. The tools have existed in the rich world for decades. The UN Millennium Project task force reports, essential accompaniments to this report, describe these required investments and policies in detail (UN Millennium Project 2005a–m). This chapter summarizes their recommended investments and policies.

In the poorest countries, especially those caught in a poverty trap, the process should start with an increase in public investments—not only to meet certain critical needs but also to trigger a rise in private investment that is held back by the lack of infrastructure, effective service delivery, and a healthy and skilled labor force (chapter 3). Such ambitious investment strategies typically are not pursued in the developing countries because of extreme resource constraints.

For all developing countries, but especially those stuck in a poverty trap, we recommend that the MDG-based frameworks to meet the 2015 targets (as described in chapter 4) should be designed around seven broad “clusters” of public investments and policies:

1. Promoting vibrant rural communities, by increasing food productivity of smallholder farmers, raising rural incomes, and expanding rural access to essential public services and infrastructure.
2. Promoting vibrant urban areas, by encouraging job creation in internationally competitive manufactures and services, upgrading slums, and providing alternatives to slum formation.
3. Ensuring universal access to essential health services in a well functioning health system.<sup>1</sup>
4. Ensuring universal enrollment and completion of primary education and greatly expanded access to postprimary and higher education.
5. Overcoming pervasive gender bias.
6. Improving environmental management.
7. Building national capacities in science, technology, and innovation.

In designing the recommended investment and policy clusters, we have given careful consideration to gender equality. In addition to women’s various productive roles—as farmers and wage workers—women are the main caregivers and household managers in most countries around the world. Though women’s reproductive roles affect their participation in various social, economic, and political activities, they often lack the information and services needed to determine the number, timing, and spacing of their children. They often perform a disproportionate amount of physical labor every day merely to keep their families alive. In addition to the direct investments in fighting gender discrimination detailed below, many of the other recommended investments—such as improved access to water supply, modern cooking fuels, enhanced transport services, and improved soil nutrients—can reduce gender inequalities and empower women.

Environmental sustainability is also essential to any effort to improve the well-being and health of the world’s poorest people. A degraded environment has dramatic and harmful effects on health, education, gender equality, and economic development. People cannot work and study if they are frequently ill from drinking and bathing in polluted water or if they are malnourished because of soil erosion and desertification. The oft-heard argument—that the poor should wait until their incomes have risen before investing in better management of the environment—is misplaced. Why? Because in many parts of the developing world environmental degradation already places a binding constraint on development. A successful MDG strategy must thus be created and implemented in an environmentally sustainable manner right from the start.

As a general point for every country’s MDG-based poverty reduction strategy, the detailed public investment plans should meet six criteria. They should:

- Be ambitious enough to achieve the Goals.

- Lay the ground for private sector–led economic growth, with particular support to the indigenous private sector.
- Be based on known interventions that can be rapidly scaled up.
- Describe a path for scaling up through 2015, beginning with investments that open up capacity bottlenecks for scaling and investments that each country prioritizes as most urgent.
- Promote community organizations and other nongovernmental organizations as vital partners in delivering services to poor people.
- Ensure that women’s specific needs are taken into account and that women and girls benefit equally with men and boys.

In each of the seven investment clusters, national and local governments, in partnership with civil society, should take the lead in setting the “rules of the game” for households and private enterprises. They should set the policies and institutions to ensure effective, equitable, and sustainable delivery of key services. They also have the primary responsibility for planning and financing key investments and services at scale, even if some are delivered by the private sector. Importantly, the seven national investment areas must be complemented by investments in regional cooperation and infrastructure services and in the global goods described in chapter 15 (including environmental management and international science and technology).

Here, we identify the priority investment packages and enabling policies for their implementation, giving examples of successful scale-ups. In chapter 17, we identify the costs of the national-scale investment packages—and how those costs can be met through greater domestic resource mobilization combined with increased aid for countries that cannot finance them with domestic resources alone.

Before proceeding with the range of investment priorities below, it is important to recognize that the full range of clusters might seem daunting for countries, particularly those with limited capacities. For certain, development processes are complex, so building up human resources and infrastructure in an integrated manner across sectors will require intensive long-term investment programs over the coming decade, with a particular focus on strengthening capacities (chapter 6). But there are many actions and investments that can be implemented in a much shorter term, using existing capacity and infrastructure. These actions, which we call “Quick Wins,” provide immediate opportunities to save and improve large numbers of lives, starting in 2005 (box 5.1).

### **Rural development: increasing food output and rural incomes**

The global epicenter of extreme poverty is the smallholder farm. Of the roughly 850 million people living in chronic hunger, smallholder farmers constitute half (FAO 2004). Remember that these farmers also constitute the bulk of private sector economic activity in many developing countries, so improving their economic lot will make a huge difference to their countries’ prospects for

**Box 5.1**  
**Quick Wins—**  
**solutions to**  
**implement now**

Implementing a full set of MDG-based investments and policies will take time and in many cases complex institutional change. But by implementing the interventions set out below, large-scale progress can begin immediately in 2005 and see major results within three or fewer years. We call these Quick Win interventions for the Goals, ones that can and should be implemented right away if the world is serious in its commitment. Although far from comprehensive, the Quick Wins could bring vital gains in well-being to millions of people and start developing countries on the path to the Goals.

- Eliminate school and uniform fees to ensure that all children, especially girls, are not out of school because of their families' poverty. Lost revenues should be replaced with more equitable and efficient sources of finance, including donor assistance.
- Provide impoverished farmers in Sub-Saharan Africa with affordable replenishments of soil nitrogen and other soil nutrients.
- Provide free school meals for all children using locally produced foods with take-home rations.
- Design community nutrition programs that support breastfeeding and provide access to locally produced complementary foods and, where needed, micronutrient (especially zinc and vitamin A) supplementation for pregnant and lactating women and children under five.
- Provide regular annual deworming to all schoolchildren in affected areas to improve health and educational outcomes.
- Train large numbers of village workers in health, farming, and infrastructure (in one-year programs) to provide basic expertise and services to rural communities.
- Distribute free, long-lasting, insecticide-treated bed-nets to all children in malaria-endemic zones to cut decisively the burden of malaria.
- Eliminate user fees for basic health services in all developing countries, financed by increased domestic and donor resources for health.
- Expand access to sexual and reproductive health information and services, including family planning and contraceptive information and services, and close existing funding gaps for supplies and logistics.
- Expand the use of proven effective drug combinations for AIDS, TB, and malaria. For AIDS, this includes successfully completing the 3 by 5 initiative to bring antiretrovirals to 3 million people by 2005.
- Set up funding to finance community-based slum upgrading and earmark idle public land for low-cost housing.
- Provide access to electricity, water, sanitation, and the Internet for all hospitals, schools, and other social service institutions using off-grid diesel generators, solar panels, or other appropriate technologies.
- Reform and enforce legislation guaranteeing women and girls property and inheritance rights.
- Launch national campaigns to reduce violence against women.
- Establish, in each country, an office of science advisor to the president or prime minister to consolidate the role of science in national policymaking.
- Empower women to play a central role in formulating and monitoring MDG-based poverty reduction strategies and other critical policy reform processes, particularly at the level of local governments.
- Provide community-level support to plant trees to provide soil nutrients, fuelwood, shade, fodder, watershed protection, windbreak, and timber.

**Box 5.1**  
**Quick Wins—**  
**solutions to**  
**implement now**  
*(continued)*

Of course, these Quick Wins alone will not achieve the Goals. They need to be matched by investment strategies with longer timeframes, such as those for transport infrastructure, energy services, and teacher and nurse training. But they represent a feasible and immediate set of actions that could begin today and could save and improve millions of lives around the developing world.

These strategies do not require complex systems or extensive infrastructure for their delivery. Time-tested, they have proven their effectiveness in the poorest of countries. To succeed, they need to be customized and implemented by developing countries and supported by immediate and adequate financial and technical assistance from the rich countries.

Each of these interventions is discussed at greater length in the reports of the UN Millennium Project task forces. Once again, they are not the only interventions required to reach the Goals—just ones with very high impact in the short term. The world cannot afford to let another year go by without investing in these simple and proven strategies.

long-term economic growth. Impoverished smallholder farmers scratch out an existence that is brutally difficult, living on the edge of survival and often falling off the edge. They live in communities that are geographically isolated and burdened by disease, climatic shocks, environmental degradation, and social exclusion and violence. They not only suffer—they pass on their suffering to the next generation.

Poor rural families tend to have many children, because they fear for their children's survival, because they regard their children as social security, and because they lack access to safe and effective modern contraception and family planning. Women bear a disproportionate burden of rural poverty, living lives of great physical labor as well as rearing children and giving care to the elderly and sick. Making matters worse, smallholder subsistence farming is often highly destructive of the environment, especially as population pressures and low productivity lead to deforestation, soil nutrient depletion, and soil erosion. Addressing rural poverty requires making farms more productive, raising farmers' incomes, improving the lives of the rural landless, and expanding essential services.

***Making farms more productive***

Agricultural productivity (of crops, livestock, forests, and fisheries) remains low in many countries for many reasons. Among the most important are that soils are widely depleted of nutrients, water resources are not adequately managed, farmers do not have the means of using improved plant varieties and animal breeds suitable to their forms of agriculture, and extension services do not adequately teach the findings of modern agricultural research. Rising water scarcity for agriculture coupled with poor management of water resources is a major challenge in many rural parts of the developing world, and water scarcity in some regions is also being exacerbated by long-term climate change.

A Green Revolution has preceded virtually every economic takeoff in modern history, from Britain's original Industrial Revolution—preceded by its agricultural revolution—to Asia's boom in the 1970s and onward, fueled by the modern Green Revolution, based on high-yield varieties of basic staple crops. On July 5, 2004, the UN Secretary-General called for a Twenty-first Century African Green Revolution that would “address the interconnected challenges of agriculture, health care, nutrition, adverse and unfair market conditions, weak infrastructure, and environmental degradation.” (Annan 2004, MDG Technical Support Centre 2004). He called special attention to farming systems in areas largely disconnected from functioning markets. This applies equally to remote areas in Africa, Asia, and Latin America.

A Twenty-first Century Green Revolution in Africa and in bypassed regions in Asia and Latin America would include several components all working together (see appendix 1): improved rural infrastructure services in the form of roads and means of transport, modern energy services, and communication technologies. Central to this new Green Revolution is improving soil health through a combination of applying fertilizers—using fertilizer trees, mineral fertilizers, green manures, cover crops, and crop residues to replenish soil nutrients—and controlling soil erosion (box 5.2).

Other important on-farm investments include expanding and improving small-scale water management, postharvest storage, crop varieties, and livestock breeds. In many parts of Africa and Asia, livestock and livelihoods are closely related since livestock strengthen both nutrition and income security. Investments in vaccines, veterinary pharmaceuticals, and quality feed and fodder contribute to increasing farm animal productivity and reducing both poverty and hunger.

Public and private investments will be required to improve water storage and harvesting, as well as to increase the water efficiency of agriculture by raising the “crop per drop.” (In periurban areas and in cities, appropriately treated wastewater can be used for irrigation.) To support all of these actions aimed at boosting land yields, agricultural research systems need significantly higher levels of funding.

Unlike the Asian Green Revolution, farming techniques exist today that permit an environmentally friendly intensification (such as agroforestry and small-scale water management). Extension services need to be strengthened with village-level paraprofessionals who use a strong participatory approach and have up-to-date knowledge of ecologically sound agricultural techniques.<sup>2</sup> In many parts of the world, especially in Africa, the majority of smallholder farmers are women. Providing them with access to improved farming techniques is most effective through well trained women extension workers. We stress that these farm-level investments will be more effective than fighting the symptoms of low productivity with food aid brought from abroad.

### Box 5.2 Increasing crop yields in Africa

Source: UN Millennium  
Project 2005d; map  
data calculated from  
World Bank 2004c.

More than 200 million Africans are undernourished. Unlike other regions where inadequate food supply is a result of inequalities and poor distribution, food insecurity in Africa is primarily a result of the lack of adequate food production. One of the major reasons that so many Africans do not have access to enough food is that crops are grown in fields with utterly depleted soil. The land has been over-farmed and few subsistence farmers can afford to use fertilizers (see map), which in parts of Africa can cost nearly four times as much as they do in North America or Europe.

Researchers from the World Agroforestry Center, along with national research and extension services, and NGOs working with farmers, spent 10 years developing soil fertility replenishment methods with resources naturally available in Africa. Simple and affordable “green fertilizers” were in most cases developed and tested in farmer-designed trials on farmer fields. Three components can be used in combination or separately: nitrogen-fixing leguminous trees, indigenous rock phosphates in phosphorus-deficient soils, and biomass transfers of leaves of nutrient-accumulating shrubs. By adding nutrients to the soil, these natural fertilizing methods have in many cases doubled or tripled yields for farmers, meaning that in just a few years, more and better food has been made available to thousands. These agroforestry technologies also help the environment, by increasing biodiversity, sequestering carbon, and protecting watersheds.

Tens of thousands of farm families in Kenya, Malawi, Mozambique, Tanzania, Uganda, Zambia, and Zimbabwe now use various combinations of fertilizer trees, phosphorus, and biomass transfers with good and consistent results. Adoption has been almost entirely through farmer-to-farmer and village-to-village knowledge transfers and through the support of community-based organizations, national research and extension institutes, and universities.

These technologies to combat soil depletion can and must spread to reach tens of millions more families dependent on agriculture. They should be combined with the strategic use of mineral nitrogen fertilizers, the return of crop residues to the soil, and erosion control practices to restore soil health. Large and sustained investments from governments and donors are necessary to extend the remarkable success in increasing yields.

#### Fertilizer consumption, 2001

Metric tons per million people



□ Less than 10,000 □ 10,000–20,000 □ 20,000–40,000 □ 40,000–80,000 □ More than 80,000 □ No data

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**Box 5.2**  
**Increasing crop yields in Africa**  
*(continued)*

The cost of such an ambitious scale-up is remarkably small. Distributing “green fertilizers” to tens of millions of African farmers will cost an estimated \$100 million a year for each of the next 10 years. This is only a tenth of the amount currently spent each year to deliver food aid and contend with the effects of hunger and malnutrition on the continent.

Combining healthy soils with small-scale water management, improved crop germ-plasm, and targeted nutrition and market interventions, a science-based Twenty-first Century African Green Revolution—driven by technologies already developed and adopted by many African farmers—could save millions of lives and provide a sustainable future for African agriculture.

**Success factors for scale-up**

- Developing the technologies together with farmers. The result was scientifically sound and fit the farmers’ requirements.
- Strong participation of national research institutions.
- Local NGO involvement in developing and testing.
- Local government commitment and management of modest scale-up plans in some of the countries.

“Smart” subsidies for qualifying food-insecure farmers are strongly recommended to ensure access to key farm inputs. In other words, we call for a reversal of the policies in recent years of slashing subsidies for fertilizers and other critical inputs. But we underscore that such subsidies would need to be targeted to very poor regions and translated into farm-site investments in soils, water, improved seeds, and other critical needs—with an exit strategy as rural productivity and incomes rise over time (UN Millennium Project 2005d).

***Raising farmers’ incomes—getting farm products to market***

Today most farmers in rural Africa and remote parts of Asia and Latin America are essentially cut off from markets beyond their village. Poor transport services are a major reason for this, particularly in rural Africa, where transport costs are several times higher than elsewhere in the world. Since rural road networks in many poor countries are too small and falling into disrepair, major public investments in the construction and rehabilitation of footpaths, feeder, district, and national roads are required—using techniques that are labor intensive to create employment and minimize the adverse impact on the environment. In addition to commencing major road-building programs, adequate provisions need to be made to cover the maintenance costs through targeted road funds that are fully resourced.

In many cases major investments are required to build and strengthen institutions charged with the design, operation, and maintenance of transport infrastructure. Equally important are measures to improve access to low-cost transport services. Examples include providing access to credit, ensuring efficient transport markets through legislation, lowering entry costs into the



transport market, and improving the supply of low-cost vehicles, bicycles, and other means of transport. Throughout, rural development strategies should focus on strengthening economic linkages between rural and urban areas, where the markets for farmers' products and inputs lie. To this end, transport corridors linking key agricultural regions with primary and secondary cities need to be promoted.

Improved transport infrastructure and services will have an important positive impact on reducing the time burdens of women and girls who today spend much of their day walking to obtain water and other essentials for survival. They will also allow women better access to life-saving health services, such as emergency obstetric care.

To further improve farmers' ability to market their products and access markets, national strategies can focus on building storage facilities, encouraging networks of agrodealers, and improving credit and savings facilities. All these investments will succeed when smallholder farmers and rural communities are empowered to establish their own institutions—for example, farmer field schools to gain access to new agricultural technologies, village banks to gain access to financial services, and farmers' associations to negotiate with market intermediaries.

### ***Improving the lives of the rural landless***

The foregoing interventions will help reduce hunger and increase incomes for the rural poor who farm their own land—but they are not enough. Many of the poor and hungry, especially in Asia, are the rural landless. Most of the landless poor depend on rural off-farm labor markets to earn their livelihoods. Yet these markets often function poorly in rural areas where alternative opportunities to farming may be scarce or the poor may have limited education and training. The large numbers of landless laborers in South Asia, for example, lack productive assets, marketable skills, and alternative employment opportunities. They are thus obliged to do on-farm work at low wage rates. Many more decent opportunities to earn income are needed.

A variety of interventions to increase skills can expand labor opportunities for the rural landless and promote the nonfarm economic sector more broadly. Primary education and skills training for both men and women can also create a more competitive labor market. The position and bargaining power of the poor in labor markets can be strengthened through legislation that permits labor organizations and the free movement of people in search of work, as well as through government labor agencies that serve the poor.

### ***Expanding essential services in rural areas to meet the other Goals***

Beyond improving farmers' incomes, expanding rural infrastructure and enhancing service delivery is also required to fight rural poverty, disease, and heavy work burdens, especially for women. Improving effective access to domestic water

supply and sanitation, an important end in itself, is critical for meeting the health, education, gender, environment, and other Goals, as is better management of water resources. Hygiene education and awareness-building programs need to precede and accompany infrastructure provision to raise household demand for sanitation services and ensure proper use and maintenance of the infrastructure. Since low-cost sanitation technologies can often be built using locally available materials without significant outside funding, community participation and mobilization are key to ending open defecation, with its deleterious effects on human health and dignity in communities the world over.

Most rural areas also require better access to energy services. To accelerate the shift toward cleaner fuels for cooking and space heating, countries should provide efficient cookstoves and improve access to modern fuels. Any strategy for meeting the Goals should also place a strong focus on setting up the necessary infrastructure to provide schools, clinics, hospitals, and other key community facilities with low-cost electricity.<sup>3</sup> These can then serve as access points for basic communication services and battery charging stations to supply domestic households.

Also necessary to fight “hidden hunger” or malnutrition, which contributes to disease and lowers productivity, are nutrition interventions targeted at pregnant women and children under two, specific vulnerable groups (such as people living with HIV/AIDS), and the general population through, for example, food fortification or salt iodization. Sexual and reproductive health services can improve birth spacing and reduce nutritional and health burdens on mothers and their children. These interventions are of course equally relevant to rural and urban dwellers.

### **Urban development: promoting jobs, upgrading slums, and developing alternatives to new slum formation**

A sharper focus on reducing urban poverty is necessary, in part because official statistics tend to underestimate urban poverty, which is very high in most developing countries (Satterthwaite 2004). Ending extreme poverty also requires ensuring a productive urban environment, improving the lives of slum dwellers, and providing alternatives to the formation of new slums. Most non-agricultural activities—industry and services—thrive best in an urban setting where the concentration of economic activity reduces transaction costs (such as transport and communication) and allows the face-to-face contact vital for a sophisticated division of labor. That is why the urban economy is generally an important center of gravity of economic life and the focus of technological advance and specialization.

In developing countries around the world, cities are struggling to function. They are home to extreme poverty and fail to create the jobs necessary for growth. The share of the population living in urban areas is rising inexorably and will continue whether rural development is successful or not. If rural

development is successful, it will mean that a shrinking proportion of the population can feed the entire population. The children of farmers will therefore move to cities in search of a new life. If it is unsuccessful, then “rural refugees” will escape from intense rural poverty, shrinking farm sizes, and environmental degradation. They will come to the cities in search of jobs and services. If good jobs do not exist, the migrant workers will live in extreme poverty under slum-like conditions and swell the ranks of the informal economy.

Over the coming decades, countries in Asia and Africa will continue to urbanize rapidly, approaching the urban population shares in Latin America and the high-income countries. While rapid urbanization in poor countries poses an unprecedented challenge, it also creates an opportunity. Due to high population densities, critical social services such as education and healthcare can be more easily provided than in rural areas. Even so, these services often remain inaccessible to many urban poor. In some slums health outcomes are worse than in rural areas. If the social exclusion of people living in informal settlements or slums can be ended, urbanization can be a powerful driver for improving the lives of a country’s population and for generating economic growth.

Given the pressures that urbanization imposes on cities, finding alternatives to new slum formation and improving the lives of slum dwellers, as called for in the Millennium Development Goals, are essential goods in themselves and necessary for raising urban productivity. The package of investments for urban development, summarized in appendix 1, should include five broad areas: improving security of tenure for slum dwellers, upgrading slums and improving housing, expanding citywide infrastructure and effective service delivery, creating urban jobs through local economic development, and providing alternatives to slum formation.

### *Improving security of tenure*

Strategies for improving security of tenure are central for improving the lives of slum dwellers and land use in urban areas. They often require reform of tenure and land-use legislation, coupled with legislation to prevent forced eviction. In enhancing access to land, particular attention should go to ensuring that women have equal access to land tenure and titling rights. Throughout, improving security of tenure requires a high degree of tailoring to local needs, since preferences for and the feasibility of a particular tenure regime vary tremendously within cities, let alone countries or regions (Durand-Lasserve and Royston 2002). It is also conditional on a high degree of participation and decisionmaking by the slum dwellers themselves, whose organizations should be recognized as critical partners with local authorities.

### *Upgrading slums*

Upgrading housing and retrofitting infrastructure for water supply, sanitation, transport, and energy services are critical for improving the lives of slum

dwellers. Successful slum upgrading is best carried out by local authorities and communities working in close partnership (box 5.3). Where possible community organizations should be supported and allowed to play an active role in preparing and executing plans for slum upgrading. Moreover, upgrading must be citywide to avoid having the remaining informal settlements continue to grow by attracting new migrants. Of particular importance are investments in housing, which can often be carried out incrementally by the poor, if they have adequate security of tenure, and which can become an important means of asset accumulation. (The report of the Task Force on Improving the Lives of

**Box 5.3**  
**Improving urban sanitation in India**

Source: Water Supply and Sanitation Collaborative Council 2000.

Starting in the 1970s the NGO Sulabh International developed and implemented a low-cost sanitation system in India. The Sulabh program made two main innovations: the modification of an existing low-cost technology, and community education to increase demand for services.

The technology, known as a pour-flush system, has many advantages. It is affordable, even for more economically disadvantaged segments of the population. It is never out of commission since, with the twin-pit option, one pit can always be used while the other one is being rested. The latrine can be built with locally available materials and is easy to maintain. It is also easy to upgrade, as it can be connected to a sewer system if one is introduced in the area. The toilet also has a water seal that makes it odorless and fly-free. And flushing requires only 2 liters of water, rather than the 10 needed by other flush toilets.

Despite these technical virtues, the Sulabh program would not have succeeded without improving public awareness and encouraging community participation. For populations unfamiliar with modern sanitation practices, the Sulabh International Social Service Organization undertook community-based educational campaigns, including door-to-door efforts to persuade people to convert from bucket latrines. Sulabh then constructed the twin-pit, pour-flush toilet for those who agreed to the conversion. Sulabh also educated people on the use and maintenance of their new latrine, promising to fix construction defects and solve technical problems at no cost. The program also helped local communities set up, operate, and maintain the community toilet complexes.

More than 1 million units have been constructed in private homes (or substituted for existing unhygienic latrines), and about 5,500 have been installed in pay-and-use public toilets. This has vastly improved the quality of facilities available to users. An attendant staffs the public toilets 24 hours a day, supplying powdered soap for hand washing, bathing, and laundry. Free services are offered to children, the disabled, and the poor. More than 10 million people now use the complexes every day, and some facilities have even begun providing new services, such as telephone calling plans or basic primary health-care. As a result, some municipal governments have relinquished control of public sanitation provision to Sulabh for up to 30 years.

**Success factors for scale-up**

- Partnership between an NGO, local communities, and the government.
- Shift in role of central government from implementer to facilitator.
- Stepwise approach to service provision rather than all-or-nothing.
- Community involvement and awareness programs to ensure demand for services.
- Capacity building to enable communities to assist with service delivery.
- Service delivery approach adapted to local conditions.

Slum Dwellers describes successful strategies for slum upgrading in detail; UN Millennium Project 2005f.)

Compared with rural areas, slum upgrading requires a stronger focus on networked technologies, such as sewers, piped water, and electricity grids. Investments in improved sanitation should receive high priority to improve the quality of life and reduce the high burden of oral-fecal diseases in informal settlements caused by widespread open defecation. The high density of informal settlements makes sanitation particularly precarious. Where space constraints are high, low-cost communal toilet blocks have been used successfully. Effective hygiene education and awareness building programs are essential to create demand for sanitation and to ensure adequate use by all household members. Other investments required as part of slum upgrading include storm drainage, community facilities, local markets, and street lighting. Health services require investments as well. As mentioned earlier, nutrition interventions for both the general population and vulnerable groups will reduce morbidity and mortality among the urban poor. Clinics need to be more accessible, be located where needs are greatest, and be open during hours that can accommodate the schedules of the working poor.

### *Expanding citywide infrastructure*

To complement the upgrading of individual informal settlements, citywide infrastructure and services need to be extended and upgraded. A high priority should be meeting the transport needs of the urban population through investments in transport services and infrastructure, such as footpaths, kerbing, bus lanes, roads, and mass transit systems. In many cases investments in mass transit systems do not require expensive infrastructure. Many large cities have successfully developed efficient bus-based mass transit systems that can provide transport services to the poor at a moderate cost. They are often more cost-effective than investments in large-scale road and rail-based transport infrastructure. Also important are policy changes to improve the availability of low-cost means of transport, including bicycles. In addition, effective regulation of industrial water and air pollution must complement an urban development strategy to ensure a safe urban environment. Solid waste disposal using well designed landfills and, in some cases, wastewater and sewage treatment also need to be provided.

### *Creating jobs*

Cities must create jobs to employ their rising populations. Good infrastructure attracts domestic and foreign investment, which is necessary for large-scale job creation. Another task for urban planners is to improve industrial efficiency and attract foreign investors with industrial parks, export processing zones, or other designated areas for private sector development. Successful cities are able to link industrial zones with seaports and airports to reduce the time, cost, and hassle of shipping goods.

Equally important are measures to support the informal sector, where most of the urban poor work in low paid, low productivity, and low security jobs. To facilitate the shift into the formal sector, local authorities should adjust their laws and regulations to lower the costs and increase the benefits for people to formalize their enterprises. They should also provide assistance to small enterprises to upgrade skills and increase access to productive resources and market opportunities.

### ***Providing alternatives to slum formation***

Since cities in many developing countries will continue to grow at a fast pace, local authorities and national governments need to strengthen urban planning and citywide strategies to provide alternatives to slum formation. By making land available to the poor at affordable prices and ensuring the provision of housing, urban infrastructure, and transport services at the fringes of cities, urban planning can provide alternatives to the formation of new slums. In the past some cities—particularly in Latin America—have used land banking for this. Local authorities should also provide much of the trunk infrastructure in development areas and establish clear regulatory standards regarding minimum plot sizes, infrastructure standards, and so forth. Sound urban planning and standards also are central in averting or mitigating the impact of floods, landslides, and storms.

### ***Making it happen—empowering city governments and the urban community***

Perhaps the most important change needed in managing cities is to foster a collaborative partnership between local authorities and communities, with strong support from the national government. Local authorities are the city planners, financiers, and providers of infrastructure services. Their performance depends on good governance at city level—involving civil society, including communities living in informal settlements, and working with the urban poor as partners in making cities work, not seeing them as obstacles, as is too often the case today.

A key to productive and sustainable urban development is for city governments to have the policy autonomy and financial independence to design and implement plans and infrastructure programs. Decentralization strategies need to strengthen local authorities that are directly accountable to urban communities. Donors should ensure that their assistance to cities does not get bottled up in national capitals, but reaches and empowers local urban governments to take the lead in their own development efforts. National governments, in turn, should strengthen policies for local tax mobilization and expenditure assignment to ensure predictable and adequate financial transfers to local authorities.

Community organizations can provide a voice for the urban poor and ensure that their interests are met in slum upgrading and urban planning

(chapter 8). Federations of slum dwellers have access to unique information on informal settlements—information central to successful upgrading. They should be involved as equal partners from the beginning of the planning processes. In many cities, community organizations, like the ones federated under Shackdwellers International, have led slum upgradings on a massive scale. Wherever this is possible, local authorities should support community-led initiatives financially and treat community organizations as equal partners. This is particularly important where resettlements of slum dwellers become a necessity—say, to free up critical railway lines in a city.

Without the support and participation of the poor, such resettlement programs can lead to the mere relocation of slums—or much worse. Community organizations can help mobilize the resources of the urban poor to co-finance improvements in housing and investments in basic urban services. For example, the work of the NGO Sulabh International in India showcases a successful scale-up of the provision of sanitation services (see box 5.3).

### **Health systems: ensuring universal access to essential health services**

Health, a fundamental human right, is also a key input to economic development because it raises the productivity of the work force and increases the attractiveness of the economy for investors, domestic and foreign. Pandemic diseases such as malaria, TB, and AIDS not only increase suffering but deter investments in infrastructure, tourism, agriculture, mining, and industry. But developing countries continue to endure enormous rates of avoidable illness and premature death. Moreover, inequalities in health status and in access to healthcare are pervasive and growing, both among and within countries. Despite all this, technical interventions to prevent and treat the vast majority of health conditions affecting people in these countries are well known. The central challenge to achieving the health Goals is one of implementation—of ensuring access to these known interventions in ways that simultaneously promote the fundamental aims of development and social justice (box 5.4).

Appendix 1 summarizes the key interventions that could, if implemented broadly and equitably, allow attainment of each of the health Goals. These are discussed in detail in the reports of the individual health task forces. While many of these interventions could be delivered through disease-specific vertical programs—and in some circumstances this may be the most efficient solution—in most cases they are best provided through an integrated district health system centered on primary care and first level referral hospitals. That is the course strongly recommended by the UN Millennium Project. Vertical initiatives should in general not bypass the health system in delivering services, since this tends to undermine existing health systems by duplicating management structures and compete for scarce resources, especially skilled staff.

### **Box 5.4**

#### **Controlling malaria in Viet Nam**

*Source:* WHO 2002; UN Millennium Project 2005b.

Nearly a third of the population of Viet Nam resides in malaria-endemic regions, and in 1991 the country faced an intensive malaria epidemic, with 144 outbreaks recorded and more than a million people sickened. The commonly used antimalaria drugs proved ineffective due to drug resistance.

Between 1992 and 1997 the government of Viet Nam made malaria a national priority, dedicating significant additional funding for its control. The money went for improving village health systems and coordinating malaria control. The package of specific interventions included free distribution of insecticide-treated bed-nets, adoption of new antimalaria drugs, and application of indoor residual insecticides. Services to pregnant women were expanded to include preventive treatment for malaria.

There was a major investment in training and supervision, and 400 mobile teams were set up to supervise health workers in malaria-endemic areas. Volunteer health workers were mobilized in communities to educate villagers and help them seek appropriate care.

Simultaneously the government worked with private biomedical firms to produce artemisinin—a powerful new malaria drug—locally. Widespread use of artemisinin combinations was an important ingredient in the dramatic reduction of malaria deaths. Coverage of indoor residual spraying rose from 4.3 million in 1991 to 12 million in 1998. In parallel, the number of people using bed-nets rose from 300,000 to more than 10 million.

This integrated package of interventions was evaluated over 1992–97. Mortality was reduced by 97 percent and morbidity by 60 percent. Local malaria outbreaks have been virtually eliminated.

#### **Success factors for scale-up**

- Government commitment to equitable access to health services and oversight of control efforts.
- Significantly increased funding and abolition of user fees for bed-nets.
- Simultaneous strengthening of village-level health systems.
- Adoption of a multipronged prevention and treatment approach.
- Significant increase in health workers—both formally trained and village level—and improved supervision of performance.
- Investment in disease surveillance and monitoring systems.
- Community involvement in prevention.

Disease control interventions need to be delivered in ways that strengthen stewardship, human resources, and management of services to improve general health outcomes and reverse the major epidemics. The key to successful and sustainable scale-up of these key interventions is to strengthen health systems, whose deplorable condition is a major obstacle to improving health outcomes in many countries. The added benefit of investing in health systems now is that it will create a sustainable base to enable countries to respond to the next wave of health challenges, including chronic diseases, which are an increasingly large proportion of the disease burden in developing countries.

A health system, defined by WHO as “all the activities whose primary purpose is to promote, restore, or maintain health,” includes interventions in the household and community and the outreach that supports them, as well as the facility-based system (both public and private) and all categories of providers (WHO 2000). It should also be understood and addressed as a core social



institution. When characterized by neglect, abuse, or exclusion of certain individuals or groups, the health system is a major contributor to social injustice. Conversely, the strengthening of health systems increases social capital within the community and fulfills the rights of individuals.

***Delivering health services—from the community to the hospital***

Different delivery strategies are appropriate for different interventions; reaching the health Goals will require strengthening all elements. Many of the key interventions—including exclusive breastfeeding, oral rehydration therapy, healthy and responsible sexual behavior, and appropriate use of antimalaria bed-nets—occur in households and communities. Households, in particular, are important in “producing health.” They do this by practicing health-promoting behaviors and by delivering home-based interventions (Wagstaff and Claeson 2004), supported by community health workers. Women’s education increases the use and effectiveness of health interventions. Enabling households to deliver appropriate interventions requires public education and health promotion, as well as the distribution of basic commodities by community health workers, but it does not necessarily depend on health facilities or clinical staff. So these outreach interventions could, in principle, be scaled up immediately.

Other critical interventions require functioning primary health clinics and district hospitals. Examples of services that community clinics can provide are treatment of malaria, sexually transmitted infections, and pneumonia and prevention interventions, such as childhood vaccinations, HIV testing and counseling, contraceptive provision, and antenatal care. More sophisticated health centers or hospitals are indispensable for emergency obstetric care, anti-retroviral treatment, and safe abortion services (where permitted by law<sup>4</sup>) as well as for treating referrals of severe cases from lower levels of the system.

But few people in the developing world have access to facilities providing these services—because the facilities do not exist or lack basic equipment, essential medicines, or trained staff, because the lack of roads or transport prevents people from reaching them, or because people cannot afford the fees charged for even the most basic services (maps 5.1 and 5.2). And even where facilities are accessible and affordable, cultural obstacles, poor information, perceptions of poor quality (often justified), and a lack of trust may mean that they are not used. In Sub-Saharan Africa, the met need for emergency obstetric care—the proportion of women with direct obstetric complications treated in emergency obstetric care facilities—can be as low as 5 percent (Uganda Ministry of Health 2003).

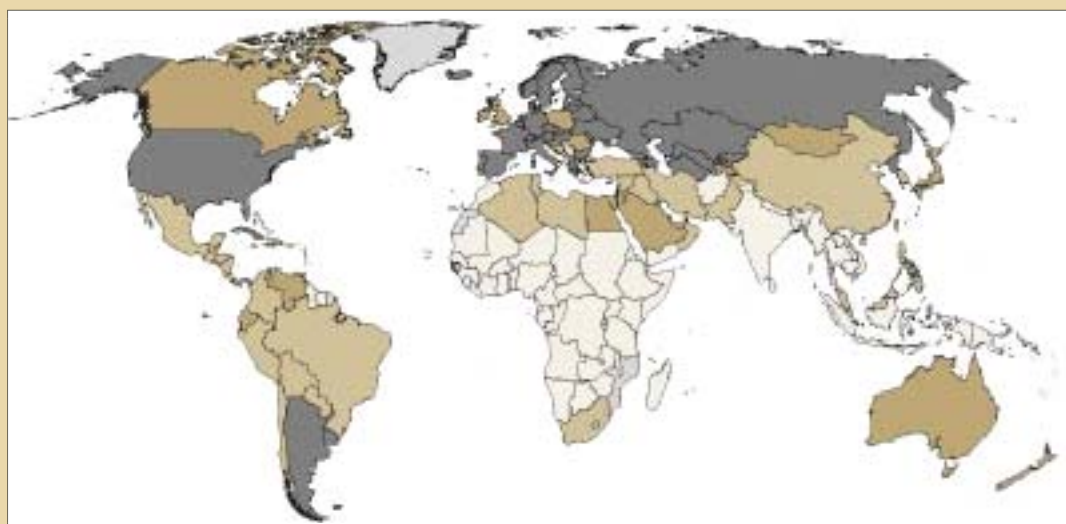
***Required investments and policies to support health systems***

Addressing the obstacles to access and quality requires scaled-up investments in the health sector, backed by supportive health policies. Investments will certainly be required to ensure an adequate supply of essential drugs, clinic and

**Map 5.1**  
**Physicians per**  
**1,000 people**

*Most recent available year*

Source: World Bank 2004c.



Less than 0.5     
  0.5–1.5     
  1.5–2.5     
  More than 2.5     
  No data

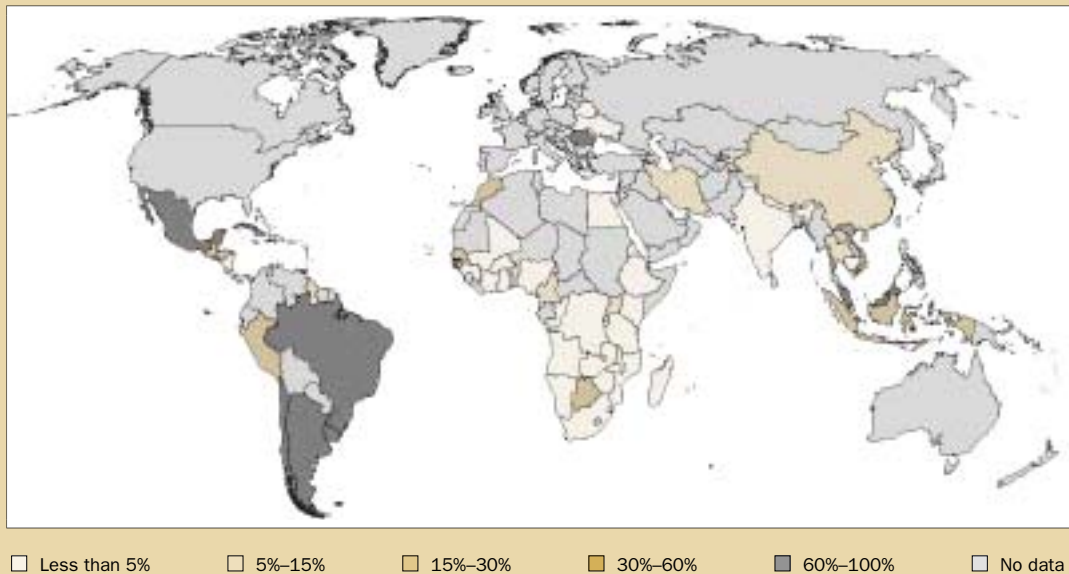
laboratory facilities, and most important, competent, motivated health workers. The latter requires high-quality training, adequate salaries, and appropriate performance rewards. Additional investments will be needed to reduce barriers to access and to improve quality of care. These include maintaining health infrastructure, improving roads, providing access to cheap transport services including ambulances, ensuring uninterrupted supplies of water and electricity, improving housing, and promoting modern communication technologies.

Better policies will often be required to complement these investments. For example, in many countries, the health worker situation is catastrophic, with extremely low absolute numbers of health workers. In many countries the available skills are inadequate or inappropriate to local needs. And the distribution of workers is strongly biased toward urban areas. Not surprisingly, motivation and productivity are low, and migration to countries offering better conditions of service is pervasive. Human resource policies are needed that align the training, deployment, supervision, and empowerment of specific cadres of workers with national requirements. Community health workers can play a vital role, one that is currently missing in many impoverished countries. Moreover, training and otherwise engaging traditional healers, who in many countries are the first point of contact for the sick, can be another important aspect of a national human resource plan (Joint Learning Initiative 2004).

**Map 5.2**  
**Antiretroviral**  
**drug coverage**

*Share of HIV-infected individuals in need of treatment who have access to antiretroviral drugs (%), 2003*

*Source: USAID and others 2004.*



There are at least two other essential policy levers to ensure the effectiveness of investments. The first is to strengthen health system management, including planning, program implementation, financial management, supervision, and a supportive environment that fosters trust and cooperation among health workers, recognizing the vital role of human relationships in successful implementation. The second is to improve utilization through the elimination of user fees for basic health services, the adoption of culturally sensitive health education, and the involvement of communities in decisionmaking.

Changing behavior can also require changing deeply rooted community norms and understanding the economic, cultural, and gender constraints on change. Enabling real participation by the community requires investing in community capacity and developing facilitative legal frameworks and policies. Providing people with a legal right to the highest attainable standard of health may ensure more equal and equitable access to treatment by empowering groups likely to be denied such access. These challenges are highlighted when ensuring universal access to sexual and reproductive health, which is essential to the attainment of many Millennium Development Goals (box 5.5).

**Box 5.5**  
**Sexual and reproductive health—essential for reaching the Goals**

a. Details about the calculations and an extended discussion of the reliability, validity, and implications of the concept of unmet need can be found in Casterline and Sinding (2000).

**Promoting sexual and reproductive health**

Sexual and reproductive health is essential for reaching the Goals. It entails healthy, voluntary, and safe sexual and reproductive choices—voluntary choices of individuals and couples about family size and family formation, including early marriage and other exposures to sexual risks. Reproductive health issues thus deal with vital (and frequently sensitive) concerns including sexuality, gender roles, male and female power relations, and social and personal identity.

The current situation shows how devastating the neglect of sexual and reproductive health can be. The differences in reproductive health—between the rich and poor, both within and between countries—are larger than in many other areas of healthcare (Gwatkin and others 2003; Bernstein 2004). Maternal mortality takes some 529,000 lives a year. Of those deaths, around 68,000 are due to unsafe abortion, a sign of the need for better access to higher quality family planning services to prevent unwanted pregnancies and (where permitted by law) to safe abortion services.

Levels of unplanned or ill-timed fertility are high in many countries. The unmet need for family planning comprises women at risk of pregnancy who do not desire another birth (limiting desires) or who wish to space their birth at least two years (spacing desires) but who are not using a method of family planning. An estimated 29 percent of women in developing countries have an unmet need for modern contraception.<sup>a</sup> The highest proportion is in Sub-Saharan Africa, where 46 percent of women at risk of unintended pregnancy are using no method. Adding those using traditional methods to those with unmet need for modern methods brings to 63 percent the proportion of Sub-Saharan women and couples who have unmet limiting and spacing desires (Singh and others 2004).

But promoting reproductive health requires more than simply delivering services and information to prevent disease and reduce risk. It includes:

- Family planning, including access to modern contraceptives and informed and voluntary choice of family planning methods.
- Safe motherhood, including antenatal, postnatal, and normal delivery services and emergency obstetric care.
- Postabortion care and access to safe abortion, where permitted by law.
- A continuum of prevention, treatment, and care for HIV/AIDS and other sexually transmitted infections.
- Prevention, surveillance, and care for gender-based violence.
- Action against harmful traditional practices, such as female genital mutilation and early and coerced marriage.
- Information and services for underserved populations, including diverse groups of adolescents, people in emergency situations, and men (Singh and others 2004).

Each of these elements affects progress toward the Goals. Some examples:

Goal 1. *Eradicate extreme poverty and hunger.* Smaller families and longer birth intervals, a result of contraceptive use, allow families to invest more in each child's nutrition and health. That can reduce poverty and hunger for all members of a household. At the national level, voluntary reduction of birth rates may enable faster social and economic development.

Goal 2. *Achieve universal primary education.* Families with fewer children, and children spaced further apart, can afford to invest more in each child's education. This has a special benefit for girls, whose education may have lower priority than that of boys in the family. In addition, girls who have access to contraceptives are less likely than those who do not to become pregnant and drop out of school.

**Box 5.5**  
**Sexual and reproductive health—essential for reaching the Goals**  
*(continued)*

- Goal 3. *Promote gender equality and empower women.* Controlling whether and when to have children is a critical aspect of women's empowerment. Women who can plan the timing and number of their births also have greater opportunities for work, education, and social participation outside the home.
- Goal 4. *Reduce child mortality.* Prenatal care and the ability to avoid high-risk births (such as those to very young women and those spaced closely together) help prevent infant and child deaths. Children in large families are likely to have reduced health care, and unwanted children are more likely to die than wanted ones.
- Goal 5. *Improve maternal health.* Preventing unplanned and high-risk pregnancies and providing care in pregnancy, childbirth, and the postpartum period save women's lives.
- Goal 6. *Combat HIV/AIDS, malaria, and other diseases.* Sexual and reproductive health care includes preventing and treating sexually transmitted infections, including HIV/AIDS. In addition, reproductive health care can bring patients into the health care system, encouraging diagnosis and treatment of other diseases and conditions.
- Goal 7. *Ensure environmental sustainability.* Providing sexual and reproductive health services, and avoiding unwanted births, can help stabilize population numbers in rural areas, slow urban migration, and balance natural resource use with the needs of the population.
- Goal 8. *Develop a global partnership for development.* Affordable prices for drugs to treat HIV/AIDS and a secure supply of contraceptives would greatly advance reproductive health programs in all developing countries.

**Policies and interventions to address sexual and reproductive health needs**

Reproductive health approaches give heightened priority to strengthening prevention efforts while recognizing the importance of a full spectrum of prevention, treatment, and care and to improving the linkages between these service systems.

Action in sexual and reproductive health also encompasses an analytic and programmatic framework, based on a human rights approach, rooted in stronger health systems, supported by communities, and accompanied by complementary interventions in other sectors. Promoting reproductive health thus requires a broad range of interventions that facilitate access to information and services, increase gender equality and empowerment, involve communities and cultural leaders, strengthen health delivery systems at multiple levels, create effective referral systems, and improve logistics and management.

There are numerous channels to integrate sexual and reproductive health services in a strengthened health system. For example, maternal and child health services can provide an opportunity for family planning information programs, referrals, and services. Integrated maternal health, family planning, and child healthcare services should add appropriate personnel and increase referral capacities. HIV prevention can be better linked with other reproductive health information and service interventions. Health system contacts for abortion, where permitted by law, and for treating postabortion complications also provide entry points for family planning services to reduce the incidence of recourse to abortion. Expanding the scale of family planning service delivery should include a range of contraceptive options to meet the needs of specific populations and accommodate choice and appropriate method-switching.

*(continued on next page)*

**Box 5.5**  
**Sexual and reproductive health—essential for reaching the Goals**  
*(continued)*

A large cohort of adolescents—1.3 billion, mostly in less developed countries—will require new approaches to information and service delivery. Youth-friendly services will require separate facilities addressing a complex of life skill needs—including productive and entrepreneurial skills for employment, literacy and numeracy training, and nutrition and health information, including that for reproductive health. They will also require specially trained staffs sensitive to the needs of the young. Curriculum reform must be undertaken to make age-appropriate materials, acceptable in the local context, available in school systems.

Promoting gender equality and respect for human rights together with building skills (including self-esteem, self-confidence, and negotiation skills, particularly for young women) is important for protecting young people and developing their capacities. Mass media, folk media, and other information outreach approaches must be expanded to reach the large number of out-of-school young. Working with existing institutions, parents, parent groups, and cultural leaders can make information and services more effective for young people.

Male reproductive health needs and the role of men in supporting women's reproductive health is another area for priority attention (Greene and others 2005). Local efforts have produced significant improvements in antenatal care, in using skilled birth attendants, and in contraceptive acceptance. They demonstrate the potential of scaling up these efforts. Service delivery to men (and their families) in the military and police forces has also been important in scaling up many national reproductive health programs. Additional programs addressed to men and boys are needed to encourage them to be responsible in their behaviors and to end violence against women.

Civil society and nongovernmental organizations are often the main providers of reproductive health information and services, especially for the poor (chapter 8). In scaling up access to sexual and reproductive health services, governments should seek partnerships with NGOs to test new approaches, to identify culturally appropriate interventions, and to build an evidence base for scale-up. Investments to strengthen such partner organizations and their monitoring and evaluation capacities can lead to faster increases in quality and coverage.

**Education: ensuring universal primary education and expanded postprimary and higher education**

There are few jobs beyond subsistence for people who are illiterate and innumerate. A lack of education is thus a sentence to a lifetime of poverty. When girls and boys drop out of school before completing primary school, or leave primary school without having acquired basic skills, they cannot earn their way in a competitive world economy, and they have less capacity to rear healthy, educated children. An essential role of government is to ensure that every child in society, boy and girl, has the opportunity to complete quality primary basic schooling—and that a substantial proportion also completes secondary or some other form of postprimary education by the year 2015 (box 5.6). Among all levels of education, postprimary education has been shown to have the greatest payoff for women's empowerment. (The gender target for Goal 3 focuses on gender parity at all levels of education.)

**Box 5.6**  
**Getting every**  
**child into school**  
**in Tanzania**

Source: Mkapa 2004.

Foreign aid to Tanzania was cut in the mid-1990s, and the country's education budget was reduced dramatically. The gross enrollment rate—98 percent in the early 1980s—fell to 78 percent in 2000. The net enrollment rate also fell—from more than 80 percent to only 59 percent. The enrollment of girls fell faster, and dropouts rose higher, than among boys. Recognizing that tremendous development gains could be undone in just a few short years, the government made education a top priority. The Primary Education Development Plan, adopted in 2001, aims to achieve universal basic education by 2006, nine years ahead of the global target.

With a clear, targeted plan calling for 100 percent enrollment by 2006 and increased donor funds to support the endeavor, Tanzania took two important steps in 2001. It increased poverty reduction expenditures by 130 percent to channel more resources for basic inputs like classrooms, teacher housing, and teacher training. More important, it eliminated school fees, bringing down the cost of education for households. The results have been dramatic. In Tanzania's schools today:

- There are as many girls in school as boys.
- The number of children in primary school is up 50 percent.
- Net enrollment has risen from 59 percent in 2000 to nearly 90 percent.
- More than 30,000 new classrooms have been built.
- Pass rates for primary school examinations rose from 19 percent in 1999 to 40 percent today.
- 7,530 teachers' houses have been constructed with the direct participation of local communities.
- 17,851 new teachers have been recruited, and 14,852 sent to upgrading courses.
- More than 9,000 science-teaching kits have been supplied to schools.

**Success factors for scale-up**

- Government commitment and management for the scale-up plan.
- Significantly increased funding, and the abolition of school fees.
- Involvement of communities in teacher retention.
- Significant increase in new teachers and investment in upgrading of existing teachers.
- Large investment in new classrooms and other infrastructure.
- Simultaneous improvements in improving curriculum and teacher quality.

***Ensuring universal primary completion and expanding access to postprimary education***

Achieving universal primary completion and increasing participation in postprimary education in the developing world will require both getting out-of-school children into school and instituting changes to make schools more effective and responsive to parents and students. Depending on local conditions, specific strategies will be needed to attract out-of-school children. Abolition of school fees and special incentives to get the most marginalized groups into school can also be powerful tools. For example, cash and in-kind subsidies, such as school meals using locally produced foods, for extremely impoverished households, orphans, and girls, can promote school attendance at the primary and secondary levels. In instances where the supply of schools is the binding constraint, this will require constructing new classrooms and hiring new teachers.



Investments in primary education should be balanced with selective support to postprimary education, with particular attention to educational opportunities for girls and young women. Indeed, planning for the expansion of the postprimary level should be done in parallel with planning for achievement of universal primary education. Primary school investments can help create the pipeline for postprimary education, just as opportunities to enter into postprimary education are required to reinforce demand at the primary level. Additional interventions required to increase girls' participation in primary school (and which may also apply to the postprimary level) include making schooling more affordable by reducing costs and offering targeted scholarships; building schools close to girls' homes; making the infrastructure of schools, such as sanitary facilities, safe and "girl-friendly"; eliminating gender biases in curricula; and improving the content, quality, and relevance of education. Other important ways to promote education for girls and women include informal education opportunities such as women's literacy programs.

Countries also need to address institutional shortcomings in the education sector, many of which are linked to dysfunctional incentives for administrators and teachers. This entails:

- Developing and strengthening the constituency for a national commitment to education, with a legal and institutional framework that places high priority on public sector provision of quality education.
- Promoting mechanisms for local control of education, with an explicit role for parents and other citizens in holding schools and teachers accountable for delivering results.
- Improving the quality of information about education sector performance.
- Instituting systems to assess acquisition of skills and knowledge to an international standard, and ensuring transparency in the dissemination of this information at both national and local levels.
- Recognizing civil society organizations as legitimate participants in debates about the direction of the education system.

### ***Increasing opportunities for higher education***

But primary and secondary education are not enough. Low-income and middle-income countries should also scale up their investments in higher education—both to train the teachers and managers who will provide the primary and secondary education and to train the scientists and engineers who will underpin the continuing advance of technological capacities in the country (UN Millennium Project 2005g). Higher education is also necessary to train the doctors, nurses, natural resource managers, and other professionals who will implement MDG-based poverty reduction strategies. By building universities, technical institutes, and professional associations, countries can establish some of the most critical resources for their economic transformation. But they also need measures to ensure that all the opportunities for higher education are not captured by the rich alone. Inevitably,



investments in higher education will have a regressive nature, but this can be moderated by merit-based and needs-based scholarships (Mkapa 2004).

### **Gender equality: investing to overcome pervasive gender bias**

In many societies, women suffer deep and systematic discrimination and exclusion. Gender biases are often firmly set by cultural and social norms, and enshrined in laws that discriminate against women. The roles assigned to women and men often involve unequal labor burdens and unequal access to resources and opportunities, usually to the disadvantage of women. Girls and women usually receive less schooling than boys and men, have poorer access to health care, are at greater risk of contracting sexually transmitted diseases, including HIV, and are less able to start businesses, obtain credit, or enter higher-level occupations. They also have less voice in the decisionmaking of the household, community, and nation. Violence against women exists in epidemic proportions in many countries around the world. Because it has serious health and development impacts and is a gross violation of women's rights, it must be eliminated if the gender equality Goal is to be met.

Recent statistical evidence strongly supports the presumption that women bear more of the work burden than men. Data from time-use surveys show that women's total work time is greater than men's in most countries. In urban developing country areas, women's time spent on paid and unpaid activities was 7 percent higher than men's, and in rural areas 20 percent higher (UNDP 2003d). Most of women's work time is spent in nonmarket activity, while the opposite is true for men. Rural women's time, especially in Sub-Saharan Africa and South Asia, is heavily engaged in collecting water and fuelwood, farming, subsistence production, and domestic work, including rearing children. The time involved in these activities could be eased through improvements in rural infrastructure, especially affordable safe water and sanitation near the home, modern cooking fuels (such as liquid petroleum gas), and accessible and affordable modes of transport. The lack of basic goods and services imposes enormous time and work burdens on women that are not counted in the national income and product accounts.

Moreover, women and girls own far less of the world's productive assets—land and housing—than do men. Studies from around the world find that women represent one third or less of land owners in Latin America, Sub-Saharan Africa, and South Asia (UN Millennium Project 2005j). Yet, ownership and control over assets such as land and housing provide economic security, incentives for taking economic risks which lead to growth, and important economic returns including income.

### ***Integrating gender empowerment throughout national strategies***

In a modern economy—dependent on human capital, demographic transition, social mobility, and technological change—these and other forms of gender inequality form a fundamental barrier to economic development, with significant

economic and social costs. Interventions to address gender inequality should therefore be an intrinsic part of the strategies for each investment cluster described in this chapter and should address systemic challenges as well. Reducing structural gender inequalities will require additional financial resources. Moreover, to ensure sustainability of public investment, women must be involved in key decisions about priorities and implementation.

The UN Millennium Project Task Force on Education and Gender Equality has identified seven strategic priorities that are the minimum necessary to empower women and alter the historical legacy of female disadvantage that remains in most societies of the world (UN Millennium Project 2005). These include:

- Expanding girls' access to postprimary education, while simultaneously ensuring primary completion.
- Guaranteeing sexual and reproductive health and rights (see box 5.5).
- Investing in infrastructure to reduce women's and girls' time burdens.
- Guaranteeing property and inheritance rights.
- Eliminating gender inequalities in employment.
- Increasing women's representation in political bodies.
- Combating violence against women.

The first three priorities are addressed elsewhere in this chapter. Here we briefly discuss the other four.

### ***Improving women's economic and political opportunities***

To improve women's economic opportunities, governments need to guarantee women effective and independent property ownership and access to security rights, especially land and housing, both in law and in practice. Land rights can be in the form of ownership or rights of use, and can encompass differing degrees of freedom to lease out, mortgage, bequeath, or sell. Ensuring female property and inheritance rights would help empower women both economically and socially and would rectify a fundamental injustice.

Other strategies for economic opportunities include improving women's access to employment and conditions of work by offering job training, improving pay and working conditions, and providing child care. For countries with large informal economies, one of the highest priorities is social protection for the workers in that sector.<sup>5</sup>

To promote political opportunities, statutory or voluntary gender quotas and reservation policies can enhance women's representation in political bodies at all levels of government. National budgets should include the costs of providing women political candidates with training, information, and means of communication.

### ***Combating violence against women***

To address violence against women, multidisciplinary strategies must be implemented that combine infrastructural, legal, judicial, enforcement, edu-

cational, health, and other service-related actions aimed at prevention, protection, and punishment. Sometimes these strategies exist but budgetary resources are not available to implement and monitor them. Fully funding these strategies should be an integral part of any national poverty reduction strategy (UN Millennium Project 2005j) (box 5.7). These are described in detail in the report of the Task Force on Education and Gender Equality (UN Millennium Project 2005j).

**Box 5.7**  
**Empowering women in Rwanda**

*Source: Zuckerman 2001; Zuckerman and Garrett 2003.*

The genocide and civil war in 1994 traumatized Rwanda's economy and social fabric. Women were systematically raped, murdered, and disfigured. Today they make up 52 percent of the population and head 34 percent of households.

Since the genocide the country has committed to gender equality and women have been pivotal in political and economic reconstruction. The country adopted a new constitution, which guarantees equal rights for women. The parliament has begun to repeal laws biased against women, including legislation prohibiting women from inheriting property. Prosecuted as a genocidal act under the International Criminal Tribunal for Rwanda, rape is now a first-degree crime in local Rwandese courts (previously, it was a third-degree crime).

Rwandan women are also becoming community leaders, entrepreneurs, and elected officials. In the multiparty presidential and parliamentary elections in 2003, women gained 49 percent of the seats in the lower house and 30 percent of the seats in the upper house, up from 17 percent in 1990 (IPU 2004). Rwanda has also created local women's councils elected by women only and a government ministry for women to ensure that policies are gender equitable.

The Ministry for Gender and Women in Development helped mainstream gender in the country's Poverty Reduction Strategy, and external evaluations note that Rwanda's PRS is one of the best on gender equality issues. Budgetary expenditures give a high priority to activities that address gender inequalities, and all sector expenditures incorporate Ministry for Gender inputs.

Although Rwanda faces enormous economic development challenges, the country's gender indicators are above the regional averages. In 2000 the girls to boys gross enrollment rate was 0.99 for primary education and 0.98 for secondary education (absolute rates for secondary education are very low) (UNESCO 2004). The country is on its way to parity at both levels in 2005 and to a reverse gap at the secondary level in 2015. The country's fertility rate has been declining steadily, from 7.1 in 1990 to 5.7 in 2002. Births attended by skilled health staff increased from 25.8 percent in 1990 to 31.3 percent in 2001, and the unmet need for contraception was also reduced for both adolescents and women of reproductive age (World Bank 2004c; ORC-Macro 2004).

**Success factors for scale-up**

- Presidential leadership and political will.
- Multifaceted effort to address gender rights through several channels.
- Changed economic and social context as a result of upheaval.
- A strong ministry for gender and women in development.
- Active and vocal women's organizations.
- Recognition by men of women's important contributions.

**Environment: investing in improved resource management**

A healthy environment underpins human life and well-being by providing food, clean water, disease control, and protection from natural disasters—and is thus necessary to achieve each Goal. But the environment is under threat in all parts of the world because of rising pollution, soil degradation (including rapid desertification), deforestation, destruction of coastal and freshwater fisheries, rising water scarcity, and declining biodiversity. Anthropogenic climate change, already causing environmental change, is projected to threaten agricultural productivity in many parts of the developing world, spread vector-borne diseases, and lead to a rise in sea levels and a higher incidence of natural disasters.

Environmental degradation and the effects of climate change are therefore major development issues. Most countries cannot wait until they reach higher incomes before investing in better environmental management. The degradation of the environment threatens the very basis of sustained economic growth, particularly where agriculture accounts for a large share of national income. Achieving environmental sustainability will require interventions at the national, regional, and international level (see chapter 15).

Unfortunately, the concept of environmental sustainability does not provide clear operational guidance for choosing policies and outcome targets. The first step is thus for countries to decide which environmental objectives they want to achieve by 2015 and beyond. As agreed at the World Summit on Sustainable Development, rich countries and rapidly growing middle-income countries need to take the lead in ending unsustainable patterns of production and consumption. Perhaps most important, urgent action is required to stabilize greenhouse gas concentration by reducing emissions and promoting carbon sequestration.

Developing countries, in turn, need to concentrate on integrating environmental strategies into all sectoral policies and more specifically on promoting direct investments in environmental management, considering the effect on the environment when designing sector strategies, promoting regulatory and market reforms to reduce environmental degradation, and improving environmental monitoring (UN Millennium Project 2005c). In each of these intervention areas, countries will need to consider the growing need to adapt to climate change. This includes changes in agricultural practices, improved disease monitoring and reporting systems, investments in local climate modeling and projections, and measures to stem the impact of rising sea levels.

***Direct investments in environmental management***

Examples of direct investments in environmental management include planting trees to combat deforestation, improving farming and land management practices to combat desertification, treating wastewater to reduce nutrient loads

in freshwater ecosystems, curbing chemical pollution to protect human health and ecosystems, and preserving critical ecosystems to protect biodiversity.

### ***Sector strategies to benefit the environment***

Targeted sectoral investments are instrumental to improving the environment. Investing in modern cooking fuels to shift away from biomass will not only lower ambient and indoor air pollution, but also reduce pressure on fragile ecosystems. Likewise, improving access to water and sanitation will improve environmental quality. Of particular importance to the environment are improved agricultural practices and investments in soil health and sustainable water management for agriculture, which can stem soil degradation and biodiversity loss. To this end, agricultural extension workers should be trained to promote environmentally friendly practices that can raise yields while minimizing the use of environmental resources. In addition, countries should meet the Johannesburg goals by initiating the design of strategies for integrated water resources management during 2005.

Sectoral strategies, such as investments in infrastructure and agricultural intensification, also need to manage environmental tradeoffs. Some negative tradeoffs are unavoidable, but they can be mitigated by environmental impact assessments and improved scientific advice to senior decisionmakers (UN Millennium Project 2005c).

### ***Regulatory and market reforms to reduce environmental degradation***

Reforms to land tenure regimes and an improved regulatory environment to combat pollution are required to minimize the adverse impacts of sectoral policies on the environment. To this end, countries will need to invest in strengthening the capacity of environmental protection agencies or equivalent government bodies. In most cases this will require a substantial scaling up of their human resources, equipment, and operating budgets.

### ***Environmental monitoring***

No strategy for environmental sustainability can be successful without better monitoring. Yet, monitoring systems for water flows and quality, air quality, deforestation, and other land degradation are woefully inadequate in many developing countries. Sustained investments in strengthening environmental monitoring systems will thus be essential.

An important mechanism for implementing national strategies is the set of multilateral environmental agreements and conventions, such as the Convention on Biological Diversity, the UN Convention to Combat Desertification, the Ramsar Wetland Convention, and the UN Framework Convention on Climate Change. More funding and targeted technical support need to be made available to developing countries that wish to implement these agreements.

**Science, technology, and innovation: building national capacities**

The long-term driving force of modern economic growth has been science-based technological advance. Without modern technologies, the world would still be where it was centuries ago, with people at the edge of survival, always pressing on the margins of available food supply. Technologies allow human society to fight disease, to raise crop production, to mobilize new sources of energy, to disseminate information, to transport people and goods with greater speed and safety, to limit family size, and much more. Yet these technologies are not free. They are themselves the fruits of enormous social investments in education, scientific discovery, and targeted technological development to strengthen national systems of innovation.

Every high-income country makes special public investments in higher education and in scientific and technological capacities. Poor countries have largely been spectators, or at best users, of the technological advances produced in the high-income world. They lack large scientific communities, and their scientists are chronically underfunded, with the best and brightest moving abroad to find colleagues and support for scientific research.

Enterprises transform scientific and technological knowledge into goods and services, but governments play an important role in promoting the application of science and technology. They need to act in the four areas described here (UN Millennium Project 2005g). But national efforts alone are not sufficient. Meeting the Goals requires a special global effort to build scientific and technological capacities in the poorest countries—and to direct research and development toward specific challenges facing the poor (chapter 15).

***Expanding access to science and technology education and research***

Enhancing science and technology education has been one of the most critical sources of economic transformation. To build science, technology, and innovation capabilities, developing countries need to expand access to higher education. But more than simply offering more places, universities need to become more entrepreneurial and oriented toward key development challenges. They can participate in technology parks and business incubator facilities. They can introduce entrepreneurial training and internships to their curricula. And they can encourage students to take research from the university to firms. Most universities will need to change to take on these new roles. Governments should also expand and set up research centers focused on specific needs, such as agriculture or public health.

***Promoting business opportunities in science and technology***

Developing countries should use today's technologies to help create new business opportunities. Most developing countries still distinguish between industrial policies that emphasize building manufacturing capabilities and those that support research and development (R&D) to generate new knowledge.

Adopting a “fast follower innovation strategy,” aimed at making full commercial use of existing technologies, would combine these two approaches while building a foundation for future R&D.

In promoting business opportunities, countries should focus on platform technologies that have broad applications or impacts in the economy, such as information and communications technology, biotechnology, and new materials. In addition, governments should adopt policies and invest in infrastructure that stimulates small and medium-size businesses, improves access to credit and other forms of capital, increases participation in international trade, and promotes the integration of regional markets. Attracting foreign direct investment can diffuse tacit knowledge and help enterprises learn about the world’s technological frontiers.

#### *Promoting infrastructure development as a technology learning process*

Infrastructure projects can also be a valuable part of a nation’s technological learning process. Every stage of an infrastructure project, from planning and design to construction and operation, involves the application of a wide range of technologies and requires deep understanding and capabilities from the many engineers, managers, and government officials. Policymakers need to recognize this dynamic role of infrastructure development in economic growth and take the initiative to acquire available technical knowledge from the international and local construction and engineering firms they contract with for such projects.

#### *Improving science and technology advice*

Governments must incorporate science and technology advice in their decisions for scientific and technological investments. They need first to set up an advisory structure, usually with a science advisor who reports directly to the president or prime minister. Whatever the structure, the function should have some statutory, legislative, or jurisdictional mandate to advise the highest levels of government—and be transparent to the public. It should have its own operating budget and a budget for funding policy research. Countries also need to strengthen the capacity of scientific and technical academies to participate in advisory activities, in cooperation with other institutions, especially judicial academies.

#### **Interdependence of investment clusters**

Many interventions are expected to have benefits for several Goals. For example, reducing gender inequality is essential for reducing hunger, containing HIV/AIDS, promoting environmental sustainability, improving settlements, and reducing child and infant mortality. Environmental management and ready access to clean water are essential for ensuring that clinics and hospitals function, for reducing women’s and girls’ time burdens so that they

can engage in productive economic activity and attend school, and so forth. And to achieve any Goal, it is not enough to invest merely in one sector. Many interventions outside the health sector are needed to reduce child mortality. Reducing child mortality requires better treatment of diarrhea and pneumonia as well as improved access to clean water, hygienic behavior, improved sanitation, and reproductive services to improve birth spacing.

The work of the task forces shows that no “silver bullet” exists to reach any individual target, let alone the ensemble of Goals. Required instead are integrated strategies for complementary and mutually reinforcing interventions. (Appendix 2 summarizes the inputs across sectors required to reach each Goal.)

### **Implementing the recommendations: scale and sequencing**

The last 50 years of development practice have shown that project success is not enough. The greatest technical challenge lies not in identifying the right interventions or making them work in one village—but in taking known interventions to scale. We know that providing access to domestic water supply and sanitation services to a nation requires far more than multiplying a village-level intervention by several orders of magnitude. It also requires a governance and public management system that extends from the national level right down to the communities. Similarly, bringing antiretrovirals to treat AIDS to all those who need them requires a functioning health system, including national, regional, district, and village health facilities. Small-scale replication of a successful NGO clinic is simply not enough to meet national health needs. As the next chapter discusses, nationwide scale-up needs a systematic plan for policy and planning, management, infrastructure, and human resources.

Some of the investments, such as those described in the list of Quick Wins, do not require significant infrastructure or highly trained workers for their delivery and can thus be implemented immediately. But many others will require better management systems, upgraded infrastructure, and significant new numbers of highly trained workers for successful scale-up. Many of the interventions in the seven clusters focus specifically on building capacity over the long term. But the term “capacity constraint” is often used in an unspecific manner to describe irremediable institutional weaknesses that pose a barrier even to getting started.

The current constraints to scaling up can be addressed with a long enough planning and investment horizon. Indeed, the next chapter recommends that “capacity” investments—such as improving transport services, providing electricity, training teachers and doctors, and instituting better management systems—must begin in the early years of the MDG framework. In this way, countries can build their ability to expand key services to their entire populations by 2015.